



















NOTICE

AFTER CAREFUL EXAMINATION OF THE  
INNER MARGIN AND TYPE OF MATERIAL  
WE HAVE SEWN THIS VOLUME BY HAND  
SO IT CAN BE MORE EASILY OPENED  
AND READ.





*Wm. F. L. Powell*

*Engraved expressly for the New York Coach-maker's Magazine.*

March, 1868.





THE  
NEW YORK  
COACH-MAKER'S MAGAZINE,

DEVOTED TO THE  
LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

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EDITED BY E. M. STRATTON.

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JUNE, 1867, TO MAY, 1868.

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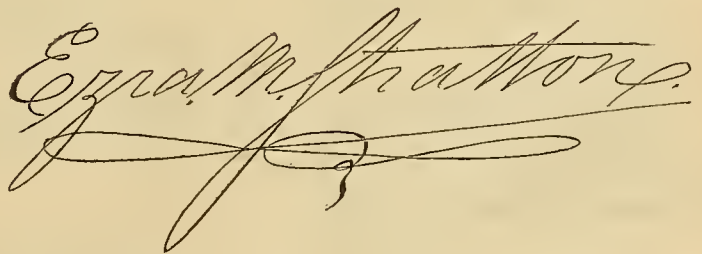
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TAKING a retrospective view of business during the year just closed, we find it has been one of unusual depression, especially with carriage-makers. The unsettled state of the country politically and financially has rendered nearly all manufacturing onerous and unprofitable. Combinations on the part of workmen has been another source of trouble, and a prominent feature of the year's record. These we have opposed from principle, not because it came from the laboring classes solely, but because we are opposed to them whether they come from the employer or the employed, believing all such movements to be illegal, unjust and inimical to the best interests of trade. For our part in this warfare, we have had abuse heaped upon us unsparingly, but this has neither dampened our zeal, nor circumscribed our circulation. Indeed, the hostility of our enemies has greatly stimulated our friends to activity in obtaining subscribers for us. To all who have thus remembered us, we tender unfeigned thanks.

Some of the more prominent features in the present Volume are the articles under the head of "Our Egyptian Carriage-Museum," an interesting discussion of the Screw-driver question, "The Theory of Colors," some of the most difficult points in carriage construction, and the story of "The Blacksmith's Daughter," by an author not unknown to the readers of our earlier volumes.

Our arrangements for the tenth volume are such as to warrant the promise on our part, that THE NEW YORK COACH-MAKER'S MAGAZINE for the coming year, shall not at its close, be found either an unworthy companion to any which have preceded it, nor of the patronage of the best thinking minds in the trade. Asking the continued co-operation of all who are opposed to coercion and oppression in any form, we in all sincerity remain,

Yours fraternally,



NEW YORK *April 4th*, 1868.



## INDEX TO PLATES IN VOLUME NINE.

—♦♦♦♦♦—

DIRECTIONS FOR THE BINDER.—The Portrait of George L. Brownell, Esq., should face the title-page. The Plate illustrations of Carriages, &c., ought to be inserted at the end of the volume, so as to have all the Plates convenient for reference. This will save the mechanic the trouble of searching through it when showing them to a customer.

—♦♦♦♦♦—

### PLATE

1. Central Park Phaeton.
2. Extension-top Rockaway.
3. Reconstruction Buggy.
4. The Novelty Buggy.
5. Half-perch Victoria Phaeton.
6. No-perch Rockaway.
7. Physicians' Phaeton.
8. Road Buggy.
9. Caleché.
10. Skeleton-door open-front Rockaway.
11. Pony Phaeton (2 designs).
12. New York Coal-box Buggy.
13. Excelsior Double Sleigh.
14. Improved Pony Sleigh.
15. Two-seated Sleigh.
16. Coal-box Portland Sleigh.—Piano-box Sleigh.

### PLATE

17. New Coupé, with elliptical doors.
18. Beach Wagon.
19. Deep-front Coal-box Buggy.
20. Designs in variety for Business Advertising.
21. Caleché with Metropolitan Boot and C-springs.
22. Improved Beverly Dog-cart.
23. Physician's Phaeton.
24. Coal-box Buggy.
25. Clarence Coach.
26. Cut-under No-perch Cabriolet.
27. Combination Turn-under-seat Phaeton.
28. Novelty Buggy.
29. New Oval Glass Hearse.
30. Automatical Landau.
31. Dog-cart Phaeton.

### PLATE

32. Half-pillar Coal-box Buggy.
33. Light Drag.
34. Removable-top Phaeton.
35. Turn-over and Slide-seat Buggy.
36. Buggy Phaeton.
37. The Bismarck.
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39. The Nonpariel Buggy.—The Stiver's Buggy.
40. Oval Hearse with Hammer-cloth Seat.
41. Americanized Victoria.
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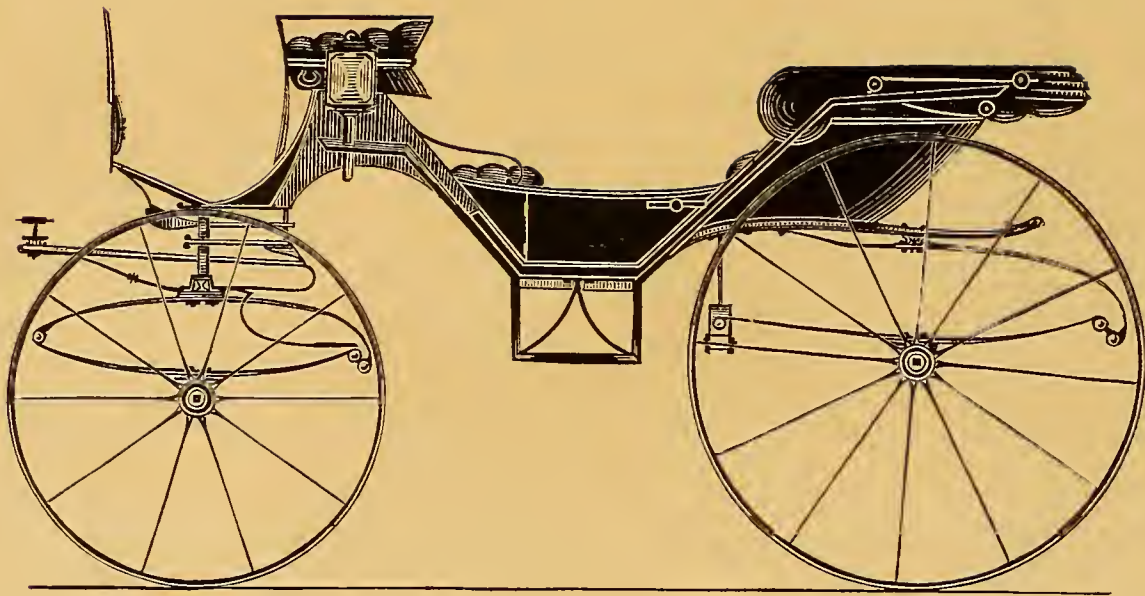
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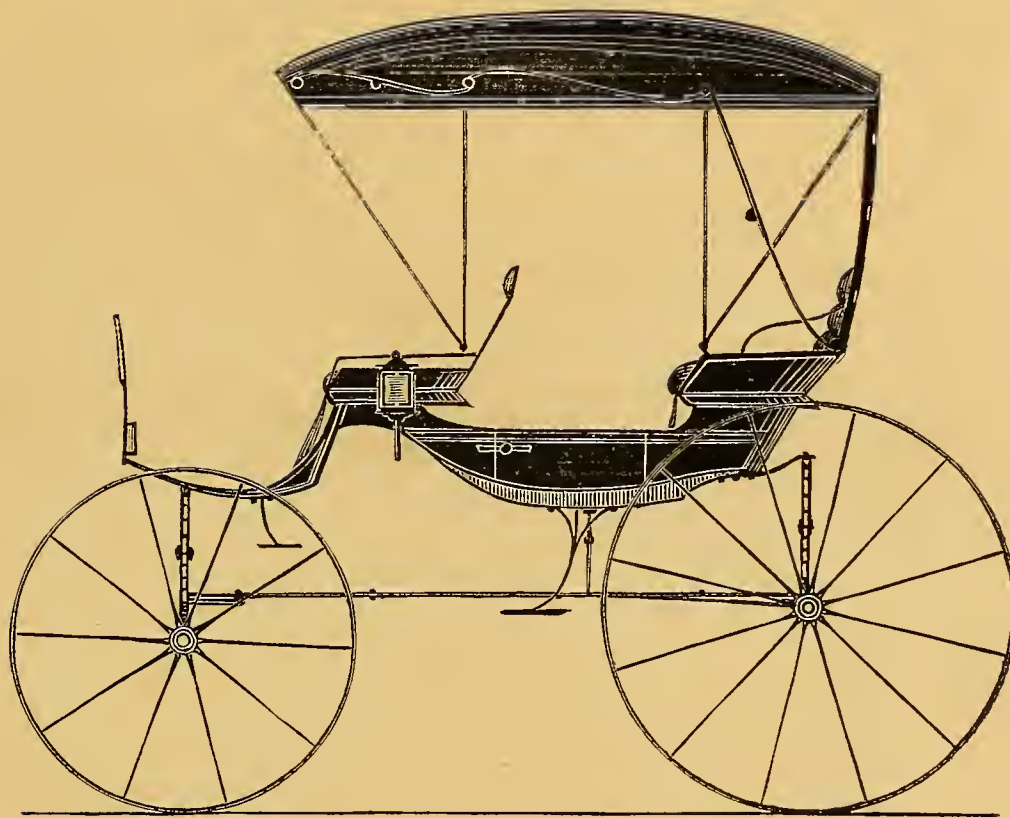




CENTRAL PARK PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 8.*



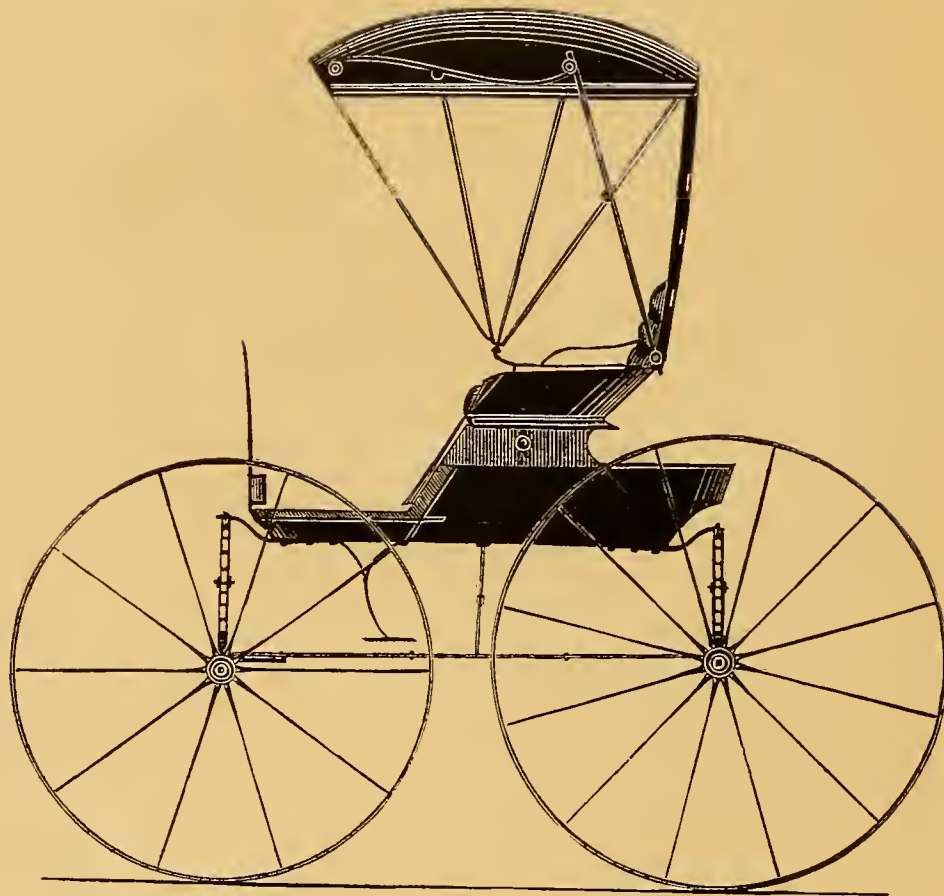
EXTENSION-TOP ROCKAWAY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 8.*





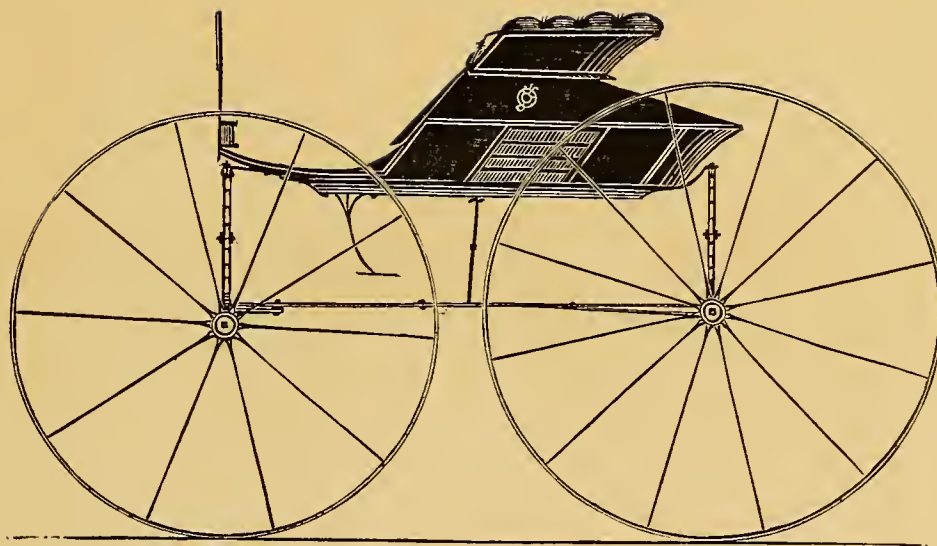


RECONSTRUCTION BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 8.*





THE NOVELTY BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 9.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, JUNE, 1867.

No. 1.

## Mechanical Literature.

### CONCERNING THE SET OF AXLES AND DISH OF WHEELS.

MR. EDITOR: The theories of practical carriage-makers, concerning the set of axles and dish of wheels, are various, some of them differing widely from others. Now, where such a diversity of opinion exists, they cannot all be right. The theories and practices are the best that approach nearest to the correct standard. It may be asked, what is the correct standard? Where such a diversity of opinion exists, each may claim that his theory is the correct one. I think if this subject were discussed in your magazine by the most experienced carriage-builders of the country, it would aid in establishing a correct standard, and perhaps enlighten the minds of some who appear to be groping in darkness on this subject. In furtherance of this object, I herewith submit my theory and opinions on the subject, hoping that if I am wrong in part or whole there will be those who will enlighten me through the pages of your magazine.

I will begin by stating it as my opinion, and I believe also the opinion of almost all carriage-builders, that each spoke in a wheel, as it in its turn comes directly under the center line of the axle, should stand plumb or perpendicular. It is obvious that it will sustain more weight in this position than if it inclines either to the right or left. As there is usually some taper to spokes, the general practice is to take the "face" or outside line of the spoke as the perpendicular line. This proposition, I believe, will be generally assented to; therefore, I will not discuss it further in this article.

My next proposition is that the under side of the arm of the axle should be perfectly horizontal, that is, at right angles to the perpendicular line of the spoke. It is evident to my mind that where the outer end of the arm of the axle is set down, so that the under side of the axle at the nut will be lower than the under side of the axle at the collar band, the wheel will be inclined to run against the collar band, thereby causing increased friction, consequently rendering the vehicle harder to draw. On the

same principle, it is evident that where the outer end of the axle is set up so that the under side at the nut will be higher than the under side at the collar-band, the wheel will incline to run against the nut or linchpin; also causing increased friction, thereby rendering the carriage harder of draft than where the wheel runs squarely on the arm of the axle, inclining neither to the collar-band or to the nut. If this is true and correct in principle, then it is evident that the wheel should be built according to the degree of taper in the arm of the axle; contrary to the general practice of building the wheel more or less dishing, according to the various opinions prevailing on this subject, and then setting the arm of the axle so that the spoke on the under side of the wheel shall stand perpendicular, some people even giving as much dish to a wheel that is to go on an iron axle that has very little taper as to one that is to go on a thimble-skein, or one that has much more taper than iron axles usually have. In my opinion, the under side of the axle-arm should always be set horizontal, or at right angles to the perpendicular line of the spoke. If the foregoing opinions are correct, then the wheel should be built according to the taper in the arm of the axle, and the amount of dish can be determined by the following rule:

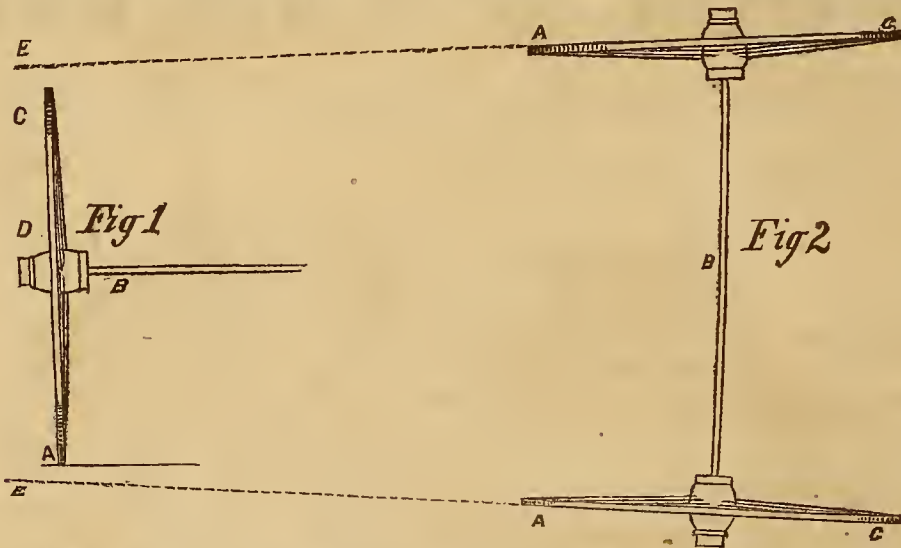
Make a draft of the arm of the axle B (Fig. 1), taking care to give the exact difference in the size of the axle at the outer end, and at the collar-band. Next draw the line of the spoke B A B C at right angles to the outside line of the axle-arm. Make a point on the spoke line at A and C, according to the size of the wheel; then between these points draw the straight line A C, which is the line of the felly. Then the distance between the felly-line and spoke-line, at the outside line of the hub at D is the amount of dish the wheel should have after the tire is on. I will here remark that if from any cause the wheel should be dished more or less than given by the foregoing rule, then, as the least of two evils, the out end of the axle should be set up or down enough to make the under spoke stand perpendicular; or, in other words, it is more important that the spoke should stand perpendicular than that the under side of the axle should be horizontal. Having established the set, the next thing in order to consider is the

"GATHER,"

which by some builders is given to the axle. The gather consists in bending the axle near the collar-band so that



the out end shall stand a little forward. The wheels on such an axle will stand as represented in Figure 2. The distance between the two wheels at A, forward of and on a line horizontal with the axle B, will be less than the distance between the two wheels at C, back of and on a line horizontal with the axle. The natural inclination of wheels on such an axle is to run in the direction of the dotted lines A E; and if there were no collar-bands, or anything else on the axle to keep the wheels apart, they would, as the vehicle advanced, gradually approach each other, until they come together in the center.



The inclination of the wheels to approach each other causes them to run against the collar bands, thereby causing increased friction, and consequently harder of draft. Nor is this the only objection to "gather" in axles. It has been noticed in heavily loaded wagons, on plank roads, that this natural inclination of the wheels to approach each other operates to such a degree that owing to the traction of the tires to the plank, the track of the two wheels, as the wagon advances, will approach each other, causing great pressure of the wheels against the collar-band, also great pressure of the axle-box against the under side of axle-arm at the inside end near the collar-band, while there will be no pressure of the box against the under side of the axle at the out end, near the nut; but at this end the pressure of the box against the axle-arm will be on the top side of the arm.

It is obvious that vehicles built in this way result in greatly increased friction, soon wearing out the axle and the axle-box, also causing great strain on the wood-work of the wheel. The lower side of the wheels, as they roll on the plank, will approach each other until the strain on the wheels will overcome the adhesion of the tires to the plank, when they will suddenly spring apart to their original track, to immediately approach each other again for a short distance, to again suddenly spring apart, and thus on as long as the wagon lasts—which is not long. Nor is this damage to the wagon all. The increased friction and draft is ruinous to horseflesh. A wagon of this kind on a road of earth does not work as badly as it does on a plank road, owing to the yielding nature of the road-bed; but still it is evident that it will work in the same manner, only to a less degree. These I consider very serious objections to the practice of giving an axle gather, and greatly overbalance all the advantages claimed for the practice.

BODY-MAKER.

### I.—OUR EGYPTIAN CARRIAGE MUSEUM.

In the first volume of this Magazine the reader was presented with several articles intended to illustrate early art in carriage-building among the Egyptians, and showing that mechanical as well as other sciences had made great advancement in that ancient and renowned nation. Although we entered largely into the subject, still we came far short of exhausting it—as we find from discoveries since made—and in order to still further elucidate Egyptian history, we design in this and succeeding numbers of this volume, to continue the story.

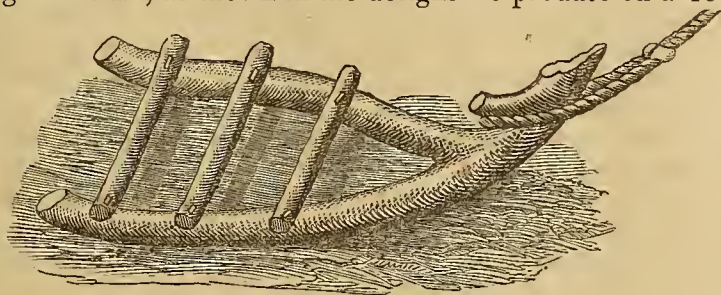
Many speculations in regard to the invention of wheel carriages have been indulged in by historians without reaching a conclusion to be relied upon. The study of sacred history leads us to think that carriage architecture had its rise in Egypt, as well as most other sciences; but the opinion is by no means uncommon that Ethiopia furnished the land of the Pharaohs with the rudiments of its architecture. The idea with some prevails, that Egypt, Nubia, and even India, derived their notions of religious architecture from the same sources. In the three countries are found numerous excavations in the rock of immense extent, and furnished with colossal figures; vast masses of building raised from the earth, with a profusion of statuary and carving; also, shrines worked in a single stone; and the whole of these achievements on a scale of such vast extent and magnificence, and the apparent results of such wondrous physical or mechanical powers, that we are disposed to think of the giants who are said to have lived in the days before the flood, rather than men of the ordinary stature, as the authors of all these splendid works. "No people," says Champollion, "either ancient or modern, conceived the art of architecture on so sublime and so grand a scale as the ancient Egyptians. Their conceptions were those of men an hundred feet high; and the imagination, which in Europe rises far above our porticos, sinks abashed at the foot of the one hundred and forty columns of the hypostyle hall at Karnac."

Although the Assyrian empire was begun some fifteen years previous to that of the Pharaohs, it is to Egypt we must accord pre-eminence in chariot building as well as in other art sciences. During the seventeen centuries previous to its conquest by the Persians in the year 525 B. C., Egypt was governed for the most part by native independent sovereigns, of whom it is supposed that, for a considerable time, there were several always reigning coterminously in different portions of it. Few, indeed, are the notices we possess of the many important events which must have happened during the seventeen centuries to which we have previously alluded; but, in all probability, the most important are those of which an account has been handed down to us in the sacred pages. As the pictures of battle scenes, triumphal processions, and funeral honors, in which chariots are found, connected with other figures with which we design to illustrate this series of articles, that we may be the better understood when we get fairly into this subject, we here subjoin a condensed history of the principal events of antiquity. These are the journeyings of Abraham into Egypt, when



a famine prevailed in the land of Canaan, B. C. 1920; the arrival of Joseph, B. C. 1706, in the reign of Osirtasen First; the birth of Moses, B. C. 1571, in the days of Ames, or Ramses, supposed to be the "new king which knew not Joseph," as mentioned in the first chapter of Exodus; the flight of Moses, B. C. 1531; the exodus of the Israelites, B. C. 1491; Solomon's marriage with an Egyptian princess, B. C. 1014; the invasion of Judea, B. C. 970, by Shishak, as called in the Chronicles, or Sheshonk, as it is found engraved in hieroglyphics on monuments still standing, who came up to Jerusalem with twelve hundred chariots and three score thousand horsemen, despoiling the temple of its sacred treasures; the defeat and slaying of Josiah, king of Judah, in the valley of Megiddo, B. C. 610, by Pharaoh Neco, or Neco, as recorded in hieroglyphics; the capture of Sidon by Pharaoh Hophra, B. C. 595, and the subsequent defeat of this monarch in his expedition against Nebuchadnezzar, king of Babylon, B. C. 570, to which we may have occasion further to refer when we come to give the history of Assyrian vehicles.

The most prosperous period, according to profane history, was that of the eighteenth and nineteenth dynasties of Theban monarchs, according to Manetho, to which period is said to belong the age of genuine Egyptian art. The second Rameses, Amunmai Rameses as his name is read in the hieroglyphics, and Ramses Miamum, according to Manetho, now generally called Rameses the Great, was the most renowned monarch that ever ruled over Egypt. He is supposed to be identical with the far-famed Sesostris of the Greek writers, his name being found more frequently on the monuments of Thebes, and, indeed, throughout Egypt, than that of any other king, there being few remains of any city where it is not seen. He is supposed to have flourished about 1500 B. C. Thus much we have thought it advisable to say by way of introduction to the very important as well as interesting description of progressive art, as shown in the designs we produce on a re-

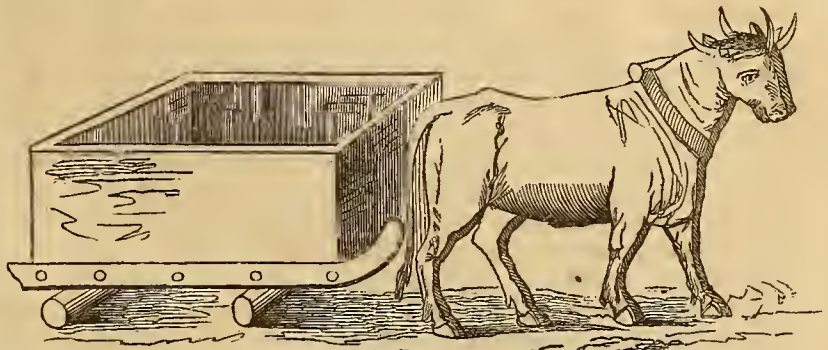


PRIMITIVE SLEDGE.

duced scale from the bas-reliefs found in the tombs for the dead in Egypt. These—but a very few of them—have never before been published in this country, and although they have entailed upon us much expense, we hope to be reimbursed by the patronage of an appreciative public eventually.

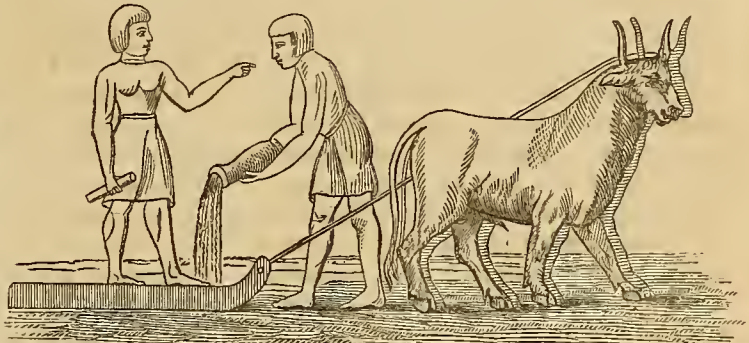
In common with other writers we have supposed that the inceptive idea of vehicular motion assumed the sledge form, as indeed, the illustration we give, taken from an ancient monument, would seem to prove. Here a simple branch of a tree supplies the ready-made runners, across which we find three cross-bars or bearers secured to them by nailing. The drag rope is attached to the sledge in the most primitive and natural form imaginable, the

whole requiring but a small outlay of scientific invention.



ROLLING SLEDGE FROM AN EGYPTIAN MONUMENT.

Progressive art is still further illustrated in the engraving we have in the copy of a bas-relief found on the walls of the temple of Luxor, at Thebes (Thebais), in Upper Egypt, a most magnificent city of ancient times, from the gates of which, Homer says, two hundred chariots rushed forth to battle from its one hundred gated walls. As we have already noticed, the first attempt at vehicular motion was probably undertaken with something of the sledge kind, and this idea would appear to be confirmed by the above relic of antiquity. This bas-relief is one example—if not the first—of which we have



EGYPTIAN SLEDGE-HEARSE.

any now left. That this sledge form of the vehicle was the initiatory of all others, we think is amply proved by the peculiar shape in which all Egyptian sledge-hearses are drawn on the monuments, some of which we have already given in these volumes. In all rites pertaining to sepulture there is much less liability to change than in any other custom; and this circumstance, doubtless, has served to perpetuate in aftertimes the earlier form of the vehicle we have denominated the Egyptian sledge-hearse in its primitive form, down through the long ages of history, in connection with superstitious rites, long after the chariot was invented.

#### CARRIAGE AND WAGON MANUFACTORIES IN SAN FRANCISCO.

CARRIAGE manufacturing is now carried on in this city quite extensively, and from the statements of those who are engaged in the business, the fact is made to appear that handsome returns have been received from the capital invested. Hundreds of thousands of dollars are annually saved to the State, which formerly were shipped to the East, in this branch alone, and yet there are still large amounts imported to us every year. True, the woods of this country, with the exception of the ash, are



not tough enough for carriage work, and we are obliged to ship them from the Eastern markets. Yet large sums of money can be made, as will appear from the statements of some of the manufacturers engaged in the business. Furthermore, the work here produced will compare favorably with the best Eastern work. Then, why not make all the work here required in this line, and thus secure employment to those who are willing and capable, and who have come to us with their families to permanently reside, provided sufficient employment is secured to them in this line of manufacturing? This, above any of our sister States, will have the best work in almost everything that can be made, and will pay more for the same; therefore, parties understanding all the trade of carriage-making can not only supply the entire demand of the Pacific Coast market, and thereby secure employment to hundreds of good workmen now with us, but will find their investment a safe and profitable one, and will help very greatly to swell the future prosperity of our young and growing State, so promising to the hopes of the farmer, the mechanic, the miner, the artisan, and all who through application and industry in almost anything are sure to find a just reward.

The manufacture of carriages in California, until within the last three or four years, has been confined to stage, farm, thorough-brace, and express wagons; but, owing to the high price of labor in the East, and the advance in price of finer work, attention has been turned to the manufacture of fine style buggies and carriages. At the depository of Geo. P. Kimball & Co., on Market Street, near Fourth, can be seen specimens of a finer class of work than has hitherto been manufactured in California; and for style, materials, and finish, compares favorably with that of the best Eastern makers. It has been found that Eastern built wagons were not adapted to the wants of California, owing to the narrowness of their "track" or width; and a wagon is now manufactured especially for use in the country and mining districts, combining lightness with strength and adaptability to the roads, which is peculiarly a California wagon; and so popular have these wagons become, they are fast superseding the Eastern made work. All our stage wagons were formerly imported from Concord, New Hampshire, but are now manufactured here.

As an instance of the progress and growth of the carriage manufacturing business, the first thorough-brace or stage wagon made on this coast, was twelve years ago, for Louis McLane & Co., by Geo. P. Kimball, whose entire capital was invested in that enterprise; from which small beginning the business has grown into an extensive concern, employing in its various branches, at their factory and outside shops, nearly one hundred men, consuming a vast amount of material, and now employing in their business a capital of \$75,000. This firm manufacture about one hundred vehicles per month of all kinds, from the light hundred and fifty pound trotter to the ponderous ore wagon capable of hauling a weight of sixteen thousand pounds. This firm contemplate enlarging their capacity by the addition of a manufactory near the Mission, with the facilities of steam power, so essential to the rapid conversion of the raw material into the various parts for the hands of the finisher. There will be no necessity hereafter for importing vehicles from the East, as every description can be made here, inferior in no respect to Eastern work; made at less cost, and well

adapted to the peculiar wants of the interior country. In proof of the high estimation in which the California side-spring buggy is held, Messrs. Kimball & Co. received from Louis McLane, Esq., an order to ship one of them to New York, for his individual use. The buggy was shipped to Brewster & Co., whose work has been famous in California, and in their criticism very candidly write that they can find no fault with this specimen of California work, and express surprise that it could be manufactured at the price named.

H. Casebolt & Co., corner of Market and Fifth Streets. This firm occupy for their works buildings covering an area of 130 by 165 feet, two stories. They make carriages of all kinds; also railroad cars—the handsome Sutter Street cars were made by them. They employ fifty men, and have a capital of \$65,000 invested in their business. The works are driven by steam; have all the modern style machinery for turning spokes, rims, etc. This firm first commenced work in Kearny Street, in the spring of 1851, without capital, and there remained six years; then moved into California Street, from there to Market Street, where they built for their works what is now called the Occidental Market; here the property soon became so valuable that they were induced to rent it, and moved to their present locality—where they are doing an immense business in carriage-making, in all its various styles; and there is hardly a mining district upon this coast where the work of Casebolt & Co. may not be found. Commencing without means, through their own and others' labor they have become wealthy and independent, and have given employment for years to a large number of men.

R. S. Eells & Co., No. 123 Bush Street. These gentlemen manufacture carriages of all kinds; and work now on exhibition and for sale at their repository is equal to any of the best Eastern made. They make very handsome light buggies, of the Brewster and Watson style; and for style, workmanship, beauty of finish, etc., are not surpassed even by these celebrated makers. We were shown a very handsome extension-top phaeton of their own make, far ahead of anything that we have seen from the East. They also make the Concord style of stage and buggy work. This firm are making preparations for employing, the coming season, nearly one hundred men, and purpose increasing their business very largely.

J. B. Rogers, Nos. 417 and 419 Market Street. At this manufactory are made coaches, wagons, hackney-coaches, buggies, etc. Mr. Rogers employs ten men, and has a capital of \$10,000 invested. We were shown a hackney-coach of very handsome proportions, building for Mr. O'Donnell, to be used for hire, that will compare for beauty and neatness of pattern with any of the imported.

O. F. Willey & Co., No. 316 California Street. This firm, in former years, imported the celebrated Brewster work; also, the Concord work, of all kinds. They have quit almost entirely importing, and are dealing in the home-made work, finding it to answer all the purposes of the best Eastern.

H. M. Black & Co., who are located on Market Street, near Third, manufacture all the various kinds of carriages in use. They first commenced business in 1860, with little capital, trusting to the work of their own hands for success; now employ twenty-five men, and



have engaged in their business about \$20,000. They give particular attention to the making of spring and thorough-brace wagons, express wagons, stages, soda and butchers' wagons, grocery, livery, and surveyors' wagons, etc.

Saul & M'Carron, No. 579 Market Street, employ twelve men, and have invested in their business \$8,000; manufacture carriages of all kinds; make to order track and road sulkies; and are about to enter more extensively into the manufacturing of carriages.

Larkins & Co., Summer Street. This firm employ seven men, and make carriages of every kind, from the light buggy to the heavy freight-wagon. Heavy work, however, is only made to order, as they are principally employed in light fancy work.

Pacific Concord Carriage Factory. Belduke & Sicotte have been engaged in their business for about eighteen months, and manufacture, to order, all kinds of Concord carriages, at 820 Folsom Street. They propose to soon enlarge their business, and make extensively springs and axles (Concord style) for all kinds of vehicles. These gentlemen employ six men.

Messrs. Pollard & Carvill, 37 and 39 Webb Street, manufacture light carriage work of all kinds; employ twenty men, and have a capital of \$20,000. This firm have turned out some very neat and fancy work.

A. Folsom, No. 531 California Street. This gentleman manufactures all the various styles of carriages, express wagons, buggies, etc.; employs fifteen workmen, and has a capital invested of \$15,000.

Gallagher & Farren. This firm are located at 112 Bush Street; do heavy wagon work, employing fourteen men. M. P. Holmes, No. 417 Pine Street. This manufactory does light carriage work of all kinds; employs nine men, and has \$5,000 invested in the business. Anderson Bros., No. 607 Battery Street, do light carriage work and employ four men. Mr. John C. H. Matthai, No. 708 Battery Street, does carriage and wagon work to order. Gallagher & Rodecker, No. 115 Pine Street, employ from five to six men, and do heavy work principally. Lawton & Co., No. 932 Market Street, employ six men, and do all kinds of wagon work. M'Laughlin & Feisel, No. 121 Bush Street, employ five men, and do all kinds of heavy wagon work. Shute & Bro., No. 539 Market Street, do light carriage work to order.

Sprung & Hopp, Valencia Street, between Sixteenth and Seventeenth Streets, Mission, manufacture light and heavy wagons; employ three men; have been in the business at the present location about three months; are entirely satisfied with their success thus far, and will, in the spring, extend their business. Saul & McArron, Nos. 579 and 581 Market Street, make all kinds of carriage work, and employ twelve men; they have a capital of \$8,000 invested in their business. B. A. Fisher, Nos. 115 and 117 Bush Street, manufactures heavy wagons, trucks, etc., and employs four men. Jason Clapp, No. 505 Market Street, employs four men, and manufactures all kinds of heavy wagon work. Messrs. Hill and Eastman, No. 618 Battery Street, manufacture light and heavy wagons. During the past year they have turned out some very handsome work of this kind. F. Gerbhard, No. 113 Bush Street, employs eight men, and manufactures all kinds of carriages and light wagons.

There are employed in the above manufactories upwards of two hundred men, all being located in this city

and its environs. The amount of work, light and heavy, made annually is about \$450,000.

From the foregoing it will be seen to what extent this branch of manufacturing alone has grown to in a comparatively short space of time. What may it not grow to in the future, with proper care and management on the part of those now in the business. The markets of Oregon, Washington Territory, Idaho, Nevada, Utah, Arizona, and New Mexico can all be supplied in this line by San Francisco; for the work made here gives better satisfaction in the main, and can be furnished to these markets quite as cheap, if not cheaper, than Eastern work.—*Alta Californian*.

### WHEN TO CUT TIMBER.

BY S. EDWARDS TODD.

SOME men contend that it does not really make any difference when timber is felled, so far as its durability is concerned, if it is only split out or sawed out soon after it is cut down, and stuck up where it will dry out thoroughly in a few weeks. What makes some beams or posts of a building become "powder-posted" in a few months after the trees of which they are made has been cut down? Because they were cut at a season of the year when insects would work readily in the timber. What makes spoke timber and some other wagon timber appear light and brash sometimes more than at others, even when it has the appearance of being very tough and firm? Because, it was cut at the wrong season of the year.

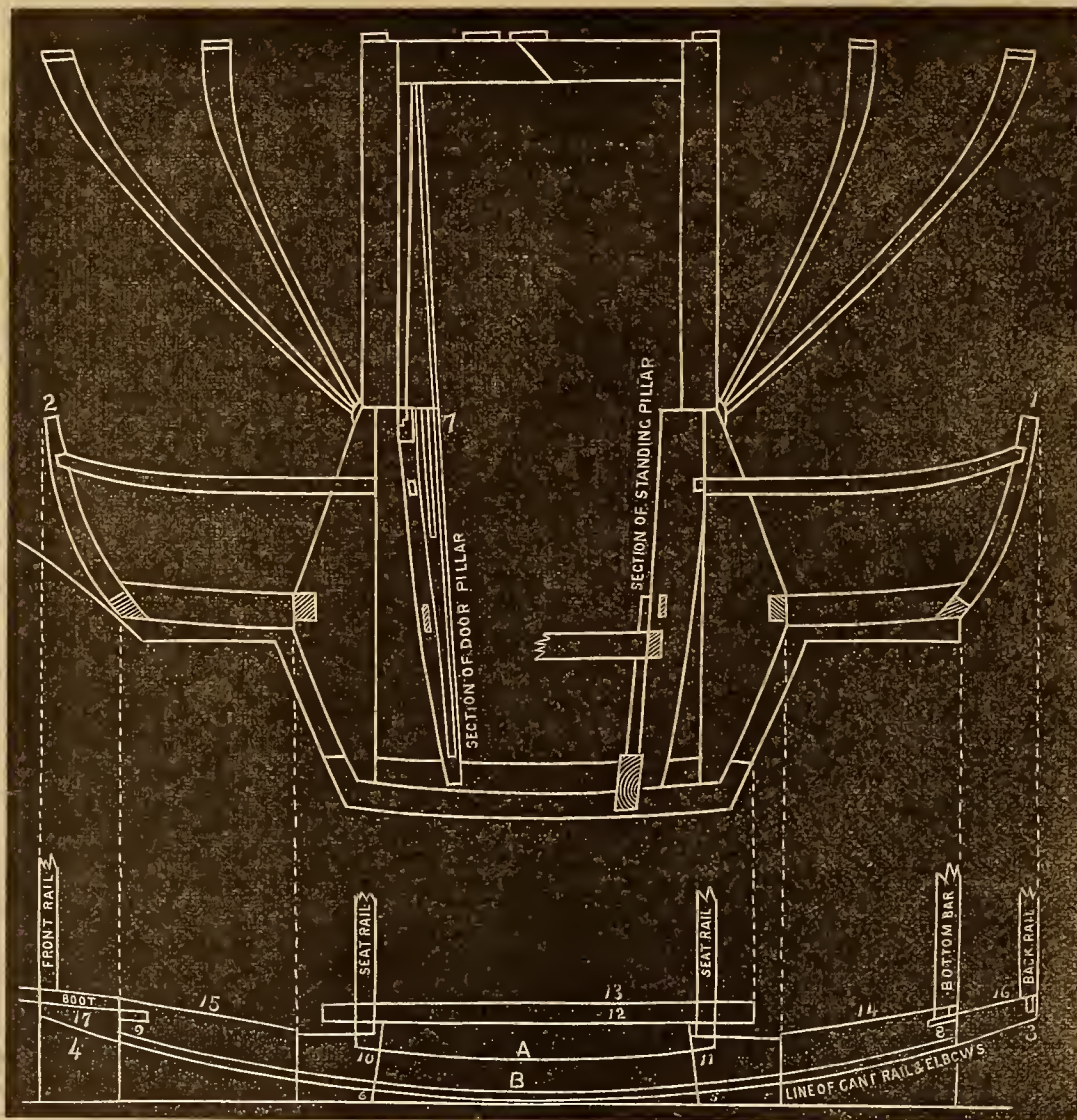
When trees have cast their leaves, the sap, for the most part, has all become solidified and the wood is well matured; and there is less sap in motion, and less sap and water to be evaporated than at any other season. Therefore, if timber be cut at such a time the wood will be more durable, whether it is exposed to the influences of the weather or worked up for the inside work of buildings, or for carriages and sleighs.

The question then recurs, when is that period? Experience in cutting timber, as well as philosophy, assures us that the period alluded to occurs in November and December in our latitude, and in other latitudes it would be the period in the growing season which answers to those months with us.

There are vast quantities of hickory worked up into spokes for carriages, and into axe helms, pick handles, &c., in many localities, and none of that timber that was cut during these months has ever been known to powder-post. But much that was cut at some other seasons has become quite worthless, except for firewood, after it had been finished up.

Let sugar maple and white beach be cut in the months of May and June in our latitude, and be hewed or sawed into timber for a barn or other out-building, and, in most instances, insects will work, boring it full of innumerable small holes. When such timber is inclosed in a house, where insects cannot have access to it, of course this will not occur. But I have seen beams of houses reduced to a worthless shell by insects, when the trees of which they were made were cut down in the spring or fore part of summer. When timber would be secured so as to retain all its toughness and solidity, as well as its durability, it should be cut in late autumn.





LANDAU, WITH CANT-BOARD.—HALF-INCH SCALE.

## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

## BODY CONSTRUCTION—PART EIGHTEENTH.

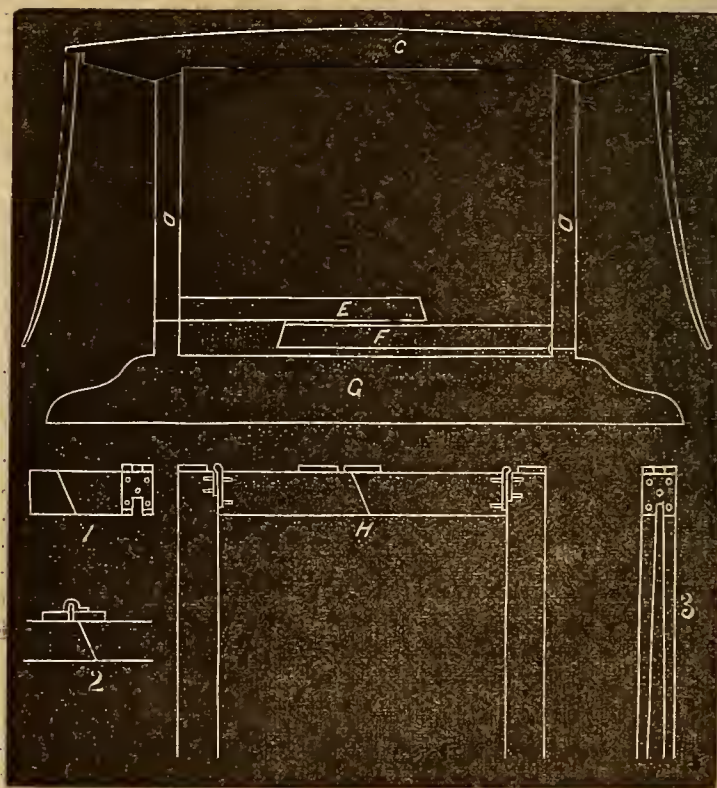
COMMENCE by finding the extreme length from 1 to 2 across the body; next lay down the cant-rail line 3 to 4 equal distances from the outside of the board, as these bodies are best made square, giving equal room on both seats; then take the width of the doors as shown 5 to 6.

Having determined the amount of turn-under of the standing-pillars, for which it is necessary to draw an up and down cant as shown at 7, next draw the lines 8 to 9 the turn-under at the short bottom sides, and 10 to 11 the turn-under at the bottom of the pillar, after which draw the rocker lines 12 and 13. Now draw a square line from the outside of the sweep for the hinge pillar, being better for concealed hinges, likewise making the doors open farther back, and then strike the sheet line as before described, and square from outside of board the backs of standing pillars, ends of short bottom-sides and extreme ends of the corner pillars, afterwards drawing the inside line of the short bottom-sides 14 and 15, and inside of corner pillars 16 and 17, and the front line determined by the width of the boot.

In the next diagram we have shown the front light, the cant-rail joints and perpendicular hinges—these last being used in place of the horizontal.

The upper portion of the diagram represents the front light of the landau, with up and down pillars, the off-side pillar-joint being cut two inches higher than the near one, so that both may lay level when down. In this part C represents the front hoop stick, O O the up and down pillars, E F the front-light pillars down; and A the fence-rail.

The lower portion of this diagram (H) shows a new mode of cutting and hanging cant-rails, dispensing with the framing and making a stronger and better job by using perpendicular hinges instead of horizontal. Figure 1 represents the end of the cant-rail with hinge. Figure 2 shows the joint in the center of the cant-rail, dispensing altogether with rabbetting the hoop sticks, and also the unsightly outside lead locks, a small edge plate standing up about half an inch, being screwed against the edge of one hoop stick and plate, cranked over the edge of one hoop stick and





plate, cranked over the edge and screwed over the leather on the top of the other hoop stick, plated lead locks, and fixed inside. Figure 3 shows the pillar with the hinge screwed on. As landaus are being extensively introduced among us, this description of the mode of construction will not be without advantage to the readers of this Magazine.

## Home Circle.

### SUMMER.

BY ROSETTE A. ROSE.

BEAUTY, beauty everywhere;  
Earth is filled with beauty rare.  
Beauty ushers in the morn  
When the shades of night retire,  
And a thousand hues are born  
Flushed with Heaven's celestial fire,  
Lighting up with splendor rare  
Scenes of beauty everywhere.

O! the joy the summer brings,  
When in gladness Nature flings  
Flowers of a thousand hues  
Gaily o'er the green-clad earth,  
And with lavish hand she strews  
'Midst our festivals of mirth,  
Blooming sprays around our feet  
Where the summer splendors meet.

Summer may be always ours  
Filled with thoughts of birds and flowers.  
We may keep it in our hearts  
When the wintry blasts have come,  
And the summer-time departs  
Far in other climes to roam,  
And our hearts will ever be  
Happier for its memory.

### THE VANITY OF RICHES.

BY MRS. C. B. HOUSEL.

#### CHAPTER I.

"Thou and I  
Have mingled the fresh thoughts that early die,  
Once flowering—never more!"

OF my many school-girl friendships, not one was so tender or so truly based on esteem and admiration as that inspired by Ella Carteret.

Dear, lovely Ella! It was a delight to observe her stately form, beautiful in every curve and line, instinct with gentleness and grace in every movement—to look upon her fair, Saxon face, radiant and glowing with youth and happiness; and a still dearer delight was it when no intrusive ear was nigh to check the flow of feeling, to listen to the accents of her voice, low-toned and musical as some sweet lute, the while they breathed of thoughts pure and ennobling, or vibrated to the touch of soft emotions, ever tender, beautiful and holy as an infant's dream.

We spent a year together—oh! how happily! It was our last at school. As grown up young ladies, Madame G., of whose elegant establishment we were inmates, accorded us many privileges denied to less mature pupils.

We were permitted frequently to escape from the customary surveillance of teachers, to sit in the pleasant room assigned to our exclusive use, and to walk out at our own pleasure. We used the liberty thus granted, not in rambling through fashionable thoroughfares or visiting shops for the gratification of a silly vanity, but to pass hours in one or another of the green squares that form so rich an adornment to the beautiful city of William Penn. Here would we sit, in the cool shadow of the great trees, amidst fragrant shrubbery, by falling fountains, talking on pleasant themes, or weaving sweet fancies gorgeous as the coloring of a summer rainbow, and, alas! often as shadowy and unreal, too!

Ella was an only child. Deprived of her mother at an early age, her surviving parent had confided her wholly to the care of nurses and governesses. She rarely spoke of her father; in fact she knew but little of him, never having spent more than twenty-four hours in his company in her whole life. She, occasionally, received a letter from him, but it seemed to afford her no pleasure. An unlimited supply of money was always at her disposal, but so simple were her habits, so singularly devoid of vanity was she, that the chief gratification this afforded her consisted in making it subserve the wants of others. Poor, dear Ella! She had a great craving for love, but no appreciation of wealth, or of her brilliant position as an heiress. Not so the teachers and fellow-pupils among which she moved. The curious among these devoted themselves with great ardor and enthusiasm to genealogical researches, and held much discourse, in grandiloquent, school-girl style, upon subjects connected with "old Virginia families," their escutcheons, heraldic devices, ensigns armorial, etc., the result of which was to create a profound impression of Miss Carteret's importance throughout the establishment, and cause her to be treated with the homage due to a queen.

Some two hundred years ago, when Noll Cromwell and his sturdy roundheads lorded it in the halls that had rung with the kingly tread of Tudors, and Stuarts, and Plantagenets, a gay young cavalier of the family of Carteret, lacking the concomitants to a life of pleasure in the land of his birth, he thinking himself of a certain princely grant that he had long held, resolved to cross the sea and amuse himself with hunting deer in the wilds of Virginia. The fertile land and sunny skies where the young adventurer pitched his tent, as it seemed, found favor in his sight, and there he spent the remainder of his days. The vast domain to which he succeeded in establishing a title had continued to improve from generation to generation, each one, by its labors, contributing to the importance and wealth of the next succeeding, until a vast accumulation of both descended upon the present incumbent, the parent of our charming Ella.

Well, the school-days were over—our days of delicious dreaming, of beautiful, serene content. The parting hour had come! Oh! the parting hour that tore from my embrace the dear companion of life's fresh, joyous morning! the sharer of my bosom's vagrant fancies—the kind, great, tender, womanly heart, that had entwined its tendrils around my colder nature, warming and vivifying it with superabundant love;—how shall I tell of the pain it wrought? When my thoughts turn to that sad morning, and I remember the many sorrowful ones that in my brief life have succeeded it—the partings far sadder, the record of which is graven on the cold tombstone, my soul is filled



with unutterable longings to pierce the dread veil that wraps from mortal view the illimitable hereafter! Shall we find them there? Oh, shall we find them there—the dear ones who have gone before to the silent and impenetrable kingdom? Among the many mansions of my Father's house, is there not one where hearts, severed by the anguished death, there may be reunited? Where the Love, that amid the sad changes of this mortal life is often pain and agony, may burst into new and vigorous existence, purified, exalted, to become a source of bliss ineffable, supreme, unending?

But to proceed. The carriage that was to bear away my Ella was at the door, and, in traveling costume, she once more entered our room to request me to accompany her to the parlor to meet her father. With ready compliance I twined my arm about her waist, and together we proceeded to enter the dreaded presence.

Mr. Carteret rose, as we approached, and tendered his hand with a sort of princely condescension. I shrank from its touch, for his countenance chilled me like a polar blast. It was hard, cold, pitiless and impenetrable, with lips that closed like a vise, and eyes that for aught of warmth or life beaming from them might have been carved in stone. And this statue of ice—this ghoulish monster—was to bear away to his lonely, loveless hearth, my warm-hearted, impulsive, affectionate school-mate! In a paroxysm of love and pity I clasped her to my heart, and poured a flood of tears upon her bosom; thus we clung in one long, agonizing embrace, until the stern mandate of her father tore her from my arms.

On the succeeding day I, too, bade farewell to school. No princely mansion like that over which my friend would in future preside, claimed me as its inmate; but fond hearts and joyous smiles were my welcome to the happiest of simple homes.

Months went by. The correspondence substituted by Ella and myself for the more intimate relations we had so long sustained, became now a source of mutual gratification. The same warmth, confidence, purity and freshness of sentiment—the same genial flow of feeling that characterized my lovely friend in our earlier intercourse, gave to her letters an indescribable charm. Though her home was ungenial, she was not without many sources of happiness. A host of dependants were the recipients of her kindly cares; a circle of agreeable acquaintances, among the neighboring gentry, met her social requirements; and there were books and music, both of which she loved for lonely hours. Of her father she never spoke.

But the time came when a ripple appeared on the placid stream of her young life—a new element had entered in to stir its pure depths. There were frequent allusions to a new acquaintance—a friend, of whom she ever wrote with a timid and delicate reserve. Her rides and walks were no longer companionless. An exalted tone became apparent in the style of her letters. A tremulous excess of happiness thrilled through every line—and, ah! my own dear Ella!—the heart that was to me ever as an open book, revealed but too clearly the burning characters inscribed by passionate love upon its tender leaflets!

Her letters had now a new source of interest. No misgivings in regard to the object of her affections haunted my bosom. That he was refined, elegant and scholarly, I had learned from my friend's unconscious delineations of his moral worth as a man—of his truth and tenderness as a lover, I could not doubt; for without

these qualities he had not won the affections of Ella Carteret; but the cold, proud, world-hardened father—was this lover of the sort that he would approve? were his circumstances and condition such as would meet the requirements of this haughty descendant of the Cavaliers? I longed for a solution of the question—and it came, quickly enough.

Cliff Godwin preferred his suit to the aristocratic father—was rejected with scorn and indignation—insulted and forbidden to enter the house.

The letter that acquainted me with these details was one quivering wail of anguish—a piteous, moaning cry, rent from a heart perishing for the love which was its natural aliment! “Come to me—oh! come to me! my dear, my much loved friend! You have promised long—your Ella needs you now!” These were the concluding words. Could I resist the appeal.

## Pen Illustrations of the Drafts.

### CENTRAL PARK PHAETON.

*Illustrated on Plate I.*

ONE very great recommendation in this kind of vehicle is, it hangs so low that it is not easily upset, and is so open that it furnishes a very pleasant summer equipage for pleasure seekers. The dusters, as may be observed in the drawing, are of a peculiar form, fitted to the shape of the body. Hear what an old author said of Phaetons one hundred years ago: “The sizes and constructions of Phaetons are more various than any other description of carriages, which gives fancy a greater scope; but the sizes are mostly proportioned to the sizes of the horses for draught, whether by ponies, or one or two horses.” At the time referred to, three kinds only were built, and each after “the perch or crane-neck” pattern; but Felton's remarks will apply to this kind of carriage equally as well now, superlatively, the “scope of fancy” has in some instances “run mad,” so that we have some very odd “traps” we call phaetons in existence.

### EXTENSION-TOP ROCKAWAY.

*Illustrated on Plate II.*

ROCKAWAYS are peculiarly an American “institution,” having no existence in the catalogues of foreign mechanics. The one here given has some new points of interest, admirably set forth in the drawing, making it unnecessary that we should go into details and mention all. The lightness under the front seat is gained by adopting the latest Parisian novelty, and the arrangement of the back seat supplies abundant leg room for the comfort of the passenger. Wheels, 3 ft. and 3 ft. 10 in. high; hubs, 4½ in.; spokes, 1 in.; rims, 1 x ¾ in.

### RECONSTRUCTION BUGGY.

*Illustrated on Plate III.*

In this design our artist has combined both the New York and Boston styles, making something very unique



as well as novel. The peculiar shape given to the back enables us to hang up a longer body on a shorter carriage-part, gaining more room, and lessening the draught. The reader's attention is directed to the shape of the joints—the long one straight; the shorter one being swept. Wheels, 3 ft. 10 in. and 4 ft. high; hubs,  $3\frac{3}{4}$  in.; spokes, 1 in.; rims, 1 in.

#### THE NOVELTY BUGGY.

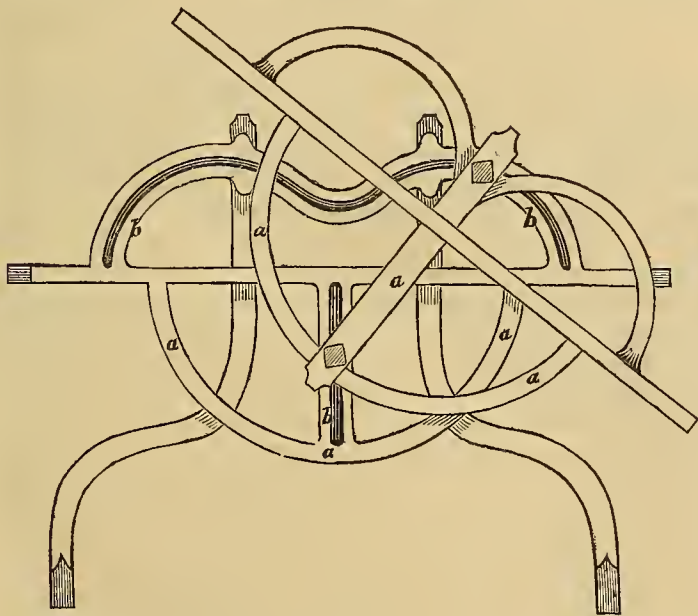
*Illustrated on Plate IV.*

This design of the coal-box kind is another example in which the novelty is chiefly imparted to it by painting. The sunken bottom is resorted to, to lighten the side-panel, as well as for the comfort of the occupant. Wheels, 3 ft. 11 in. and 4 ft. high; hub about  $3\frac{1}{2}$  in. diameter; spokes  $\frac{3}{4}$  in.; rims,  $\frac{7}{8}$  in.; tire, steel,  $\frac{1}{8} \times \frac{3}{4}$  in.; springs, both No. 4. steel, 3 plates, 32 inches in length.

### Sparks from the Anvil.

#### IMPROVED FORE-CARRIAGE.

THE under fore-carriage, of which we present an engraving, has for its object the shortening of the coupling of the front and back wheels and the obtaining of a longer bearing when turned in the lock, was invented and patented in England, April 18th, 1866. In this improvement there are two iron transom plates, one of which is faced



with hard wood on the rubbing surface to prevent jarring and noise in running. The two front parts of the transom plates form the ordinary half-circle, and the lower plate is provided or formed with a longitudinal slotted bar or long spindle, or solid bar extending from the crown of the half-circle to its center. In this slot, or along this longitudinal bar, slides a bolt or eye attached to the upper transom-plate. The back part of the lower transom-plate, the form of which constitutes the essential feature in this invention, is shaped so as to form a double reverse curve, and is either slotted so as to admit of a

bolt or pin attached to the top carriage-part or upper plate sliding therein when locking, or it may be made solid, and have a raised lip or rib extending along the under surface of the bar as far as the outer edge of the futchells, and on each side or edge of this plate or bar there is a bolt carried by the upper plate, having a laterally projecting lip which underlaps the curved bar of the lower transom-plate, the lips of the bolts bearing against opposite sides of the raised lip or rib on the bar, and thus guide the lower transom-plate when in the act of locking.

The engraving represents the carriage-part in the lock; *a a* are the two iron transom-plates, the front parts of which form the ordinary half-circle; and *b* is the longitudinal slotted or solid bar, extending from the crown of the lower half-circle to its center; *c* is the bolt or eye attached to the upper transom-plate *a*, and sliding in or along the slotted or solid bar or spindle *b*, of the lower transom-plate *a*. The back part *d*, of the lower transom-plate, is of the form of a double reverse curve, as shown, and is either slotted so as to admit of the bolt or pin *e*, attached to the top carriage-part, sliding therein when locking, or it may be made solid, in which latter case a guiding groove or lip is formed on the back edge of the back part *d*, of the lower transom-plate, to receive the guiding piece *g*, secured to the upper plate.

### Paint Room.

#### CARRIAGE PAINTING AND STRIPING.

BELIEVING that our readers would be interested in knowing how carriages are painted and striped in this "Great Metropolis," we have taken some pains to examine those "turned out" last fall, now crowding our thoroughfares every pleasant afternoon, and also some of those still standing unsold in the city warerooms.

If, from the result of our observation, the public shall derive any benefit, we shall feel well paid for the pains we have taken in this matter.

Premising that it must not be inferred from what follows that we indorse all we advance, and taking a favorable stand-point for this special purpose, we find passing us *Buggies* with black bodies, crimson carriage-parts and black stripes; others black, yellow, black; black, straw, red; black, red, straw; black, crimson, red; black, green, red; brown, red, black; black, striped blue, and black, striped yellow. *Rockaways*, Quaker green, red or yellow stripe and black striped cream color. *Dog carts*, black, cream, black. *Phaetons*, black striped either yellow, cream, or red. *Coupés*, black, brown, chrome; brown, black, white; brown, red, white; black, red, blue; black, striped either with red or blue, and brown striped with white. *Broughams*, brown, yellow, red and white; slate black, red; black, red, yellow; black, red, white; black, yellow, gold, and umber, striped black. *Coaches* are almost invariably painted black, with either red or black striping. In every case it is usual to paint all above the belt-rail black. The usual practice is to paint light carriages with colors calculated to promote their light-looking construction, and to stripe them with either lake, blue, gold leaf, or silver.

Perhaps we ought to stop here, but we have had so many calls for information in regard to our mode of ornamenting the cut-unders of buggies, &c., from our



country readers, where they are still popular, that we have been induced to present a few examples for their special gratification.



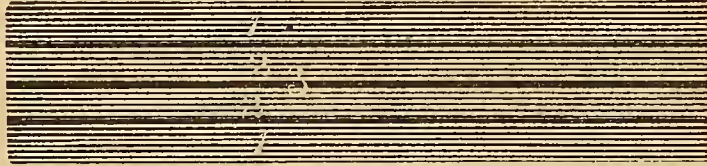
FIG. 1.

FIG. 2.

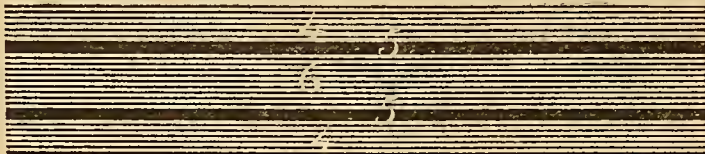
FIG. 3.

The first illustration exhibits three broad stripes, which are frequently drawn in red, white or blue, on a black ground; the second (sun-rays) when required flashy should be gilt, yellow, &c.; the third of chequered figure, may be red, blue, &c. These colors are so dependent upon taste in different individuals, that it is a mere waste of time to undertake to fix any definite rule applicable to this matter.

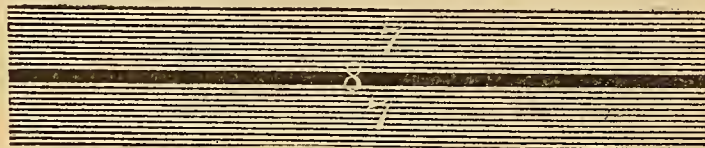
In striping we present three examples, which very well illustrate the nicer modes now in use, although strictly speaking there is no definite rule, much that is absolutely absurd and contrary to good taste prevailing.



In the first specimen the ground work (1 1) is supposed to be umber; 2 2 a broad stripe of black, through which runs (3) a narrow stripe of grey or silver. Sometimes these colors are varied in the following order: 1 1 are black ground-work, 2 2 umber, 3 still lighter umber; or else 1 1 are drab, 2 2 purple, 3 brown.



The second diagram (4 4) shows a ground of umber, 6 a broad stripe of black, edged with lines (5 5) of bronze or white.



The third and last, the ground work of which (7 7) is black, has drawn through the center of it a narrow stripe (8) of either gold or silver.

We remark as a general rule, that in all striping put on the body, it should be made to match the under carriage. Where no mouldings finish the body, striping is never done. In this city, gaudy work is ignored, the taste displayed tending to a subdued and chaste tone—to richness rather than show.

#### NEW DRYER FOR RAW OIL.

OUR readers will be interested in what follows from a correspondent of the *Scientific American*:

The process for preparing linseed oil for use in paints and the arts by boiling and the addition of siccatives, has been in use for more than a century, and but little improvement, if any, has been made in the result. Chem-

ists, as well as artizans, have overlooked an important point in the boiling of oil, which is coagulation of the albumen. This takes place at the temperature of boiling water, whereby it is changed to a semi-solid form, and when the heat is raised to the point of boiling-oil the albumen chars and when dried becomes brittle. As much of the glaze and toughness of the dried oil is dependent upon the albumen it contains, it will be readily understood that many of the troubles incident to boiled oil arise from the method of preparation.

A gentleman of Boston has been for a long time convinced that linseed oil could be made to oxidize rapidly without even heating, and thereby preserve all the properties of the oil in their natural state. This subject he has made a special study for several months, and the result is the discovery of an article which he has called "siccohast." By the addition of a small percentage of this substance to raw linseed oil in a cold state, the oil is made to dry in any desired time, from four hours up to ten days, its ordinary time. It dries with certainty and with better results, flows more evenly, and has a better gloss than boiled oil, and is more elastic and but slightly discolored. It has been thoroughly tested for outside painting during the past twelve months, and is found free from any disposition to crack, like oil that is unprepared. Paint prepared with this article sets so quickly that the wood does not have an opportunity to absorb nearly as much as of raw oil. It is in a fluid state, mixes readily with linseed oil, and is perfectly harmless, being made of chemicals which have no detrimental effect on the oil.

### Trimming Room.

#### OBSERVATIONS ON TRIMMING.

GAUDY trimming of all kinds has seemingly been laid aside for light work. The fronts of the cushions and the falls are generally finished in two ways, the first with patent leather cut in strips, "whipped" around scaming-cord, and sewed in, according to the fancy of the workman, in straight lines or curved figures; the second by cutting out pieces of thick leather or other material, of a peculiar shape, not well described in the absence of a diagram, and pasting the same on the buckram ground-work, then laying the cloth over them in paste, when by "tickling" the figures are produced in relief, and afterwards sewn around the edges by the machine. This mode of finish looks neat and beautiful in snuff-colored and blue cloth linings, but requires patient manipulation and some artistic talent to produce it in perfection. For the finer class of linings this last is far superior to the "leather lace" first mentioned, making not only a handsomer but also a more durable finish. In our next we intend to furnish some designs for the fronts of cushions and falls, which will illustrate our meaning more plainly than can be done in mere words.

#### FELTON ON PRESERVING CARRIAGE LINING.

THE following from Felton's *Treatise on Carriages*, published a century ago, will interest if not instruct the reader:

"Let the carpet be often cleaned and reversed, so that the wear may not always be in one place. Let the powder [dust] be well brushed from the cloth after use, and



often change the cushions of a coach to the opposite sides; if to stand by any time, turn them; and place a flat, broad piece of wood in the hand-holders, to preserve their shape. The blinds ought always to be put up, to keep out dust or vermin. The shutters of the doors, and the front lights, if made of cedar, will prevent moths harboring; if not, a few cedar shavings in a bag laid on the seats, will answer the purpose. If soiled, use a little pipe clay with the brush until it comes out, but not so much as to let it come off on the clothes of the passengers. When the narrow lace about the lights and doors rises, place it down with a little shoemaker's paste."

### Editor's Work-bench.

#### TRADE NEWS.

THE backward spring or some other cause has had a bad effect upon trade, and consequently sales have not been made with the corresponding rapidity of last year. The opinion prevails that business is about to undergo a revolution; but such having been the expectation for the last two years without a realization, all prophecy may fail this year as in the past. The continued high price of material and labor has, to a considerable extent, checked the manufacture of the finer class of work in this city beyond what is ordered beforehand, although the repositories do not by any means appear empty. This, doubtless, in a great measure, is due to the fact that Autumnal sales last season were very few, and consequently an old stock still remains on hand.

Those who deal in carriage materials seem to be doing a fair business, from which we conclude that our country manufacturers are making preparations for considerable trade in prospect. We hope they will not be disappointed, but from our stand-point we do not see any encouragement to warrant a prudential man in building much beyond that for which he has orders. A *little* stock of caution may prove more potent, in a pecuniary sense, than a *large* stock of carriages unsold and unsaleable, perhaps. We do not say this to discourage trade, but these being our views we have spread them before our readers for their serious consideration.

The strike ordered by the Coach-maker's Union to obtain the wages paid previous to January last, when a reduction of from ten to twenty per cent. was made, has now ended, the men having obtained all they asked for. Some few have engaged in other mechanical branches of business, where they suppose they will receive increased remuneration.

We notice, when inspecting the carriage ware-rooms of this city, that great progress in art has been made during the past three or four years. This affords us ground for satisfaction and commendable pride. We are sorry, however, to find that the prospect is we shall make

but a poor exhibit of our mechanical ability at the Paris Exhibition this year, only two carriages being sent from this city, another originally intended for the Exhibition still remains in the ware-room of the Manufacturer, and is offered for sale at twelve hundred dollars. The bad treatment our exhibitors received at the hands of a few jealous English mechanics a few years ago, has done much to discourage American ambition in that direction. After the show was over and previous to removal some vile miscreants cut the leather, scratched the paint and otherwise mutilated the carriages, and finally, to crown all, after we had carried off the premiums, an organ of English carriage-making, in its death throes, pronounced ours nothing more than second-class carriages. We can very well afford to stand wordy abuse from Europeans, but when it comes to *blows*, we become — riled. To the credit of the builders of London, however, be it said, they made the injury good by repairing the damage; but after all it will take some time to heal the wounds given on that occasion, by the operatives, as is believed.

#### CO-OPERATIVE LABOR ASSOCIATIONS.

AMONG our exchanges we find some assuming to act as advisers to the working classes, who in their zeal to appear sympathetic recommend that, in order to escape the oppression—as they term it—of employers, workmen form co-operative associations, and so become their own masters. This may all be very well on their part, as it effects a purpose—makes them seemingly the friends of the poor—but the most important question to those immediately concerned is this: will such associations pay? Can the journeyman get along better as a co-operative journeyman and boss than when he labored as journeyman to somebody else? The history of all such movements in this country plainly shows that they have not, and that until human nature is re-modeled they cannot. All associations of this kind have only confirmed the truth of an old adage, that, "that which is everybody's business, is nobody's," and the result has been failure and loss where these could not be well endured.

The truth is—and the leaders and advocates of these combinations know it well—some men are not born with a talent for successfully conducting business, and when these attempt it, they are sure to fail. We may pity this unfortunate class and even wish it were not thus, but this will not remedy the matter. Even under the leadership of the *smarter* proportion of the laboring classes, co-operative associations have "run into the ground." Only a few years ago two institutions of this kind were organized, one in Bridgeport and another in Rahway as the result of strikes among the coach-making journeymen of the two localities mentioned. The public, whose sympathy is always on the side of the poor, readily furnished the



money capital, but, as the result has shown, the other capital—"brains"—was lacking.

Demagogues may continue to harangue as long as they find it beneficial for *their* purses, and sympathetic capitalists may lend their money without stint; but, as before intimated, until human nature changes, there can be but one result—total failure. The men who make up these principals are generally given to jealousies and fault-finding, as we see it exhibited almost daily in the workshop. Unfortunately these carry with them into the co-operative establishment the same disposition for grumbling. A short apprenticeship suffices when it breaks out anew, this time against the president, or superintendent, the treasurer and other chief officers. The men who work at the bench think the leaders escape the drudgery which they themselves are compelled to undergo, while they receive equal incomes. The result is they begin to grumble among themselves, their interest in the company grows cold, and very soon they become either indifferent to labor, or else leave the concern altogether, loaded with execrations and poverty. The very same character that attended them when laboring for daily hire, attends them now while working in association, with this difference in the result: when they work for an individual at a stipulated price, they know how much they will have to carry home to their families on the Saturday night; when their labor is expended in a co-operative institution they are not certain of getting anything, unless it be *into debt* without the hope of relief.

These thoughts are worthy of consideration by all who contemplate joining co-operative associations, being the honest convictions of one who has had the benefit of a life-long observation, and therefore speaks from personal experience. We yield to no man living in well-wishes to the working classes, and would like to see, was it practicable, every man who is obliged to earn his living by manual labor his own "boss." As such cannot be the case, in consequence of decrees which man cannot change, is it not better in contentment to fill our allotted sphere, industriously, temperately, and *independently*?

In conclusion, we have not written this article with the object of discouraging co-operative associations, and do not believe if we had that it would be successful in a single instance, but when we see individuals seemingly running mad in that direction, we cannot refrain from throwing out a word of caution calculated to awaken the thinking powers of those more immediately concerned before they take a step which in its result may ruin their prospects forever. Ask then yourselves this question: Cannot I, after all, manage my own business affairs, in which I alone am most concerned, much better than anybody else *will* for me?

### DON'T LEND YOUR MAGAZINES.

THERE are certain classes of people in the world who are so constitutionally mean and penurious, that instead of subscribing and paying for a Magazine as they ought they run to a neighbor and borrow his as they ought not to. This is all wrong, from beginning to end. The man who lends his Magazine deprives the publisher of the benefit naturally accruing from an increased patronage, without benefitting himself, and is lending his influence for the encouragement of beggars, and those of the meanest class. Supposing this kind of *neighborly favor* extensively practised, how long would it take to kill off the best of our periodical literature, and starve editors into some other occupation? And where then would your monthly stock of mental pabulum come from? Would not you and your neighbor both have to do without a Magazine? How much better then would it be for you to get him to subscribe also, the two copies costing you and him but nine dollars. In this way an act might be performed of three-fold good; your copy would always be at hand for reference, the mechanical interest of a neighbor would be promoted, and your publisher greatly cheered on in his labors. Suppose you experiment in this direction this year and report the result.

To the persistent borrower let us say a word. You ought to be ashamed of yourself. As an American citizen, claiming to be independent, you should throw off this mean and unworthy *dependence* on another, and subscribing in your own proper name get your knowledge monthly from a journal you can with commendable pride call your own. We tell you there is something grand and noble in the thought that we are dependent on nobody, but pay as we go along for that we receive. Our word for it, try it once and we are confident you will never again *enslave* yourself so far as to borrow a neighbor's Magazine. While in your hands you may very likely do him an injury. A customer calling might want to order a carriage, but you hold his periodical; he cannot show the fashions, and the man goes off and orders elsewhere—perhaps comes to your shop; you take his order and in so doing pile *meanness* upon *meanness*, first by *stealing* the use of his journal, and afterwards *robbing* him of custom by its aid.

It is well known that, in general, borrowers are extremely careless and indifferent. That which costs them nothing has but little value in their system of economy, if such *paupers* may be said to know the import of the word. If they are honest enough to ever return a borrowed volume it generally comes back torn, greased, and dirty, unfit for a decent office afterward; but in a great many cases it never comes back again—is lost, as we could show from the letters we have received from the victimized during our editorial life.



As we have before said, we here repeat, don't lend your Magazines, but carefully keep them clean, and have the numbers substantially bound at the end of a volume, and put in a proper place in your office. You will find this course of great benefit, not only in getting custom, but in driving off that *thieving* class in the community, who, under false-pretense claims for infringements against you ask for damages where none have been incurred. We shall keep you *well* posted in such matters, and should you be robbed by them it shall be no fault of ours. Consider, then, your own personal interests, and act consistently. Preserve your Magazines, induce all borrowers to subscribe, and declare war to the knife against all patent right humbugs—but, in no case, lend your Magazines!

#### COMPLETE YOUR VOLUMES.

From some cause beyond that of any previous year we had an extraordinary demand for this Magazine, subscriptions to begin with the middle of the year. Although we always prefer to have orders commence with the June number, in consequence of the pressure upon us we have suffered our friends to have their own way, the result of which is, we have an unusual accumulation of back numbers, from June to November 1866, inclusive, which—as we are anxious to dispose of them—we now offer at a reduced price for the next two months to those who wish to complete the eighth volume, of which they now have the six last numbers. These numbers, which can only be had on direct application to us, we offer, when the six are taken together, for two dollars. Send the two dollars by mail, and we will immediately send the six numbers by the same. Remember, this business cannot be transacted through booksellers; application must be made direct to us, enclosing the money. By taking advantage of this offer subscribers will be able to complete their volumes, and obtain a perfect, instead of having a broken one for binding. No better stock can be placed in a coach-maker's office than the volumes of this Magazine, for reasons already given in another article.

#### DEATH OF JOHN C. PARKER.

WE are again called upon to note the demise of another prominent member of the craft—that of John C. Parker, Esq., long known to the New York fraternity. This occurred on the 26th of April, in the 58th year of his age.

Mr. Parker was born in this city December 16th, 1809. At a proper age he was apprenticed to his brother, Milne Parker, who had a carriage manufactory and repository in Broadway, near Spring Street. In 1827 Milne removed to Yorkville, where he continued

the business until 1828, when he returned to the city, being thereafter chiefly known as a politician. We believe John C. commenced business on his own account in Yorkville in 1834, from which place he removed to Twenty-sixth Street, near the Third Avenue, in 1860. Mr. Parker has always borne the reputation of being an industrious mechanic and a good workman, his taste rather inclining more to strength than fancy in design. He very early foresaw the advantages to be derived from the application of machinery to carriage building, and continued to use it down to the time of selling out his business to Messrs. Brewster & Baldwin, of Broadway, ten days before he died.

Mr. Parker's sickness—Bright's disease of the kidneys—lasted about three months, and although unfitted to endure trouble or business of any kind, he was called upon to suffer persecution and annoyance at the hands of some of the members of the Trades' Union, such as few well men could *well* endure. Men were paid to stand opposite the factory all day and scrutinize; a committee was appointed to call upon him on a sick bed; advertisements appeared in the papers, advising all journeymen to keep away from the shop; a meeting was held to *compel* his firm to pay the Union prices during his sickness, all of which will remain as a lasting stigma upon the character of the promoters of these proceedings. These things his friends believe greatly aggravated the disease, and perhaps in a measure hastened his death.

#### LITERARY NOTICES.

THE *Atlantic Monthly* for May has an interesting table of contents, among which are articles entitled The Guardian Angel, History of the Sewing Machine, Heart and Hearth, Germany in New York, Some Unappreciated Characters, Oldport in Winter, The Custom of Burial with the Head toward the East, Reviews and Literary Notices. This work has now reached its 115th number, and for variety and interest is not surpassed by any other periodical in America. The single article on the sewing machine, describing the struggles and difficulties of the original inventor, Elias Howe, is worth to the reader all he is called upon to pay for a year's subscription. Each number contains 128 pages, which for 35 cents makes it one of the cheapest publications in the world.

*Our Young Folks*, from the same house as the above, amply illustrated with original engravings, still maintains its superiority over every juvenile visitor with which we are acquainted. No second-hand cuts or stories ever mar the pages of this monthly; but all is new, fresh and entertaining. Subscription only \$2 a year.

Those who have a taste for choice reading in the form of reprint cannot do better than subscribe for *Every Saturday*, the contents of which are judiciously selected from the most popular current literature of the day. All these periodicals are issued by our friends, Messrs. Ticknor & Fields, 124 Tremont Street, Boston.



## Patent Journal.

### AMERICAN INVENTIONS.

Feb. 5. (61,813) ATTACHING CARRIAGE THILLS.—David Dalzell, South Egremont, Mass.:

I claim, *First*, The arrangement of the semi-cylindrical eye, *c*\*, on the thill-iron, *H*, and between the collars, *E*, *E'*, journal, *G*, tube, *I*, and axle, *F*, and box, *B*, when constructed as herein set forth, as and for the purpose specified. *Second*, The key, *J*, passing through the thill-iron, *H*, and fitting in the *b*\* in the tube, *I*, substantially as and for the purpose set forth.

(61,821) CARRIAGE AXLE.—Thomas Falvey, Racine, Wis.:

I claim casting or forming an irregular thread upon a skein, *A*, for the purpose of firmly receiving and stationing the collars, *D*, *D'*, which are cast over irregular thread, substantially as herein specified.

(61,883) GUARD FOR CARRIAGES.—I. M. Singer, Paris, France:

I claim, *First*, A carriage guard or hood covering, extending over the sides and top of the tire or rim of the wheel, substantially as shown and described. *Second*, The combination with the wheel and axle, or the equivalents thereof whose positions relatively to the body of the wagon or other vehicle are variable, of a carriage guard, so arranged as to constantly maintain the same proximity or relative position to the wheel, substantially as set forth. *Third*, The combination with a carriage guard or hood, covering the top and sides of the wheel, of the arms or supports by which the said guard is held, substantially as shown and set forth. *Fourth*, The method of uniting the guard with the arms or supports by which it is held by means of an elastic and detachable connection, substantially as shown and for the purposes set forth.

(61,890) MODE OF SECURING BOXES IN METALLIC HUBS.—James B. Stewart, Bunker Hill, Ill.:

I claim the securing of boxes, *D*, in metallic hubs by means of the screws, *c*, and *d*, substantially as and for the purpose herein set forth.

(61,900) HUB FOR CARRIAGE WHEELS.—Almon Warner, Hamden, Conn.:

I claim the combination of the ring, *B*, formed with its mortises, *a*, and flanges, *C*, *C*, with a wooden hub, *A*, substantially in the manner herein set forth.

12. (61,948) DUMPING WAGON.—George N. Munger, New Haven, Conn.:

I claim the frame-work, *D* and *E*, which supports the body, the one part being fixed to the body and the other to the forward axle and the two-parts hinged together and combined with a device for securing the two axles in their proper relative positions, the whole constructed and arranged so as to operate substantially in the manner and for the purpose specified.

(61,951) HOLD-BACK IRON FOR CARRIAGE-THILLS.—Russell B. Prindle, Norwich, N. Y.:

I claim the hold-back iron or stop, *A*, substantially as and for the purpose set forth.

(61,962) METALLIC CARRIAGE-WHEEL.—Adam P. Ware, Camden Co., N. J. Ante-dated Jan. 28, 1867:

I claim constructing a wheel for carriages, substantially as described, when the felloes, *B*, are made of malleable iron and constructed and fitted together with the plates, *b*, nuts, *a*, and spokes, *C*, in the manner described.

(62,054) DEVICE FOR LUBRICATING THE AXLES OF VEHICLES.—Jacob F. Morris, assignor to himself and Calvin Lockrow, Lansingburg, N. Y.:

I claim the combination of the oil-cup or reservoir, *F*, one

or more, furnished with short tubes, *G*, and *J*, strainer, *H*, sponge, *I* and cap, *K*, or equivalent with the hub, *D*, and axle-box, *E*, of the wheel, substantially as herein shown and described and for the purpose set forth.

(62,068) AXLE-BOX FOR VEHICLES.—John Reilly, assignor to himself and Thomas Falvey, Racine, Wis.:

I claim casting the box around the rings, as and for the purpose specified. I also claim the arrangement as described of the rings within boxes so that the box shall overlap the rings, to prevent the displacement of the rings from end-thrusts of the axle on the boxes. I also claim the combination, substantially as described, with an axle-box of hollow longitudinal ribs which serve both to fasten the box in the hub and to convey oil to the axle, whether said ribs or chambers be cast with the box or made separately of cast or wrought metal and afterwards attached to the box. I also claim the arrangement of the oil reservoirs, the axle and the lining rings, as and for the purpose set forth.

(62,072) SMITH'S FORGE.—William E. Risher, Austin, Texas:

I claim, *First*, the construction of the tuyere with a central chamber, *k*, into which the ashes, cinders, and other matters collect, said chamber having a passage between its upper end and the fire-bed plate of the tuyere, so that the air of the bellows or blast nozzle shall circulate in a chamber outside of the chamber, *k*, and pass up to the grate through the space which is between the fire-bed plate and the upper edge of chamber, *k*, all substantially as and for the purpose set forth. *Second*, The construction of the tuyere, substantially in the manner and for the purpose described.

19. (62,119) SLEIGH.—A. E. Doty, assignor to J. I. New and C. H. Doty, Illion, N. Y.:

I claim, *First*, A metallic runner, curved and attached to the beam, as seen in Fig. 1. *Second*, The compound ox-bow brace, as seen in Figs 1 and 2.

(62,126) AXLE-BOX FOR VEHICLES.—Cyrus F. Gillette, Sparta, Wis.:

I claim, *First*, A cylindrical or conical carriage axle-box cast in one piece with flanges, *a* and *a'*, at each of its ends and with separated babbitt or other soft metal bearing-surfaces, *b*, *b*, cast between said flanges, all substantially in the manner described. *Second*, Holding the cast soft metal in its proper position by the combined agency of the flanges, *a* and *a'*, and the sprue-lugs which fill the sprue-holes, *e*, *e*, substantially in the manner described.

(62,132) APPARATUS FOR UNHITCHING HORSES FROM VEHICLES.—John K. Harris, Madison, Ind.:

I claim, *First*, The provision upon each shaft of a carriage of a vibrating hook, *J*, adapted to receive and hold a tongue, *E*, upon the harness and to be released by the driver through the instrumentality of a strap, *U*, and its described or equivalent accessories, substantially as set forth. *Second*, The releasable hitching-lock, consisting essentially of the vibrating hook, *J*, sliding-bolt, *N*, and springs, *O* and *P*, the same being placed under control of the driver by the strap, *U*, and its accessories, as set forth.

(62,145) FASTENING FOR CARRIAGE-CURTAINS.—Theodore McPherson, assignor to John McPherson, Burlington, N. J.:

I claim the combination of the screw-revolving barrel and flange, as represented in Fig. 3, when the same are arranged and operate substantially as described and for the purpose specified.

(62,152) ODOMETER.—William H. Prescott and Whitcomb Judson, Galesburg, Ill.:

I claim, *First*, The actuating shaft, *C*, disk, *c*, pivot, *d*, crank, *e*, and spring-pawl, *E*, when combined with the screw-shaft, *D*, and spur-wheel, *f*, on the end thereof, substantially in the manner and for the purpose as herein described. *Second*, The two shafts, *C* and *D*, as arranged and when used in com-



bination with the two cog-wheels, constructed substantially in the manner described.

(62,161) METALLIC HUB FOR THE WHEELS OF VEHICLES.—James B. Stuart, Bunker Hill, Ill. :

I claim a metallic hub for the wheels of vehicles, cast with a collar, B, having lateral flanges or projections, *a*, of the form shown and described, so that the spaces between the flanges which receive the spokes will be of wedge or taper form longitudinally, or in a direction parallel with the hub, and of double taper form in a radial direction, in combination with the loose collar, C, fitted on the hub, and secured to the fixed collar, B, by bolts, substantially as and for the purpose herein set forth.

(62,182) WHEELWRIGHT MACHINE.—O. O. Chapman, Seneca, Wis. :

I claim the head-block G, bearing the wheel H, pinion I, movable table C, lever T, treadle Q, rod P, and lever N, when constructed, arranged and operating substantially as herein set forth.

(62,221) AXLE-BOX.—P. Philippi, Beardstown, Ill. :

I claim the box, B, fitted in the hub, A, and provided with a nut, C, on its outer end in connection with the thimble, D, provided with the screw which is screwed into the inner end of the box and the annular plate or flange, F, secured in the outer side of the flange, *a*, of the thimble, with the collar, *b*, of the arm between the shoulder, *a'*, and the annular plate or flange, substantially as and for the purpose herein set forth.

(62,231) SAND-BOX FOR CARRIAGE AXLES.—John S. Steele, Rockingham, Vt. :

I claim the sand-collar, C, and chamber, E, in combination with the extended pipe-box, F, for the purpose set forth.

(62,253) COUPLING FOR CARRIAGES.—Hiram Conderman, Haskinville, N. Y. :

I claim the bar, C, provided with the sections, F, F, and annular box, E, when used in combination with the bed-piece, A, as and for the purpose specified.

(62,261) INDIA-RUBBER WHIP-SOCKET.—Lewis Elliott, Jun., New Haven, Conn. :

I claim the india-rubber whip-socket formed with the metallic ring or band around its mouth or open end inclosed within the india-rubber, in the manner and for the purposes set forth.

26. (62,350) SPRING SEAT FOR VEHICLES.—Hiram W. Mapes, Jun., Ripon, Wis. :

I claim, *First*, Supporting a seat upon two inclined boards, B, B', which are jointed together at their inner ends, and connected to the seat by means of springs *c, c*, substantially as described. *Second*, Connecting the inner ends of the inclined supports, B, B', by means of interlocking tongues and sliding joints, *g, g'*, in combination with spring connections, *c, c'*, and pivot connections, *e, e*, substantially as described.

(62,402) WHEEL FOR VEHICLES.—Charles F. Elliott, assignor to himself and O. O. Bennett, Great Falls, New Hampshire :

I claim securing the feloes, C, to each other by means of the curved plates, D, inserted and pivoted in channels formed in the face or rim of said feloes, as herein set forth for the purpose specified.

(62,408) MACHINE FOR SAWING WAGON-FELLOES.—Noble W. Graves, Winnebago, Ill. :

I claim, *First*, So arranging the adjustable saw-table, E, and slotted dogs, *e'* and *e2*, in relation to the concentric saws, *a* and *b*, that the piece to be cut shall project beyond the table and be supported by the dogs alone after being separated, and fall when the dogs are retracted, substantially as set forth. *Second*, The arrangement of the adjustable table, E, vertical guides, *h*, supporting-rods, *l, l*, and plate thereto attached, sliding upon the depending guide, *h*, and lever, Q, substantially as set forth.

(62,435) REVERSIBLE DUMPING SLED.—J. H. Nonamaker, Middletown, Pa. :

I claim, *First*, The draught-hook D, constructed substan-

tially as herein shown and described and for the purpose set forth. *Second*, Making the sled reversible by forming runners, B, upon both sides of its bottom or floor, A, substantially as herein shown and described. *Third*, Rounding off both ends of the runners so that the sled may be drawn with either end forward, substantially as herein shown and described. *Fourth*, The combination and arrangement of the chains, E and C, with the end of the sled and with the draught-hook, D, substantially as herein shown and described.

(62,462) BOLT-CUTTING SHEARS.—S. W. Wright, assignor to himself and S. J. Wright, Ellsworth, N. Y. :

I claim the cutting-levers, A, A, and the cross-piece, B, constructed, arranged, and combined substantially as herein shown and described and for the purposes set forth.

(62,478) DUMPING WAGON.—George R. Cramer, Cincinnati, Ohio :

I claim the combination of the crank-shaft, D, roller E, lever, *d*, and body, F, or their equivalents, when the same are arranged and operate substantially as above described.

(62,506) WHIP-SOCKET.—Joseph Steger, assignor to himself and W. Hauff, New York City :

I claim the arrangement of a spring-catch in the interior of a whip-socket, in combination with a suitable recess in the whip-handle, substantially as and for the purpose described.

(62,509) WAGON BRAKE.—O. C. Taylor, Rome, Pa. :

I claim the arrangement of the blocks and springs upon the outer ends of the separate levers, F, F, when used in combination with the bar, E, rods, *d, d*, and rod, *e*, substantially in the manner and for the purpose specified.

March 5. (62,543) SPRING FOR CARRIAGES.—John M. and Eugene Ingold, Alleghany, Pa. :

We claim, *First*, Making elliptic or ellipsoidal springs of one or more leaf or leaves, each leaf extending all around the springs until its extremities nearly or quite touch each other, so as to form an unbroken curve around the extremities of the major axis of the ellipse and thus dispense with the welding of the leaf or leaves, substantially as hereinbefore described. *Second*, The arrangement of the leaves of an elliptical or ellipsoidal spring, consisting of two or more leaves, and constructed as hereinbefore described, without welding, so that the joint at the extremities of each leaf of the spring shall be lapped or curved by the next contiguous leaf of the spring, the joints of the leaves being alternately placed at or near one or other of the extremities of the inner axis of the ellipse, substantially as and for the purposes herein before described.

(62,551) METHOD OF ATTACHING HUBS TO AXLE-BOXES.—Thomas C. Maris, Athens, Ohio :

I claim, *First*, The cap, A, with its ribs, *b, b*, substantially as above described and set forth. *Second*, The cap, E, in combination with the box, C, and screw-thread, as substantially described. *Third*, Securing the hub to the box, C, by means of caps, A and E, when one of said caps is rigidly attached to the box and the other adjustable, substantially as described. *Fourth*, Constructing the cap, A, with one or more of its ribs hollow for the purpose of introducing oil to the spindle, substantially as described.

(62,569) CARRIAGE-GUARD.—F. B. Shaw, Boston, Mass., assignor to Silas S. Shaw, Bath, Maine :

I claim a carriage-guard made of india-rubber, or its equivalent substance, as and for the purpose specified.

(62,580) MACHINE FOR SHRINKING TIRES.—Christopher H. Wakefield, Montpelier, Vt. :

I claim the combination as well as the arrangement of the movable carriers, B, B, connected as described, and their operative mechanism or rods, *o, o*, with the self-adjusting jaws, *d, e*, the cammed lever, C, and the slider, D, the whole being to operate together substantially in the manner and for the purpose as hereinbefore specified.



## THE CHIGNON.



ARISTOCRATIC LADY. *Oh, my! how warm it is.*  
 WAITING MAID. *That's so. I guess it'll be cooler when yees git out of the carriage.*  
 [Madame faints.]

## CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, May 10, 1867.

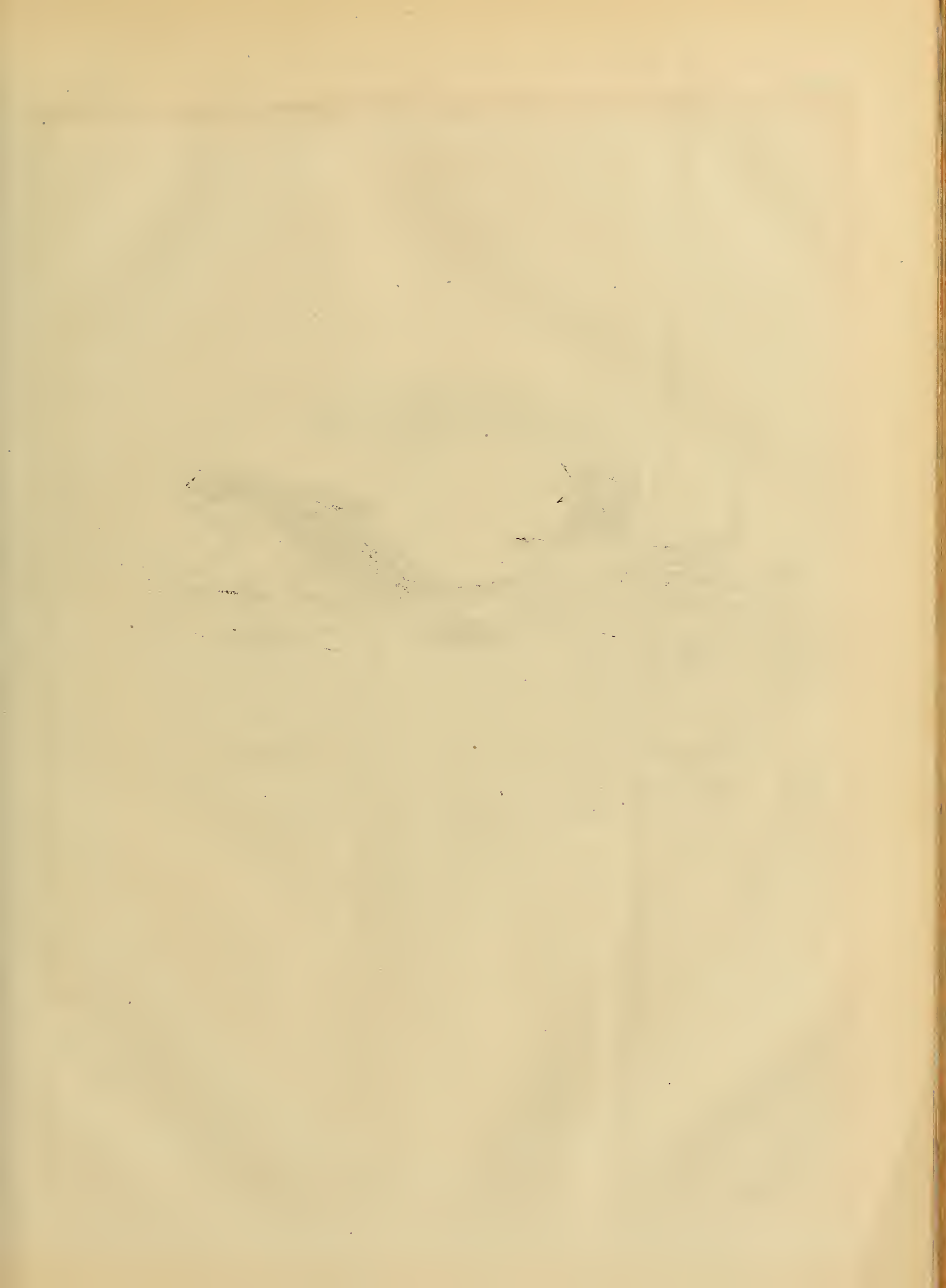
Apron hooks and rings, per gross, \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 9c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1½, \$7.50; 1¾, \$8.50; 1⅞, \$9.50; 1⅝, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1½, \$8.25; 1¾, \$8.75; 1⅞, \$10.75; 1⅝, \$13.00.  
 Do. Half pat., 1 in. \$10; 1½, \$11; 1¾, \$13; 1⅞, \$15.50; 1⅝, \$18.50.  
 Do. do. Homogeneous steel, ⅝ in., \$14.00; ¾, \$14; ⅞, \$15.00; long drafts, \$4 extra.  
 ☞ These are prices for first-class axles.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3½ in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, under 1½ in., \$2.25 per set; extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 10 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. ½ in., \$1.50; ⅞, \$1.50; 1, \$1.70; 1¼, \$2.10; 1, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 25c.; per large gross, \$2.50.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 60c. a \$1.  
 Castings, malleable iron, per lb, 20c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$4 a \$6; lining, \$3 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.  
 Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 75c.; 5-4, \$90c; 6-4, \$1.15.  
 Do. Ducks, 50 in., \$1; 5-4, \$90c; 6-4, \$1.15.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb, all sizes, 25c.  
 Fifth-wheels wrought, \$1.75 a \$2.50.  
 Fringes, festoon, per piece, \$2; narrow, per yard, 18c.  
 ☞ For a buggy top two pieces are required, and sometimes three.  
 Do. silk bullion, per yard, 50c. a \$1.

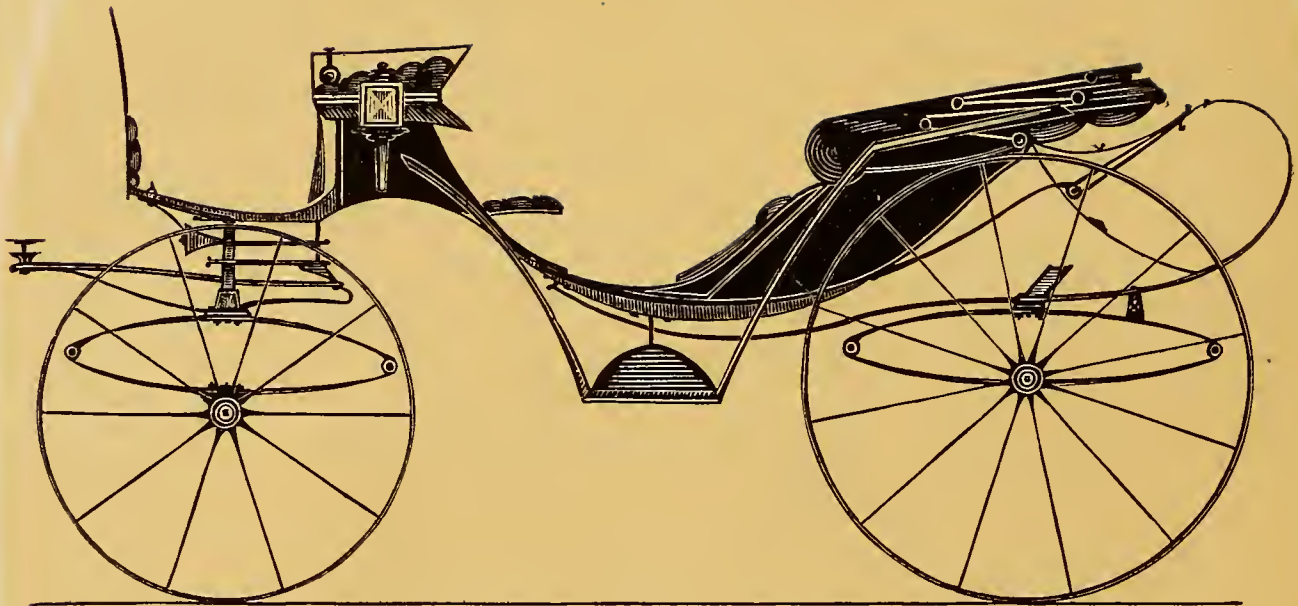
Fringes, worsted bullion, 4 in. 50c.  
 Do. worsted carpet, per yard, 8c. a 15c.  
 Frogs, 75c. a \$1 per pair. Glue, per lb, 25c. a 30c.  
 Hair, picked, per lb, 54c.  
 Hubs, light, mortised, \$1.20; unmortised, \$1.— coach, mortised \$2. Japan, per gal. \$2.75.  
 Knobs, English, \$1.40 a \$1.50 per gross.  
 Laces, broad, silk, per yard, \$1.00 a \$1.50; narrow, 10c. to 17c.  
 Do. broad, worsted, per yard, 50c. a 75c.  
 Lamps, coach, \$18 a \$30 per pair.  
 Lazy-backs, \$9 per doz.  
 Leather, collar, dash, 30c.; split do., 18c. a 21c.; No. 1, top, 31c.; No. 2, enameled top, 30c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c.  
 Moquet, 1½ yards wide, per yard, \$8.50.  
 Moss, per bale, 10c. a 18c.  
 Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. a 20c.; ½, lead, door, per piece, 40c.  
 Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c. Name-plates.  
 Oils, boiled, per gal., \$1.60.  
 Paints. White lead, ext. \$14.50, pure \$15.50 per 100 lbs.; Eng. pat. bl'k, 40c.  
 Pole-crabs, silver, \$5 a \$12; tips, \$1.50.  
 Pole-eyes, (S) No. 1, \$2.35; No. 2, \$2.60; No. 3, \$2.85; No. 4, \$4.50 per pr.  
 Sand paper, per ream, under No. 2½, \$5.50; Nos. 2½ & 3, \$6.

Screws, gimlet, manufacturer's printed lists.

Do. ivory headed, per dozen, 50c. per gross, \$5.50.  
 Scrims (for canvassing), 16c. a 25c.  
 Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.  
 Shaft-jacks (M. S. & S.'s), No. 1, \$2.65; 2, \$3.10; 3, \$3.35.  
 Shaft-jacks, common, \$1.35 a \$1.50 per pair.  
 Do. tips, extra plated, per pair, 25c. a 50c.  
 Silk, curtain, per yard, \$2 a \$3.50.  
 Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.  
 Slides, ivory, white and black, per doz., \$12; bone, per doz., \$15.00 a \$2.25; No. 18, \$2.75 per doz.  
 Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.  
 Spring-bars, carved, per pair, \$1.75.  
 Springs, black, 19c.; bright, 21c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1½ in., 1c. per lb. extra.  
 If under 36 in., 2c. per lb. additional.  
 ☞ Two springs for a buggy weigh about 23 lbs. If both 4 plate, 34 to 40 lbs.  
 Spokes, buggy, ⅞, 1 and 1½ in. 9½c. each; 1½ and 1¾ in. 9c. each; 1½ in. 10c. each.  
 ☞ For extra hickory the charges are 10c. a 12½c. each.  
 Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.  
 Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½; 3-4 x 5-32 a 11 c; heavier sizes, 9½c. currency.  
 ☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.  
 Stump-joints, per dozen, \$1.40 a \$2. Tacks, 8c. and upwards.  
 Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.  
 Terry, per yard, worsted, \$3.50; silk, \$8.  
 Top-props, Thos. Pat, wrought, per set 80c.; capped complete, \$1.50.  
 Do. common, per set, 40c. Do. close-plated nuts and rivets, \$1.  
 Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.  
 Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.  
 Do. Marshall's Machine, 432, \$2; 532, \$2.10; 632, \$2.60, gold.  
 Tufts, common flat, worsted, per gross, 20c.  
 Do. heavy black corded, worsted, per gross, \$1.  
 Do. do. do. silk, per gross, \$2. Do. ball, \$1.  
 Turpentine, pr gal., \$1. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.  
 Varnishes (Amer.), crown coach-body, \$5.50; nonpareil, \$6.50.  
 Do. English, \$6.25 in gold, or equivalent in currency.  
 Webbing, per piece, 65c.; per gross of 4 pieces, \$2.40.  
 Whiffle-trees, coach, turned, each, 50c.; per dozen, \$4.50.  
 Whiffle-tree spring hooks, \$4.50 per doz.  
 Whip-sockets, flexible rubber, \$4.50 a \$6 per dozen; hard rubber, \$9 to \$10 per doz; leather imitation English, \$5 per doz.; common American, \$3.50 a \$4 per doz.  
 Window lifter plates, per dozen, \$1.50.  
 Yokes, pole, 50c.; per doz, \$5.50. Yoke-tips, ext. plated, \$1.50 pair.



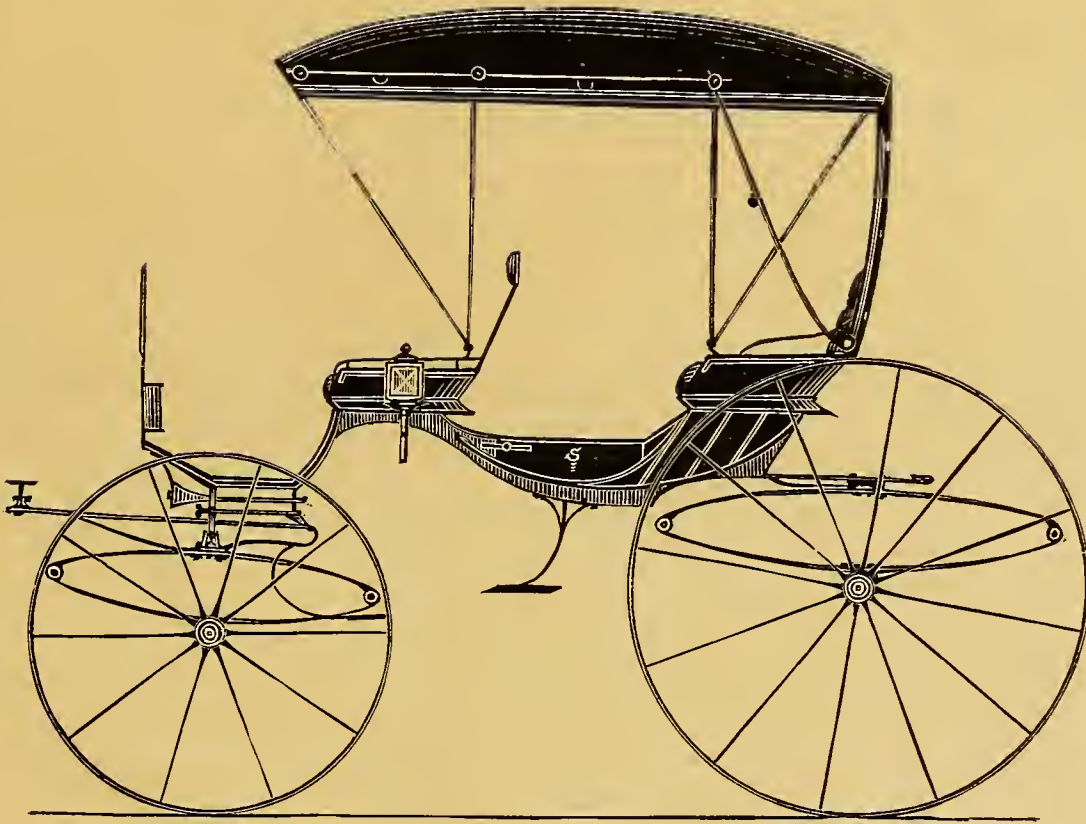




HALF-PERCH VICTORIA PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 25.*



NO-PERCH ROCKAWAY.— $\frac{1}{2}$  IN. SCALE.

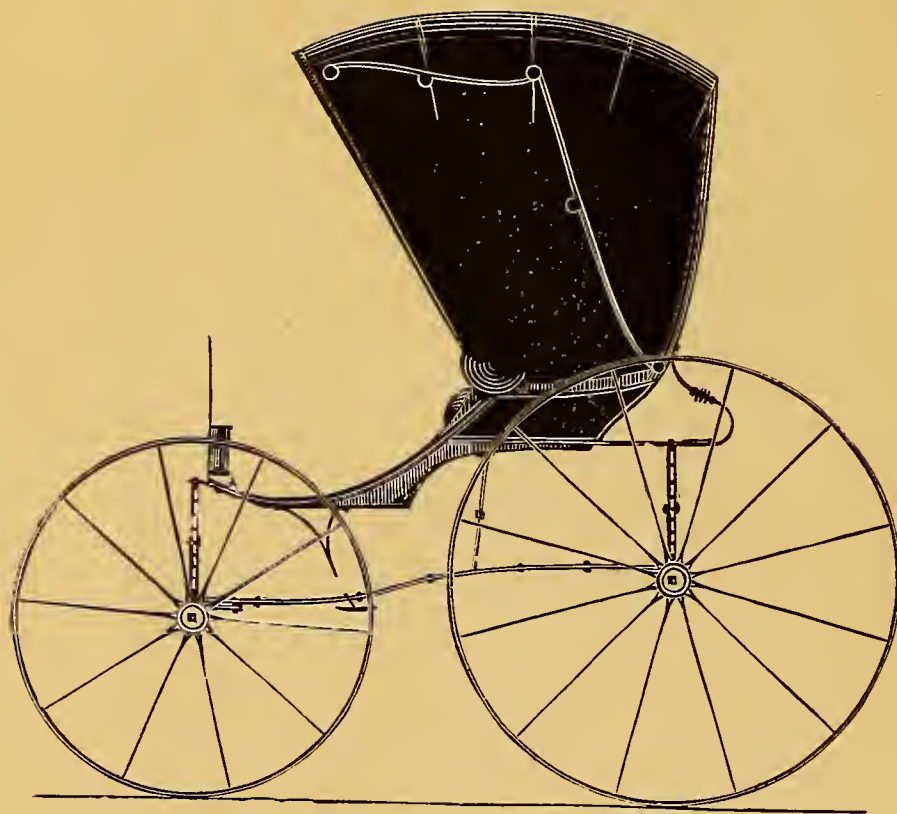
*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 25.*







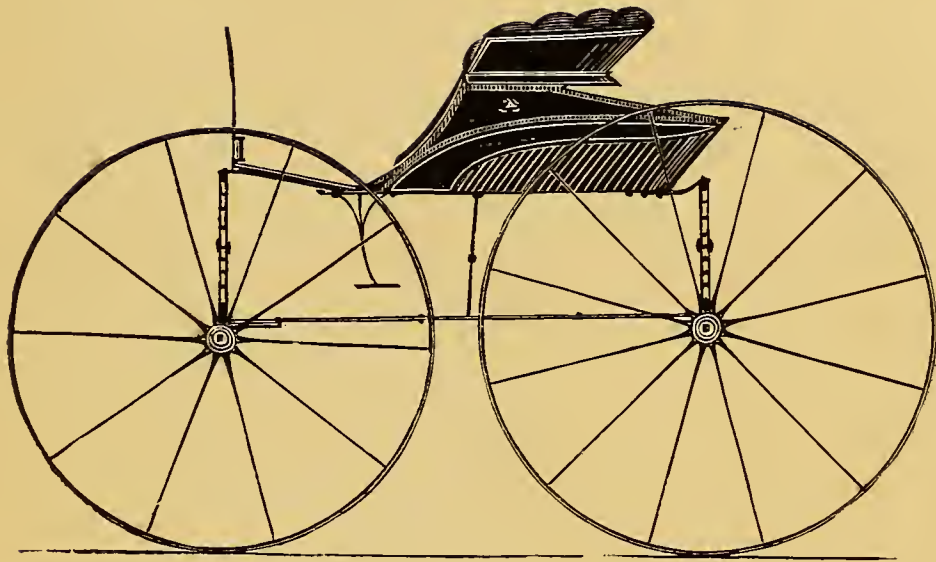


PHYSICIAN'S PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 25.*





ROAD BUGGY.— $\frac{1}{2}$  IN. SCALE.  
*Designed expressly for the New York Coach-maker's Magazine.*  
*Explained on page 25.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

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No. 2.

## Mechanical Literature.

### THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

#### CHAPTER I.

OF all the notable things on earth,  
The queerest one is pride of birth.

\* \* \* \* \*  
There was pride in her head she carried so high,  
Pride in her lip, and pride in her eye,  
And a world of pride in the very sigh  
That her stately bosom was fretting.

*Saxe.*

THE distance from the river-landing to Greendale was scarcely half passed, yet Walter Cummings was already weary. In truth, a ride of twenty miles, with twenty more in prospective—the sole inside passenger of a lumbering old stage-coach—was enough to weary any one. So in order to relieve the monotony as much as possible, he yawned, halloed the driver, ordered a halt, and changed his base by taking an outside seat. The change proved a judicious one. The fresh March breeze—do not confound it with a *fresh breeze* with which that very disagreeable month is wont to regale the residents of the Northern States—but warm and balmy, redolent with thousands of spring flowers, cheered and roused him from the stupor that was fast settling on him, with its attendant yawnings and listless indolence. The songs of the birds and the rippings of the streams sounded clear and pleasant, while the rough, loud-voiced driver, appeared a very pleasant companion—the same as Friday did to Robinson Crusoe, because the said R. C. could get no better. The deep forest, arrayed in its fresh emerald hues, through which they had been passing for the last hour, terminated at the summit of a high hill, and the broad acres of a large plantation stretched out before them, through the centre of which ran the stage road, so hard and firm that McAdam would have looked upon it with feelings of envy.

"We are just entering the canebrake region now," said the driver with a crack of his whip that made the

leaders spring forward and the old coach to swing and creak at every joint. "We won't have much more woods 'tween here and Greendale, only on the creeks and small streams. Mighty rich country this."

"Yes," replied Walter, "it seems to be a very fertile soil, and a large plantation, too."

"Yes, pretty fair; work about a hundred hands, I reckon. Down in the neighborhood of Greendale planters work five and eight hundred. There's where you'll see plantations worth talkin' about; two thousand acres of cotton in one field," and he cracked his whip louder than ever by way of a eulogium to his assertion.

Near the centre of the plantation, on a gently elevated knoll and some distance from the road, stood the planter's residence, painted very white and looking very pretty, surrounded as it was with great trees and shrubbery, now one mass of living green. But just beyond and nearer the road was the negro quarters, some twenty log-cabins on either side of a broad avenue, at the head of which stood the overseer's house. This avenue, the common play-ground of all the negro children, was filled with the prolific china-tree and wide-spreading live-oak, beneath whose ample shade a troop of little darkies were frolicking at the time of which I write; but no sooner did they hear the clattering of the stage-coach in the distance than they uttered a yell that would have done no discredit to a quondam war-party of savages, and every one old enough to exercise their powers of locomotion started for the "big road."

As the stage neared the spot, one of the largest, who had perched himself on the fence, yelled out at the top of his voice, "Hold on dar; young Missus Bell wants to go to Greendale wid you."

"Who is it wants to go?" asked the driver, as he reined up his horses.

"Mass'r Jo. Bell's daughter of Greendale. Golly, ain't she pretty!" and the young Jim Crow sprang from the fence at the risk of breaking half-a-dozen heads below, and running up to the coach was soon busily engaged in a detailed survey of the ponderous old vehicle.

"You won't complain now," said the driver, "about the journey being tedious; but instead, I s'pose, you'll blame me for not driving slower."

"Who did the little darkey say it was?" asked Walter, not because he did not understand what the boy said, but because he wanted to find out all about the "pretty young



Missus" from one whom he supposed could tell her whole history.

"It's Miss Mary Bell of Greendale," replied the driver. "Her father, Col. Jo. Bell, is one of the wealthiest citizens of that burg. Miss Mary has been visiting here, I suppose, as this is an uncle of her's. As the little darkey said, she is pretty, besides being as proud as Juno. In fact, you'll find all Greendale that way, for it's not only one of the wealthiest, but one of the most aristocratic little towns in the State. But here she comes, and now you can judge for yourself about her looks. Of course you'll take an inside seat," and the driver commenced descending from his exalted position.

Walter followed his example with commendable alacrity, for the idea of a pretty girl for a sole companion of twenty miles was decidedly pleasant, and promised a cheerful contrast to the first half of his journey. The great plantation gate now swung open, and a party of half-a-dozen women, preceded by the "lord of the manor" and followed by another group of juvenile darkies, came marching through.

"Want you to take my niece to Greendale; put her down at my brother's, Col. Bell's. You know where it is," said the planter, as he approached the driver. The latter merely nodded an assent, and then commenced an elaborate survey of horses and harness, partly from custom to see that everything was "all right," but principally to keep himself occupied during the rather tedious period of leave-taking among the female portion of the assembly that was sure to follow.

Meanwhile, Walter had partly opened the coach door, and now stood leaning against it in a position that reminded one of the classic attitude so happily conceived and executed by the elder Kean in Richard the Third, during Lady Anne's lamentations over the death of her royal lord. In truth, the parting was tedious. It is a fact, and one which I think the masculine portion of humanity will bear me out in, that ladies invariably forget their most important messages until the last moment of parting. There was half-a-dozen loves sent to half-a-dozen different persons; there were parcels of laces and frills; of boxes and bundles to be purchased in Greendale and sent out by the return coach; then there was something forgotten, and a servant dispatched to the house after it; until even the driver began to show signs of impatience as he commenced clambering back to his seat. Walter, however, maintained his graceful position by the door, and busied himself with a careless, unobserving, yet keenly scrutinizing survey of the group. Of course he easily detected his *compagnon du voyage* that was to be, and the first glance confirmed the assertion of the dusky herald from the fence-top and reiterated so positively by the knight of the ribbons. She was indeed a magnificent type of your perfect brunette, stately and graceful as a queen should be and always is in the plebeian imagination, displaying that most charming of all traits—the most exquisite taste in her superb and rather magnificent toilet. There was that most delicate blending of colors that suited her complexion and hair so well; that consummate skill and tact, without which a Cleopatra would lose half her charms. But hold on—I am getting into a labyrinth here, worse than Memnon's, and if any of my lady readers—do they read "our Mag.?"—expects me to go still farther and attempt to describe her dress in detail, why they are destined to be disappointed; for a modern

lady's toilet is one of the mysteries that I can only gaze and wonder at, as astronomers do comets.

The last good-by was finally said, the last kiss given, and she approached the open door, while Walter, lifting his hat with a slight bow, handed her within, and then followed, closing the door behind him. At the same time the attendant negroes had strapped a trunk on behind the coach, placed a variety of boxes and bundles within, the driver cracked his whip, Miss Bell leaned forward, looked out of the door window, repeated her good-by, and they were off.

How easy it is to tell how one's past life has been spent by seeing him thrown in the society of a strange lady under such circumstances as these of which I write. You can detect the cosmopolitan, the polished gentleman, or the unsophisticated countryman, at a glance. The first is easy, graceful, dignified; the last restless, awkward, and confused. One glance told that Mr. Cummings belonged to the former class. He placed the boxes and bundles before mentioned—no fashionable lady travels without them—in secure, out-of-the-way places, took one glance at her ladyship as she reclined haughtily in one corner of the back seat, then took a corresponding position in the opposite corner of the front seat, and folding his arms, calmly awaited events.

It is the great fault with your young and inexperienced general that he commences the battle a little too soon. But your able military tactician watches and waits until the proper moment arrives—until a telling blow can be given—and then, "Up boys and at 'em!" I take it for granted that every young unmarried man wishes to make a favorable impression on the mind and heart of every good-looking unmarried lady he happens to be thrown in contact with. Mr. Cummings was no exception to the rule. He watched his opportunity; he found it, and he improved it.

The first mile of their journey lay over the level plantation, which was passed rapidly, and the crazy old coach made such a deafening rattle that it was impossible to hear a word; but soon they reached a narrow belt of wood, with a small stream coursing through its center, and a steep hill on either side. Here our modern Jehu was compelled to drive slowly, and here the opportunity above alluded to occurred.

There is nearly always a particular bundle—whether of more value or no I cannot say—that a lady will carry in her lap—at least it was so in the present case. While going down the hill the coach gave a sudden lurch in a deep rut, and the bundle slipped from the daintily-gloved hand of Miss Bell, and rolled down somewhere in the neighborhood of Walter's feet. It was picked up almost before it touched the floor, and returned as soon as the effects of the lurch had passed by, with the remark, "This is almost as bad as a sea voyage. We have the consolation of a shorter journey in prospective, however, and not such dreaded effects to be anticipated."

She took the proffered bundle with a slight inclination of the head, scarcely perceptible, and a low, indifferent something—it might have been intended for "thank you," or any other equally brief expression—and she returned to her former position of calm indifference.

"Proud, beautiful, and aristocratic," muttered Walter to himself; which means, in our new vocabulary of modern civilization, that the feminine possession of those three very fashionable accomplishments has a firm conviction



that all the masculine portion of the human race are created and fit only to wait upon them, obey their slightest wish, and, in a word, make themselves very abject, gentlemanly slaves for their especial accommodation.

"You live in Greendale, I believe," he added, after a moment's pause. Another slight inclination of the head was her reply.

"I anticipate much pleasure during the few months I may remain there," he continued, "drawing conclusions from the very flattering account of our driver, and the various letters I have received from there, all of which confirms me in the opinion that it is a very beautiful place."

"Then you have never been there?" she said, changing her position.

"Never," he answered. "This part of the country is all new to me, consequently every face a strange one. We have yet a long journey before us—twenty miles, I think, our driver tells me—and as it promises to be a tedious one, unless we mutually agree to make it otherwise, would it be presuming too far to ask of you to cancel the laws of society in a single particular, and consider ourselves formally introduced? It will relieve us both from the disagreeable and embarrassing position of strangers in very intimate companionship. Permit me—my name is Cummings—Walter Cummings, at your service, while I have the honor of addressing Miss Bell. You see, a driver is a very useful person sometimes," and a slight smile played upon his features.

She looked at him with more than ordinary interest as he spoke, and she reasoned thus: "He is easy and affable in his manners, consequently he must have moved in good society; he has moved in good society, consequently he must be a gentleman; he is a gentleman, consequently it will not compromise my dignity to accept his proposition and acknowledge his introduction *pro tem*." Having arrived at this conclusion, his smile was answered by one still deeper, as she replied: "In order to make our journey more agreeable, I accept your proposition and acknowledge your introduction, but only temporarily."

"We shall see as to that," he thought, as, with a slight bow, he answered aloud—

"Of course your wish on that point shall be law; yet I will dare to hope that the acquaintance thus auspiciously begun will prove more lasting. Do not think me in anywise addicted to superstition when I say that I consider this a good omen of my sojourn in your charming village. Just as one is ready to die of *ennui*, to be suddenly and unexpectedly thrown into the society of youth, intelligence, and beauty"—here he bowed with artful grace—"it certainly augurs well of the future."

"I see," she returned, "that you are an adept in the language of the world, and think, like the majority of your sex, that flattery is the first weapon to use in order to ingratiate yourself in our good opinion."

"Do not for a moment harbor such an idea," he answered, somewhat quickly; "Truth is a Goddess that never flatters, and I profess to be one of her most devout worshippers."

"Then you are certainly very different from the rest of mankind; and if I should speak as your Goddess dictates, I would be compelled to say that the society of such a person, at times, would be quite a relief after the meaningless adulations of the common throng."

"Allow me to indulge in the hope that I may hereafter

prove the candor of my assertions," he replied, while a feeling of self-gratification passed through his brain, for that last reply of hers was spoken in such a condescending sort of a tone that he knew he only had to render himself agreeable and interesting during the rest of the journey in order to part at least very good friends, with the field of future intimacy open before him.

How circumstances will change our very desires and wishes! Before that lumbering old stage-coach halted at Mr. Bell's plantation gate Walter Cummings was vexed at every hill because the horses walked up it. He was impatient at every delay, and more than once he had reiterated to the driver the latter part of that very expressive motto, used by the Hon. David Crockett, "Go ahead!" But now—*presto change!*—it was quite the reverse; the steeper the hills and the slower the pace the better was he satisfied, and it was only when the horses started off at a two-forty pace, and made the old coach swing and rattle loud enough to have drowned the voice of old Stentor himself, that he was impatient. Yet there were hills enough, and the horses went slow enough for him, to cause her ladyship to think that he was a very agreeable companion, and to forget that their introduction was not according to the established usages of *à la mode*, long before they reached Greendale. It was not so much what he said, as the manner in which he said it. There was that indescribable fascination in his manner, his voice, and his expression, which one so seldom sees, yet which charms the proudest and most inattentive listener, sometimes even against their better judgment.

Think not, oh ye "Gentle Reader!" that I am going to inflict on you a detailed account of that conversation. Even a moiety of it, I fear, would prove "flat, stale, and unprofitable;" therefore, arriving, as we already have, at the effect, we will dismiss the *cause* to where it properly belongs—the turbid waves of Lethe.

The moon had risen and was shining from an unclouded sky when they entered the village of Greendale, and, turning off from the main street, stopped at the stately mansion of Col. Bell. Walter had an eye and finely-cultivated taste for the beautiful in nature, and the deepest poetical feelings of his soul were called forth as he gazed upon the exquisite scene by which they were surrounded. Palatial-like residences of wealthy planters, imbedded in the gorgeous vegetation of an almost tropical climate, viewed in the soft light of a full moon—the whole scene so quiet, so like some half-remembered dream of fairy-land, yet so sadly beautiful—can we wonder that his voice sank almost to a whisper as he expressed his rapturous thoughts and feelings in words that partook more of enthusiasm than any he had uttered during the entire journey.

Opening the door, he descended from the coach, and then assisted his companion to alight, while a dozen or more attendant negroes of the juvenile species gathered the bundles, boxes, and trunks, and bore them off in triumph to the house. Opening the gate, she was about to pass in, when noticing a bevy of ladies and gentlemen approaching from the house, and knowing that he had but a moment left, he bent forward and said:

"How can I sufficiently thank you for one of the most pleasant afternoons that I have ever passed while traveling. Can we not part with the hope that we shall meet again?"

There was no hesitation in her voice, yet her manner had lost none of its haughty bearing, as she answered:



"Certainly, I should be pleased to have you pass an evening with us at your convenience," and she passed in.

"Thanks!" he exclaimed, as, closing the gate, he sprang in the coach, and they were off again. Twenty minutes later he was comfortably seated, regaling himself on the bounteous repast prepared by mine host of the "Dale House" for the stage passengers; and to see the careless grace with which he supped his coffee and buttered his hot rolls, while he discussed the prospect of the crops and politics with the landlord, one would think that the proud beauty with whom he had so lately parted was farthest from his thoughts.

#### A "RAW HAND" ON SCREW-DRIVERS.

MR. EDITOR,—*Sir*: I have been a not uninterested reader of the discussion on screw-drivers in the columns of your valuable Monthly; and, as the lists appear to be open to all competitors, I will, with your consent, advance my own views, hoping that my first article on this subject may also be my last, as I conceive the difficulties in the case are not such as to require prolonged argument.

It seems to me that while Mr. Peek and "Body-maker" agree in the greater efficiency of long screw-drivers, neither apprehends the true reason of their superiority over short ones. A long screw-driver is not necessarily more efficient than a short one. In estimating the power of a particular screw-driver its length is usually quite a secondary consideration. Whether it is more or less efficient than another of different length depends upon the circumstances under which it is to be used. In point of fact, excessive length involves a loss of useful effect, as any one can satisfy himself by using a screw-driver ten feet long. There is no mechanical advantage in the ordinary screw-driver except the slight leverage due to the difference between the diameter of the handle and the width of the blade where it comes in contact with the screw. Why then do we use a screw-driver at all? Simply because with it we can get hold of a screw better. What is this *hold* the screw-driver gives us? Except that its point fits into the head of the screw, there is no hold but the friction between the handle and the hands of the operator. If he grasps the screw with his thumb and finger the friction will be small, owing to the reduced surfaces in contact, and consequently but little power will be applied to the screw; but, by the intervention of a screw-driver, he is enabled to bring a vastly increased surface and friction—and consequently power—to bear on the screw. Long screw-drivers generally have longer as well as larger handles than short ones, so that the operator can grasp them more perfectly; and their length enables him to place himself in a more advantageous position for a great effort than when he has a short one, with its proportionately short and small handle, and which in addition brings him often inconveniently near his work. In brief, a long screw-driver is more advantageous only as it is more convenient than a short one. Elasticity no more than electricity is concerned in the affair. How can the shank of a screw-driver *twist out* more power than the operator *twists into* it? Will Mr. Peek turn a screw-driver with a power of one hundred and expect it to turn the screw with a power of one hundred and one? If elasticity be power, Mr. Peek had better have his screw-drivers made in the form of a cork-screw, as thereby their

elasticity may be increased to any required extent; and who knows—such is the perfection to which art has attained now-a-days—but some genius may make a screw-driver so elastic as to drive a screw without human aid! Until then, what would be thought of the engineer of a mill who should locate his light machinery nearest the engine, and the heaviest machinery farthest off, expecting it to be propelled by the elasticity of the line shaft?

With regard to the leverage of a screw-driver when out of line with the direction of the screw, I think it may possibly exist, in theory at least, but it is utterly valueless in practice; and I would most earnestly advise Mr. Peek and all others to keep their screw-drivers as nearly as possible in line with the direction of the screw.

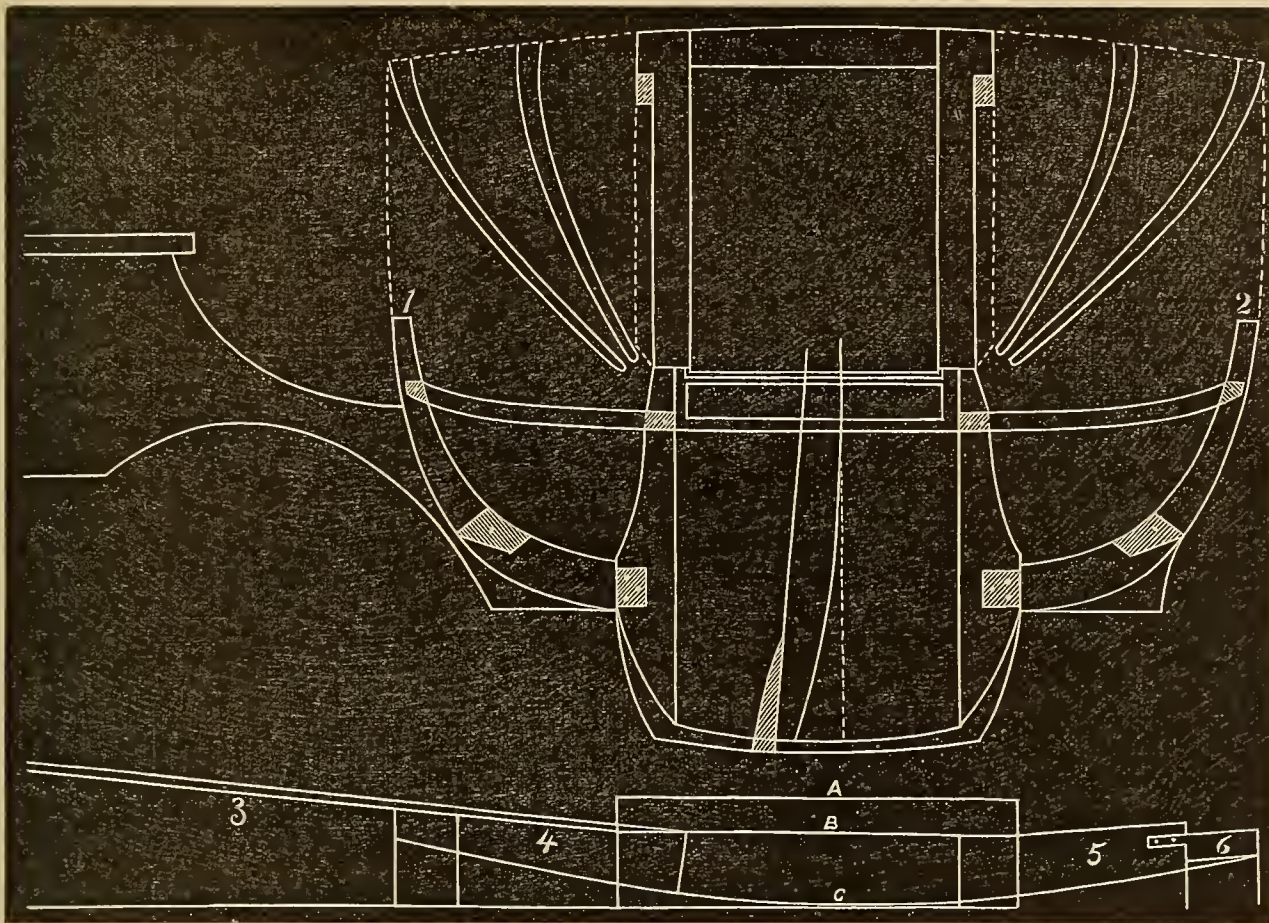
In conclusion, I propose this *experimentum crucis* for both Mr. Peek and "Body-maker": Provide two screw-drivers *exactly alike* in all respects, except that the shank of one shall be much the longest. Let the handles be of the same length, shape, and diameter, and the blades at the end of the same width. Secure a hard, well-seasoned stick in a vise so that the end shall project out where there is plenty of room to work. Bore a small hole in the end of the stick, and insert the end of a screw so large and long that the utmost effort of a man will be insufficient to drive it entirely into the wood. Now take the short screw-driver, grasping it only by the handle, and drive the screw as far as possible; then take the long one, as before, *only by the handle*, and if you succeed in turning the screw "a peg" farther than with the short one, even if it be a yard, a rod, or a mile long, and possessed of all the elasticity the "Learned Blacksmith" himself could put into it, I will willingly throw up the sponge, and admit that in this argument I am no better than

A RAW HAND.

#### HOSPITAL CARRIAGE.

A HOSPITAL carriage has recently been built by Woodhall & Son, of Orchard Street, Portman-square, London, under the inspection and with the advice of Drs. Murchison and Horace Jeaffreson, which is made as much as possible to resemble a private brougham. The back is constructed to open on hinges so as to allow of the patient being easily put in the carriage while lying on a couch, which is made to slide smoothly upon rollers fixed to the frame-work. The door opposite the side occupied by the patient is made to open, and accommodation is provided for an attendant inside the vehicle. The whole is hung upon very easy springs, and is constructed sufficiently light to be drawn by one horse. Ventilators are introduced in the upper part just below the roof. The interior is painted throughout, so that the same, as also the vulcanized india-rubber mattress and cushion, may be washed and purified immediately after use. We may add that the makers have presented one of these carriages to the Hospital Carriage Fund Committee which was formed in the early part of last year for the purpose, not only of drawing the attention of the public to the danger hourly incurred by street cabs, being the common mode of conveyance for patients suffering from all kinds of infectious diseases, but with the view of obviating danger by the provision of special carriages. About £850 has been received and expended by the committee, and they are most anxious to receive further aid to enable them to carry on the work.—*London Engineer*.





LANDAU (ANGLO-FRENCH), WITH CANT-BOARD—HALF-INCH SCALE.

## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

### BODY CONSTRUCTION.—PART NINETEENTH.

THIS Landau so nearly resembles the one on page 6, that we are saved the trouble of detailing the mode of framing, and the particulars for constructing and arranging the head-joints. The frame-work may appear heavy, but this is necessary to give width for the edge-plates, which must be very stout to strengthen this description of carriage; for however light appearances may be, it must have a certain weight for durability.

In the cant A shows the inside of the rocker; B inside of bottom-side; C cant line; 3 boot; 4 short bottom-side, front; 5 short bottom-side, back; 6 position of back-pillar.

### OUR EGYPTIAN CARRIAGE MUSEUM.—II.

In a previous article we have introduced our theory respecting the origin of wheeled-vehicles, and intimated that the sledge was its probable original. Our speculation would seem to receive confirmation from the fact that in all representation of funeral ceremonies among the Egyptians which have come down to us, we find it depicted as answering the purposes of a hearse. If asked why we think the sledge-hearse continued to be used on all such occasions long after wagons and chariots had come into general use, we answer: that both superstition as well as veneration for the dead had much to do with it, most likely—but of this more hereafter. Among the ancients, especially among the Egyptians, the departure

of any member of a family to that bourne from whence none return was an event of the greatest and most solemn importance. All the kindred and friends quitted their usual employments, let their hair grow both on the head and face, though till then accustomed to shave, put on mourning from forty to seventy days, according to the quality of the deceased, abstaining from baths, wine, and luxuries of every description.\*

History proves that the immortality of the soul was one

important tenet in Egyptian theology. Their sepulchres for the dead were constructed as repositories for the body, in the most ingenious and durable manner, so as to bid defiance to the ravages of time—with what success age has shown. In their vast underground catacombs, in which the mummy has slept for ages awaiting the return of the "living principle" to reanimate it, have been preserved in bas-relief the records which enable us to give, with certainty, some points in this subject not hitherto presented to the public in connection with vehicular art.

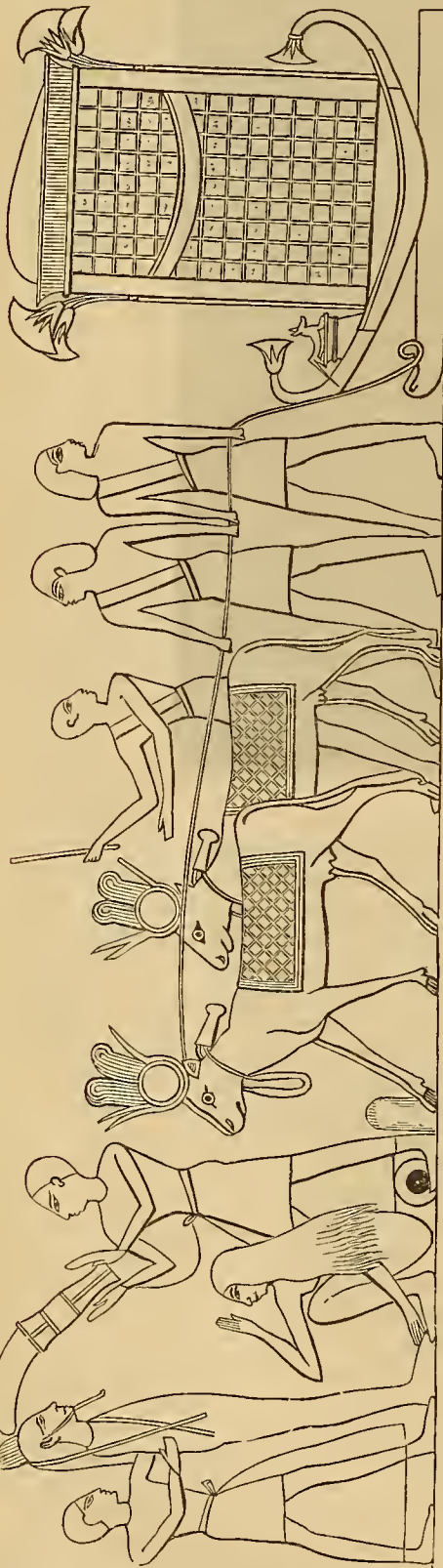
We have not space, had we the disposition, to enter into all the particulars history gives us about embalming among the Egyptians, and therefore we must refer the curious reader for details to the pages of Herodotus and Diodorus Siculus. Assuming that the sledge was early used in the conveyance of the dead at some period when as yet no other mode existed to which so much honor was attached, and was continued forever after in funeral use, to the neglect of chariots, because custom had made it sacred; thus our theory is made plausible, at least. We are distinctly given to understand by cotemporary history that the Egyptians observed their ancient customs, but acquired no new ones (Herodotus, lib. ii, v. 79). This doubtless accounts for the presence of the sledge, which invariably forms so prominent a feature in all representations of the removal of the dead, through all ages of Egyptian history.

Infidelity found no advocates among the Egyptians. They considered the present life as a pilgrimage, and their abode here as an "inn" upon the road. After death

\* See Herodotus, lib. ii, v. 36.



they expected to be received into the company of a Being who represented the Divine Goodness, should judgment pronounce him worthy. All ranks of the people were considered as equally noble beyond the tomb, neither



AN EGYPTIAN FUNERAL CORTEGE.—THE UNDERTAKER COMES FOR THE BODY.

kings nor heroes ranking any higher than the humblest man after death. The honor paid to their memory after death depended upon their good actions in life, the Egyptian laws prohibiting indiscriminate praise. Such honor could only be given after the judges, selected for the purpose, had adjudged the subject worthy from an impartial examination of his life. If no crime attached to his life, the body was interred in an honorable manner; if stained, he was deprived of burial. So strictly was this rule enforced that many of the kings, although borne with in life, were forbidden sepulture thereafter.

A favorable judgment having been obtained, the next thing was to proceed with the mortuary ceremonies.

In all panegyrics on such occasions no mention was made of the birth; every Egyptian being deemed equally noble in that respect. No praise was thought just or true, except such as related to the personal merit of the dead. "He was applauded," says Rollin, "for having received an excellent education in his younger years, and in his

more advanced age for having cultivated piety towards the gods, justice towards men, gentleness, modesty, moderation, and all other virtues which constitute the good man." Such virtues gratified the friends of the departed, since such a life would admit him to Pluto's kingdom and the society of the good in another world.

Some bodies were burned on a funeral pile, others buried in the earth, and others again, after they had been embalmed, were preserved for ages either in the house, or laid away in the sepulchre. The mourning for a good king lasted seventy days; the people sung hymns commemorating his virtues, tore their garments, covering their heads with dust and mud, some three hundred persons of both sexes coming together twice each day to publicly sing a funeral dirge; the entire nation abstaining from meat, &c., the whole time. On the last day of mourning, or perhaps some months afterwards, the time of sepulture arrived. The embalmed king is to be laid away. The body is now to be brought out from the closet, where it has been kept since the funeral ceremonies were performed. The undertaker—represented in Rosellini's Plate 127—now arrives with his sledge-hearse, the figures arranged in this manner: at the head advance two sacred cows (the Egyptians revered the cow more than any other animal, Herod. lib. ii., v. 41) dressed out with elegant blankets, neck and head gear—which last is found attached to all sacred animals of the female sex—to the horns of which the traces from the "hearse" extend. These traces are evidently "more for ornament than use." In the foreground are seen four important representatives of the *genus homo*. First we notice the priest as indicated by the peculiarity of the dress and shorn pate. He appears to be anointing the dead with holy oil or other liquid from a vessel. Just in front, between the priest and the mummy, squat on the ground, is seen the hired mourner, with her hair disheveled, the breast naked, and the hands in a position expressive of grief. The third figure is the one around which centers the greatest interest, as it represents the dead man, dressed out in ceremonies for the tomb, to which the body is now about to be taken. The fourth, supporting the body in an upright position, represents an attendant who probably serves as both priest and undertaker for the time being. There are three other attendants, one of which acts as driver, holding in his hand a rod, the other two acting as draughtsmen to the sledge or hearse.

The character of this bas-relief leads us to infer that the picture represents a funeral cortege approaching the house of mourning preparatory to the removal of the dead to the tomb beyond the river; a kind of boat (Egyptian *baris*) being carried upon runners, in the front of which, on a sort of dais, appears the figure of a fox—probably indicative of wisdom—the boat being appropriately ornamented with papyrus flowers. The rituals for the dead being almost exclusively written on paper made from this plant, leads us—in the absence of testimony—to think that there was something peculiarly sacred about it for funeral purposes.

In a second department of the same—Plate 127—the body of the defunct is represented as on its way to the tomb, stretched upon a sort of bier on the "hearse," the order of the cortege being thus: first, two sacred oxen precede the hearse, on which the *boat hearse* or *baris* is placed. From the head of the sledge, on which this last is drawn, extends a rope, one end of which curls



around the animal's horns. These oxen are attended by two drivers, the foremost of which holds an upraised whip, the second with upraised hands apparently *halloing* them on; the third figure following after with some sacred utensil; the fourth and fifth assisting the draught by taking hold of the lines at the middle; the sixth evidently the female mourner, since she sits on the ground as in the ease previously described. All these precede the hearse. Next after it comes another mourner, then two men, scribes, with scrolls in their hands, followed by two others with staves. These scribes bear the papyrus rolls, recording the good deeds of the deceased, without which no Egyptian, as we have seen, could be honorably buried.

The recens discovery of a tablet with detcriptions in three language, giving a further clue to the interpretation of Egyptian hieroglyphics, proves to be of more worth and importance than the famous Rosetta stone. Like the Rosetta stone, it is a decree of the priests of Memphis, assembled to pass a vote of thanks to one of the Ptolemies. As yet the translation of no more than twenty lines of this newly discovered inscription has been published; but it proves that many assumptions made by philologists in past years to the meaning of some unknown but frequently recurring characters on Egyptian monuments, have not been erroneous.

Another article, in which we shall show the sledge on wheels, copied from a bas-relief, will finish what we have to say about funeral vehicles, and serve as a fitting introduction to our intended series on Egyptian wheeled vehicles.

## Home Circle.

### THE PARTING DAY.

FROM A LADY CORRESPONDENT.

Oh! dearest lov'd one, blame me not  
 If I am pensive now;  
 It is that dreaded parting day  
 Brings sorrow to my brow.  
 Though oft I check fast falling tears,  
 And bid my heart be still,  
 I cannot drive sad thoughts away,  
 They come without the will;  
 And fain I would be happy too,  
 While thou may'st linger here,  
 And laugh the joyous hours away,  
 Nor mar them by a tear.  
 But ah! that sad, undying thought,  
 That we, ere long, must part,  
 With present joy doth mingle grief,  
 And wrings my aching heart.

Then, dearest lov'd one, blame me not  
 When tears bedew my cheek;  
 The grief I would from others hide  
 Forbids me oft to speak;  
 But while a spark of life remains,  
 The heart I've pledged to thee,  
 For thee shall beat both warm and true,  
 Alike in grief and glee.  
 But ah! the night is waning fast,  
 I'll seek repose awhile,  
 And fondly hope in pleasant dreams  
 To meet thy cheering smile;  
 For while embraced in slumber sweet,  
 On fancy's pinions bright,  
 Perchance thy spirit seeketh mine—  
 Good night, my love, good night!

## THE VANITY OF RICHES.

BY MRS. C. B. HOUSEL.

### CHAPTER II.

In a few days I was on my way to Richmond. From thence, by carriage, it was some two hours' ride to the mansion of the Carterets. A balmy June day was declining toward sunset when the ebony porter issued from its lodge to admit me to that proud domain. To my inquiries for the family he replied that "Master was abroad; but Miss Ella was at de house, expectin' de lady." A small corps of sable-hued infantry trooped up the avenue in advance of the earriage, possibly to announce my approach, for as it swept from under the over-arching trees and paused before the lofty portico of the white-walled mansion, my darling Ella sprang down the steps and elased me in a joyous embrace.

All trouble was forgotten in the eager, girlish delight of our first interview. Ella would not eloud her welcome with a single dash of sadness; and with our arms twined around each other in the old loving way, we sat down where we had met, for there I preferred to remain, while the purple and crimson gleams of the warm Virginia sunset lingered on the fair scene around me. Truly was it a realm of enchantment. Trees of a century's growth cast their gigantic shadows on the sweeping lawn; silvery fountains dashed their feathery spray in cooling showers upon the ambient air; and down through lengthened aisles of verdure was caught the gleam of sculptured marble forms of beauty and of grace—chaste guardians of these sylvan haunts.

The mists of evening gathered above the tree-tops ere we turned away to enter the house. If I had been charmed by the beauty and grandeur of the surroundings, I was no less steeped in wonder and admiration by the luxuriance of splendor that reigned within. Spacious and lofty in dimensions; decorated with the most tasteful devices of architecture; garnished in lavish profusion with gems of art—rare old pictures and exquisite statuary—with costly mirrors and draperies of Oriental magnificence—the dwelling seemed, to my unsophisticated view, the very realization of one of the marvellous palaces conjured into existence by the genii of the mighty lamp.

In the great dining-room, with generations of courtly Carterets looking down from the paneled walls, amidst the glitter of crystal and plate, Ella and I sat down to a repast that might have served for a royal banquet. Besides the usual adjuncts of a Virginia supper, always rich and abundant, there were cooling ices and delicious fruits in marvellous variety. Servants, like statues of bronze, were posted behind our chairs, moving only when services were required, and then with noiseless aptitude and precision.

My youthful hostess sat opposite me. The soft light of a pendant lamp falling upon her form revealed its majestic and graceful proportions. She was slightly taller and more womanly in appearance than when we parted some months earlier. The dress she wore was of pure white, fastened at the throat with a brooch of pearls—a fillet of the same costly gems bound her luxuriant hair. Beautiful exceedingly she was—in person and demeanor every inch a queen! Surely, bounteous nature



had designed her to give an added lustre to the magnificence to which she was born!

The vivid emotions excited by our meeting had subsided. The gentle current of talk, rippling on through flowery ways, redolent of pleasant memories, was exhausted. Unconsciously we had fallen into silence. I know not why it was—possibly mere physical reaction caused the sensations that succeeded—but a deep, undefinable sadness overpowered me. The monotonous drop of the fountain by the open window smote upon my ear painfully. The low tones of the night-wind sighing through the interlacing branches of the trees, swelling and dying away in long moaning cadences, awakening weird whisperings in the unpeopled chambers and corridors of the vast, lonely house, filled my bosom with a mournful sense of dreariness.

I lifted my eyes to where Ella sat in tranquil loveliness before me, and on the settled repose of her features now I marked a change. There was a languid drooping of the eyelids, a pensive shadow brooding over all, that indicated the soul's unrest. Ah, yes! Beneath that bosom's snowy vesture throbbed a heart whose trembling leaflets lay unfolded to my vision. Poor, suffering, pining heart! Poor, lonely, craving heart! yearning in its orphaned desolation for the *love* to which "the wealth of Ormus and of Ind" is as the lightest bubble borne upon the breeze!

On the day succeeding that of my arrival I met Cliffe Godwin at a dinner party, to which, as Miss Carteret's guest, I was included in her invitation. Scarcely had the carriage which conveyed us thither paused at the door, when a young gentleman came hastily down the steps to aid us in alighting. As he took the hand of my companion I saw that it was pressed with passionate fervor to his lips. The flush, radiant as a burst of sunlight, that suffused her face, and the deep delight beaming from the eyes that welcomed her, rendered the introduction with which I was presently favored quite a useless ceremony.

The posture of affairs as regarded the lovers was no secret in the neighborhood. Few sympathized with the haughty and repulsive father; all loved the daughter. The young Doctor Godwin, too, notwithstanding his natural reserve and singularly reclusive habits as an ardent devotee to scientific pursuits, had won a large share of esteem and admiration. Since the abrupt termination of his visits at the Carteret mansion, he had appeared more generally in society than was his wont; and if the motive was divined, his kind friends seemed not on that account less lavish of their hospitalities.

I conversed with the Doctor frequently during the visit, always observing him with deep interest as the lover of my dearest friend. There was about him a singular charm, though in what it consisted I find it difficult to define. Though tall, he was not graceful; in fact, the careless habits induced by student life made him appear rather ill at ease in society. Heavy waves of jet black hair fell behind his ears, parted away from a forehead that was fair and blue-veined as that of the most delicate girl. This peculiar fairness of complexion, in connection with finely cut, classical features, and a mouth flexible and tender in expression, made up a *tout ensemble* of rare beauty and refinement. An enthusiast in science I am sure he was; eloquent too, perhaps, when the depths were stirred; but his ordinary manner was abstracted and dreamy. Occasionally he would become aware that his mind had

lapsed into a sort of remoteness, then he would rouse himself and attempt an apology with the sweetest smile that ever gave a divine expression to the human countenance. In speaking of Ella—and, indeed, he spoke of little else to me—there was an infinite tenderness in his words and manner; his voice grew low and reverential, like that of a devout and pious soul when breathing the high and holy name of Him who alone claims the hearty adoring homage. In a nature pure and beautiful as that of Cliffe Godwin, what is earthly love but a type of the Heavenly and Divine?

And this young gentleman had selected the profession of medicine, perchance, without calculating his fitness for its arduous toils and struggles, but as a science adapted to his tastes. The marvellous mechanism of the human frame—its mysterious motor element—its mental and physical phenomena—these and kindred subjects open the way to a wide field of metaphysical research, and would naturally commend themselves to a mind like his, at once analytical and speculative. Doubtless he had brought to his profession the fruits of a laborious and unwearied culture—the energies of a subtle and comprehensive intellect—a religious sense of the responsibilities that awaited him in the discharge of its manifold duties; but are these the elements of success in this mammon-devouring age? A thousand to one but the bold empiric will push by him in the race, and secure by impudent imposture the honors and emoluments denied to the true worth that decently declines to vaunt itself.

That night, when the waning moon rose o'er the tall tree-tops, Ella and I sat in the pale light by our chamber window. She was on a low ottoman at my feet, and with hands clasped in mine and an earnest, upturned face, she talked long and passionately of all that had transpired in the matter of her hapless love.

"How could I fail to prize his love?" she asked, tearfully; "I, who have lived so lonely, so repulsed by my cold, loveless father? I, too, who have so thirsted for affection? You see," she continued, after a momentary pause, "we are not separated. My dear, proud Cliffe would not for worlds set his foot within these gates; yet our friends are kind—we meet continually."

"And what is to come of it?" I asked, after a brief silence.

"What is to come of it?" repeated Ella, rising and throwing her arms about my neck; "I will tell you, you dear simpleton; Cliffe will take me to his kind, noble, generous heart, and warm and bless my sad lot by its great revivifying love. I shall become his wife."

"What!" I returned, "you will quit this beautiful home, and relinquish forever your fair inheritance? for that, I suppose, would be the result of such a step."

"Home!" she repeated, bitterly; "home! profane not the name, dear one, by applying it thus. I have known no home. My childhood was passed among mercenary strangers; for a few brief months I have sojourned beneath this stately roof; but, oh! the lowliest cottage, warmed and brightened by the presence of loved and loving ones, were a paradise to this. Home is the heart's sweet sanctuary—the centre of kindly charities—of fond domestic ties. I have only dreamed of such!"

"And your father," I said, "you will forsake him without remorse—absolve yourself from all filial claims?"

She sighed heavily. "He needs me not," she said; "In his life there is no room for tender ties. Family



dignity—the grandeur of his position—hereditary wealth—these constitute the Moloch to which he renders undivided homage.”

“Yet,” I rejoined, “he has been generous to munificence toward you—ever indulging, too, your lightest wish.”

“Yes!” cried Ella, passionately, “until my wish conflicted with his own. And then—never, while life lasts, can I wipe from memory the bitter taunts—the cold, withering sneer—with which he met my entreaties! no, nor the biting insults heaped upon one too noble—too generous—to hurl them back upon his hoary head!”

The bitter remembrance wrung tears from the eyes of the poor girl. Covering her face with her hands she wept—wept till her heart was relieved.

Poor old King Lear! What tears of pity have fallen at the recital of thy unnumbered woes—woes inflicted by proud, cruel daughters, whose daring ingratitude stung “sharper than a serpent’s tooth.” But few are the records of unnatural parents. Far apart, in the world’s history, do we read of one who, like the monster Cenci, pours the venom of a demoniac nature upon the hapless head of some innocent Beatrice. Love of offspring, the most subtle and powerful of human instincts, is often perverted, but rare indeed are the instances where, in a parental breast, no single trace of the divine feeling is exhibited. How incomprehensible, then, the nature of this cold, stony-hearted Carteret—the father of an only child, so fair, and gentle, and loving!

Again dear Ella arose, and with her head resting upon my bosom, recounted all her plans. “In a few days,” she said, “in a very few days,” she would be wedded to her own dear Cliffe. In some distant city they would make their abode, depending upon the results of his professional labors for their subsistence. It was a sad prospect; but I dare not remonstrate.

My visit to Virginia was necessarily short. I did not again meet Dr. Godwin, and to my great gratification Mr. Carteret remained absent during my stay.

## Pen Illustrations of the Drafts.

### HALF-PERCH VICTORIA PHAETON.

*Illustrated on Plate V.*

SEVERAL improvements have been introduced into this design, a few of which we may notice. A front pillar is shown on the body, and the back pillar is shaped after the latest French pattern, giving it a sort of double sweep. It is likewise hung at the back on C and elliptic springs, in combination with a half-perch; which although expensive, for easy riding has many advantages over the old mode of construction. The mechanic will also notice the peculiar form of the duster over the back wheel, and the shape of the boot. Wheels 3 ft. 4 in. and 4 ft.; hubs  $4\frac{1}{2} \times 6\frac{1}{2}$  in.; spokes 1 in.; rims  $1 \times \frac{3}{4}$  in. A cant and frame-work for this body will be given in the August number of this Magazine.

### NO-PERCH ROCKAWAY.

*Illustrated on Plate VI.*

THE shape of this body is copied somewhat after that of the Victoria, with the addition of the door—the hind-quarter being moulded off as shown. For narrow streets this design is well adapted, as it will turn in a small space. The lower portion of the joint to the top being curved takes away the sameness, seen in one perfectly straight like those now so fashionable. The wheels in this instance are 3 feet 3 inches and 4 feet 1 inch high. The other proportions of the wheels are the same as those for the Victoria on Plate V.

### PHYSICIAN'S PHAETON.

*Illustrated on Plate VII.*

PROBABLY in nothing does taste differ more than in designs for so simple a vehicle as a physician’s phaeton. We therefore shall not risk our reputation by pronouncing the present the best we have ever seen; but leave this matter to the judgment of our patrons for their decision. Formerly these bodies were paneled; but for this, modern art has found a substitute by using white-wood plank worked into the desired shape. This mode of construction saves labor, but increases the weight of the body. The wheels in this instance are 3 feet 2 inches, and 4 feet high; which, as strength is desirable, should be made more heavy than for a buggy—say with spokes  $1\frac{1}{8}$  inches, and rims  $1\frac{1}{4}$  deep.

### ROAD-BUGGY.

*Illustrated on Plate VIII.*

THIS rather odd-looking design is indebted to the painter for its novelty, the entire side being painted for effect. Another feature is the mode in which the seat is set on the body—this also being copied from the French. It adds to the light appearance of the side, and in this respect comports with the prevailing taste of the American public. The wheels 3 feet 10 inches and 4 feet require a hub  $3\frac{1}{2}$  by  $6\frac{1}{2}$ ; spokes  $\frac{7}{8}$  in.; rims  $\frac{7}{8}$  in. with a tire  $\frac{1}{8} \times \frac{3}{4}$  in. Farist & Co.’s homogeneous steel; springs 32 in. long, three-plate  $1\frac{1}{4}$  in. No. 4 steel.

## Sparks from the Anvil.

### THAT SAME OLD PERCH-COUPLING.

TWICE beaten in Cincinnati, once in New Orleans, and non-suited several times in other places, we had come to the conclusion that the perch-coupling question had been settled for all time; but it seems that it won’t be settled, as the following letter shows:

No. 64 Bergen Street, Brooklyn, N. Y.  
May 11th, 1867.

Gents.: I have repeatedly informed you that the decree is ready to file in court against you, but have with-



held to save you costs. I will write you the last time that there is no help for you but to pay; as the paper you refer to so much I will undertake to prove by you and the Doctor that you never paid for, but the Doctor paid and bargained for one carriage, and no more. I did not think you were foolish enough to refer to it, as I am willing to allow one carriage to the Doctor. I think you act like two fools who do not know when the iron is hot or the glue is heated. Please inform me whether you wish to have decree filed or not.

Yours, cet.,

G. L. HANSSKNECHT.

Messrs. F—— & McG——.

After the above, a little explanation is necessary. It seems a certain physician of this city went to the so-called inventor and paid for a right to build a carriage; but the wide-awake genius furnished him with papers for the firm giving them a clear shop-right to build all they chose to. H. says he made a mistake in drawing up the papers. The firm say they are not responsible for such mistake, etc. As Hanssknecht's legality to the invention has never yet been maintained in any court, nor is likely to be, we think the firm, instead of being "two fools," as he charges, have shown *wisdom* by setting him at defiance. Being the winners so far, they are excused for laughing in the case.

#### TEMPERING OF STEEL.

SKILL and judgment in the manipulation of steel are qualities of which the expert workman may well be proud, yet there is nothing so difficult about it but that any one of common abilities may become the possessor of it.

The forging of steel tools requires great care, and for delicate instruments that are to be nicely tempered, too great care on the part of the workman cannot be taken. The quality of the steel ought to be attended to, particularly for dies or cutting tools. Of this you can judge in a great measure by the fracture. Break the bar you wish to work. If the piece presents a clear, bright cleavage, that shows as if it had taken some force to separate it, the separate crystals or granulations scarcely observable, and the appearance that of a fine, light, slaty-gray tint, almost without luster, it may be considered to be good.

After the tool or article that is to be tempered is finished up by the mechanic, it is to be hardened. To the inexperienced it appears to be a simple operation, and one that any one could easily perform, consisting in nothing more than heating it and suddenly quenching the heat in cold water. A very simple process surely; then why so much ado about it? Surely the greenest apprentice can do it. So he might; but perhaps when the said apprentice takes the tool from the water in which it has been chilled, it is warped, cracked, and entirely spoiled. The once nice tool is now only fit to be thrown in the scrap-pile. Surely, after all, it *does* require *some* experience and judgment to temper steel. We will give a few hints that may not be wholly lost to the less experienced who aspire to success in this art.

The water that you use must not be too cold, and the steel must not be too hot. The heat should *never* exceed a low red. The reason why the water should not be too cold is this: The water acts too suddenly on the outside of the steel, contracting it, and the expansion in the middle being more than the outside can bear, it causes the hardened and brittle covering to break. If the water is

too cold, throw a few coals into it, or plunge a bar of hot iron into it and take the chill off the water. When this is done, look well to the heating of the article; heat it quite slowly and very evenly, and when it is ready to harden, if there is a thick and thin part, plunge the thickest part into the water first, and be careful to plunge it in the center of the vessel of water, so that the heat of the article will warm it equally on every side—if not, the unequal warmth may cause the article to warp. A worse thing will happen if the thin edge be put in first, for if the thick part has to contract after the thin part is chilled, the thin part cannot give, and will be consequently broken. By chilling a piece of steel and lifting it from the water before it is entirely cold, will produce the same effect. The outside being hardened and the inside quite hot, it begins to expand when taken from the water, and the breaking of the chilled surface is the result. In dipping articles in the water that one part requires to be left soft, it often happens that it breaks where the water-line comes on the article. This is caused by the contraction of the portion in the water, while that above the water is not contracted in the same proportion. To remedy this, move the article up and down a little, so that the water-line shall not be at a stationary point. This will be particularly applicable to tempering points of drills and chisels.

Water that holds soap in solution is unfit to temper with. The water should be clean and pure. To insure a greater hardness, common salt may be added to the water so as to form a saline solution. Gauges and burnishers that require to be very hard can be tempered to advantage in this solution.—*American Artisan*.

#### Paint Room.

##### WHITE-LEAD.

At the last meeting of the British Association a paper by Mr. P. Spence, "On a New Process in the Manufacture of White-lead," was read in the Chemical Section. It runs thus: "White-lead is one of the staple chemical products, of almost first necessity. It has long been in use as the basis of nearly all the pigments employed in oil painting, few, if any, of the coloring bodies having the qualities that are required for painting in oil; and although from its susceptibility to discoloration on the slightest contact with sulphuretted hydrogen, and also from its poisonous character, substitutes for it have been eagerly sought after, as yet nothing has been found to supersede it. Anhydrous oxide of zinc has, to a certain extent, been introduced, but does not appear to make any way. It has not an equal coloring quality with carbonate of lead; but its chief defect is its want of permanency. White-lead forms an almost indestructible compound with the oil, while oxide of zinc forms only a mixture.

"The various modes that have more or less been adopted in the manufacture of white-lead are historically known to those interested in chemical manufactures. Almost all of these processes are based on the action of acetic acid upon lead or lead oxide, with the exception of the process patented by Pattinson in 1841, which is founded on the decomposition of galena by hydrochloric acid, the formation of chloride of lead, and the decomposition of the chloride by alkalies, or by alkaline earths, such as lime of magnesia. Practically, this process is now con-



fined to the production of oxychloride of lead, which seems to act with oil to a great extent like white-lead.

"The oldest, most successful, and most generally practiced mode of producing white-lead is that called the Dutch process. By this mode the object is accomplished by placing castings of pure lead, of a suitable form, one over another in stone-ware pots, in the bottoms of which acetic acid or vinegar is poured; the pots are then loosely covered and piled in masses, the whole being then covered over with spent tan or some other slowly fermenting body, which will generate a small degree of heat for a considerable period. This evaporates the acetic acid, which acts on the lead, oxidizing it and partially carbonizing the oxide, and in about eight weeks the greater part of the lead is corroded and converted into oxide and carbonate of lead, the acetic acid is spent, and the crude lumps of white-lead are ground, any metallic lead left being picked out, and after washing, the article is ready for use. Nearly all the white-lead now made in this country [England] is by this mode. The German and Austrian process is the same in principle as the Dutch, but differs in detail. A good many attempts at the manufacture of white-lead have been founded on the fact that acetate of lead in solution has the property of dissolving lead oxide, forming a basic compound.

"My reasons for presenting to the Chemical Section of the British Association a process which at first sight may appear only as one of the many futile attempts to improve upon the established mode of producing white-lead, are two: First, that the process is new, being altogether in a different direction from any attempt that I can find recorded, and although based upon a known law, yet that law never having been seen to point to this process, it is technologically a discovery. My second reason is, that a very important feature of the process as distinguished from all others is, that by it white-lead can be manufactured from materials now useless. All other modes deal either with the purest metallic lead, or equally pure oxide of lead. Pattinson's process must deal either with the purest galena, free from iron or copper, or the chloride of lead must subsequently be freed from contamination by these metals or others, before it is used for the precipitating of oxychloride.

"By the process I shall now describe, any ore or mineral that contains eight or ten ounces of lead can be used for the production of white-lead, and it is of no consequence what other metal the mineral contains; the process separates the lead directly without touching the other constituents of the mineral, and the white-lead is perfectly pure. This being so, practically, I expect that all the white-lead required may be made from ores or minerals now consigned to the rubbish heap as being too poor to work; and I know of large quantities of minerals useless as lead ores which will be economically adapted for the production of white-lead. The process is based on the fact that oxide and carbonate of lead are soluble in solutions of caustic soda or potash, and are insoluble in the carbonates of their alkalies; the process, therefore, is effected by taking any mineral that contains oxide or carbonate of lead, or lead in any form that can by calcination or otherwise be converted into oxide or carbonate of lead, and by either macerating or boiling the mineral in a caustic solution, all the lead is dissolved and extracted in a limpid and colorless solution. If the mineral contains oxide of iron, copper, or zinc, the caustic solution does not touch

any of those oxides, and only attacks the lead. The lead solution has now passed into it carbonic acid gas, by which the alkali being carbonated, the lead is instantly precipitated as oxide and carbonate. The alkaline solution is now causticized by quick-lime, and is ready for a second action on mineral containing lead oxide. The precipitated white-lead has only to be washed to separate the solution of carbonated alkali, and then dried for use. It has been tried for painting, and is said by the painter, who had used it in various ways by his workmen, to be equal to any white-lead he could procure. It has also been tried as a glaze in the potteries, and declared to be equal to any white-lead the firm had in stock."

## Trimming Room.

### GUMMY LEATHER.

CARRIAGE-MANUFACTURERS suffer, in common with harness-makers, much inconvenience from the gumming of leather, and when repairing find it very troublesome to remove. The usual way to clean it is to wash it in pearlsh water; but this process is not very pleasant to the olfactories or agreeable to the hands. To avoid trouble in future as far as is possible, and to furnish our readers hints on which to act in purchasing, we republish below some observations on this subject from a late number of the *Hide and Leather Interest*. The writer says: "In the earlier days, the oil used in the finishing of leather was neats-foot only [we believe such is the case with English tanned leather still]; then we heard nothing of gummy leather; but as time rolled on, and neats-foot oil grew dearer, leather-dressers sought out some cheaper substitute, and the article nearest neats-foot oil was supposed to be the oil expressed from fish. The hide of the cow or the calf has a strong affinity for neats-foot oil, of course; even the hide of the horse absorbs this oil, and holds it. This oil does not gum, and will not, when once absorbed by the leather, exude to the surface. Not so with fish-oil, however. This is something of quite another character. The oil of the fish differs as much chemically from the oil of the hoof of the ox or the cow as it does from that obtained from the vegetable world, which contains a still larger amount of gummy property. Fish oils are heating or burning in their character, and will ruin any leather they are applied to; the stock hardens, and finally cracks, through the effects of the stuffing of which this oil is the main ingredient. If fish oil and neats-foot oil are mixed, the evil is lessened; and when tallow is incorporated, the bad results of the fish-oils are partially warded off; but the application of fish-oil to leather kills the substance, and is the prime cause of the gum which is found on the surface."

### MUD AND LADIES' DRESSES.

SINCE the ladies have abandoned sweeping the sidewalks with their long trains, attention has very properly been given to the protection of their dresses from mud when "the dear creatures" go abroad for an airing in their carriages. Our friend Gosling, of Cincinnati, is the inventor (see his advertisement in this number) of a combined step-cover and wheel-fender for carriages, one of which furnishes a very cheap and simple device for preventing the accumulation of mud and dust on the steps,



the other guards the dress of the passengers from coming in contact with the wheels when getting into or out of the vehicle. We have seen a working model of the step in the manufactory of Messrs. Brewster & Co., of this city, and can cheerfully recommend this invention as being one of real value. The inventor is one of the leading coach-makers of Cincinnati, and a practical gentleman, not likely to put forth as useful a worthless thing. Patented by J. W. Gosling, of Cincinnati, Ohio, February 26th, 1867. In the accompanying drawings

Fig. 1 shows the position of the fender when the carriage door is open, and

Fig. 2 represents it when the door is closed.

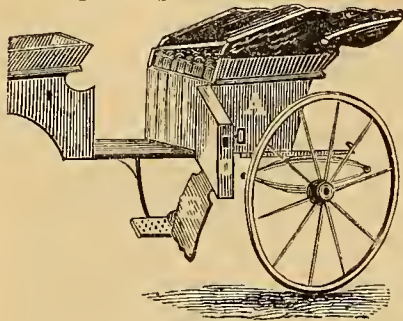


Fig. 1.

A represents the body of a carriage; B the rear wheel; C the door, and D the step. E is a yielding plate, which may be made of sheet steel or other suitable material, and the upper end of said plate is hinged or otherwise secured to the door C, whilst its lower end is connected to a bar H, having an eye *h*, which engages with a suitable aperture in the flange *d* of the step. This provision of the perforated flange *d*, and eye *h*, enables the plate E to turn in either direction as the door C is opened or closed. The flexibility of the plate E enables it to bend up in the act of opening or closing the door and its elasticity enables it to hold the door firmly in either the closed or wide-open position. When the door C is shut the plate E closes up over the step D, and this prevents the wheels from throwing dirt upon said step, as clearly shown in Fig. 2; but as soon as the door is opened the plate E turns on the pivot device *d h* at its lower end, thus uncovering the step and serving as a fender to prevent the occupant's clothes from coming in contact with the hind wheel of the carriage, as represented in Fig. 1.

The yielding plate E acts as a spring to hold the door either open or shut, and also prevents said door from striking against the wheel when opened. The said plate E may be covered with leather or painted, or may consist wholly of leather. We have selected for illustration the preferred form of the invention, but the right to vary the same is reserved, it being susceptible of various modifications. For example: Instead of being pivoted to the step D, the lower end of the plate E may be hinged or otherwise coupled to a frame projecting from the carriage-body and passing under the step. In some cases—for example, when the distance from the wheel to the body is short—slots are provided on both step and fender; on one of them is partially or wholly relieve the plate of the flexion incident to opening or closing the door. The drawings accompanying this article, in connection with the letter-press details, ought to make this invention fully understood by the practical carriage-maker. Its great advantage will be proved on trial.

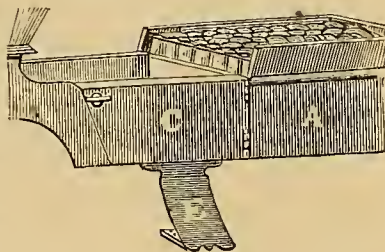


Fig. 2.

## Editor's Work-bench.

### JOURNEYINGS WESTWARD.

MONDAY morning, the 20th of May, found us, carpet-bag in hand, on our way to the Hudson River Railway Station, bound to the city of Albany. A pleasant ride along the Hudson, through some of the finest scenery in the world, of about five hours' duration, brought us in safety to the State Capital. Making a hasty call upon the craft there located, who did all in their power to make us welcome, in the evening we rode on to Fort Plain, thirty-eight miles distant. The morning of the 21st was spent in calling upon Messrs. Burke, Myers & Betzinger, proprietors—with one exception—of the principal carriage shops in that place. Mr. D. Myers' shop is comparatively a new one, having been established since our visit to the locality in 1863. As one evidence of the esteem in which this Magazine is held, our old friend Mr. Burke casually observed, on paying his annual subscription, that he for his part would not be without its monthly visits, should it cost him twenty-five dollars annually to obtain it. This, however, is but one instance of many in which we have heard similar expressions, having a tendency to encourage us in our editorial labor.

Stopping a few minutes in St. Johnsville, we next hastened on to Little Falls, seventy-four miles west of Albany. There are three or four shops here—among them those of Messrs. C. Benediet, Teft Brothers, and J. & H. Quaekenbush. The dinner hour in the country—unlike that of New York city—occurs at mid-day; and this found us comfortably seated with our friend Benediet and his amiable lady around the family board, with an appetite greatly stimulated by the morning's ride. Our readers—if curious in such matters—will find a more detailed account of Mr. B.'s surroundings and Little Falls, in Volume v, on page 58, which we have not space to recount in this article.

After dinner we hastened on to Utica. Here we found our friends, Messrs. W. B. Walling and T. H. Turner—this last gentleman, with his partner, a brother, having recently been burned out. Nothing daunted, however, like a true hero we found him occupying a new and larger shop on the site of the old one, determined to “go-ahead.” May it be a long time before he is doomed to another like misfortune. Mr. J. W. Bates, proprietor of the largest shop in the place, was absent; so we had not the pleasure of seeing him.

Rome, one hundred and ten miles west of Albany, was our next stopping-place. It was late in the afternoon when we reached there; but notwithstanding this, our friend R. A. Barton must needs get us up a club among his journeymen, for which he has our thanks. This gentleman believes in progress, and consequently im-



proves every opportunity of securing it by calling in such help as has a tendency to promote it. We reached Syracuse late in the evening of the 22d. There are several carriage-shops in this city, among them Messrs. Edwards & Gilman's, J. S. Hoyt's, C. P. Phillips', T. D. Davis', and R. R. Phelps'. Mr. Hoyt has recently made important additions to his premises, and has now ample room for carrying on a large business. Messrs. Phillips and Phelps are new acquaintances, the former located in a fine shop well adapted to the carriage business, being himself a creditable member of the craft, of which his work gives ample proof.

Our next call was in Rochester, upon our friends Cunningham and McDonough, the only shops of much consequence there. On this visit for the first time, we had the pleasure of an introduction to Mr. Sidney E. Roby, of the firm of Wm. Corris & Co., whose advertisement will be found in its proper place in this number. Our visit gave us a favorable impression of his business tact, and we left with the hope of having secured his friendship for the future. We have no doubt but that all who favor his house with their orders will find it pleasant to deal with them. In Buffalo we called upon several friends, among these Messrs. Harvey & Wallace. Mr. Wallace, who had just lost his wife by death, we did not see; but the partner, Mr. Harvey, paid us every attention in his power to bestow, for which kindness we take this public manner of here acknowledging. Business generally, along our route thus far, without an exception, we found very dull; which will scarcely be thought strange, when we state that we met with constant rains every day, and found the season some three weeks behind time; but the last named firm appeared to have enough business to satisfy all reasonable desires. These gentlemen are by far the most enterprising firm in the carriage business in Buffalo, and it gives us solid pleasure to find that this enterprise is being well rewarded. At Buffalo, which we left soon after twelve noon, we bought a ticket through to Toledo, on the Great Western Railway, "good for twenty days." By so doing we were able to "stop-off" at will, and save some three or four dollars in exchange while going through Canada, paying for the trip in greenbacks instead of gold. To do this you have, for instance, to purchase a ticket for some point beyond Detroit—say, for Toledo—when, should you afterward change your mind and travel in some other direction, you have only to step into a ticket-broker's office in Detroit and sell the coupon, worth two dollars, for one and a half—still giving you a passage at a low rate. We do not exactly understand why a ticket to Detroit only does not give the advantages we have mentioned, but believe it is in consequence of the speculations resorted to a few years ago by the traveling public. In our route we stopped at Niagara for one day,

an account of which and of our journey onward, for want of space we must defer until August.

#### TRADE NEWS.

WE have recently visited several portions of the United States and Canada during the months of May and June. As a general rule business is less active now than for many years past. In some portions of the Canadas something was doing in selling new work, but in northern Ohio and southern Michigan it was dull; some saying they had not disposed of a single new job the entire spring. This state of affairs doubtless is much owing to the constant rains and backward season with which we have been visited, but probably in a great measure to the unwillingness of moneyed men to part with their funds in the present unsettled state of things, politically and mechanically. The "more pay and less work" party are doing and have done their share of this mischief, by inducing political parties to pass laws which can never be carried out, and only serve to hasten the hour when all work will be done generally by the piece, which, after all, is the only redeeming point we can find in the eight-hour law which has been passed by the legislatures of Illinois, New York, Wisconsin, and Missouri, which action will doubtless be imitated in other States. In some shops where three dollars a day has been paid, thirty cents an hour is given. Paying by the hour is resorted to in order to evade the penalties and vexations of this unwise legislation. In this way will labor be rewarded and law-suits avoided.

During the past two weeks trade in New York city has very much improved, but sales have still been behind former seasons. The time for harvest with carriage-makers having already past, the only hope now left is in a fall trade, from which, in the best years, we have never realized much, compared with that of spring. Such being the facts, those who have heeded our former warnings will now reap the benefit.

#### THE NATURAL RESULT.

THE insane attempts of a few hot-headed demagogues and visionaries, connected with the so-called International Union, to force men into their measures, has culminated in a result we have long feared and predicted—the formation of a society of employers in Washington city for the protection of person and property against the unjust as well as unlawful exactions of their employes. The immediate cause of these proceedings on the part of the bosses, gathered from the stories of both parties, seems to have been an order from the Union for Mr. Graham to discharge two men—one white, the other black—or else every Union man in his shop would strike and leave him helpless. Mr. G. tells us they wished to fill the place of the two with Union men. The journeymen say they struck because the white man would not join them, a still worse plea.



Mr. Graham, like all other free-born Americans, *thinks* he is capable of conducting his own business, and is not disposed to surrender his manhood and independence to a few overbearing workmen, whose rallying word is "Labor should rule Capital," and therefore, rather than submit, like a true hero he lets his shop remain empty. He informs us, however, that some of the best have offered to return to their work if he will lend them his protection; from which we conclude that the men themselves *fear* the Union power. If, then, the Union is so strong—a Washington paper says that the New York branch has \$60,000 in funds to support strikes of this nature—that its members *must* follow its rulings now, what will be the result when it is *rooted* in all the land? The men who are lending it aid in various ways, under the idea that the Union will fall to pieces from its own rottenness in a few years, will please make a note of this. We have not room to give further details here, our forms being already made up, but in our next issue will try to find space for the proceedings of the Society at the National Capital, which we understand will be imitated in other cities and towns in the United States.

#### INTRODUCTION OF CARRIAGE-MAKING INTO AMERICA.

OUR history is but little over two centuries old, and yet the history of the introduction of carriage-making into this country has been very much obscured by the literary men who have endeavored to enlighten us upon this subject. Tradition has bestowed the honor—if such it may be called—each in turn, upon New York, Philadelphia, and Boston. Let us examine this subject, and see if we cannot clear away some of the mist which has heretofore enveloped the minds of the people.

Some six years ago a writer in that paragon of reliability, the "Historical Magazine," very gravely told us that "the first carriage ever built in America is said to have been made by a man named White, [is he sure it was not Black?] in Dorchester, Massachusetts, for a private gentleman in Boston, in 1805." The writer adds, "it was copied from a kind of English chariot and made much lighter," but it was then discovered that carriages could be imported from Europe much cheaper than they could be made here, on account of the cost of material and labor. Any one by a little research will discover that this writer is ignorant of that he undertakes to speak about, and unworthy of credit.

Another account says that Mr. Charles Perrie, an old coach-maker in Philadelphia, reports that David Clark, on Sixth street in that city, in 1790, built a coach for Samuel Powell, at a cost of \$800; which was considered a very extravagant price for that day. This carriage is supposed by many to have been the one we have so often

heard of as once having belonged to Gen. Washington, and deposited in Wood's Museum. We have the best of evidence that the carriage built by Clarke, and that owned by Washington, are not identical; and would prove it had we space to do so.

Carriage-making in New York city dates farther back than the time stated above—as far back as 1766 at least. On page 173 of our last volume, we stated that "the earliest carriages were imported into New York from Dublin in 1766, with workmen to repair others, who were the Deane Brothers—Elkanah and William. Their advertisement proposed to open, as a new affair, the construction of all manner of carriages at five per cent. below importation prices, and have *brought out* workmen, at great expense, to make coaches, chariots, landaus, phaetons, post-chaises, *curricles*, chairs, sedans and sleighs; also to guild, and japan, and carve, and paint."

In "The New York Gazette and Weekly Post Boy," of May 19, 1766, appears the following notice, which we have taken the pains to copy *verbatim et literatim et punctuatim*:

"Run away from the subscribers on tuesday last, Richard Barlow, by trade a coach harness maker. He had on when he went away, a Claret colour'd Coat and Breeches, a striped Cotton and silk jacket; he had short Curl'd Hair, is about five Feet seven Inches high and for some Time before he run away had a condem'd down Look in his Countenance, which proceeded from his being detected in a dishonest Action. As he is much in Debt to the subscribers, all Masters of vessels are forbid to carry him off at their Peril. Who ever secures the said Richard Barlow, so that the subscribers may have him again, or lodge him in any of His Majesty's Goal, shall have FIVE DOLLARS reward. Given under our Hands at New York, this 17th of May, 1766. Elkanah & William Deane." This advertisement proves the priority of New York to the claim of having established coach-making before the cities previously named, besides giving us a fair specimen of the manner in which our ancestors *labored* to stigmatize the character of such menials as come within their grasp. That "condm'd down Look in his [their apprentice's] Countenance, which proceeded from his being detected in a dishonest Action," must have *settled* Dick's character for ever!

Another advertisement, in the "Gazette and Post Boy," of the same year, will interest our readers. It reads thus:—"William Hawkhurst has lately erected a finery and great Hammer for refining Sterling Pig Iron into Bar—and takes this Method to acquaint his old Customers and others—That they may by applying to him in New York, be supplied with flat and square Bar Iron, Cart, Waggon, Chair and Sleigh tire—mill spindles, wires (?) Cranks, and Iron Axltrees, cast mill



rounds and Gudgeons. He continues to make Anchors as usual."

The earliest coach owned in New York was that of Lady Murray, imported from Europe about 1745. What became of the Deanes, we know not, their names not being mentioned in the oldest city directory published in 1786. Probably when the Revolutionary war broke out, that *broke-up* their business, and they—if good loyalists—like many others, left the country, as we hear nothing of them afterwards. In the year 1800, five years previous to the Boston claim, there were nine shops in this city, the several names of which are, Stephen Steel, Isaac Jones, James and Charles Warner, C. Van Aulen, Wm. Collet, Robert Manly, Thos. Parsons, Jas. Kellet and Thos. Barron. These facts are enough to *extinguish* the Boston claim and cast those of Philadelphia far into the shade, and, as we hope, settle *this* question forever.

#### LITERARY NOTICE.

THE Great Pictorial Double Number of the PHRENOLOGICAL JOURNAL AND LIFE ILLUSTRATED, for July, contains portraits, with biographical sketches, of Chief Justice Chase, Mrs. Harriet Beecher Stowe, Mrs. LeVert, Edward Carswell, and others; articles on eloquence, Queen Elizabeth, Studies in Physiognomy, Man-monkeys and Gorillas profusely illustrated, and a great variety of matter agreeable and instructive. A new volume—the 46th—enlarged, \$3 a year, 30 cts. a number. Address S. R. Wells, 389 Broadway, New York.

### Patent Journal.

#### AMERICAN INVENTIONS.

March 5. (62,586) ATTACHING CARRIAGE THILLS.—Thomas H. Wood, Monroeville, Ohio :

I claim the key, C, spring, D, in combination with the arms, F, wrists, E, and link, A, constructed and arranged substantially as and for the purpose set forth.

(62,593) METHOD OF SECURING TIRES ON WHEELS.—Andrew C. Barnes, Albia, Iowa :

I claim the combination of the lug, C, and felloe, B, as described, operating correspondingly with the groove, *a*, on the tire, A, in the manner substantially as and for the purpose specified.

(62,598) PAINT.—Henry W. Bradley, New Berlin, N. Y., assignor to himself and B. Van Horn, Bennettsville, N. Y. :

I claim, *First*, As an improved article of manufacture a paint compound, which is composed of the ingredients, or their respective equivalents, and in the proportions herein set forth.—*Second*, The substitution for a certain quantity of oil in paints of boiled rice, substantially as and for the purpose herein set forth.

(62,607) CARRIAGE AXLE-ADJUSTER.—Jonathan Childs, West Troy, N. Y. :

I claim a carriage-axle adjusting instrument formed of the bar, G, in combination with the block, F, the adjusting screw, S, with its nut-levers, J and K, and the clamps, M and N, substantially in the manner set forth in this specification.

(62,638) WAGON BRAKE.—D. J. Kirkman and E. H. Gray, Winchester, Ill. :

We claim the bar, C, in combination with the serrated plate, F, stirrup, *e*, the rods, *k*, *k*, the cleat, M, furnished with strap, *i*, and the bar, S, the whole constructed and arranged and operating as and for the purpose herein set forth.

(62,651) WAGON-TONGUE SUPPORTER.—O. Higley, and S. Toothaker, Fredonia, Ohio :

We claim the springs, *a* and *c*, constructed as described, in combination with the tongue or thill, C, hounds, E, E, and axle, B, for the purposes set forth and specified.

(62,687) DUMPING WAGON.—Warren Robinson, assignor to himself, J. H. Fairchild, and H. Farrington, Highgate, Vt. :

I claim the construction of boxes, A, as herein described and used, with the frame, B, B, in the manner and for the purposes herein set forth.

(62,719) SHIFTING RAIL FOR CARRIAGE-SEATS.—Joseph Zahm, Fredonia, N. Y. :

I claim the joint and lever above described and the use and application of the same for the uses and purposes above described.

RE-ISSUES. (2,500) WAGON.—Edgar Huson, Ithaca, N. Y. Patented Feb. 17, 1857 :

I claim, *First*, As my invention, the use of two or more side splinter-bars when they extend from any convenient point at or near the forward ends of the side-springs to the head-block, and the use of the said splinter-bars whether attached directly to the forward ends of the said side springs or by any convenient means intervening between them, as described. *Second*, fastening the pole or thills to the side splinter-bars or other convenient part of the platform or frame, at or near or in rear of the ends of the side-springs, as described. *Third*, So making the frame or platform as to leave the extremities of it open so as to receive the pole or thills between and back of the forward ends of the side-springs, thus bringing the team or horse nearer the wagon, thereby lessening the draught and requiring less room in which to turn.

12. (62,771) SLEIGH.—S. Henry Noble, Chicago, Ill. :

I claim, *First*, The rubber-spring, I, or its equivalent, placed in the joint between the knee and the cross-beam of a sleigh, substantially as and for the purpose set forth. *Second*, The combination of the support, H, with the runner, A, knee, B, rubber, I, and beam, C, substantially as described.

(62,789) WAGON BRAKE.—Aaron Votaw, New Garden, Ohio :

I claim, *First*, The bar, B, cam, E, as arranged in combination with the links, F, H, I, levers, G, and adjustable frame, K, as and for the purpose set forth. *Second*, The bar, C, cam, E, as arranged in relation to the wheels, A, and operated by the frame, K, levers, G, and links, F, H and I, for the purpose and in the manner described.

(62,796) WAGON-BRAKE.—James F. Wood, 2d, Cohocton, N. Y. Ante-dated March 1, 1867 :

I claim, *First*, The adjustable cam, E, on the lever, D, the plate, *h*, on the brake-lever, as and for the purpose herein described. *Second*, The sliding plate, B, hasp, *k*, in combination with the sliding pole, A, fork-braces, *a*, *a*, and the brake-blocks, *i*, *i*, substantially in the manner herein described and for the purposes set forth.

(62,814) WHIFFLE-TREE.—Melvin C. Chamberlin, Plainview, Minn. :

I claim the arrangement of the bars, C, C, and D and E, constructed as described and used in connection with the lever, F, and box, *a*, substantially as and for the purpose herein specified.

(62,879) REIN-HOLDER FOR CARRIAGES.—Elias C. Patterson, Rochester, N. Y. :

I claim the improved rein-holder, constructed substantially as described.



## HOMEOPATHIC PHAETON.



Doctor Squills, who is a great stickler for economy, carries out his theory in habit and equipage.

## CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, June 20, 1867.

Apron hooks and rings, per gross, \$1.75 a \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 9c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1½, \$7.50; 1¾, \$8.50; 1⅞, \$9.50; 1⅝, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1½, \$8.25; 1¾, \$8.75; 1⅞, \$10.75; 1⅝, \$13.00.  
 Do. Half pat., 1 in. \$10; 1½, \$11; 1¾, \$13; 1⅞, \$15.50; 1⅝, \$18.50.  
 Do. do. Homogeneous steel, ⅝ in., \$14.00; ¾, \$14; ⅞, \$15.00; long drafts, \$4 extra.  
 ☞ These are prices for first-class axles.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3½ in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, under 1½ in., \$2.25 per set; extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 10 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. ½ in., \$1.50; ⅝, \$1.50; ¾, \$1.70; ⅞, \$2.10; 1, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 25c.; per large gross, \$2.50.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 60c. a \$1.  
 Castings, malleable iron, per lb, 20c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$4 a \$6; lining, \$3 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.  
 Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 75c.; 5-4, 70c.  
 Do. Ducks, 50 in., 90c.; 5-4, 85c.; 6-4, \$1.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb, all sizes, 25c.  
 Fifth-wheels wrought, \$1.75 a \$2.50.

Fringes, festoon, per piece, \$2; narrow, per yard, 18c.

☞ For a buggy top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. a \$1.

Fringes, worsted bullion, 4 in. 50c.

Do. worsted carpet, per yard, 8c. a 15c.

Frogs, 75c. a \$1 per pair. Glue, per lb, 25c. a 30c.

Hair, picked, per lb, 50c.

Hubs, light, mortised, \$1.20; unmortised, \$1. — coach, mortised \$2. Japan, per gal. \$2.75.

Knobs, English, \$1.40 a \$1.50 per gross.

Laces, broad, silk, per yard, \$1.00 a \$1.50; narrow, 10c. to 17c.

Do. broad, worsted, per yard, 50c. a 75c.

Lamps, coach, \$18 a \$30 per pair.

Lazy-backs, \$9 per doz.

Leather, collar, dash, 30c.; split do., 18c. a 21c.; No. 1, top, 31c.; No. 2, enameled top, 28c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c.

Moquet, 1½ yards wide, per yard, \$8.50.

Moss, per bale, 10c. a 18c.

Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. a 20c.; ½, lead, door, per piece, 40c.

Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c. Name-plates.

Oils, boiled, per gal., \$1.80.

Paints. White lead, ext. \$14.50, pure \$15.50 per 100 lbs.; Eng. pat. bl'k, 40c.

Pole-crabs, silver, \$5 a \$12; tips, \$1.50.

Pole-eyes, (S) No. 1, \$2.35; No. 2, \$2.60; No. 3, \$2.85; No. 4, \$4.50 per pr.

Sand paper, per ream, under No. 2½, \$5.50; Nos. 2½ & 3, \$6.

Screws, gimlet, manufacturer's printed lists.

Do. ivory headed, per dozen, 50c. per gross, \$5.50.

Serims (for canvassing), 16c. a 25c.

Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.

Shaft-jacks (M. S. & S.'s), No. 1, \$2.65; 2, \$3.10; 3, \$3.35.

Shaft-jacks, common, \$1.35 a \$1.50 per pair.

Do. tips, extra plated, per pair, 25c. a 50c.

Silk, curtain, per yard, \$2 a \$3.50.

Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.

Slides, ivory, white and black, per doz., \$12; bone, per doz., \$15.00 a \$2.25; No. 18, \$2.75 per doz.

Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.

Spring-bars, carved, per pair, \$1.75.

Springs, black, 19c.; bright, 21c.; English (tempered), 26c.;

Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.

If under 36 in., 2c. per lb. additional.

Spokes, buggy, ⅞, 1 and 1½ in. 9¼c. each; 1½ and 1¾ in. 9c. each; 1¾ in. 10c. each.

☞ For extra hickory the charges are 10c. a 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.

Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10¼; 3-4 x 5-32 a 11 c; heavier sizes, 9¼c. currency.

☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.

Stump-joints, per dozen, \$1.40 a \$2. Tacks, 8c. and upwards.

Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.

Terry, per yard, worsted, \$3.50; silk, \$8.

Top-props, Thos. Pat. wrought, per set 80c.; capped complete, \$1.50.

Do. common, per set, 40c. Do. close plated nuts and rivets, \$1.

Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.

Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.

Do. Marshall's Machine, 432, \$2; 532, \$2.10; 632, \$2.60, gold.

Tufts, common flat, worsted, per gross, 20c.

Do. heavy black corded, worsted, per gross, \$1.

Do. do. do. silk, per gross, \$2. Do. ball, \$1

Turpentine, pr gl., 80c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.

Varnishes (Amer.), crown coach-body, \$5.50; nonpareil, \$6.50.

Do. English, \$6.25 in gold, or equivalent in currency.

Webbing, per piece, 65c.; per gross of 4 pieces, \$2.40.

Whiffle-trees, coach, turned, each, 50c.; per dozen, \$4.50.

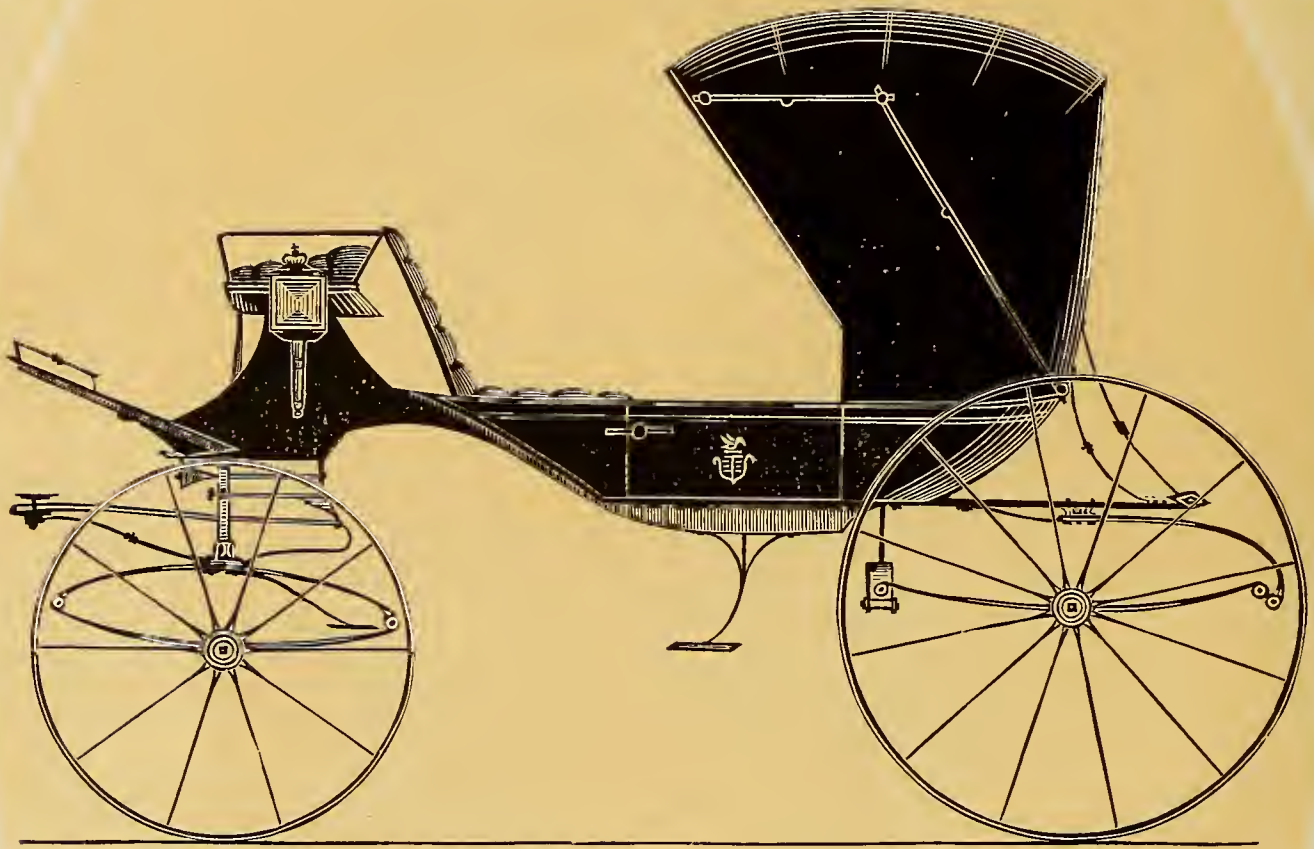
Whiffle-tree spring hooks, \$4.50 per doz.

Window lifter plates, per dozen, \$1.50.

Yokes, pole, 50c.; per doz, \$5.50. Yoke-tips, ext. plated, \$1.50 pair.





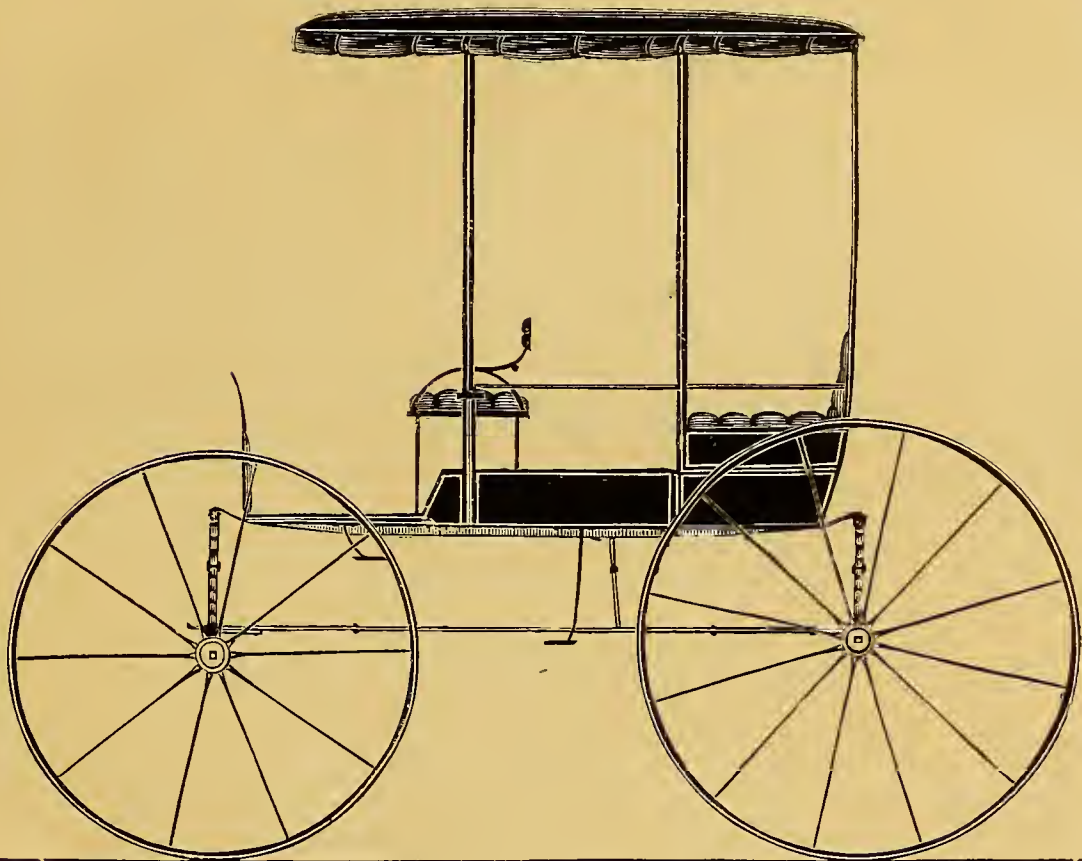


CALECHÉ.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 38.*

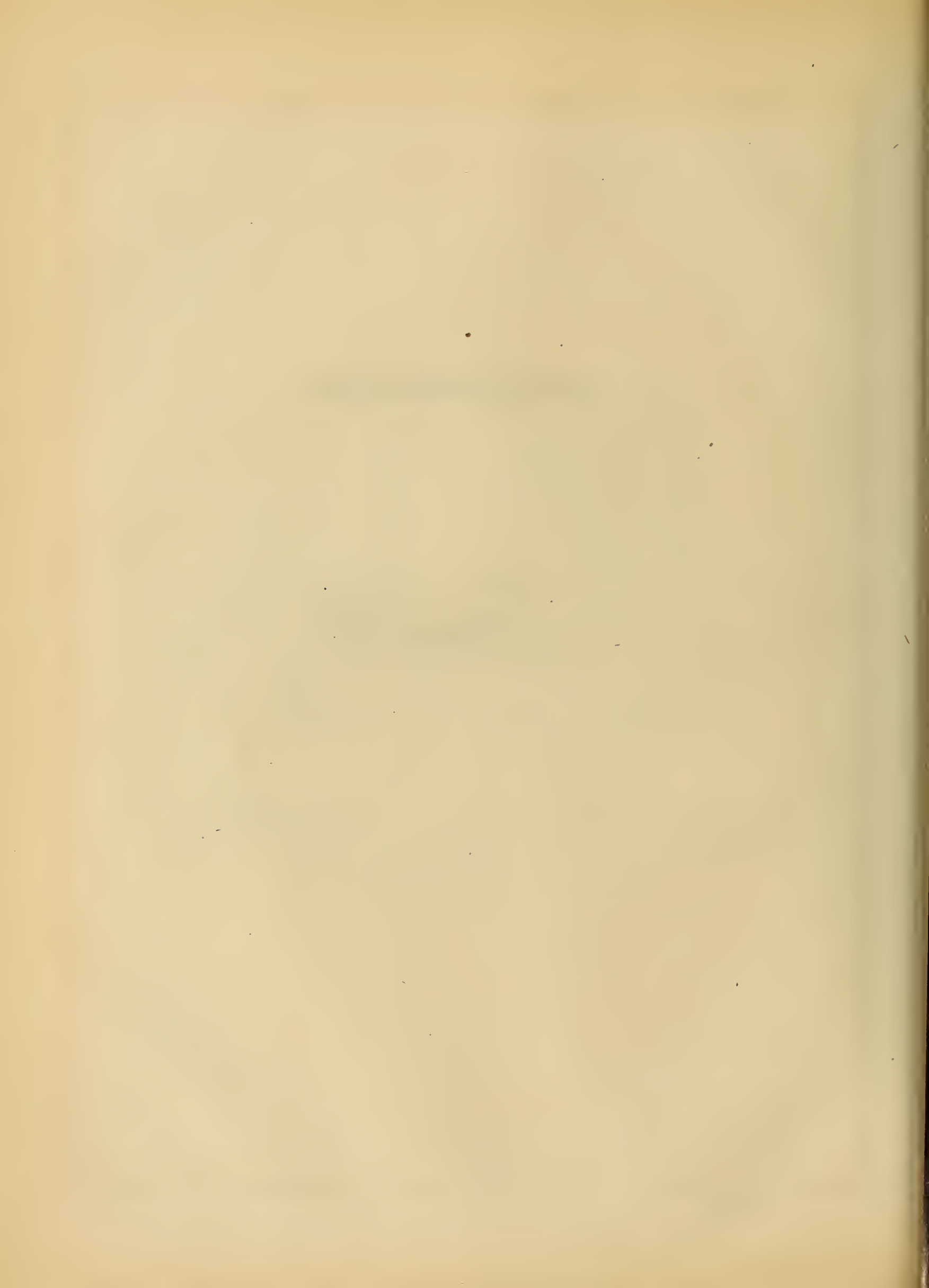




SKELETON-DOOR OPEN FRONT ROCKAWAY.— $\frac{1}{2}$  IN. SCALE.

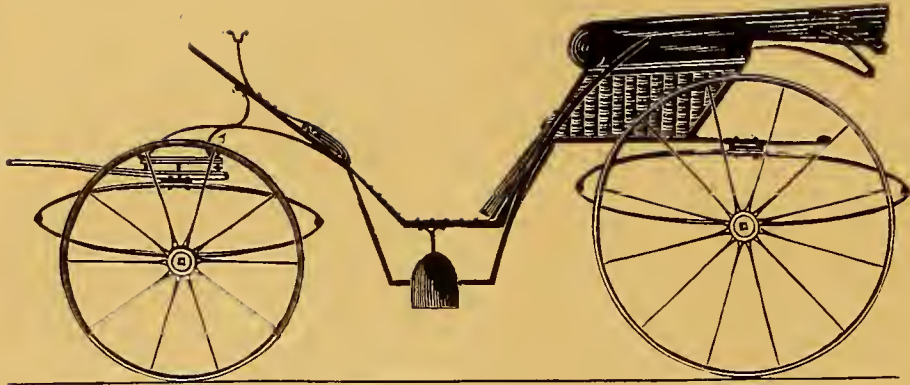
*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 38.*





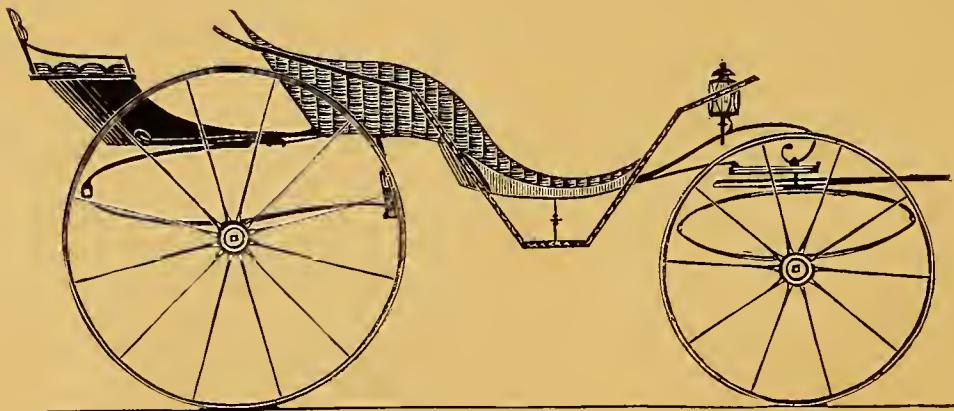




PONEY PHAETON, No. 1.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 38.*

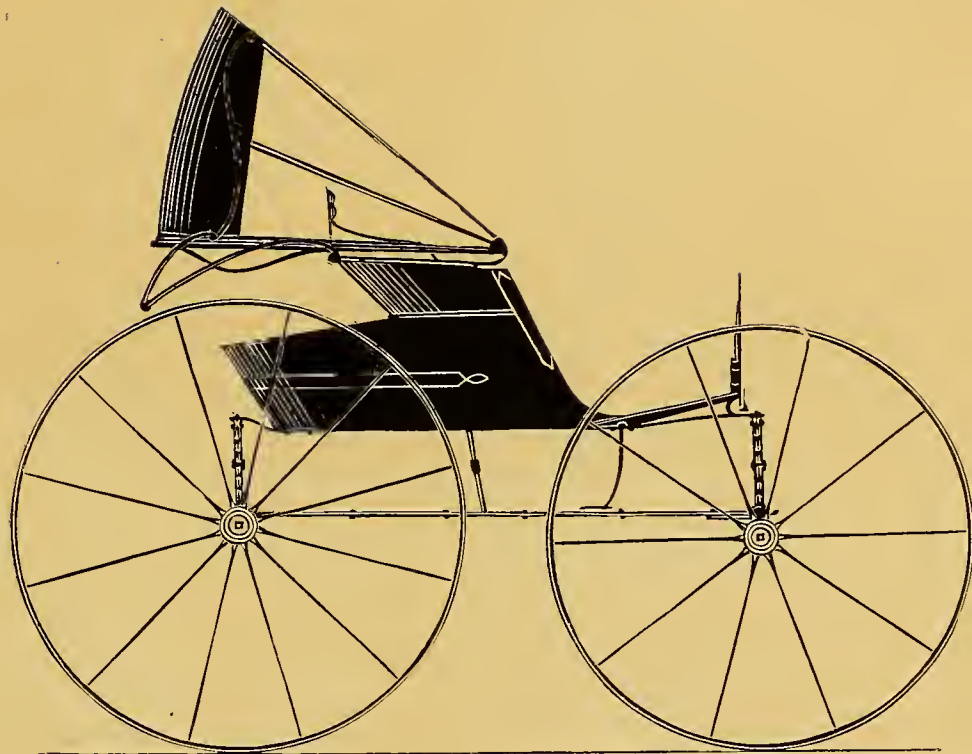


PONEY PHAETON, No. 2.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 38.*





NEW YORK COAL-BOX BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 38.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, AUGUST, 1867.

No. 3.

## Mechanical Literature.

### THE SCREW-DRIVER DISCUSSION.

MR. EDITOR: I find in the May number of your Magazine that my friend Peek's affection for his screw-driver theory continues unabated. He claims that I slightly mistake his meaning, when he says that "the greater the deviation of the screw-driver from the axis, or direction of the screw, the greater must be its power; or, in other words, *the distance between the end of the handle and the line of direction of the screw acts as a lever.*" Now it somewhat puzzles me to know how he knows I mistake his meaning, when he simply makes a plain statement, and I simply deny it, without explaining what I understand by his statement.

But he says, "What I meant by *deviation* was, to produce the deviation from a right line to a circular one."

I interpret what he means by this is, to not only incline the screw-driver from the line of direction of the screw, but, with every revolution of the screw-driver upon its own axis, to produce a revolution of the entire handle in a circular line, around the line of direction of the screw; but he immediately adds, "making the sides of the handle the arms of a lever." This knocks over the above interpretation, and renders the whole explanation a very obscure expression, which is entirely beyond my comprehension, my brain being one of the *non-elastic* kind.

But let us examine this *deviation* principle. If the operator, in driving the screw, incline the handle of the driver from the line of the screw's direction, either to the right or to the left, *and in a line parallel with the nick in the head of the screw*, and while producing the revolution of the screw-driver upon its own axis, produce another revolution of the entire handle in a circular line around the line of direction of the screw, maintaining the inclination *always* in a line parallel with the nick in the head of the screw, the nick in the head of the screw on that side that the inclination is made, *may possibly* become a sort of fulcrum, over which leverage may be obtained by inclin-

ing the handle of the driver; but it is evident that the inclination must always be in a line parallel with the nick in the screw's head; for, if the inclination is made at right angles with the nick in the screw, there is no fulcrum and consequently no leverage. It is also obvious that the effort made by the operator in maintaining this deviation always in a line parallel with the nick in the screw, will detract more from the power applied directly to producing the revolution of the screw-driver upon its own axis, than is gained by making the deviation; consequently, the attempt to apply the deviation principle will result in disadvantage rather than advantage.

But Mr. Peek admits that the only point of difference between him and myself is on the elasticity principle. I think there has been "nuf ced" on this subject; and as Mr. Peek, having the affirmative, is entitled to and has had the closing argument, I propose, Mr. Editor, that you submit the question to some competent authority for a decision, and publish the decision in your Magazine.

The authority to which you submit this question will understand the point of difference to be simply this: Mr. Peek prefaces his argument by stating the true principle that power is lost as time is gained. That power is lost where the acting power travels slower than the resistance, or that power is gained where the acting power travels faster than the resistance; and *he claims* it to be "true in practice that the elasticity of a long screw-driver will cause it to yield or render (as a long lever will bend under a pressure that a short one would easily sustain), and thus, by giving way to the resistance, the lower end, or that which is applied to the screw, will hang back a little, and will not therefore go quite as far or as fast as the upper part of the driver or hand."

I claim that the screw will move just *as fast* as the handle of an elastic screw-driver, or that the screw will revolve one degree, or ten degrees of the circle, *in the same time* that the handle of the screw-driver will revolve one, or ten degrees of the circle, after the screw commences to move, and that the fact that the handle of the screw-driver revolves one or more degrees before the starting of the screw does not give increased power; and that Mr. Peek's premises, viz., that the handle of the screw-driver travels faster than the screw, is false, and, consequently, his reasoning void and of no effect.

BODY-MAKER.



## CARRIAGES IN THE PARIS EXHIBITION.

AN inventive philosopher once wrote an essay entitled, "Of Things Vehicularian," in which he demonstrated, with all the completeness which such demonstrations usually possess, that everything movable in nature was due to the principle of action used, not in machinery, but for purposes of transport. He traced the progress of the arts by this method, from the chariots of Pharaoh with wooden rollers on which the blocks were carried to build Babylon and the Pyramids. Had he lived in our days he might have added a chapter to his story. The significance of a carriage is great indeed. To "set" it "up" or "put" it "down" is sounding a challenge or beating a retreat in battle. Who shall ever know the strivings of some persons to get at this luxury, and the agony of some others belonging to a similar class at being compelled to abandon it? It confers a sort of title. Who has not heard of certain among his neighbors, polite as to "carriage people," or the definition of "respectability" as "keeping a gig;" or, as to his girls, their papa has had to "put up his carriage;" or, more amiably, "I wondered what would happen when I saw that stylish establishment at the door?" We all expect doctors to use broughams, or private hansoms; but with some people the first unmistakable evidence of refined, substantial, permanent success in life, is giving a cheque for the coach-maker. It is proof that Cinderella's pumpkin has, at last, been converted into the wished-for equipage and pair—perhaps not that, perhaps only a graceful phaeton, croydon basket, or a second-hand family four-wheeler, which in the course of years will do duty only at a rural railway station. It is all one, so far as the ambition goes. I am not surprised, any more, at remarking how strong is the interest usually felt, at all Exhibitions, in the celebrated workmanship of the Long-acres of Europe. The collection here is large, and a considerable proportion of them special; but once more England enjoys a pre-eminence, without question or exception, over all other countries. Either they have not chosen to exhibit, or they cannot in this respect show much competition with us. It would hardly be fair to rank Prussia before France, because the latter makes a most elaborate show of much merit; but certainly Prussia, though her achievements in this department of industry are few, puts forward an undeniable claim. Having, however, assigned precedence to England, it is only reasonable that I should turn to its daintinesses of condition first. Conspicuous amongst vehicles must ever be a Derby drag; and the Derby drag, as constructed by Messrs. Hooper, of London, is the perfection of such a carriage—strong, handsome, comfortable, as well "found" as a first-class yacht, and exactly fitted for any purpose of any required occasion. The hind boot, the doors of which, when down so as to form tables, contains two polished, roomy ice-cellars, lined with zinc, and also a baize-lined shelf above a long folding slab, which, passed through the windows, constitutes a table, projecting either end for those who would banquet within. In the front boot is stowed away a most capacious receptacle, redolent of Fortnum and Mason's, of Champagne and Moselle, of *pâte du foie gras*, and whatever else makes a basket agreeable in the middle portion of May. In close proximity with this is placed the plate and cutlery basket, concealed by an invisible trap, and on the roof there is a folding box containing glass, or perhaps a flying luncheon for peculiar appetites. The lever which adjusts

the whole is worked from behind, so that the driver need not for a moment neglect his team. This drag, which is painted and varnished, complete in every part and of almost stately appearance, has been purchased by a Spanish prince. The same firm exhibit a light park barouche, which is a model of elegance. Another drag (128), by Messrs. Sellers, of Park Street, Grosvenor Square, is also of remarkable merit, though not so elaborate as the Messrs. Hooper's. It has two levers, front and back, for acting on the wheels; there is an imperial for commissariat uses, besides the ice cellars behind and the basket boot before, and there is a step for ladies to mount by. Hutton and Sons, also, are astonishing the Parisians by a neatly made Irish jaunting car (15), rather luxurious of its finish, and a wagonette which, in the emergency of a storm, can be roofed and walled in, *presto*, like an omnibus. Wyburn, of Long-acre, has some magnificent carriages (41), thorough in build and convenience, illustrating a marked improvement of the fashions in these matters within not many years. Returning for a moment to pleasure as distinguished from promenade vehicles, I must notice the pair-horse omnibus (32) from the Brougham works, well designed in all respects, from the roomy, cushioned interior to the improved iron ladders outside. W. Thomas, of Liverpool, shows a wagonette (33), which in a moment may be covered with a light ornamental awning; and Mr. Morgan, of the Edgeware-road, has some highly serviceable carriages to exhibit. His patent landau, made to close or open instantly by the simple turning of a crank under the coachman's seat, is not quite so convenient; it has been designed, built, furnished, and fitted up with the utmost care, taste, and judgment, and is, nevertheless, if we consider the appliance, a comparatively cheap vehicle. Those who have been familiar with the old clumsy process of opening and closing a carriage of this description, can appreciate the advantage of being enabled to do so readily four or five times in a minute without the driver getting off his box, and without giving time for a shower bath in the interior before the apparatus is set right. Some maker's patent wagonette deserves an examination. Among, however, the objects exhibited in this section, I was particularly struck by a wagonette, the manufacture of Mr. C. S. Windover, the builder to the Queen, 32 and 33 Long-acre (38). This carriage comprehends, as it were, three different vehicles. It may be a wagonette, or a phaeton, or a close carriage, and is easily convertible, with the simplest mechanical contrivance, into either. Its outline—not a common thing to be said of wagonettes—is graceful; much taste has been bestowed upon the finish of the whole, and the improvements introduced do not mar the general appearance, while they contribute much to convenience. Thus, you have concealed folding steps for a lady to ascend by in front, a self-acting step to open and shut with the doors behind, a patent lever brake, hidden from sight, to skid both hind wheels simultaneously or separately. Shafts or a pole, for a single horse or a pair, may be used, the latter with steel chains and a chevron revolving steel head. I should mention, additionally, that the vehicle is fitted up both for picnics and for sporting purposes, for wine-hampers and gun-cases, and that the whole is easy and light of management, and exactly such as any gentleman might be gratified to reckon among his "traps." Another wagonette I noticed was again Mr. Morgan's (23); its peculiarity is that it shuts over from



the sides, and promises to be peculiarly cosy on a cold night. Boyall's Grantham Works send a carriage of first-rate construction. Evans' Alexandra drag is highly puffed; but I am dull on the subject of its advantages. Thorn, of Norwich, has designed a very elegant vehicle (26), to sell at 125 guineas. Bettyes, of Piccadilly, exhibits one (3) full of complication; but with no apparent superiority over scores of others. Mulliner, of Leamington and London, displays a sumptuousness of ornamentation united with an elegance of fancy which have already made the superb carriage (24) he exhibits a favorite. But, not to dim the glories of Long-acre, I am bound to keep prominently in view the first in the catalogue, the magnificent perfection of an open carriage from the workshops of Mr. Aldebert, whose reputation is world-wide. There is absolutely not an improvement to be desired, so far as luxury, beauty, and style are concerned. The productions of Mr. Thorn (36) are chiefly remarkable on account of their extreme lightness—a quality greatly appreciated now, and one illustrated very effectively by Mr. Bedford, of Euston-road, London, who has a "canoe barouche" (2) of very graceful outline, suggestive of the utmost ease, and peculiarly useful to persons who can afford to keep only one carriage. Seen in three different rooms its identity would scarcely be suspected. In the first, it is a roomy carriage, weather-proof, and fit for an opera or ball party; in the second, just adapted for a dry drive home through a succession of smart spring showers; in the third, it is a park equipage of the most delicate and fashionable aspect. When entirely closed in, the weight is 7 cwt.; otherwise, no more than six, or less than that of an ordinary street cab. I ought to have mentioned that Thorne's light caleche (36) has eight springs. Of course Messrs. Laurie and Marner, of Oxford street, figure with a vehicle (17), classically designed, furnished—if I may employ the word—for the Sybarite himself, and certain to be beheld before long, rolling down some dazzling thoroughfare on a season's brightest afternoon. Roberts' "Whitechapel Dog Cart" (29) is, as the name implies, a jaunty two-wheeler, constructed for rapidity, and no more is to be said about it. Most persons will prefer Mulliner's "Hickory Phaetons" (25), from 75 to 100 guineas, which are really dashing without being "fast;" and the same remark applies to the designs exhibited by Mr. W. Thomas, of Liverpool. And now I come upon another glory of carriage building—by Messrs. Offord, of Wells Street, Oxford Street—the winners of a prize. It is a stately dark equipage, beautifully designed and constructed, fitted with faultless elegance, patrician in every part, with I hardly know how many patents worked into it—patent india-rubber tyres, patent self-acting steps, patent india-rubber window frames, patent isolating india-rubber spring-blocks, and patent axle-washers. If human nature cannot glide about easily enough on these terms, the roads must be rough indeed. If Messrs. Windover's pretty and perfect combination of hickory and steel may fairly be described as gems, this surely is a master-piece upon a grander and more costly scale. Of course, while permitting myself these observations, I am not entering into the mysteries and details of the celebrated Long-acre manufacture, with its congeners in other parts of the world; I rather prefer the point of view of the public, who do not build but buy, to that of the manufacturers who are rivals. Moreover, when resuming the subject, I shall have to draw some comparisons of interest between

English and foreign progress in this important, and, I may add, picturesque department of industry. A carriage used for ease is an expression of more than luxury; it is a little type of national character, a hint of climate, and suggests where we may expect to find a passion for barbaric pearl and gold and where the refinements of educated wealth. I repeat that England has no equal, not even a formidable competitor, in the art of carriage building; but other countries, nevertheless, supply interesting materials in the way of differences and contrast.—*London Standard.*

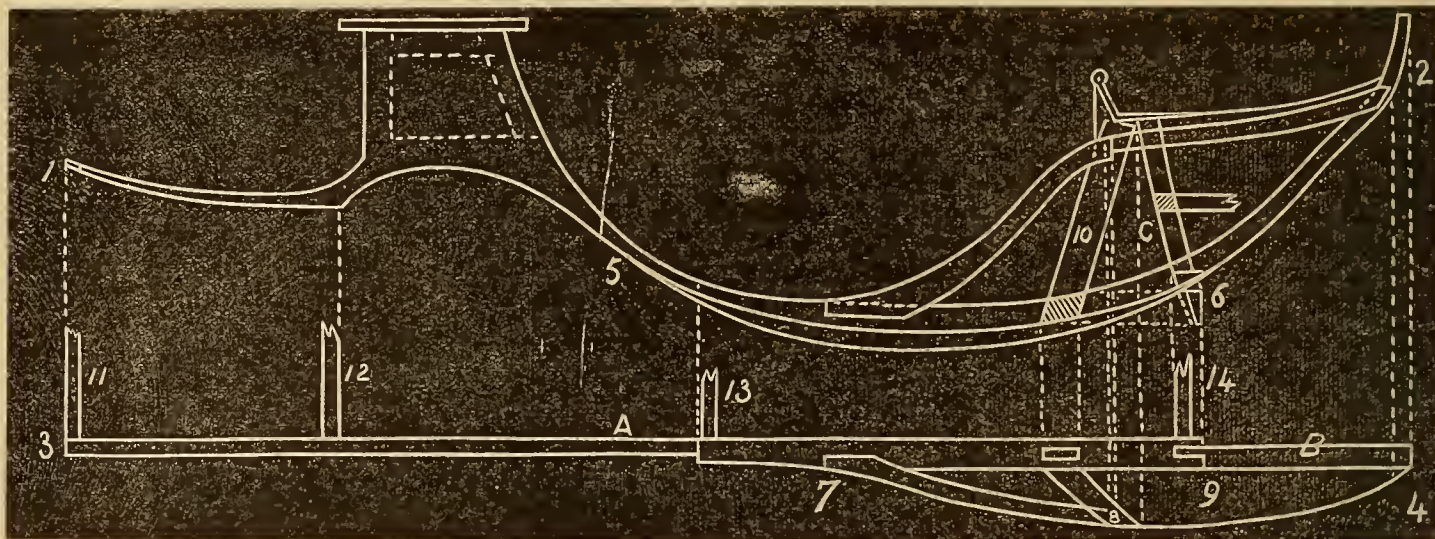
#### CARRIAGE-MAKING IN SAN FRANCISCO.

A GENTLEMAN writes us from San Francisco, saying, "I find that a great change has taken place in this city during my six years' absence. Not only are the built-up limits of the town extended to a point nearly double its former size, but the new improvements are of a far more substantial character, denoting both progress and permanence. In the older portions of the town, many of the old pioneer wood and brick structures have been torn down, and both public and private buildings are taking and have taken their places, some of which would be an ornament to any of our Eastern cities.

"Light carriages are now being extensively made here, sufficient, probably, for the wants of the community; and style is the order of the day. There are few improvements either in style or finish but what have been introduced into some of our best shops, and manufacturers claim that they can make a good buggy, at a living profit, for \$400 in gold, paying a higher price for labor, with material costing about the same price in gold that it is sold for in currency in the Eastern States. How they do this is a puzzle to me; but as experience is the best teacher, I presume I shall soon learn, as I propose soon to hang out my shingle, and become, as I was in times past, one of the carriage-makers of San Francisco."

IMPORTANT QUESTION.—Do any of those workmen who combine to enforce laws for reducing the hours of daily labor, ever seek to make a reckoning of the number of their fellow-craftsmen that have risen from the condition of employes to that of employers? If they did we venture to think they would find that the prime question with the fortunate ones (so called) during their servitude was not whether they could trifle through an eight or ten hours' task without aching bones, nor how they should secure legislative aid in getting ten hours' pay for eight hours' work. Let the members of Workingmen's Unions make a keen inquest into this matter. If they find that the leaders of strikes have been the men to rise above the hardships of daily toil, to conduct enterprises requiring skill and ingenuity, then they will find something to encourage them of a positive and practical kind, in seeking at once to enforce a universal rule of easy hours for work and handsome pay, under all conditions. If, on the other hand they find that nearly every one who has risen in life socially, and won esteem among his fellows, and become independent of the exactions of daily toil, has done so by steady, unremitting application, by unwearied and single-minded exertion and by regarding capital as a thing to be legitimately acquired rather than to be defied and conspired against, then the thinking class belonging to Workingmen's Unions will naturally take a different course from that which many of them now pursue.—*N. Y. Times.*





VICTORIA PHAETON, WITH CANT-BOARD—THREE-QUARTERS INCH SCALE.

## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACHMAKER.

### BODY CONSTRUCTION—PART TWENTIETH.

THE Victoria Phaeton, of which we give a cant, will be found on Plate V. of this volume. In transferring it to the black-board, after finding the extreme lengths of both body and cant, between 1 and 2, and 3 and 4, next mark off the dotted perpendicular lines at proper distances by measurement, afterward drawing the sweep of the bottom-side between 5 and 6, completing the other lines in regular order.

In drawing the cant, first lay down the straight line A—the inside of the bottom-side—and follow with the inside of the back-pillar B. The outline of the corner pillar is shown from 9 to 4, the sweep of the arm-rest from 8 to 4, the front or standing-pillar from 7 to 8. The swell or turn-under of the pillar 10 may be seen at C. The figures 11, 12, 13, and 14 point out so many cross-bars.

Although comparatively a plain and simple body when built either with panel or “solid,” yet there is no job more dependent for beauty on elegance of outline and a mechanical eye in its construction. We have given much swell to the side, but of course the builder will vary this to suit his own taste. Allow us, however, to remark that a flat-sided panel never looks well in bodies of this description. A good easy true swell is the more tasty, in our judgment.

### INTELLECTUAL INSTRUMENTS IN MECHANICS.

How frequently we hear it repeated, “No one can work without tools;” to which we would add, neither can any one get along well without a cultivated intellect; and yet when we go into the workshop and examine mental appliances, we find that more than half of the commodity exists only in the finger-ends of our mechanics. If we ask them to subscribe for this Magazine, for instance, they tell us, “It’s a good thing for the bosses, but of no use to us;” or else, “We can’t afford to take it;” or make some other excuse equally frivolous to get rid of us. We cannot help thinking that these men labor under

a delusion from the start. Did they reflect, they would soon find that they could not afford to be without it. Why should those who are emulous of the first positions as artisans, and ambitious for higher wages, not employ the most effectual means for obtaining such—a well-informed mind?

It is not sufficient that a workman have his well-arranged tool-chest filled with a complete assortment of the latest and most approved instruments in use; he needs in addition those *intellectual instruments* which go to make up all the difference between the good and the indifferent workman. They will discover that those individuals, with scarcely an exception, who are now filling the position of foremen in our best workshops, have reached this enviable situation through the channel of study in connection with the use of tools. This portion of his education the mechanic never gets from his boss when serving an apprenticeship—it must be obtained through his own individual effort.

When these men to whom we refer were engaged at the work-bench, they executed with diligence all they found for their hands to do; but, through with physical labor for the day, they exercised their mental powers in the direction best suited to improvement, by studying the discoveries of men of science both at home and abroad, and making the knowledge thus obtained subservient to the day’s labor. It is preposterous for any one to suppose that a mechanic may keep up with the times, and fill the position of a first-class workman, unless he consults and studies such works as are published for his special benefit. Why is it we find so few really good mechanics in comparison with the masses of poor ones? Is it not owing to neglect on their part in not combining the mental energies of the period with their own discoveries? However enterprising some may be, let it not be forgotten that there are still some their equals, if not superiors, whose teachings may prove beneficial should an attentive ear be given to them. A single idea gathered from another may expand, under good cultivation, and prove the fruitful source of many others.

A late writer well observes, “There are occasions in the personal history of every individual when he feels straightened in his circumstances, and unable to afford the small sum necessary to purchase intellectual aliment;



but if we look upon these papers, books, or whatever form the knowledge is issued in, as *tools*, we must admit the justice of purchasing them at some sacrifice of needless gratification. On the one hand we see a mechanic furnishing his mechanical *repertoire* with all modern appliances wherewith to prosecute his business successfully, but on his intellectual needs he expends not a cent. We have all read the fable of the hare and the tortoise; how the former challenged the latter to a race, and, confident of his ability to outstrip his toiling antagonist, set out in the morning, ran awhile, then sat down and slept. While he slept the tortoise slowly but certainly pursued his course, and reached the goal just as the hare, too late, came panting up. The unlettered mechanic may be compared to the hare who runs his race in the heyday of his powers; while the less-gifted individual, who depends not alone on the work of his hands, but unites brain with muscular exercise, achieves his end not less quickly and much more certainly than he who relies blindly on mere dexterity. It is only by a proper union of intellectual cultivation with manual dexterity that the most eminent mechanics have succeeded." The history of such men as have distinguished themselves, and gained the reputation of great mechanics, proves such to be the case. Would that we could *impress* these facts upon the minds of all our readers.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—III.

ON a second plate (No. 128), Rosellini presents us with a picture of a "boat-hearse," drawn by a rope attached to the horns of four oxen, abreast, the sledge-hearse being accompanied by six personages; first, a priest with his shorn head, bound with a ribbon, and hands uplifted, preceding the driver with whip in hand, both along-side of the draught animals; next marches the third, holding a scroll—supposed to be a record of the dead man's life—in his right, and in the open left hand a sort of skin bottle or pail; next, the priest is seen in his leopard-skin dress, offering incense with his right hand from a censer, and pouring out a libation from a cup held in the left, at the same time, either to propitiate the gods, or in



AN EGYPTIAN FUNERAL CORTEGE—THE BODY CARRIED TO THE TOMB.

honor of the dead. The mummy-case is seen through an opening at the side near the bottom of the "boat-hearse," behind which the indispensable mourner, hired for the purpose, follows with disheveled hair, her right hand resting on her head, accompanied by a man in like manner, except as to his hair, the left arm with hand spread hanging by his side.

In the design herewith presented—the third in the series from the Egyptian Tombs—illustrative of ancient funeral processions, the cortege is shown as being still on its way to the river, across which it must pass.

For this purpose the boat has been mounted on the funeral sledge, which sledge itself is here placed upon wheels, thus confirming our theory that the sledge was the original of wheeled carriages. Some idea of the progress in art may be obtained by comparing this with the drawing given on page 22. The hearses, evidently performing the same office, are somewhat different in construction.

In the cortege we find the sacred animals, with the attendant driver, employed to give additional solemnity to the occasion; next follows the scribe bearing the evidence, in a scroll, of the good deeds of the defunct, in life; after him marches the priest, carrying the censer, a second one bringing up the rear. The oars at the stern of the baris, or boat, shows that the crossing of some stream is about to follow. The helmsman was called Charon in the Egyptian tongue, from which circumstance is supposed to have originated the ancient fable of Charon and his boat, among the Grecians. According to the fable, Charon, the son of Erebus and Nox, who acts as the ferryman of hell (*hades*), wafts the souls of the dead in a boat, over the Stygian Lake, to receive judgment from Æcus, Rhadamanthus and Minos, for which service Charon was paid an obolus by the passengers, the ancients placing the money in the dead's mouth. (Virgil's *Eneid*, 6, 298, *et deinceps*.) Time has destroyed in the original bas-relief the right hand of one of the priests, and some portion of the plastering shown by tinting beneath the papyrus scroll in the scribe's hands.

The funeral processions of the wealthy Egyptians, according to Wilkinson, were generally as follows: "First came several servants carrying tables laden with fruit, cakes, flowers, vases of ointment, wine and other liquids, with three young geese and a calf for sacrifice, chairs and wooden tablets, napkins and other things, then others bringing the small closets in which the mummy of the deceased and his ancestors had been kept, while receiving the funeral liturgies previous to burial, and which sometimes contained the images of the gods. They also carried daggers, bows, sandals and fans; each man having a kerchief or napkin on his shoulders. Next came a table of offerings, fauteuils, couches, boxes, and a chariot; and

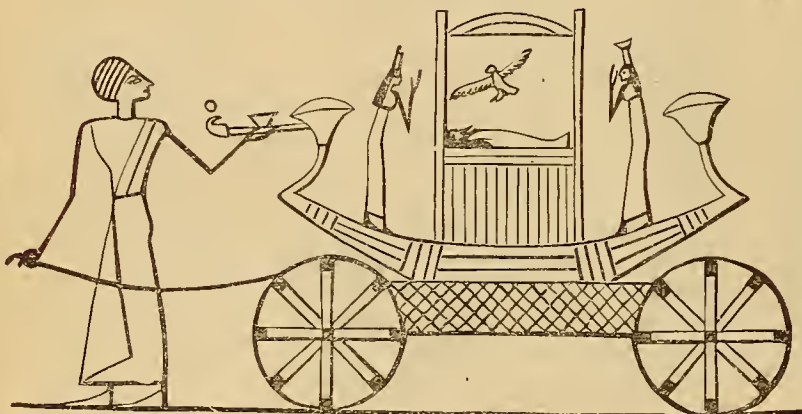
then the charioteer with a pair of horses yoked in another car, which he drove as he followed on foot, in token of

respect to his late master. After these were men carrying gold vases on a table, with other offerings, boxes, and a large car upon a sledge, borne on poles by four men, superintended by two men of the priestly order; then others bearing small images of his ancestors, arms, fans, the sceptres, signets, collars, necklaces, and other things appertaining to the king, in whose service he had held an important office. To these succeeded the bearers of a sacred boat, and that mysterious eye of Osiris, as god of Stability, so common on funeral monuments—the same which was placed over the incision in the side of the



body when embalmed, as well as on the prow and rudder of the funeral boat—was the emblem of Egypt, and was frequently used as a sort of amulet, and deposited in the tombs. Others carried the well-known small images of blue pottery, representing the deceased under the form of Osiris, and the bird emblematic of the soul. Following these were seven or more men leaning upon staves, or wooden yokes, cases filled with flowers, and bottles for libation; and then seven or eight women, having their heads bound with fillets, beating their breasts, throwing dust upon their heads, and uttering doleful lamentations for the deceased, intermixed with praises of his virtue."

One form of the hearse in bas-relief (see p. 87, vol. 1, of this work) from an Egyptian tomb, is curious as showing that grease or some other liquid was sometimes poured upon the ground or platform on which the hearse moved, for the purpose of facilitating its progress, as was frequently done when the sledge was used in moving heavy weight. In the sledge is seen the mummy case and contents, which is being steadied by the hands of female attendants as it moves along; the priest, the meanwhile, mounted on the forepart thereof reading from a scroll, a panegyric, or perhaps a funeral oration, in honor of the dead. The priest was a distinguished and important personage in such ceremonies as is proved by the bas-reliefs, representing burials. That they enjoyed many privileges and honors is admitted by all historians.



SUPPOSED FUNERAL CAR, FROM A MUMMY BANDAGE.

A singular instance of the wagon and funeral boat in combination, on four wheels, has been transmitted to us on the bandage of a mummy, belonging to S. d'Athanasia. Some suppose that this vehicle is that alluded to by Herodotus, in lib. ii, v. 63. Speaking of the religious sacrifices in honor of Mars as performed in the city of Pamprinis, among other things he tells us that the priests placed an image in a small wooden temple, gilded all over, which they carried to a sacred dwelling; "then the few who were left about the image draw a four-wheeled carriage containing the image that is in it." A ridiculous story follows the passage, which is not pertinent to our purpose.

Our own opinion is, in the absence of facts, that this picture represents "the latest style" of Egyptian sledge-hearse, or boat mounted on wheels. The mummy case favors the idea that it represents a funeral, and the eight-spoked wheels that it was of a later-day adoption, probably when their superstition had waned from intercourse with the Israelites in the days of Solomon, who had in his harem an Egyptian princess.

## Pen Illustrations of the Drafts.

### CALECHÉ.

(Illustrated on Plate IX.)

On this plate we give a unique design for a half-top caleché, with straight joints, the body of which will look much better built than it does in our drawing. The wheels are 3 feet 4 inches, and 4 feet 2 inches high.

### SKELETON-DOOR OPEN FRONT ROCKAWAY.

(Illustrated on Plate X.)

For this drawing our readers are indebted to the kindness of Messrs. Adams & Cone, of this city, with whose permission we have drawn it from a vehicle in their ware-rooms. It makes a very light family carriage for one horse, plain and neat; a far prettier one than some others of more pretentious design. The standards or pillars to the top ought to be strengthened at the top with T-irons, or it will be likely to give out from the shakings it must undergo in passing over rough roads. Wheels 3 feet 4 inches, and 4 feet high.

### PONEY PHAETONS, NUMBERS 1 AND 2.

(Illustrated on Plate XI.)

No. 1 is copied from a late French design, with slight alterations to accommodate it to American ideas of taste. This is intended for two passengers only, a capital thing for our summer watering-places. Being wicker-work, the body may be made extremely light and airy, either with or without a top. The wheels 2 feet 3 inches, and 2 feet 9 inches, and should be made very light.

No. 2 is American, of simple design, with a seat behind for children or servants, intended mainly for the Central, or other parks. The body proper is also in wicker-work, the back with round corners, paneled. The wheels 3 feet 6 inches, and 3 feet 3 inches. For carriages of this kind we prefer yellow; broad stripe, black; fine-lined red or blue.

### NEW YORK COAL-BOX BUGGY.

(Illustrated on Plate XII.)

The coal-box, in spite of the opposition it met with in the first year of its introduction, has now become one of the "institutions" of the trade. Not that it will ever wholly supersede the old square-bodied favorite, but because it is more called for than any other at present. Our design is a simple one, the panel being molded as shown. Wheels 3 feet 10 inches, and 4 feet 1 inch high; hubs  $3\frac{3}{4}$  inches; spokes 1 inch; rims 1 inch; tires  $\frac{1}{2}$  by  $\frac{3}{4}$  inch.

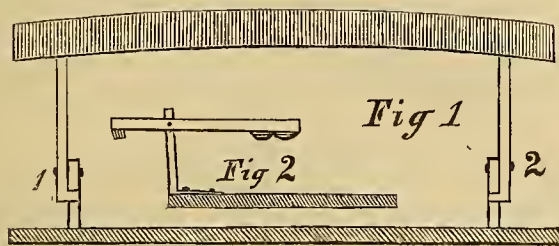
NOTE.—Our Magazine for September will contain several original designs for sleighs worthy the attention of the manufacturing public.



## Sparks from the Anvil.

### DESIGN FOR DROP LAZY-BACK.

USUALLY a stump-joint has been employed in the construction of a drop back for carriages of two seats without doors, so that in mounting the passengers may step over the front to the back one. This is not in every instance strong enough to be safe. Our design is calculated to remedy such defect.



At 1 and 2, in Fig. 1, are shown improved joints, the part attached to the lazy-back being turned at the lower end, in such a shape that when standing up it is braced by pressure against the iron attached to the seat. Fig. 2 gives an end view of the seat and a side view of the joint. When used to the front seat of a four-passenger vehicle, the projecting end—when the back is turned down—may be liable to rend the dress, unless care is taken when getting in; but for the back seat of phaetons, &c., it will be found very serviceable and safe.

### MAKING OLD FILES USEFUL WITHOUT RE-CUTTING.

AN English journal having given in its pages a process for *renovating* old files, the scientific publications on this side of "the pond" have republished the article with a great flourish of the invention. Now we have no faith in its utility, and do not believe anything short of re-cutting will answer any practical purpose; but here are the details:

The files are first thoroughly cleansed with a scratch-brush and a strong solution of soda, to remove all grease; they are then laid in a dish, the ends resting on wires, so that their whole surface is exposed to the water, of which enough is put in the dish to cover the files. One-eighth part of nitric acid is now added to the water, and mixed by moving the dish about. The files are to remain in this liquid for twenty-five minutes. They are then to be rinsed in water, and again scrubbed with the scratch-brush, and are afterwards returned to the bath, strengthened by the addition of another eighth part of nitric acid. In this they are to remain fifty minutes. They are now to be scrubbed once more, and are finally to be placed in the bath, which, in addition to the two-eighths of nitric acid, has one-sixteenth of its bulk of strong sulphuric acid. They have now only to be washed with water, dipped in milk of lime to remove all traces of acid, rinsed again and dried. After this treatment the files are said to be as good as new, and to have a good color. Should any of our readers have tried this *scratch-brush* file-cutting, they will oblige by giving us the result.

### STRIKES IN THE IRON TRADE.

It is calculated, says the *Colliery Guardian*, that about £300,000 has been lost to the men in wages alone, while the contributions which the union has given to some 3,000 of the 10,000 or 12,000 who have been thrown out by the strike have not exceeded £10,000, leaving a net loss of £29,000, while by far the greater portion of the men have had no assistance whatever, and have been compelled to endure the greatest privation and suffering; but, in addition to this, by suspension of work for the nineteen weeks of the strike, a sum of about £1,250,000 has been lost to the district, and must have made a difference to tradesmen of all kinds. There are also secondary losses which will have to be borne. The malleable iron trade has been diverted into other channels, and under the most favorable circumstances a long time must elapse before it will be got back again. This means short time even at the reduced wages, and the non-remunerative employment of capital for the manufacturers, with corresponding effects to all who depend directly or indirectly upon the iron trade. The labor market has also been affected in two ways; a large number of fairly-skilled underhands have risen to a foremost place, and the men imported from other districts are far more numerous than are those who have left the north county.

### BAMBERGER'S GAUGE FOR SETTING AXLES.

IN the advertising department of this issue, our readers will find a long list of names, together with such remarks on the nature and use of this article, as ought to convince all of its genuine utility. We hear that it is having a large sale, and would cheerfully again call the attention of our readers who are studious of having their axles set so as to avoid unnecessary friction, to the importance of this invention.

## Paint Room.

### MANUFACTURE OF SUGAR OF LEAD.

ACCORDING to the best analysis, the acetate of lead is composed, in round numbers, of fifty-eight parts oxide of lead, twenty-six of acid, and sixteen of water. Of course the saturating power of the pyroligneous acid intended to be employed must be examined, in order to determine how much of it answers to twenty-six parts of the dry acid. When this acid is at forty degrees of the acidimeter, it generally requires sixty-eight pounds to be poured on fifty-eight pounds of litharge. The solution takes place immediately, and is so quickly made that a considerable heat is produced, which retains the sugar of lead in solution; but a little boiling is usually given, and some water added, to keep up this solution, until the liquor has become clear; after which it is then poured into crystallizing pans.

The crystals, which usually weigh seventy-five pounds, are produced in about thirty-six hours, then drained and carefully dried. The mother water, which contains about twenty-five pounds of sugar, by evaporation yields a great part of its contents, but the crystals are by no means so fine as the former.

When the mother waters no longer yield crystals,



they are mixed with salt of soda, when a carbonate of lead falls down, and acetate of soda remains in solution. The carbonate of lead may be used instead of litharge in future operations.

It will be found preferable at first to add the mother water to the acid and litharge, and thus near one hundred pounds of good sugar of lead will be obtained, instead of seventy-five pounds by the first crystallization; but this method cannot be continued for any time, as the liquor will become greasy, the crystallization will be hindered, and the sugar of lead become difficult to drain; so that it is then necessary to abstain from adding the mother water any longer to the solution, and to decompose it by salt of soda. The acid ought to be pure and particularly free from tar and sulphurous acid, as the tar will discolor the sugar of lead, and the sulphurous acid produce an insoluble precipitate of sulphate of lead.

The boiling solution may be brought to various densities by adding more or less water, and as this difference produces some variety in regard to the crystals, the manufacturer, by a little observation, may suit the different tastes of his customers.

To obtain a very white sugar, the metal of litharge should have no admixture of copper, as is usual in French lead and German litharge. Its effects may, however, be obviated by putting a few plates of lead into the boiler. But you will find that some manufacturers do not wish to separate the copper, because it gives the sugar of lead a slight bluish tinge which pleases the eye of many buyers.

In this solution of the litharge in the acid, there remains a very small residuum, which ought not to be flung away; but when a quantity of it is collected, it may be treated as ore of silver, as it is composed of that metal, united with oxide of copper, lead, and some earthy substances. One great advantage in this manner of forming sugar of lead by means of pyroligneous acid, is that it is not necessary to evaporate the solution for the purpose of crystallizing it, as when vinegar was used; for the solution is decomposed by being boiled, and part of the sugar of lead is changed into white lead, and of course separates it in form of a powder.

J. B. P.

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### Trimming Room.

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#### WORK FOR INVENTORS.

FROM time to time we hear of inventions designed to obviate some of the difficulties and defects which use brings to light in carriage-building, especially in some portions of the trimming, which shows that something is "loose,"—that imperfections still exist. It is true we have seen several attempts at "improved button-holes for carriages," "curtain fasteners," "elastic buttons for carriages," "knob-hole for carriage curtains," "carriage curtain eyelet," all within the past year, intended to remedy an evil which has been seen for centuries, and perhaps will never be entirely prevented. There is great wear on a carriage curtain constantly exposed to friction as it is in the wind, and from the motion of the vehicle, more especially in business wagons; and he who is so fortunate as to present the world with a *really* good thing in this line, will not only prove a benefactor, but

ensure his own fortune—a thing, as far as we know, not yet accomplished.

Another necessary thing, is something that will prevent a calash-top from sinking between the bows. (We are not now speaking of the defect which Tully's invention is designed to obviate, but of that which is seen between all the bows of tops, one or two years old, caused by shrinkage of the leather.) Is there no process by which leather may be dressed so as not to shrink afterwards? And if not, is there not some yet undiscovered means of preventing this sinking, still leaving the top with sufficient flexibility for all practical purposes? We have not room to discuss this subject further this month, but hope that we have said enough to turn the attention of the trimming portion of our readers to the consideration of this matter and to a successful result.

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#### MACHINE THREAD ONCE MORE.

WE have several times made reference to a machine thread made of hemp, to be used instead of silk, as it is much cheaper and just about as handsome. This has brought us a great many orders for the article, which have been promptly filled. But we have one thing to complain of. Although we give the price every month in our "Prices Current," still we are annoyed with orders, C. O. D., instead of remitting the money. We would not object to such orders were these persons willing to pay for collecting such bills, but we find that many are not, either because they are ignorant of the fact that express companies charge—and high too—for such service, or else are under the impression that we can afford to pay it ourselves *out of our profits*. When these "close calculators" inform us how we can make a profit, by paying 75c. for collecting, when the entire excess of costs for the goods is *only* 25c., we may see things in the same light as they. Until such time, we must have the money with the order, or else charge costs of collection to our customers. Such as are not willing to pay this reasonable charge, are not expected to trouble us—we hope they will not.

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### Editor's Work-bench.

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#### WESTERN JOURNEYINGS CONTINUED.

OUR story, so far as given, left us at the world-renowned Niagara Falls, on a bright sunny afternoon, in striking contrast with the four disagreeable days of constant rain preceding it. Although we had visited this wonder of nature several times, we never before saw it under such peculiar circumstances. The waters usually have a deep, rich, sky-blue cast, clear, beautiful, and majestic; but on our last visit, in consequence of the long-continued storm which had flooded the country, muddying the tributaries, the river in a filthy stream now rushed over the precipice in disturbed lines of soapy foam, chromatic shades and dirty blue, making up altogether a picture seldom seen at Niagara. It is no part of our design to undertake a description of that which has so often been described by others; but we cannot leave



the Falls without recording the opinion of a fellow visitor respecting the receding southward of this wonderful wonder. Having crossed over to the Canada side, in a boat below the Falls, and walked up to Table Rock, we casually remarked that, as some years ago, another large mass of that structure would soon fall, and gave it as our belief that great changes had taken place in the shape of the Falls since our visit there in 1850. The old gentleman to whom we have alluded said such was the case, and gave it as his opinion that the stream had been receding for ages—insisting that the world is much older than chronologists would make it—all the way up from Lake Ontario to its present position. Without stopping to dispute this question, we notice, as a fact, that all the trees surrounding the Falls, within reach of the spray, have the branches inclining downward, caused, as “the oldest inhabitant” told us, by the weight of ice accumulating there during winter from the spray floating in the wind. This weight so bends the branches downward, that in after growth it produces a distorted show of trees around the Falls. On the day of our arrival at the Falls, we took a stroll into Canada, crossing in a boat below the cataract, for which the pocket is taxed thirty cents. At Drummondsville there are two carriage shops, but this being the anniversary of “Her Majesty’s” birth-day, all business for the time was suspended throughout the *Dominion*, and we left to re-cross the river as we went.

The next morning (being Saturday), crossing the Suspension Bridge in the cars, we proceeded on to St. Catharines, intending to spend the Sabbath with our friend, R. McKinley, Esq. This gentleman is one of the members of a firm extensively engaged in bending materials and turning spokes for the trade, chiefly from Canadian timber, some of which is of a very fair quality. Through the courtesy of our friend, we received an introduction to the fraternity, adding several names to our subscription list.

Parting with our friend at the station on Monday morning, we pursued our journey to Hamilton. A hearty shake of the hand with our friend, H. G. Cooper, enlisted him in our interests, he volunteering to go with us to some of the other shops, when we still further added to our list of patrons. The same day we left for Woodstock. Some four carriage shops are found there, the principal of which are those of the brothers Scharff and Gardner & Rose. Here business was better than we had so far found at any place on our route. In the evening we ran down to Ingersall, where there are three carriage shops, one of which is occupied by Messrs. Badden & Delaney. These gentlemen have sold this season all the carriages they have been able to finish, their repository being completely emptied of its contents. The same day we visited London, calling at the establishments of E. H.

Cooper, McKellar & Stewart, and the Abbott Bros. among others. These latter gentlemen, who were jours. on our last visit to Canada, are now at the head of a fine shop of their own, doing a good business. They urgently pressed us to stay over night with them, but wishing to reach Chatham that evening we were forced to forego that pleasure. This latter place has two carriage shops, one of which, Mr. Wm. Gray’s, is a new one just built. On the 28th of May we reached Detroit, and were taken in charge by our friend, Hugh Johnson, to whose kindness and attention we are indebted for a long list of subscribers. On the day of our arrival we found the juvenile portion of the inhabitants carried away with Ballard’s Panorama of New York City, which promised to take the spectator forty-one miles through the streets of that *village*, showing him the business, bustle, and confusion of city life, stating, among other things, that he had “more than seven hundred horses and carriages!”

The next morning we left for Sandusky *via* Clyde. At Toledo we were promised a connection for Sandusky, but found on arrival that we must wait some five hours or else hire a private conveyance to take us seventeen miles. This we did, in company with another gentleman, by paying five dollars. In the ride we crossed a stream, known as Cold Creek, the bed of which being covered with sulphur, renders vision perfect to the depth of twenty-five feet. We were told that its waters were always cold in summer and never frozen in winter. Sandusky is a very pretty place, situated at the south end of Lake Erie. There are two or three carriage shops and a large bending establishment, which we have elsewhere mentioned, there. In the evening we left for Cleveland, the next morning making a hasty call upon Messrs. Lowman & Warden, the only shop of much note there, after which we left for home over the Erie Railway.

A week of rest and we are off again, this time for Washington and intermediate cities, occupying another week. We have so often given notes of the cities of Philadelphia, Wilmington, and Baltimore, that we need only speak of the changes made since our last visit, and dismiss that portion of our subject. Jacob Rech has recently erected a new shop on the corner of Girard Avenue and Eighth Street, having now one of the most roomy and well-ventilated shops in Philadelphia.

In Wilmington, as elsewhere, business was dull. We, however, had a very pleasant visit, and found that some changes had been made. Our friend Thompson has taken a new partner, Mr. Pascall, and is now located in another part of the city. Messrs. McLearn & Kendall have removed to the large shop lately occupied by Mr. Merrick. A fine shop has also been built for Mr. C. H. Horn, whose acquaintance for the first time



we had the pleasure of making on this visit. Messrs. Cooling & Lloyd have a well-lighted, well-arranged building, which, in a place so well supplied as Wilmington is with fine brick shops, is saying much. They have about as nice a varnish room as we have lately seen, and from what we saw of their work, should think it would bear favorably with any other made in the city.

Calling upon our friend, Mr. Curlett, in Baltimore, we found him engaged, as his advertisement in this number shows, in selling carriage goods, having abandoned carriage-making. The title of the firm is J. Curlett, Son & Norris, located at 33 North Street. Our friends wishing any goods in their line, will find this firm all they may desire, both in the quality of the stock on hand, and the gentlemanly attentions of the principals to their wants. We also had the pleasure—in addition to calling upon our old friends mentioned in last year's visit—of visiting two new firms, those of Messrs. Stevens & Watkins and Quinn & Mason. In Washington, for the first time we made the acquaintance of Mr. J. F. Bridget, on Pennsylvania Avenue. We have elsewhere given up so much space to Washington matters that we have not room to enter into fuller details here. We must therefore dismiss this subject by simply remarking, that in all these places named we have a larger amount of subscriptions than we obtained last year, notwithstanding the dull times everywhere seen. For this result of our visit we are deeply indebted to valued friends, whose names we would mention had we room to do it.

Returning by the way of Baltimore, we next visited York. As we had never been there before we had to make new acquaintances, and did so by calling upon C. H. Neff, Phineas Palmer, Spangler & Bro., and Mr. Dick. These gentlemen all favored our mission, giving us substantial evidence of their friendship. On our way home we visited Lancaster, a place of some trade in carriages, the most noted shops among others of which is that of S. B. Cox & Co. For an inland city, where the customers, to a large extent, are agriculturists, we judge that the work made in York and Lancaster will compare favorably with that produced in some other towns. Saturday morning having come round, we had not time to visit elsewhere, and so, after a pleasant ride through some of the best sections of Pennsylvania and New Jersey, we reached home late in the afternoon of that day. We have made it a rule never to travel on the Sabbath, and in the many journeys we have taken, thus far, have kept it inviolate. To do this, as on this occasion, we have had to make some sacrifices, which we have never had cause to regret.

#### INTERNATIONAL OUTRAGE AT NEWARK, N. J.

THE President of the International Coach-makers' Union, assisted by his friends of the *subordinate* organiz-

ation in Newark, N. J., having set himself to work—*for the benefit of trade*—according to his idea of liberty, on the 24th of April ordered a strike in the shop of Ezra Marsh, when in a body *all the foreign* element left, the American only remaining. We need not go into all the particulars, and show how this was done through the agency of a man named Hawthorne, as this will probably hereafter come out on the trial of the accused, but briefly state that for seven weeks Harding did his best (he says) “to keep Marsh's shop empty of hands,” by heading a gang of roughs, whose station was a lager beer saloon on the opposite side of the street, from whence issued to all new comers for a job such epithets as “suckers,” “thieves,” and other low Billingsgate illustrative of their European education. The *English* leader, be it understood, attended to this business in person for four weeks, no doubt to the great advantage of the “Bierhaus” headquarters. To such an extent did this attempt upon the rights of an American citizen go, that workmen had to be carried home at night in a wagon to save them from personal injury, followed by a fiendish mob halloing and cursing through the streets, like a gang of heathens. After enduring seven weeks of “Unionism,” Mr. M. concluded to “carry the war into Ireland,” and so had the following individuals arrested, those with an asterisk attached to their names not being in his employ at the time of the outrage: Enoch M. Shotwell,\* Deputy President of the International Union; Thos. M. Finegan,\* Secretary; Michael Fallon,\* Wm. M. Fitzgerald,\* Wm. Fyans,\* James McGarrick,\* William Sullivan, John Sherlock, Terrence Reily, Alonzo King, Samuel Sutphen, and Charles Clark. A portion of these, for want of bail, spent the first night in prison.

On the 13th day of June, the men having demanded a hearing, part of them, namely, Thomas M. Finegan, Michael Fallon, William M. Fitzgerald, and Enoch M. Shotwell, were brought before Justice Mills, of the Police Court, when Mr. Marsh testified to the following facts, briefly stated: On the 23d of April last a committee of journeymen coach-makers waited on him with a scale of prices to which they desired him to advance the wages of his men, giving him until next day to think over the matter and decide. The following day the committee called again, when their demands were refused, and the party ordered to leave the premises, which they did, a number of his men quitting work at noon. Not content with this, some of the Union members congregated in the saloon as before stated, calling to the men still at work, annoying and insulting them.

On the first day of July this matter came finally before the justice, when the defendants' counsel wanted the matter again postponed, stating that a portion of his witnesses were away. Counsel for complainant objected to



any postponement, as defendants' counsel evidently had no intention of letting his witnesses undergo an examination, and time enough had already been wasted in frivolous excuses. Justice Mills said he would not like to have the matter before him all summer, and decided that the examination must proceed, or end here until it came up before the grand jury. Defendants' counsel hereupon declined to go on, thus ending the matter for the present.

As the accused had demanded this examination if possible to save coming before the grand jury, stating that others did that for which they had been arrested—asserting their own innocence—this movement on the part of defendants seems strange and unaccountable. The matter must now come before the grand jury, when, if indicted, the offenders will be tried at the September term of the Court of Oyer and Terminer in that city. We believe the punishment for this crime, on conviction, in New Jersey, is two years in the State prison—a very serious business.

The leaders of these lawless proceedings have heretofore adopted the policy of meeting our array of facts with a general denial, as the shortest way of wiping out the stain they have brought upon their characters, and may do so in this instance; but we assure the public that we have gathered our facts by visiting Newark in person, and believe that the coming trial will confirm our report in every particular. The same remarks would apply to our account of Union doings in Washington, could the case be brought into court.

#### THE EIGHT-HOUR LAW IMPRACTICABLE.

If any proof were needed to show that the eight-hour law, recently enacted by the Legislatures of several States, is impracticable, we have it in the proceedings of the Workingmen's Eight-hour Convention, recently held in this city. At this meeting delegates from most of the Trades' Unions met for the declared object of considering the propriety and feasibility of enforcing this new law. Several addresses were made by the members of the various delegations, generally in favor of the law, but deeming it inexpedient to proceed with haste to enforce it at this time, although they declared the law based on justice and equity. We give a synopsis of the reports.

The first report was from the Early-closing Dry Goods Clerks. While they approved of the eight-hour law, as calculated to relieve them from overtaken burthens, still they deemed it inexpedient to bring any immediate pressure to bear for its enforcement. The members of the Typographical Union declined making any positive recommendation. The Plasterers, with some show of sense, held that a reduction of the hours of labor simply amounted to a corresponding reduction of wages.

The Painters desired this whole question adjourned until the Fall of the year. The Carpenters and Joiners wanted time to confer with their employers before taking rash measures, to see if a compromise could not be effected. The Stone Masons took the same ground. The Ship Joiners—whose strike last year taught them a lesson they cannot soon forget—said they had had strikes enough to last them several years. The Brass Finishers and Founders, the Varnishers and Polishers, and other Unions, looking at this question with returning reason, declared that they were not making any too much money by working ten hours, affirming that strikes in general were disastrous to the workingman.

This action on the part of the delegates from the local Unions, is in *striking* contrast with the spirit exhibited by the great "Head Centers" of the International body, which, in order to ensure the funds necessary to pay their salaries and *contingent expenses*, must agitate the question or else "shut-up shop" very soon, and go back to journeymen situations, a position they dread above everything else. In view of the decisions come to by the assembled wisdom of the Trades' Unions of New York, the question naturally arises: When will the eight-hour law have a better chance for trial than now, with the hope of success? In its novelty, to a certain extent, is its power. If, through political motives, a law has been placed upon the statute-books of several States, which proves to be "a dead letter" when the enforcement is undertaken, is there not danger of its becoming contemptible in the eyes of the public, and its authors and promoters likely to be branded as demagogues of the first water. These men, disregarding the laws of supply and demand, have had a law hastily "put through" our Legislatures, that they evidently cannot *put* in practice. When the local Unions cease to supply the funds calculated to keep the central machinery in motion, these would-be leaders will possibly come to their senses.

The only work effected by the meeting, was to pass resolutions recommending the Convention to protest against the hour-pay system, and insisting upon its members working by the day from eight A. M. to five P. M., with an hour for dinner. To avoid strikes, the members of the Unions are *allowed* to submit to a reduction of daily wages as follows:—Upon \$3 to \$3.50, 25 cents; \$3.75 to \$4.50, 50 cents; \$4.50, 75 cents. Could these men make employers do as they wish, as readily as they pass resolutions, they would soon decide these impracticable questions for all time.

#### SANDUSKY CARRIAGE-MATERIAL FACTORY.

IN our late visit to Sandusky, Ohio, we called upon Messrs. Barney, Ocobock & Torrey, who have in full operation the largest manufactory for bending and turn-



ing carriage material, we have ever seen—probably the largest in the United States. These gentlemen have every facility for supplying orders with quick dispatch; a fine assortment of seasoned hickory and oak timber for spokes, and ash for other parts of a carriage. Stacks of hubs crowded some portion of the large building, of the nicest finish, as well as seat-panels bent all in one piece with round corners, thus saving the trouble of inserting a block, and making the neatest thing we have anywhere seen. Indeed, in this special department these gentlemen have no competition, we believe. As the advertisement of this firm will be found on the second page of the cover to this number, giving a very full catalogue of their manufactures, we need only remark, in closing, that, as in other Ohio spokes, there is a stiffness combined with toughness in the Sandusky hickory which gives them an advantage, when used for light wheels, over most other timber localities. Those in want will do well to give these gentlemanly manufacturers a trial.

#### INTERNATIONAL UNION TACTICS EXPOSED.

ON page 29 of this Magazine, under the head of "The Natural Result," we gave an account—as told to the editor by Mr. Graham himself—of the arbitrary proceedings of the "subordinate" International Union located there. The Corresponding Secretary, in his last report, *tries to put out the fire he has kindled*, by saying "I have learned from undeniable authority that Mr. Graham did not authorize any person to publish such a *card*, and positively denies any connection with it, and states that the agent of the Magazine was in Washington at the time of the withdrawal of the Union men from his shop, and were (?) speaking to him about it; but positively denies being the author of any of the charges made against the Union, or any persons connected with it."

We have the best reasons for believing that the "undeniable authority" is no other than Mr. J. Reynolds himself, speaking on his *own* "authority." No agent of ours has been in Washington this year, and when we visited it Mr. Graham's shop had been emptied some three or four weeks. Those who may question the truth of our story may ponder over the following reports from two *veracious* Secretaries, and draw their own conclusions therefrom.

"The difficulties existing among the employees in Graham's shop originated from the employment of a hand who not only would not join the Society, but defied them (?) to the veriest extent of their power." *J. J. Fenton's report for June*. From this it appears that to *make* members, the Society empties a shop, in some instances.

"Our difficulties with Robert H. Graham still continue. Each man of us is determined to prove himself faithful to the cause of justice and humanity, and with the

consent and co-operation of our sister Unions, No. 5 will fight it out on this line if it takes all summer." *Report for July*. The reader will now doubtless perceive that a part of the "International" scheme is to "muddle" historical facts. These incendiaries first kindle a fire, which throws a flood of light upon their evil doings, and then to escape the consequences, they endeavor to screen themselves beneath a falsehood. Verily the cause must be a poor one, that demands such a sacrifice.

### Patent Journal.

#### AMERICAN INVENTIONS.

March 12. (62,869) AUTOMATIC WAGON BRAKE.—W. D. Miller, Enon, Ohio :

I claim, *First*, The axle, G, and slotted bolster, H, in combination with the rollers, J, substantially as and for the purpose set forth. *Second*, The automatic brake, A, operated by means of the connecting rod, C, and axle, G, in combination with the slotted bolster, H, slotted perch, I, and bolt, F, as and for the purpose set forth.

19. (62,931) AXLE-BOX.—George Brill, Philadelphia, Pa. :

I claim, *First*, The sliding door, F, and pin, H, with its collar, h, the whole being constructed and adapted to an axle-box, substantially as and for the purpose herein set forth. *Second*, The ribs, y, y, and lip, x, arranged on the box for the retention of the door, as set forth. *Third*, The packing-strip, G, and adapted to the door and box, as described for the purpose specified.

(62,963) MACHINE FOR MAKING CARRIAGE BOLTS.—William Koplín, Newcastle, Pa. :

I claim, *First*, The combination with the dies, a, a', b, b', of the dies, c, H, operated as described to form the square on the bolt. *Second*, The die, c, in combination with the swedge, I, on the lever, F, operated as described.

(63,020) WAGON BRAKE.—R. O. Coddington and G. W. Pringle, Coddingtonville, Ohio :

We claim, *First*, The pivoted lever, H, and rod or bar, M, operating the brake-bar or shaft, I, and ratchet-wheels, n, n, substantially as herein shown and described and for the purposes set forth. *Second*, The ratchet-wheels, n, n, operating substantially as shown and described in combination with the brake-bar or shaft, I, as and for the purposes set forth. *Third*, The spring, L, and neck-yoke, G, in combination with the pole or tongue, E, substantially as shown and described.

(63,053) COMPENSATING BRACE FOR THE SPRINGS OF VEHICLES.—Samuel Jackson, Newark, N. J. :

I claim the application to the springs of wheel vehicles, of a stay or brace arranged as shown and described, or in an equivalent way to compensate for the yielding movement of the spring.

(63,122) ATTACHING THILLS TO WAGONS.—Theodore Wallis, A. B. Maltoon, and Chauncey E. Tutler, Auburn, N. Y. :

We claim shackle, A, when provided with a receptacle, as described, in combination with slide, C, as constructed, and both being employed in the manner and for the purpose set forth.

26. (63,182) SHAFT COUPLING.—Silas C. Schofield, Chicago, Ill. :

I claim, *First*, Providing the coupling forks or heads, B, with gudgeons, or their equivalents, D, substantially as and for the purposes specified. *Second*, Constructing the ring, A, with



two chambers, *a*, provided with lateral openings, *b*, substantially in the manner and for the purposes set forth and shown. *Third*, The combination of the forks or heads, *B*, provided with the gudgeons, *D*, or their equivalents, with the chambered ring, *A*, arranged and operating substantially as specified and for the purposes described.

(63,223) CARRIAGE.—John Curtis, Cincinnati, Ohio :

I claim, *First*, The bent strips, *B*, *C*, *D*, *E*, of elastic timber forming the sills of the body proper and to take the place of the spring-bar and body-loops, as and for the purpose set forth.—*Second*, The bent and rebated strip of timber, *L*, *l*, *n*, *n'*, discharging the functions of the double perch and of the upper member of the fifth wheel, as set forth. *Third*, The arrangement of strap, *P*, screw, *Q*, and gland, *R*, to enable the members of a fifth wheel to be set up as they wear, in the manner explained. *Fourth*, In the described combination with the elements of claim *Third*, I claim the pad or cushion, *S*, for the purpose stated.

(63,238) "EVENER" FOR WHIFFLE-TREES, ETC.—Merritt Gally, Marion, N. Y. :

I claim the body of the "evener," *A*, with stops, *E*, *E*, the projecting levers, *C*, *C'*, and pivoted bars, *B*, *B*, *B'*, *B'*, combined and constructed as herein set forth and for the purposes mentioned.

(63,252) CARRIAGE CLIP.—Elias Hoxie, Montezuma, N. Y. :

I claim, *First*, The joint when formed by bending the two external joint pieces, *C*, *C*, on to the solid stand, *D*, as above set forth. *Second*, In combination with the above, I claim the thill-iron, *A*, when used as and for the purpose above described.

(63,309) WAGON.—Benjamin Ryder, Jun., South Orington, Maine :

I claim, *First*, The frame, *G*, which supports the reach and allows the wheels to be extended forward, substantially as described. *Second*, The rollers, *C*, *D*, and the chain, *h*, arranged and operating substantially as shown and described for the purposes specified, in combination with the wagon body.

(63,312) WAGON BRAKE.—B. B. Scofield, Woodhull, Ill. :

I claim an improved brake formed by the combination of the revolving cylinder, *A*, curved shoes, *C*, and lever, *D*, with each other, substantially as herein shown and described and for the purpose set forth.

(63,330) SPRING FOR VEHICLES.—James B. Stuart, Bunker Hill, Ill. :

I claim the constructing of a side-spring for wheel-vehicles of three parts, *D*, *D*, *C*, connected together and applied to a spring-har, *A*, substantially in the manner as shown and described. I further claim the securing or holding of the leaves of the parts *D*, *D*, *C*, in contact by means of clips or collars, *e*, *e'*, substantially as set forth.

(63,347) AXLE-TREE.—James W. Wilkie, Auburn, N. Y. :

I claim, *First*, Constructing the axle without a collar and providing it on the under side of the arm with an oil chamber, as and for the purposes set forth. *Second*, The combination of the axle and box when both are constructed as and for the purpose described.

(63,348) AXLE-TREE.—James W. Wilkie, Auburn, N. Y. :

I claim, *First*, The employment of a divided nut, as and for the purpose set forth. *Second*, The employment of a divided nut in combination with the arm of the axle as constructed, as and for the purpose described. *Third*, The box as constructed, in combination with a divided nut, substantially as set forth.

April 2. (63,358) RUNNING GEAR OF LAND CARRIAGES.—John Blocher, Buffalo, N. Y. :

I claim, in combination with the revolving wheel-shafts *a*, and axle *d*, the clip *e*, and collar *f*, and nut *i*, arranged and operating substantially in the manner and for the purposes set forth.

(63,379) AXLE-BOX.—Albert A. Freeman, Philadelphia, Pa. :

I claim the V-shaped guides *B*, *B*, adapted to and combined with the hanger *A*, and box *C*, substantially in the manner and for the purpose described.

(63,423) ADJUSTABLE POLE FOR CARRIAGES.—J. E. Prudden, Birmingham, Conn. :

I claim the combination of the key-bolt *F*, the inclined plate *E*, and the shackle *A*, when constructed and arranged so as to be adjustable, substantially in the manner specified.

(63,425) WAGON-SEAT.—Ezra Reed, Owego, N. Y. :

I claim a spring wagon-seat, made either of wood or iron, when constructed in the manner and for the purpose substantially as herein set forth.

(63,457) SHIFTING-RAIL FOR CARRIAGES.—Alonzo E. Bailey, assignor to himself, W. W. Mosher, and W. W. Jackson, Middletown, N. Y. :

I claim the pivots *B*, back rail *C*, composed of one piece and having pendent pieces, the lower ends of which fit over said pivots *B*, upon the back of the seat *A*, and top rail *D*, composed of one piece, and fitting over the pivots *B*, substantially as herein set forth for the purpose specified.

(63,458) CARRIAGE-STEP.—Francis Baker, New York City :

I claim, *First*, The combination with a carriage-body of a series of steps, more or less in number, when such steps can be folded up or together, and the said body is suitably constructed to receive the same, substantially as and for the purpose described.

(63,502) PAINT MILL.—Samuel J. Goodwin, Rockton, Ill. :

I claim the revolving grinding-nut when constructed with a beveled rim at its lower portion, substantially as described.

(63,516) WAGON.—Henry S. Heermance, Claverack, N. Y. :

I claim, *First*, The application of india-rubber between a wagon-body and the cross-bars or bolsters upon which it rests, substantially as and for the purposes described. *Second*, The application of india-rubber between the standards, *C*, *C*, and a wagon-body, substantially as and for the purposes described.

(63,522) SLEIGH.—W. H. Huyck, Chariton, Iowa :

I claim the knees *C*, composed of two parts *a a*, and secured together, one of the parts being bent in a horizontal position and the other part forming a shoulder upon which the beam *D* rests, as herein set forth for the purpose specified.

(63,523) MACHINE FOR SHRINKING TIRES.—Caleb Jackson, York, Ill. :

I claim an improved tire-shrinking machine formed by the combination of the operating lever *I*, shaft *H*, and pivoted levers *F*, with each other and with the stationary part *A*, and movable parts *B*, of the machine, substantially as herein shown and described and for the purpose set forth.

(63,535) SEAT FOR VEHICLES.—G. Lattin and A. F. Hubbell, Coldwater, Mich. :

I claim the "bent reclining seat-back" for vehicle-seats indicated at *T*, constructed and fashioned by the combined bending and reclining process, substantially as herein described and set forth.

(63,576) SLEIGH-RUNNER.—Charles Stoddard, Hancock, N. Y. :

I claim, *First*, Forming the sleigh-runner in two parts, *A* and *B*, with a dovetailed groove formed in and between them, substantially as herein shown and described and for the purpose set forth. *Second*, Forming the shoe *C*, with the central



projecting dove-tailed flange *c*, substantially as herein shown and described and for the purpose set forth.

(63,601) CARRIAGE STEP.—John H. Yager, Trenton, Ohio:

I claim the combination of the two step-sections, A and D, the one fixed and the other movable, when arranged together substantially as and for the purpose described.

9. (63,628) MODE OF MORTISING HUBS OF WAGON-WHEELS AND THE TENONS OF SPOKES TO FIT IN THE HUB.—David B. Goeway, Birmingham, Pa.:

I claim corrugating the tenons of spokes of wheels, and bracing and uniting the ends of said tenons in their mortise so as to form a solid part of the hub, as herein described and for the purpose set forth.

(63,660) BOW-IRON FOR CARRIAGES.—George W. Slater, New Haven, Conn.:

I claim, *First*, The casting of rivets or projections upon the bed-plate *a*, substantially as and for the purpose set forth. *Second*, The thimbles E, E, as constructed and applied in combination with bow-irons C, C, substantially for the purpose set forth. *Third*, The back-plate D, in combination with the bed-plate *a*, when both are constructed as and for the purpose described.

(63,668) WHEEL CARRIAGE.—Anson K. Stone, Oronoco, Minn.:

I claim the combination as well as the arrangement of the two main-springs D, D, and the four elastic braces or brace-springs *c*, *c*, *c*, *c*, with the two axles and the sweep-bar, as specified. I also claim the combination as well as the arrangement of the elastic braces *d*, *d*, with the four elastic braces *c*, *c*, *c*, *c*, the two main-springs D, D, the two axles, and the sweep-bar, the whole being substantially as hereinbefore explained.

(63,669) WHEEL CARRIAGE.—Anson K. Stone, Oronoco, Minn.:

I claim the above described arrangement of the four main-springs D, D, E', E', with each other, the carriage-body, the rear axle, and the sweep-bar of the front axle. I also claim the combination as well as the arrangement of the auxiliary or transverse brace-springs F, F, with the main-springs D, D, and E', E', arranged and applied to the carriage-body, the rear axle, and the sweep-bar of the front axle, substantially as specified.

(63,691) APPARATUS FOR UPSETTING TIRES.—George M. Beardsley, Fentonville, Mich., assignor to himself and C. D. Bontell, Deerfield, Mich.:

I claim, *First*, In combination with the levers *d*, and a device for operating the same, the levers B, rod *g*, and cams *h*, when the latter are used in connection with movable or stationary jaws *r*, *r*1, *r*2, the arms H, substantially in the manner and for the purpose set forth. *Second*, The self-clamping lever-cams *h*, in combination with the jaws *r*, forming a clamping device, as herein described. *Third*, The movable jaws *r*1, *r*2, in combination with the arms H, H, swinging upon the same center, for the purpose herein set forth.

(63,705) CARRIAGE WHEEL.—Joseph M. Coombs, Boston, Mass., assignee through mesne-assignments to George W. Chipman and John Raddin, Lynn, Mass.:

I claim an elastic wheel constructed with a provision for contraction of the bearing surface of the felly towards the hub, when also so constructed the expansion of the sides of the wheel produced by such contraction is resisted by springs, substantially as set forth.

(63,721) BOLT-CUTTER.—Homer M. Handy, Niles, Mich.:

I claim, *First*, Securing the curved and abutting handles, A and B, one to the other by means of the plate *a* and *a'*, and *b* and *b'*, riveted to said handles and the pivot or journal Z, all as herein set forth. *Second*, Pivoting the jaws C and D to each other by means of the tongue *c'*, and straps or plates E and F,

substantially as herein shown and described and for the purpose set forth.

(63,739) CARRIAGE.—J. H. Moore, Warren, Mass.:

I claim the combination of the carriage-body, its seat through braces, springs and perches, when arranged with respect to the fore and hind axle of a carriage, substantially as shown and described.

(63,740) MACHINE FOR POLISHING WAGON-SPOKES.—S. L. Meyers and George Willison, Massillon, Ohio:

We claim, *First*, The board D, pivoted at *d* to the frame A, and having the braces I, I, sliding-shaft G, with arms H, H', the latter bearing the chuck K, and crank L, when all are constructed and arranged in such a manner that the operator may, when desired, impart a combined revolving, vibrating, reciprocating motion to the spoke, substantially as herein set forth. *Second*, The concave horizontal table C, covered with an elastic cushion upon which the polishing material is placed, when constructed and operating as herein set forth for the purpose specified.

(63,765) WAGON BRAKE.—W. Tash, Berlin, Ill.:

I claim the rollers *s*, *s*, upon the guide-rods *g*, *g*, of the bolster *d*, in combination with the guide-bars *s'*, *s'*, box A, substantially as herein shown and described.

16. (63,783) AXLE-BOX.—Neil Campbell, assignor to himself and William Frazier, Brooklyn, N. Y.:

I claim, *First*, the flanges *a*, *a'*, on the exterior of the pedestal, in combination with the grooved and shouldered removable base-plate C, substantially in the manner and for the purpose described. *Second*, The removable base-plate, constructed so as to be applied as described, and also with sockets to receive a tie-rod and end-braces D, D, substantially in the manner shown and specified. *Third*, The combination of the brackets E', studs *d*, *d'*, and solid springs F, F, substantially in the manner and for the purpose described. *Fourth*, The combination of the enlarged sleeves K with a grooved face, bearing-block H, having flanges *l*, *l*, substantially as described. *Fifth*, The lugs *h*, *h*, collar *i*, and pin *j*, in combination as a means for securing a removable sleeve K to the arm of a railroad car axle substantially as herein described. *Sixth*, The box E, with brackets E', on its sides, and the pedestal with semi-cylindric chambers and with a cap A, so solid springs F, F, may be employed and confined in place by means of the removable base-plate C, all substantially in the manner described.

(63,792) JOINT FOR CARRIAGE-TOP BRACES.—G. Gregory and F. Bellorse, assignors to themselves and W. H. Cooper, New Haven, Conn.:

We claim the herein described stump-joint as an improved article of manufacture, consisting of the two parts A and B, upon the ear of one of which is formed a stud *a*, and in the other a corresponding recess so that the said stud forms the bearing or pivot for the joint, substantially as herein set forth.

(63,833) WAGON BRAKE.—W. W. Bean, Iowaville, Iowa:

I claim the application of the key-block C, Fig. 3, in combination with brake operating upon the wheels by the action of the tongue-bar sliding in the holes F, made in the tongue-hounds, with the frame E, and brace-bars D, D, connected with the wooden rubber, substantially as described.

(63,930) DRAUGHT ATTACHMENT FOR VEHICLES.—Edward Nason, William Nason, and Oliver K. Nason, Orneville, Maine. Ante-dated April 11, 1867:

We claim the arrangement of the straps E, snap-hooks F, rods C, in combination with the whiffletree B and collar D, and operating in the manner and for the purpose herein specified.

(63,931) WAGON BOX.—George W. Oviatt, Potter Center, N. Y.:

I claim, *First*, Securing the sides of a wagon-box to the bottom by means of the bolts H and I, substantially as specified. *Second*, Securing the end boards of a wagon-box in their place



by the use of the spring-catch D, and catches E and E, as herein set forth.

(63,960) DEVICE FOR WASHING CARRIAGE WHEELS.—Wm. T. Sweet, Fayette, N. Y.:

I claim a receptacle A, provided with sockets *c, c*, and brushes *i, i*, operating substantially as and for the purpose herein set forth. I also claim the folds *g, g*, or equivalent, in combination with the receptacle A, operating substantially as and for the purpose specified.

23. (64,008) SHIFTING RAIL FOR CARRIAGE-SEATS.—Frederick Baumgartner, Brooklyn, N. Y.:

I claim securing the shifting rail D to the stationary rail B of the carriage-seat A, by means of hooks F, G, and screw-bushings or clamps H, substantially in the manner herein shown and described and for the purpose set forth.

(64,010) TOP-PROP FOR CARRIAGES.—R. S. Grummon, Newark, N. J.:

I claim the solid-headed screw C, when used in combination with the socket B and thimble D, constructed and operated substantially as described for the purpose specified.

(64,024) JOINT FOR CARRIAGE-TOP BRACES.—F. B. Morse, New Haven, Conn.:

I claim the herein-described stump-joint as a new article of manufacture, consisting in the combination of the two parts *a* and *b*, when constructed and arranged together by a conical joint, substantially in the manner and for the purpose described.

(64,030) WHIFFLE-TREE HOOK.—S. M. Perkins, Morrison, Ill.:

I claim the base A, chambered cap B, and washer C, the said several parts being respectively constructed and the whole combined and arranged for use, substantially in the manner and for the purpose set forth.

(64,067) CARRIAGE-THILL COUPLING.—J. J. Brown, Madison, Wis.:

I claim, *First*, The bar A, provided with the vertical arm B, for attaching the button independent of the clip or band, substantially as and for the purpose set forth. *Second*, Making the socket for the reception of the packing and bolt between the front side of arm B, and the front curved end of bar A, as shown and described.

(64,120) WAGON-SEAT SUPPORTER.—John Lunger, Waldo, Ohio:

I claim the standard B, constructed substantially in the manner set forth, and used as and for the purpose specified.

(64,177) SLEIGH.—Nathaniel T. Whiting, Lawrence, Mass.:

I claim, *First*, The combination of the hollow cross-bar A, the slotted slide B, the pin E, when constructed and arranged to operate substantially as and for the purpose set forth. *Second*, The combination of the slotted shaft-irons F, the springs C, and slotted hooks *a1, a2*, when arranged to operate substantially as and for the purpose set forth.

(2,572) CARRIAGE WHEEL.—Re-issue John Raddin, Lynn, Mass., and George W. Chipman, Boston, Mass., assignees of John Raddin. Patented June 13, 1865:

We claim a wheel having combined directly with the spokes thereof elastic cushions or blocks of rubber, so applied to or in the line of the spokes as to receive the strain exerted between the axle and the tire of the wheel, and having also means for relative adjustment for the spokes and cushions. Also the specific constructions described and shown in the several spokes represented in Fig. 1 and in Figs. 2, 3, 4, 5, and 6.

30. (64,186) CARRIAGE CURTAIN FIXTURE.—A. C. Babcock and John Duffy, New Haven, Conn.:

We claim, *First*, The plate E, in combination with a spring F, when constructed and arranged so that the said spring bears

upon the surface of the plate E, as and for the purpose specified. *Second*, The spring F, attached to the stud D, and so as to form the handle G, substantially as and for the purpose specified. *Third*, In combination with the stud D, plate E, and spring F, we claim the stop *d*, in the manner specified.

(64,201) WHEELWRIGHT'S MACHINE.—C. W. Corr, Carlinville, Ill.:

I claim, *First*, The adjustable frames O and B, and the shaft M, with the hinged support E, when the said several parts are arranged to operate as and for the purposes set forth. *Second*, The hammer D, arranged to be operated by the spring *f*, and lever I, together with the means of regulating the force of its blow at will, as shown and described. *Third*, The combined sawing and tenoning tool, constructed substantially as described. *Fourth*, The frames J and K, arranged to move in the arc of a circle, the center of which shall be coincident with the center of the shaft supporting the hub, for the purpose of adjusting the sawing and tenoning tool to work on a wheel having any number of spokes, as herein described. *Fifth*, So mounting the tool *o'*, that it shall have a lateral movement for sawing off the end of the spoke, and also a longitudinal movement for forming the tenon on the spoke, substantially as set forth. *Sixth*, The tool P, for supporting and holding the spoke while being driven, as described.

(64,219) ATTACHING THILLS TO CARRIAGES.—William H. Hartman and A. K. M. Pickert, Fostoria, Ohio:

We claim, *First*, The rubber block E, provided with the guard F, and secured by means of through bolt or screw G, to the detached or separate clip-bar H, in combination with the slotted stay D, secured to clip I, in the manner shown and described. *Second*, The head B, pivot C, and slotted stay D, in combination with the clip I, guard F, screw G, and rubber E, when the several parts are constructed and arranged in relation to each other in the manner and for the purpose described.

(64,225) WAGON BRAKE.—Samuel E. Hyndman, Middletown, Ohio:

I claim the brake-levers *f, f*, rods *e, e*, in combination with the slide-braces *d, d*, hounds *c, c*, and tongue *i*, sliding-bolt *h*, and lock-bolt *s*, when the parts are constructed, arranged, and operated in the manner and for the purpose specified.

(64,226) THILL COUPLING.—James W. Innis, Salem, Ind.:

I claim the thill-coupling consisting of the clip A, and pin-receiving projection *a'*, cast therewith, through the side of which passes the tightening-screw F, pressing into the cavity in the pin D, and operating substantially as described for the purposes specified.

(64,249) CARRIAGE SHACKLE.—George T. Pearsall, Apalachin, N. Y.:

I claim the pintle B, spur C, recess E, spring D, and socket F, substantially as described, forming a new and useful improvement in attaching thills or poles to carriages or other vehicles.

(64,290) WHIFFLE-TREE.—E. N. Dodge, Plainview, Minn.:

I claim the arrangement of the rods B, B, the bars C, C, and the connecting-rod D, constructed and used as and for the purpose herein specified.

(64,299) CARRIAGE.—T. A. and A. F. Fisher, Beardstown, Ill.:

We claim, *First*, The jointed king-bolt H, in combination with the fifth wheel and forward axle, and with the spring K, attached to the carriage body D, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the jointed coupling-rod L with the fifth wheel G, to which its forward end is attached and with the brace or arm M, to the lower end of which its rear end is swiveled, substantially, as herein shown and described and for the purpose set forth.



(64,316) GUIDE FOR AXLE-BOXES.—Robert Hitchcock, assignor to John Mulligan and John H. Hare, Springfield, Mass.:

I claim the detachable metallic guide-plates B, B, provided with flanges *d, d*, upon their inner edges, and having the wedge-shaped projections *b* fitting into the wedge-shaped grooves in the jaws A, when all are constructed and arranged as herein set forth for the purpose specified.

(64,350) GRAVEL WAGON.—Adam Neer, Bellefontaine, Ohio:

I claim, *First*, The combination of the rope L, pulleys M and O, reel or drum P, and crank R, with each other and with the box I, and frame F, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the rope S, pulley T, reel or drum U, and crank V, with each other and with the box I, and frame F, substantially as herein shown and described and for the purpose set forth.

(64,351) MACHINE FOR BENDING TIRES.—J. A. Niman and B. Fidler, Mansfield, Ohio:

We claim the right-and-left hand screw I, provided with a collar H, working in a recess in the bed of the machine, combined with the sliding or traversing roller-carriages E, which carry the rollers B, which said screw is tapped or screwed into and through the said roller-carriages F, and by means of which said combination we are enabled to set the rollers B equi-distant, nearer to, or further from, the central roller A, for the purpose required, and retain them in place, all of which is substantially set forth, described, and shown in the accompanying drawings and in this specification.

(64,368) THILL COUPLING.—Silas Rogers, Stamfordville, N. Y.:

I claim a thill coupling composed of the plate C, attached to the lip A, and having a curved front end, and the thill-iron D, provided with a slot *e*, and connected to the plate C, by means of a groove and pin, arranged as shown and described, or in an equivalent way.

(64,369) PAINT BRUSH.—H. Rosenthal, New York City:

I claim the combination of the ferrule C, socket, plate or disk E, handle B, and bristles A, when the latter are secured within the ferrule, as described, and the parts connected together, substantially as set forth.

(64,380) FIFTH WHEEL FOR WAGONS.—James B. Stuart, Bunker Hill, Ill.:

I claim a circle plate or fifth wheel for vehicles composed of the frame A, and plate B, connected by a bolt *d*, and attached respectively to the front axle and bolster, substantially in the manner as and for the purpose herein set forth.

May 7. (64,413) WAGON BRAKE.—T. J. Farr, Medina, Ohio:

I claim the arrangement of the slotted coupling-pole D, bar E, brake arrangement *e, e*, G, G, lever J, and staff I, substantially as described.

(64,434) SPRING FOR VEHICLES.—David Dick Matteson, Harmonsburg, Pa.:

I claim a spring for carriages or buggies, constructed of one piece of steel bent or formed in the manner described, constructed in the aforesaid combination and for the purposes set forth.

(64,468) ATTACHING CARRIAGE THILLS.—X. S. Allen, Granger, Ohio:

I claim the hook or head C, provided with a slot *a*, in combination with the pin D, cheeks or jaws E, and back piece F, arranged as and for the purpose set forth.

(64,478) HOLLOW AUGER.—George E. Booth, Seymour, Conn.:

I claim, *First*, The circular cutters D, pivoted eccentrically with the axial center of the auger and operated substantially as

and for the purpose specified. *Second*, The plate E, with the rack *c*, and the pinion *b*, arranged substantially for the purpose set forth. *Third*, The thimble F, in combination with the barrel A, and the cutters D, substantially as described.

(64,501) CARRIAGE SPRING AND COUPLING.—Thomas De Witt, Detroit, Mich.:

I claim, *First*, The spring F, having shoulder *f*<sup>2</sup>, in combination with the spring D, and immediately secured to the axle E, substantially as described for the purpose specified. *Second*, The coupling herein described, the same consisting of the branches 12, 13, 14, 15, in combination with the half circle H, constructed and arranged substantially as and for the purpose specified.

(64,560) COMBINED WAGON BRAKE AND DUMPING DEVICE.—L. M. Osborne, Hamilton, N. Y.:

I claim, *First*, A wagon which dumps itself by the approximation of its front and rear wheels, the employment of a self-acting brake, which is constructed substantially as described, and connected to the front section D', of the extensible reach by a locking latch, or its equivalent, substantially as described. *Second*, The transverse releasing-lever *g'*, in combination with the latch or hook *g*, and a self-acting brake, substantially as described. *Third*, The combination of brake-bar F, toggle or knee-levers *e, e*, pivoted blocks *f*, and brake-shoes *f'*, with an extensible reach D, D, D', and a fastening *g*, substantially as described. *Fourth*, The brace-strap *c*, applied to the front running-gear by the king-bolt *b*, and adapted for sustaining the same when backing, substantially as described. *Fifth*, The sliding-brace *d*, and stops *d*<sup>1</sup>, *d*<sup>2</sup>, applied to the reach sections D, D', substantially as described. *Sixth*, The connecting-rods P, applied to the wagon-body and front running-gear, in conjunction with the rolling supports G, G, and the extensible reach D, D', substantially as described.

(64,565) ATTACHING THILLS TO VEHICLES.—Edwin R. Powell, Cambridge, Vt.:

I claim, *First*, An improved thill-coupling formed by the combination of the chambered block A, spring D, and the pivoted plate or cap C, having projections *c*<sup>1</sup>, *c*<sup>2</sup>, and *c*<sup>3</sup>, formed upon its under side, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the india-rubber block-spring E, or equivalent, with the chambered-block A, and cap or plate *c*, substantially as herein shown and described, and for the purpose set forth.

(64,590) THILL COUPLING.—Luman Squire, Norwalk, Ohio:

I claim the spring-arms *e, e'*, in combination with the bolt E, provided with the shoulder *l*, semi-elliptic in its transverse section, when constructed and arranged as set forth.

(64,596) PAINT AND VARNISH BRUSH.—Ellis Thayer, Worcester, Mass.:

I claim, *First*, The combination with the brush-handle, bristles, and ferrule for holding the same upon the handle, of an elastic packing interposed between the ferrule and bristles, substantially as and for the purposes set forth. *Second*, In a brush as herein described, I claim the combination with the bristles and ferrule of an interposed tube of rubber or other elastic material extending down upon the bristles below the ferrule, as and for the purposes herein specified.

14. (64,626) CARRIAGE SHACKLE.—James Brennan, New Haven, Conn.:

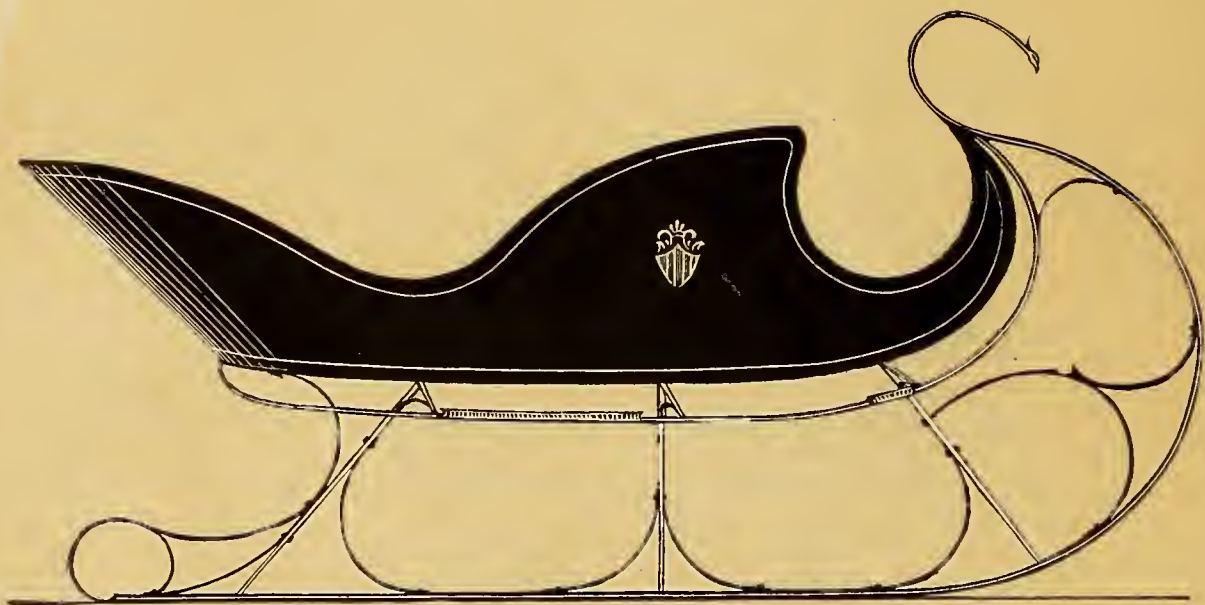
I claim the combination of the two parts C, D, hinged together at the rear, and secured at the front by a screw E, as and for the purpose specified.

(64,631) WAGON WHEEL LOCK.—Thomas G. Clifford, Derby, Conn.:

I claim the arrangement of the bolts I, in combination with the plates F, and the shaft G, with its ratchet *h*, constructed and arranged to operate substantially in the manner herein set forth.





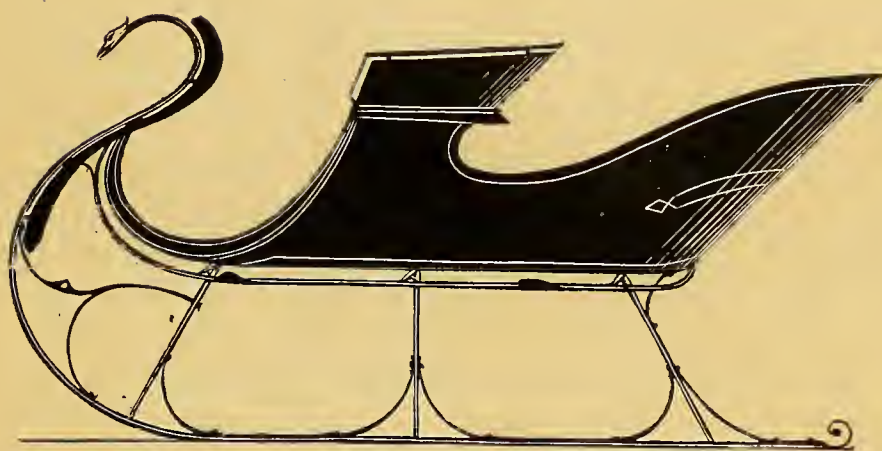


EXCELSIOR DOUBLE SLEIGH.— $\frac{3}{4}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 57.*

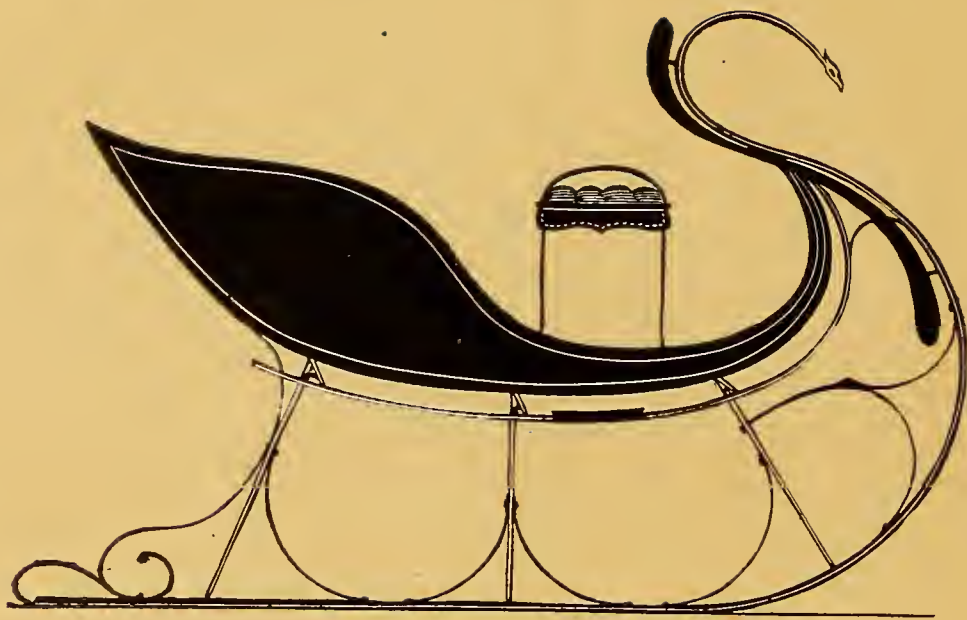




IMPROVED PONEY SLEIGH.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 57.*

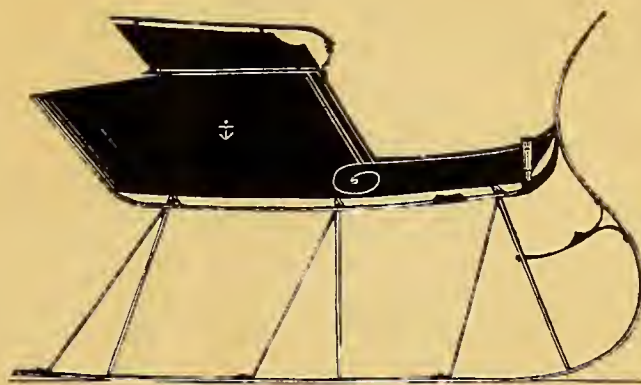


TWO-SEATED SLEIGH.— $\frac{3}{4}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 57.*

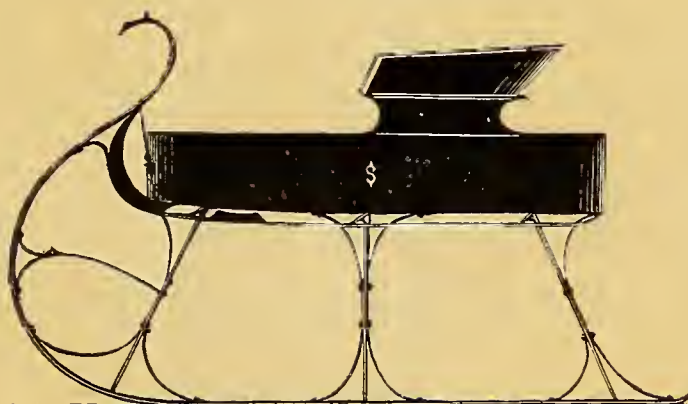




COAL-BOX PORTLAND SLEIGH.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 57.*



PIANO-BOX SLEIGH.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 57.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

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## Mechanical Literature.

### THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

#### CHAPTER II.

ORPHEUS. Poverty is very honorable, no doubt, but decidedly disagreeable.

LINNEUS. Then marry man, marry! It will ease all thy troubles if thou only gettest a woman and—a fortune combined. Therefore marry a fortune; 'tis thy last resource.

*Old Comedy.*

THE morning dawned clear and beautiful. With the first notes of the mocking-bird, who sung his morning hymn in the top of the live-oak that threw its thick-leaved branches close to the window of his room, Walter was up, and his toilet completed. As he knew it would be some time before breakfast, he concluded to take a stroll through the village; so emerging from the hall door he slowly wended his way along the main street. As before stated, the village of Greendale was settled almost exclusively by wealthy planters, and, with the exception of a few store and business houses in the center of the place, it was composed almost entirely of large palace-like structures, and more modest but not less beautiful gothic-shaped cottages, all nestled in and surrounded by the umbrageous shrubbery and gorgeous flowers indigenous to this climate. Now stopping to admire this structure, anon pausing to let his eyes feast on that landscape so gloriously beautiful, touched by the first rays of the rising sun, he unconsciously left the main street and soon found himself before the residence of Col. Bell. All seemed still about the house, while a negro girl, with basket on arm and scissors in hand, clipping the choicest flowers, was the only person to be seen. As she neared the fence Walter addressed her with "Give me a half-opened bud. This is Col. Bell's residence, I believe." She answered in the affirmative, as she obeyed his request.

"What do you do with so many flowers?" he asked.

"They are for the breakfast table, the parlors, and young Missus' room."

"Is not your young mistress up, yet?"

"Mercy on us, no!" she answered, in a tone that indicated some surprise at such a question, "nor won't be for three hours yet."

Wealth and indolence, thought Walter, as he resumed his walk; but then it is the custom here to sit up nearly all night and sleep half the day, and custom is an inexorable tyrant.

Passing on, he reached the hotel; and after a good substantial breakfast, proceeded to the carriage factory, the proprietor of which had engaged him to make a few bodies. On reaching that edifice he found the boss, Mr. Markall, in the store-room, busily engaged in delivering to the different workmen the material to be used during the day. This part of the business rather surprised him, and as it was something entirely new, he watched it with no little interest. First, the trimmer received his material already cut out, the exact number of knobs, buckles, tufting buttons, and a single paper of tacks; then the smith his single bar of iron, and if too much for the work to be done, it was cut off, and the remainder returned to the store-room, while every bolt was counted out, and that worthy disciple of Vulcan was held accountable for every one. After going through the paints and wheel timber in the same manner, dealing out paints as a druggist would medicines, the door was closed, and the labor of the day was proceeded with. On inquiry, Walter found that this had always been Mr. Markall's custom, each jour. being held to account for all material delivered to him.

"But suppose a job comes in during the day?" he queried.

"Why then the boss is hunted up, the store-room unlocked, and the material actually needed to complete such job is given out," was the answer.

Rather more economical than wise, thought Walter, as he entered the room designated as "the office," where Mr. Markall had retired. On introducing himself, the boss was delighted to see him—was just going up to the hotel to see if he had arrived the night before—delightful town—fine place for a young man—charming society—ahem—will have to devote two or three days to it—fact is, the jour. whose bench you are to take has been sick for two or three days, and has been delayed—will take him about that long to finish his job, when the bench will be at your service. Think it will rather please you than otherwise, as this is a very agreeable town, and it



will give you a chance to get acquainted better than as though you pitched into work right off.

Whether the prospect of a few pleasant afternoons spent in the society of Miss Bell caused him to acquiesce or no, I cannot say; but certain it is he made no objection to the proposed delay, and after an hour or so passed in getting acquainted with the jours, and in conversation with the boss, he returned to the hotel, drank a glass of ice-water, took a genuine *habana*, bit off the end with scientific grace, lit it, wiped his moustache with a fine linen handkerchief, and promenading the long veranda in front of the house, passed, with the landlord, elerk, and all the *habitués* of the hotel, as a refined gentleman of leisure.

The forenoon was passed at ease—that pleasant, nothing-to-do, careless, glorious mode of passing the warm bright hours of indolent, listless spring time, when one's highest ambition is to lie down in a bed of dandelions, budding clover and violets, to lay plans for future labors, then go to sleep and dream that it is all done.

And so, between smoking cigars, talking to an occasional planter, who now and then rode up, about the fine weather for planting, and to the landlord about politics, and reading himself to sleep, after dinner, over the prosy columns of the village newspaper, he managed to kill time until the fashionable hour for making a call—say four o'clock P. M.—when he made his toilet with scrupulous care, had his boots blacked till the boy declared they couldn't shine no more, and then wended his way towards the residence of Col. Bell. He found Miss Bell "at home" in the spacious sitting-room, together with her mother—a staid elderly lady of fifty or thereabouts, with gold spectacles and false hair. He was received with the same *hauteur* that marked his former intercourse with her ladyship, but when she introduced him to her mother as "Mr. Cummings, my traveling companion of yesterday," he bowed low, and, wicked man that he was, that insinuating spirit of flattery, to which they say our sex is prone, caused him to say in his softest and sweetest tone, "I am only too happy, madam, in making the acquaintance of the mother of so charming a daughter,"—and then the daughter's face lost its rigidity, a smile of the faintest type was discernible to his practised eye, playing about the corners of her mouth, and the most direct road to her heart lay open—a broad highway with huge signboards at every cross-road. Oh, human nature! what a mass of inconsistencies thou art! Here was a lady—young, beautiful, educated, refined and rich—upon the culture of whose mind thousands had been expended, upon whom the learning and talent of a life-time of toil and study would not make the impression of a single sentence of meaningless flattery! And so having melted the daughter, and caused the mother to think him a marvelous proper gentleman, he sat down by the open window and used his utmost endeavors to make himself agreeable, and confirm them in the good opinion already formed. There was music to be discussed with the daughter, and a general review of the latest fashions with both mother and daughter, and as he was just from the city, and had fortunately purchased the last number of "*Le Bon Ton*," and read it carefully on the boat, his descriptions were eagerly listened to, and criticisms duly received.

Ere the supper hour arrived he felt perfectly at home, and Mrs. Bell had fully come to the same conclusion that the daughter had arrived at the day before, namely, that Mr. C. was a most charming gentleman. Then the

Colonel arrived after a day passed at the plantation, some few miles out of town, and so eager were our hero's questions as to the prospect of the crops; how many acres he had planted in cotton, and if he had finished; how far advanced his corn was; if the spring had been favorable, etcetera, etcetera, that the old gentleman kindly took to him, as his wife and daughter had done before, and actually invited him to take a glass of wine out of his private bottle, labeled twenty years before, and sealed—when he bought it.

Then the clear ringing tones of a little silver bell announced tea, and a pleasant little tea party it was, with the Colonel and his lady at either end of the table, while our hero faced Miss Bell, who, now that her pride was laid by, was really agreeable, and perhaps we might add socially interesting. And then the cup of tea—that social eup that dear, genial Charles Lamb so happily said "cheers but not inebriates"—was passed and drunk, and under its influence Walter became more talkative, some of which was honest praise, and some rather hypocritical, for which we must not censure him too harshly, for society makes hypocrites of us all. Pleasant, glorious meal it is, enjoyed by the upper ten and lower twenty, by the princely merchant after his busy day over his ledgers and journals, by the humble mechanic after his hours of toil—the lightning express of go-a-head-iveness, that causes us to cram our breakfasts and swallow our dinners as though we were paid by the job—but tea! with the long evening and still longer night before us, heaven protect it from the rude hand of Yankee innovation. And so a good half-hour was passed at the table, the delightful beverage and snow-white rolls were allowed to cool a little before swallowing, and all rose from the table the better for their repast.

Then our friend Walter was treated to a fine cigar imported direct from the sea-girt paradise of aristocratic smokers for the Colonel's own use, after which he accepted an invitation from that worthy to visit the stables and inspect the stock.

Now I do not pretend to say that Walter was thoroughly versed in music and fashion, in farming and stock-raising, but he had read something on all these subjects, and what he had read he remembered—at least the greater portion of it—which he could tell in such an easy, plausible way, that to the casual listener he passed for knowing much more than he really did, yet his practical knowledge was by no means small.

Your scientific agriculturist may be more learned, but your unlettered Alabama negro will beat him at raising cotton; and so the knowledge that Walter possessed of things in general, though not perfect, was practicable on all occasions, and without being as learned as Youatt, he detected the best blooded horses at a glance, and praised the Colonel's favorite saddle-mare by intuition.

Upon returning to the house, as his cigar was not quite finished, he rambled off in the extensive grounds, following the winding walks amid mock oranges, and crape-myrtles, and roses and cape jasmines, until he reached a gothic summer-house covered with vergilias, and now scarlet with its pendent blossoms. Hearing a voice within, he approached one of the ever open doors and discovered Miss Bell seated on a bench, assorting and trimming an apron full of flowers, which she passed to her maid sitting at her feet, who in turn was arranging them in small bouquets, and placing them in a basket by



her side. As his shadow fell within, Miss Bell looked up, and her pride perhaps, shocked at being discovered at anything bearing the least resemblance to manual labor, caused a confused blush to mantle her face; but with his most charming smile, Walter, with that impudent familiarity which after all is the most agreeable to the gentler sex, tossed the remains of his cigar to the ground, and walking in took a seat near her, and began to assist in her self-imposed task. After devoting a few minutes to the little commonplace nothings that form so large a chapter in fashionable conversation, he grew more serious by degrees, and as the opportunity might not occur again, he proceeded to test her mental qualifications. Your wise man of sense and education always wishes to measure swords, intellectually, with every educated woman he is thrown in contact with, and if she comes off victorious in the encounter, friendship may exist, but never love. The woman who truly loves a man who is her intellectual inferior, is as one in ten thousand. And the combat began in this wise: picking up a newly blown rose, in the center of which a worm held high carnival, he looked at it a moment, and then recited in a low tone the lines:

She never told her love;  
But let concealment, like a worm i' the bud,  
Feed on her damask cheek,"

and then added, as he passed her the flowers, "It seems that Shakespeare had studied flowers as well as hearts."

"As every poet has done before and after him," she replied. "Your true poet, of all ages and every clime, studies nature, inanimate as well as human."

"True," he answered; "but Shakespeare, if he did not study human nature more, drew his greater fund of knowledge from that source. Do you not think so?"

"Yes; because it was his profession of play-wright that made it necessary for him to depict character. If he had only been a writer of verses, he would undoubtedly have been crowned the Grand High Priest of nature, with its woods and fields, its flowers and birds, instead of the heart with all its dark and hidden passions."

"What do you think of Viola?" he asked, after a brief pause.

"That she was a type of a certain class very seldom met with, more romance than good sense. There are more Gonerils than Violas, and more Juliets than either."

"Your admission proves you to be sincere in your convictions, at least," he replied; "and now the male characters."

She looked at him a moment, tossed the last flower to her maid, and answered slowly: "There are no Hamlets, many Romeos, some Macbeths, but more Iagos."

"Your estimate of the male character is not very flattering," he replied, as they emerged from their retreat and walked leisurely towards the house. "Allowing it to be true, you must remember that circumstances, in a great measure, form the male character; society creates the circumstances. Let a young man, however truthful and honest, enter fashionable society with all its deceptions, dissimulations and meaningless formalities, and he will graduate, in a year or two, an accomplished Iago, in principle if not in deed, doubting and hating all mankind, under a mask of smiling innocence."

"That society is partly to blame I admit," she answered; "but have you ever looked carefully in that grand cauldron of fancy and folly, of good and evil, of pride and passion, which men persist in calling the heart, to see

what *cause* that has in producing the *effect*? But I see, if we follow this subject much further, it will produce an animated discussion, which I dislike; therefore, for harmony's sake, I will admit that your Stukeleys and Beverlys are about equally divided."

"Worse and worse," he answered, hurriedly. "For the honor of mankind as an intellectual being, I hope there are but few such shallow, weak-minded men as Beverly. He lived and moved in the first circles of fashionable life, yet he was as easily deceived as the uncouth countryman on his first visit to a great metropolis. But to change the subject, as you desire. You seem to be well versed in dramatic literature outside of Shakespeare, which is rather uncommon in a country village."

"Nothing more easily explained, as you will admit when I inform you that I am an honorary member of the 'Greendale Histrionics,' an association that gives an entertainment semi-monthly for charitable purposes, consisting of tableaux, recitations, vocal and instrumental music, and once in a while, when an ambitious fit seizes us, a farce or light comedy. Audiences very select, very refined, very intellectual, and very critical. Perhaps you would like to join—talent at a premium, and a rare chance to distinguish one's self in the higher walks of dramatic art, and *sans flatterie* I doubt not but you would succeed. The association meets to-night at a neighbor's house to arrange our next entertainment. Shall I get a friend of the sterner sex to propose you?"

"Nothing would give me greater pleasure," he answered. "I have had some experience, and should be delighted to renew it;" and, he thought, it will give me a rapid *entree* into society.

Reaching the house he persuaded Miss Bell to execute a few difficult pieces of music, after which, as it was time for the association to meet, he bid the family good evening, was warmly pressed to call again, and then proceeded to his hotel. Retiring to his room he drew a great easy-chair to the open window, where, after lighting a cigar, he seated himself, elevated his feet on the low sill, and gave himself up to reflection.

In vain the moonlight glistened like burnished silver on the evergreens beneath—in vain the mocking-birds made the whole place melodious with their unapproachable imitations—he saw and heard them not. To state a plain fact, which the interested one does not care about being reminded of every day, our friend was fast verging on that stage of life which young ladies delight in terming old bachelordom. In a few weeks he would be thirty; and it was time—so said his numerous disinterested friends—for him to settle down in life. But he—a tramping jour., a football on the surface of society, scarcely able to support himself respectably, much less a wife—it was easier talked about than accomplished. But here was a young lady of wealth in the case; she was undoubtedly pleased with him, why could he not win her? He possessed all those little accomplishments that please and captivate the gentler sex—he was handsome, refined in his manners, agreeable in conversation, and charmingly agreeable when occasion required it; and why, he asked, is it not as easy to fall in love with a rich girl as a poor one, and far more wise? Now, "good," "dear," "gentle" reader, do not confound him as a fortune-hunter, for it would wrong him. He is not perfection, I admit, like the heroes and heroines of your sentimental, puerile, nonsensical trash, commonly called



"cheap novels," but he was a man with many of the little vices of poor frail natures. He might be a little selfish, and it was *policy* that he was studying now—the policy of life—the same as your great statesman will study the policy of nations.

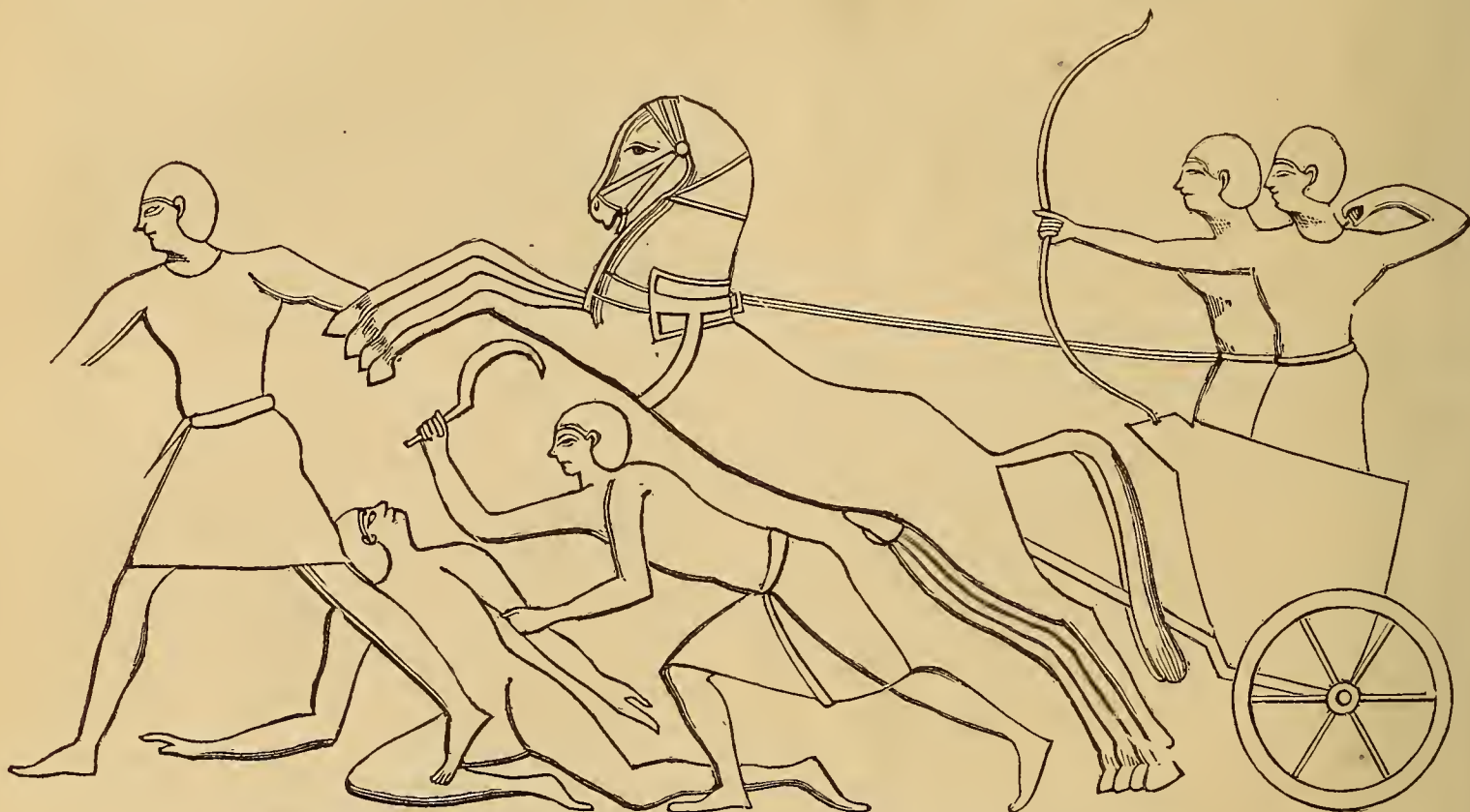
But the moon shone on, and the birds sang on, and he retired without arriving at any definite conclusion.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—IV.

WE have now, as we think, conclusively shown, that the original of our wheeled vehicles was a sledge, otherwise called a sled. In the three former chapters it has been presented as made from the branch of a tree, a few

cross-bars being added; next, as the improved work of a mechanic; lastly, as mounted on wheels, doing service at a funeral;—all copied from ancient Egyptian monuments. That which some authors have only given as speculation, we now have the confidence to offer to our readers as established fact, and proceed to examine the progress of art as still further developed from the monuments of antiquity.

Our first illustration, representing a battle scene, is taken from an expensive volume published by authority of the French government some years ago, copied by Chabrol from the original in bas-relief on the walls of the temple of Luxor, Thebes.\* It bears evident proof of having been drawn in the infancy of art, and is probably



BATTLE SCENE IN BAS-RELIEF FROM THE WALLS OF THE TEMPLE OF LUXOR, THEBES.

one of the oldest representations of a chariot now extant. Compared with others we shall hereafter give in the series, it will be found rude in design and faulty in execution. The body, of the crucible shape, is defective in that it has no opening at the rear for dismounting in time of peril, looking more like an earthen pot than the work of a skillful chariot-builder, being entirely devoid of that ornamentation we find in the chariots of a later period. This, however, is partly compensated for by the extension-front, which gives the warrior room for his knees, and facilities for escape in a time of danger, by leaping from the chariot and mounting the backs of the horses, as ancient writers tell us they sometimes did, in battle. The ancient artist has even neglected to furnish a string to the warrior's bow, from which, judging from the position of his hands, he has just sent an arrow among the enemy. The head gear and other trappings of the horses are meagre, compared with others we intend to illustrate hereafter. The loss of the right arm in the running warrior is due to a defect in the bas-relief caused by age. The figure with an uplifted falchion represents one of the

victorious party, the fallen enemy suing for peace, as indicated by countenance and position.

As we have elsewhere remarked, all Egyptian monuments represent Bigas—two-horse chariots—only, never four horses; and in battle two warriors, one to fight, the other to drive. Wilkinson says that "in the battle scenes of the Egyptian temples, the king is represented alone in his car, unattended by any charioteer," admitting "though it is possible that the driver was omitted, in order not to interfere with the principal figure." † This erroneous idea, as we see in our illustration, he probably gained from reading Homer, who makes his gods and heroes act singly.

A similar likeness—to which the example above given is no exception—attends all human figures in

\* See "Description del Egypte, ou recueil des observations et des recherches qui ont été faites en Egypte pendant l'expédition de l'armée Française, publié par les ordres de sa Majesté l'Empereur Napoleon le Grand. A Paris, de l'imprimerie Impériale, 1812.

† Wilkinson's Ancient Egyptians, vol. I., chap. v., p. 371, Harper's edition.



Egyptian drawings. "In sacred subjects," says Wilkinson, "the law was inflexible; and religion, which has frequently done so much for the development and direction of taste in sculpture, had the effect of fettering the genius of Egyptian artists. No improvements, resulting from experience and observation, were admitted in the mode of drawing the human figure—to copy nature was not allowed, and it was therefore useless to study it, and no attempt was made to give the proper action to the limbs. Certain rules—certain models—had been established by the priesthood, and the faulty conceptions of ignorant times were copied and perpetuated by every successive artist; for, as Plato and Synesius say, the Egyptian sculptors were not suffered to attempt anything contrary to the regulations laid down regarding the figures of the gods; they were forbidden to introduce any change, or to invent new subjects and habits; and thus the art, and the rules which bound it, always remained the same."\* This is said to have continued without much improvement for about three thousand years, or down to the eighteenth dynasty, according to Manetho—two thousand and eighty-two years before the advent of our Saviour. We shall have occasion to again refer to this subject as we proceed in our investigation, and therefore need not lengthen out this article by further consideration here.

#### QUESTIONS CONCERNING MECHANICAL POWER.

BY HENRY HARPER.

THERE are principles applied to mechanical powers which have been handed down from generation to generation, to which has become attached a kind of sacredness that the learner is not permitted to question. The youth receives his instruction and then goes out into the world as a teacher, rather than a practitioner, of what he has learned. There is a wide gulf placed between him and the practical man, which seldom allows them to meet. It is not often that the working-man studies books to get a knowledge of physical forces, yet he is daily producing wonders in their manifestations.

The question naturally presented by this state of things is, why does not the mechanic who is constructing power-saving machines—say the wagon for instance—as a preliminary study the science of physical forces, and learn the functions of every part? He generally has those parts tolerably well arranged for gaining power, and fortifying the parts on which a strain may come against injurious effects; but there is continually springing up some fashion, or else some whim is advanced about graceful appearance by the man who never thinks of forces, that overthrows the philosophic invention of the thinking mind when the well-arranged plans are in strict accordance with mechanical power.

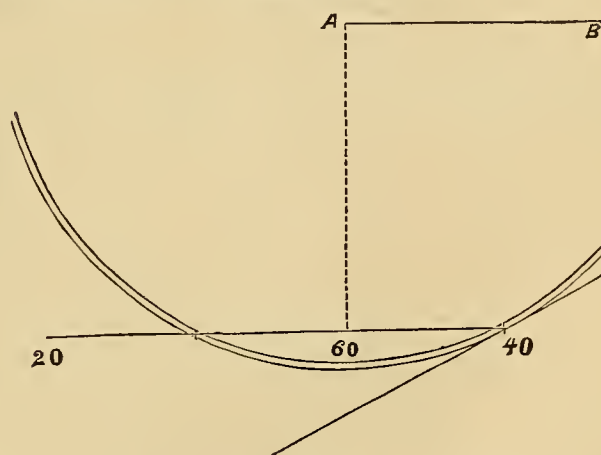
Self-interest is a most powerful incentive to human action, and nothing can be more certain than that this alone would prompt a mechanic to diligent study of mechanical laws, if that study was to be remunerated in dollars and cents. On the contrary, if it is only to gratify pride of attainments to the party who gains his living by teaching rather than practicing his precepts, it would be

left just where it is: in the hand of those who can preach but not practice. It must be admitted on all sides that if there is benefit to be derived from the theories laid down in the books, that benefit is wonderfully misplaced.

Such a state of things is injurious in the extreme. Mechanical laws are as certain in their results as mathematical laws, if they are as correctly defined. Why, then, not have the same unanimity of thought?

Not long since an eminent professor, whose life-long business has been to impart instruction to youth in various institutions of learning, held up a mechanic to something like ridicule in the public prints, because he said there was a lever-power in wagon and car wheels; asserting that "there was only a lever-power in the driving wheels of a car." What more plainly showed up his ridiculous position was a boastful talk about his position as a teacher in this city [Berlin, Wis.] and the influence that his theories had over the minds of some two hundred students. He evidently had derived no benefit from examining the theories of various mechanics on this subject, illustrated and explained in THE NEW YORK COACH-MAKER'S MAGAZINE and he little knew how contemptible he was making himself appear to its readers. More recently *The Scientific American*, in an editorial answer to an enquiry, said "the only functions wagon-wheels have are to relieve friction." It is necessary to notice these assertions of professed scientists, and to say that the writer does not intend to shape his argument in conformity with any theory because it has the stamp of age, or the sanction of the so-called most profound thinker.

The great mistake of scientists has been in recognizing more than one mechanical power, and not comprehending so fully as they should the attributes of that power. As long as we persist in the theories taught in the schools, so long the science of physical force will be, as it now is, the amusement of the speculating theorist, not a guide for the practical man—or at least not a guide on which he can rely with as much assurance as he can upon mathematics. There should be no difference, for both have the same attributes to calculate from.



The line from 20 to 40 resting upon a support at 60 in the diagram, will illustrate the mathematical properties of mechanical power. It is twice the distance from 60 to 20 that it is from 60 to 40, and the power, when exerted downwards at 20 in a direction perpendicular to the arm, will lift 40 on the other extremity of the arm, because the arm at 20 is twice the distance that it is from 60 to 40. This is a coincidence that always follows mechanical power, and forms a mathematical basis for calculation which

\* Wilkinson's Ancient Egyptians, vol. II., p. 264.



can always be relied upon to a minute. It is never more nor less; and with the same certainty we can calculate that 60 will be forced down on the point marked 60. If the long arm is lifted upwards at a right angle from the arm, with a power of 20, and the other extremity rests on an inclined plane at 40, it will lift the 60 that it pressed down.

If the long arm is changed to the direction of the dotted line from 60 to A, and the power is applied in the direction from A to B, the same result is produced that we have seen in the other calculations; that is, 60 will be lifted vertically the height that the inclined plane rises. The distance of motion that 60 makes in a horizontal direction is just the same that the power 20 makes from A towards B. The wheel is made and applied to a wagon to secure all these advantages of the lever, and is nothing else than a lever. If scientists choose to call it some other name, it does not alter the attributes, nor its utility.

This application refutes one of the dogmatic assertions eternally harped upon by scientific men as a *fundamental principle* by which they suppose mechanics are bound; that is, that "power is gained only at the expense of motion." A horizontal motion is just what is here wanted, and the more of it the better, while it incidentally acts to lift the load over obstructions and up inclined planes, both of which are of the same nature. An inclined plane is tangent to the wheel, and consequently touches it at but one point as represented in the diagram at 40, while a vertical obstruction touching at the same place would be represented by drawing a tangent to the wheel touching at 40. It must be admitted, if this so called "fundamental principle" is true, that the inventors of wagon-wheels for locomotion, turned the table of mechanical disadvantages completely in their favor so as to be the gainers instead of losers.

The writer of this article, who will not be suspected of clinging with great tenacity to old theories because everybody has believed them, nevertheless got into a muddle about two years ago from what little faith he had in them. He was weighing the draught of two wagons that belonged to different parties, both Germans, who with their friends in attendance seemed well posted in mathematical calculations so as to determine the proportionate difference. The draught was tried by wedges that raised fourteen and a quarter inches in four feet placed on a water-level foundation under the wheels. The wagons were weighed, and the calculation made by the draught proportioned to the weight. One of them required only eight pounds and fourteen ounces draught to move one hundred pounds on an inclined plane, the other one something over ten pounds to move the same load. The query in my mind was, where could the necessary allowance for friction be made on the wagon of the least draught? The height of the inclined plane when compared with the length, shows that the power would be increased a fraction less than eleven and one-third times. The actual draught showed that the power was increased a fraction over eleven and one-third times. I had expected that the wagon of the least draught would reduce the friction very much from that of ordinary wagons; but that it should do away with it entirely, and gain a fraction besides, was past my comprehension.

It will be seen in the diagram that if the power was applied directly at the end of the lever A, it would increase the power three times; but supposing it to be a wagon-

wheel, the power would be communicated to the wheel from the bottom of the axle; therefore, the length of the arm from A to 60 would be shortened in proportion to the size of the axle arm. This was another consideration to be taken in account, which caused me to look over and carefully scrutinize all the tests of draught I had made with this wagon. The result was as above stated, and may be tested again ten thousand times in succession with wagons where axles are placed on the angle that creates the least amount of friction and are of the ordinary size, with the same result. The amount of draught may be lessened on the same inclined plane, and it was claimed by the manufacturer of the wagon that the draught was less than what I made it. I had reasons for making the test of draught not one particle less than it was. *First*, the wagon showed a superior draught to ordinary wagons—from six to twenty-five per cent. *Second*, some scientific gentleman, designing to throw a *scientific damper* on my experiments, might say, with that pomposity usually shown by men of *theories alone*, that my experiments in testing the draught was contrary to that well settled principle in mechanics which affirms that "what is gained in power is lost in motion," and insist that the inclined plane was a mechanical power. If we are to consider an inclined plane as a mechanical power, why will not the formula for calculating power apply to it as it does to the lever? This is a fact that is brought palpably to our senses, and no amount of figuring or attributing the result to friction can disguise it. The practical man—particularly the carriage-maker—wants to know the facts in the case. If there is but one mechanical power and its attributes can be calculated with mathematical certainty, it will prove a beacon to guide every operation of mechanical construction. But if there is a plurality of mechanical forces so illy defined that they can hardly be classified and no correct rule for calculating their power, I cannot see, any better than mechanics generally do, any great inducement to study them.

## Home Circle.

### MEMORY OF CHILDHOOD.

BY ROSETTE A. ROSE.

- I WANDERED by the river's side  
When day was nearly done—  
The waters gleamed with golden light  
Caught from the setting sun.

There gently blew the evening winds,  
With fragrant incense east  
Upon them by the flowers that blushed  
In beauty where I passed.

Sweet Memory's treasured presence then  
Upon my spirit fell,  
And brought me back the days of old—  
The days I loved so well.

When with a merry band I played  
Around my childhood's home,  
Before the world's alluring show  
Had taught my feet to roam,

O brightly blushed the roses then!  
When morning ope'd her eyes  
And scared the starry gems of night  
To realms beyond the skies.



And when the holy hour of eve  
Had cast its solemn shade  
In tender beauty o'er the earth,  
We lowly knelt and prayed.

Now gone are all those happy days,  
And nevermore will come  
The hours of trusting joy and hope  
That blessed my childhood's home.

But ever will their memory give  
Sweet pleasure to my heart,  
And wreath bright visions round my soul  
That never can depart.

### THE VANITY OF RICHES.

BY MRS. C. B. HOUSEL.

#### CHAPTER III.

It is Ella Carteret's story that I relate, not my own; therefore I will, as briefly as possible, record the events that, during the next few weeks, diversified my life. Suffice it that I was wedded to one who had long been the possessor of my best affections, and now one of the pleasant dreams of girlhood was about to be realized in the enjoyment of a European tour. Ella knew of my arrangements when I bade her farewell. I received no letter from her, and consequently left home in ignorance of her movements.

So brightly sped the years of foreign travel that their flight was scarcely noted; yet when, on a fair May morning, I ascended the steps of a pleasant house on Chestnut Street that had been provided for my reception, I experienced a keener thrill of joy than I had felt for many a day before. Dear old Philadelphia—how I loved it!

But where was the precious companion of former days—by whose side I had so often traversed these pleasant streets and shaded squares? Where, indeed! My bosom was filled with disquietude concerning her fate. That she was the wife of Cliffe Godwin I knew. On her father's estate, in a lonely spot, buried among trailing vines and overarching trees, was a dim little chapel, of late years disused and falling to decay. There she had met her lover, and there, in secrecy and solitude, had their inauspicious bridal been consummated. They went immediately away, and none knew whither. Much interest was excited in the neighborhood by the circumstances of the hapless young pair, and many efforts were made to discover their whereabouts, but all were unavailing. In seeking to elude the vengeance of a wrathful father, they had placed themselves beyond the reach of much true sympathy and friendship. This much I learned from a lady residing in that vicinity, whom I chanced to meet abroad.

It was now my turn to pursue the search. No nook, however obscure, should hide the fugitives from me. Upon that I was determined, aided by my kind husband. All means that suggested themselves to my mind were resorted to, vigorously and persistently. North, south, east, and west, emissaries were employed to trace the unfortunate pair. Sometimes I believed they had left the country, but more frequently was I haunted with the fear that one or both had found in death's cold gloom "surcease of earthly sorrow." Poor, poor Ella! how ever thou mingled with all my thoughts! How oft my fancy pictured thee, worn and wasted by poverty and want,

lonely and bereft, thy fair head bowed down by unaccustomed humiliation, thy heart torn with grief, caused by an angry father's hate and curse!

Weeks faded into months. Time, it is said, calms the tumult of expectation, and mellows the pangs of disappointed hope; yet was I in no wise reconciled to the loss of my darling. The burden of a restless longing lay upon my heart.

The gales of autumn were fast dismantling the stately trees in the city parks, the grass was faded and sere, and the walks thickly strewn with dying foliage, as I pursued my way, one chilly morning, along the environs of Penn Square. The place was fraught with many sad associations, for here did my beloved Ella most frequently resort. This was the first time my feet had sought the spot since my return. Never came I here before unaccompanied by that dear friend.

As I sauntered slowly along, oppressed with painful musings, and little heeding the stir of life around me, my attention became aroused by the appearance of a gentleman who, having passed me quickly, walked on, keeping a few feet in advance. There was something about him that struck me as familiar, and I scanned him more closely. His coat, thin and worn, was buttoned to the chin as if to repel the chilling winds. He wore a soft felt hat, thrown on in a way that indicated utter absence of care or thought of personal appearance; and masses of long dark hair, pushed back from an exceedingly pale face, fell quite over his coat collar. This, of itself, would be quite sufficient to attract notice among the princely attired citizens of Philadelphia. I quickened my pace—I neared him breathlessly. He seemed to have heard my hurried step, for he turned sharply round and looked me full in the face.

"Dr. Godwin!" I exclaimed, with a sudden certainty of recognition. "Pardon me—it is Dr. Godwin, I am sure."

I extended my hand. He bowed and took it courteously; but it was quite evident that he had lost all recollection of my face, for he gazed at me with a look of helpless bewilderment.

"It is a poor compliment," I said, "to be so soon forgotten."

My voice touched a chord of memory, as it seemed, for I was now recognized. There was a momentary gleam of pleasure on his face as he returned my cordial grasp.

"Tell me of Ella—dear Ella!" I cried, hastily. "Where—where have you hidden yourselves all these years?"

There was a solemn gravity in his tones, as he replied to my impatient questionings. "Ella is well; we reside in this city—we have always been here, since our marriage. And yourself?" he continued, politely.

"I have been long abroad," I returned. "Since my return I have sought you unremittingly."

"Indeed! then we have one kind friend in the wide world," he said, with an emphasis so mournful that I was smitten to the heart.

"Many—many, I am sure!" I replied, quickly; "but now that I have found you, will you not take me to your home? You have no pity on my impatience."

He besought pardon for his negligence, and turned to proceed. Once again he paused—"It is a long way off," he said, "too far, I fear, for you to walk."



"No, no!" I cried, "I am a famous pedestrian." We were in Broad Street. For some time we walked on in silence. My companion was ill at ease—strangely abstracted. Now and then I ventured a glance at his face. It wore a deathly pallor, and was deeply corrugated with care and sorrow; his eye was troubled—its glance wild and sombre. These afforded sad revelations of his history—mournful and bitter indeed had been the strivings of his aspiring spirit under the crushings of an adverse fate. Into what wretched straits have this young and loving pair been prostrated? Will she too be so deplorably changed—bereft of the sweetness of youth, her once pure and generous nature turned to gall by the petty humiliations of a life of poverty? God forbid! God forbid! Thus I soliloquized as I walked beside the silent and mournful husband of my early friend.

We were now far down the street, beyond the whirl and uproar of the many-crowded depots that mar this grand thoroughfare. Godwin seemed relieved, and gradually threw off his painful abstraction.

"You have heard of the death of Ella's father?" he said, inquiringly.

"No," I answered, hastily. "He is gone, then; and did no reconciliation take place?"

"Ella never saw him after our marriage. His wrath was inexorable, fiendish and insane. He has been two years in the grave, and still it pursues us." He paused for a moment, as though actually unable to proceed. His face was convulsed with pain. "You know nothing, then," he continued, "of the events that have caused so much distress and anxiety in our little household?"

"Nothing—certainly," I replied.

And with a wild excitement of manner, that grew more vehement and uncontrollable as he proceeded, he launched into the tale.

He spoke of himself first, and with the most bitter self-upbraidings, as having, in his utter ignorance of the world, lured his sweet wife from her affluent home and the refined circles to which she so properly belonged, to share a life of toil and privation. He spoke with a sort of frantic eloquence of the nobleness and generosity of the more than angelic patience and sweetness with which she had suffered all. He then told me that all his efforts to establish himself professionally had been singularly unfortunate—that his little patrimony had wasted away before their daily wants; and how, in dire destitution, Ella had appealed to her unnatural parent, and endeavored, by all filial overtures, to soften his wicked obduracy.

"It was all in vain," continued the narrator. "He closed his ears against her cry—he tossed her letters in the fire, and drove, with curses, from his presence, the faithful servant who had dared to be their bearer;—and then he died, and in his death evinced his fiendish vengeance. Yes, his latest act was to bequeath his whole estate to strangers—strangers to his blood and name—rejoicing with unholy joy that, by this barbarous process, his only child was doomed to hopeless destitution. Well, we brought a suit for its recovery, and for long months it has progressed. We have endured all the fluctuations of hope and fear occasioned by the 'law's delay,' until—until one of us, at least, is well nigh mad!"

"And the cause," I said,—“it is not yet decided?”

"Virtually—yes!" he answered, with a gesture of despair. "I left ——— county yesterday, my counsel

having informed me that all hope of a verdict in our favor was relinquished."

We now turned into an obscure street, and soon reaching a small and poor looking house, Godwin conducted me into his little office, and went away to apprise his wife of my presence. He had not been a moment gone before a joyous cry met my ear; and dear Ella was beside me, wrapping my form in her loving arms, and bending over me with her own sweet unaltered face. Unaltered? Yes! perchance it was a shade paler than of yore, and there was upon it a cast of thought that its morning freshness had not known—but oh! how beautiful it still was—how angelic in its matronly grace! Affluence had not made her arrogant—adversity could not humiliate her. Like a queen, she welcomed me to her humble home. With the proud dignity of a Roman Cornelia, she presented to me her priceless jewel—a dark-eyed boy, who bore "his father's image in his face."

We went up to the little parlor, and sat down side by side, talking with the confiding fondness of former years. She assured me that she had known more true content, under this lowly roof, than had ever fallen to her lot amid the grandeurs of her "ancestral halls." Love-crowned and hallowed, this home—her husband—was her heart's true sanctuary—the *ultima thule* of all her earthly aspirations.

Yet I knew she suffered. In all her fine sympathetic nature there was not a chord that did not vibrate in response to every inflexion of pain or anxiety that trembled upon the brow or lip of her beloved Godwin. If she did not share his aspirations, she sorrowed in his disappointments. She would not have him different; yet to see him content, would have insured her perfect happiness.

After a time he came up and joined us. His countenance brightened visibly in the presence of his wife. Care fled before her sunny smiles, as clouds disperse at dawn. We formed a group around the child—we three—and caressed his dark locks, and prattled lovingly over his sweet infantile head. Thus we sat until a servant, knocking at the door, handed in a letter.

"From Virginia!" said Godwin, as a more deadly pallor gathered about his firmly-set lips.

Ella gently took it from his hand; and placing himself behind her chair, he supported his trembling frame upon its back, while she calmly unfolded the missive and perused its contents. Palpitating with excess of joy, she rose to her feet, and, turning toward her husband, exclaimed, "It is ours, dear Cliffe!—yours, my husband! The verdict confirms our right!" But he whom she addressed made no reply. There was one wild, giddy gaze, and then he reeled and fell. The racked and tortured mind—the overstrained frame—had given way in the culminating moment. We essayed restoratives—we summoned scientific aid—all night we sat beside his couch, and listened to his labored breathings; and his poor heart-stricken wife, hung in her mute agony above his moveless face, watching, praying, hoping against hope, to obtain one sign of consciousness—one gleam of recognition! When morning streaked the east, its rosy beams stole through the curtained gloom, and flickered with a mournful lustre on the rigid features of the dead!

\* \* \* \* \*

Years have gone by since I shared the vigils of Ella



Godwin on the dark and mournful night that closed her husband's brief career. Bereft of all that could give a zest to the enjoyment of wealth—she possessed it in boundless profusion—"Vanity of vanities—all is vanity!" was the cry of her breaking heart. Yet for the sake of her fair child—the blessed heritage of her dead husband's love—she rallied from her trance of woe. In the stately home of her ancestors she passed her ealm widowhood, in the exercise of all Christian and matronly virtues. A wise and tender mother, a true friend, a generous benefactor, her wealth is dispensed in all just and noble ways.

## Pen Illustrations of the Drafts.

### EXCELSIOR DOUBLE SLEIGH.

*Illustrated on Plate XIII.*

As our friends will perceive, we have been trying our hand in designing, and think we have succeeded in producing something in the sleigh line which will commend itself to the attention of our readers. The body is an exceedingly plain one, depending more on the outline sweep for beauty than extravagant detail in finish. The track of this sleigh may be 3 feet 4 inches. The bottom-sides should be about 5 inches wide, and put on the bearers 3 feet apart; the beams should extend 5 feet 2 inches, measuring to the outside of the fenders; side swell, say 7 inches. One great defect in sleigh-making is, the bottom-sides are very apt to separate from the beams. To remedy this the addition of a light bolt to the serews—one in each beam—should be made. The painting and trimming are so much dependent on individual taste, that we shall omit further referenee to them.

### IMPROVED PONY SLEIGH.

*Illustrated on Plate XIV.*

THE graceful sweeps and general beauty of outline in this design, ought to revolutionize the art of sleigh-building, and effect a change where change has long been needed. The track of this sleigh should be from 3 feet to 3 feet 2 inches. This mode of building nullifies arm-pieces altogether, and in so doing dispenses with a nuisance as well as much extra expense. The wings or dusters should be covered with unfinished russet leather, the front sides painted the same color as the running part, the baek sides the same color as the body.

### TWO-SEATED SLEIGH.

*Illustrated on Plate XV.*

THIS unique design is drawn on a three-quarter inch scale. The front seat is intended to "take out" when desired. The end of the seat is "finished" with a stitched piece of patent flap leather. The dimensions given in the last example will answer for this also.

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### COAL-BOX PORTLAND AND PIANO-BOX SLEIGHS.

*Illustrated on Plate XVI.*

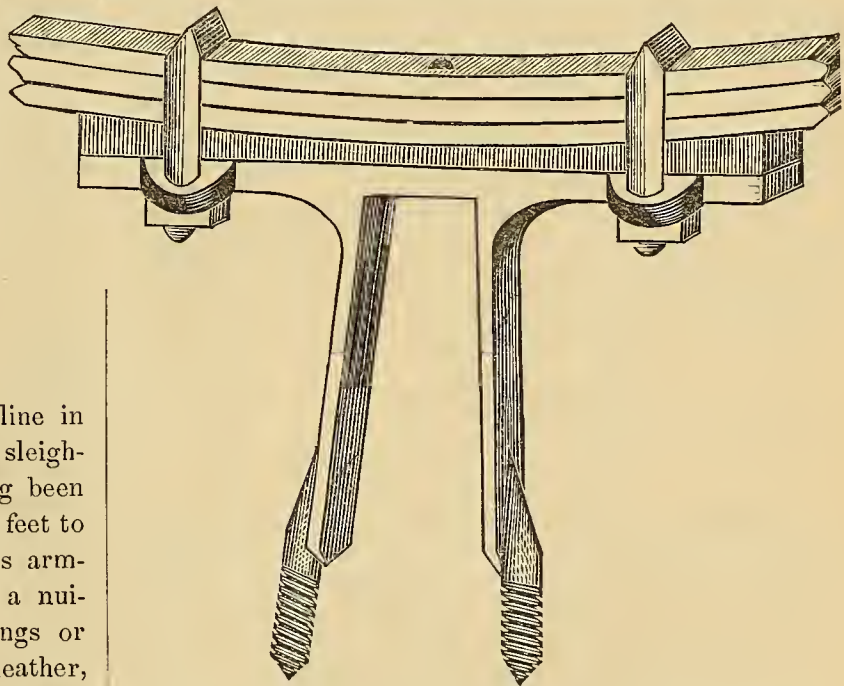
THESE two sleighs are both the contributions of our friend Mr. E. Hallenbeck, of N. Hartford, N. Y. The first—the coal-box Portland—we have slightly altered to accommodate it to the latest "touch" of the buggy. Those who require fuller details are referred to page 70, vol. viii., where we have described a similar coal-box sleigh. Price \$125.

The second—the piano-box—has a body 2 ft. 6 in. by 4 ft. The centre beam is 4 ft. 8 in. long; the upper panel is ruttered into the centre of the runners, and the lower one is rabbeted into the back side. The body of this sleigh may be lightened up so as to look very nicely by using a 2½-inch sunken-bottom, and letting the beams run through it, the front one rounding up for a foot-rail. Price \$100.

## Sparks from the Anvil.

### SOLID SPRING CLIP.

By welding a cross-tie in the axle-tree a good solid clip for a three-spring earriage may be formed, not liable



to get loose, as is often the case when the hind springs are attached to the axle or bed in the common way. In the lower part of the diagram or drawing which accompanies this article, is shown the clip for elutehing the axle cross-wise; resting on this (in tint) is a hard piece of wood, on which the spring—shown in section—rests. This spring is bound to the lower portion of the "make-up" by two short elips, the ends of which penetrate solid "ears," and are then secured in place by nuts. Any practical mechanic will readily see that this improvement has many advantages over the old two-elip mode of securing cross springs, and, what may appear better still, no patent pre-



vents its general adoption. We give it for the free use of our readers.

### BOLTLESS TIRES.

SOME years ago a man in this city by the name of Ash, invented, or rather adopted the idea of setting tires without using bolts, by causing a raised ridge—or what a carpenter would call a tongue—to be formed on one side of the iron in the rolling, to be used as the *inside*. This tongue, so formed, was set in a groove made by planing in the "tread" of the rim or felly, where it would be securely held. At the time of securing the patent it made some stir in this country, and was favorably noticed in *The Practical Mechanic's Magazine*, published in England, the article being written by an American correspondent, who probably was interested in its success. The invention met with so much indifference among coach-makers here, that it had almost sunk into oblivion, when it came again into mind by reading the announcement, in a foreign journal, that one S. Collins, of New Haven, Connecticut, has patented in England "an improvement in the forming of a tire and the outer edge or periphery of the felloe, whereby the tire is much reduced in weight and securely fixed to the wheel, without the employment of bolts or their equivalents, and consists in forming the inner surfaces of the tire concave, corresponding to the cavity of the tire, so that the tire, expanded by the heat in the usual manner and placed upon the wheel, contracts firmly upon the wheel, and its cavity prevents its accidental removal from the wheel." If, then, the tire is *concave* on the inside, the periphery of the wheel must be *convex* to receive it; and will this form be an improvement over the common mode? We think not; and this opinion is strengthened by the fact—known to all practical carriage-makers—that when, by long usage, the periphery of a wheel becomes cylindrical and the inner side of the tire concave, it is almost impossible to keep the tire on, even with bolts. Indeed, the tighter the tire is set, the more apt it is to come off, strange as it may appear.

### Paint Room.

#### COPAL VARNISH.

VARNISHES of different qualities and various compositions are extensively used in the finishing of carriages, furniture, toys, musical instruments, and ornaments of all descriptions. The appearance of iron work, machinery, and wood work is enhanced by the application of good varnish, either over the paint or on the material itself without the embellishment of paint, as in the case of costly furniture, where the grain of the wood well brought out is considered as a recommendable feature. Varnish is, however, not only ornamental but highly useful in rendering substances impervious to the influences of air and moisture; hence the care taken in the selection of durable varnish for vehicles, fire-engines, locomotives, and carriages for horse and steam travel, which are constantly exposed to the weather. Of varnishes there are several kinds, some being suitable only for paintings and pictures, and others for cabinet and coach work. They are, however, mostly solutions of resinous matter, which are spread over surfaces in a greater or less degree to

give them a shining, transparent, and hard coat, for ornamental appearance and preservation.

Copal varnish is the kind which is the most extensively used in this and other countries, and it is well known as the most valuable varnish for carriages and conveyances of all descriptions, from the locomotive down to the ordinary express wagon. Copal is a resin which exudes spontaneously from trees, some of which are of American and others of African growth. It is found in large quantities on the coasts of Guinea, especially on the banks of some rivers among whose sands the resin is found. It is obtained in lumps of various sizes and shades of color, from the palest greenish yellow to darkish brown. The copal known as Zanzibar contains many insects, and these are frequently seen through the transparent lumps in a wonderfully perfect state of preservation. In addition to flies, and even scorpions, there may occasionally be found flowers in full bloom completely embedded in the gum, which is so hard that it can not be scratched by the nail, whence the excellence of its varnish. The gum imported here from the east coast of Africa is considered the most valuable. Upon examining some lumps of it the impression of sand is plainly perceptible, and this, together with the fact of its containing insects and vegetable matter, proves that it was at some remote period in a soft state like other vegetable gums. Its specific gravity varies from 1.059 to 1.071, and it melts at a temperature of 600° Fahr. Professor Agassiz thinks that the trees which contained the African gum could only have existed some twenty-five thousand years ago, as some is now found on deserts where all signs of vegetable life have long since ceased to exist. The lumps of copal admit of a high polish and of being cut to any fanciful shape, and when so worked present a beautiful and smooth surface and a transparent luster. From the resemblance of gum copal to amber it is sometimes termed gun amber.

The principal ingredients used in manufacturing copal varnish are gum copal, linseed oil, and spirits of turpentine. The gum is worth from ten to ninety cents per pound. Next to the skill exercised in manufacturing, the quality of the material regulates the price, so that the poorer the quality of the stock used the cheaper the varnish, and the consumer will readily observe that it is no saving to buy varnish at twenty-five cents less per gallon, for the difference in quality may be equivalent to four times that sum. The process of manufacture consists in first having the gum cleaned by washing it in alkali and then in fresh water. It is then picked and assorted, after which it is put into large copper kettles which are placed on iron trucks. A hot fire is made under the copper kettles, which hold about one hundred and thirty gallons each, until the gum is completely melted; a certain proportion of linseed oil, after a careful preparation, is then stirred into the melted gum, to which when cooled spirits of turpentine are added, and the varnish is then strained and stored in large tanks for ripening. At the works of Messrs. Valentine & Co., in Brighton, Mass., the smoke and gases from the melting gum are passed through a condensing apparatus, from which they run out in a liquid somewhat resembling turpentine.

Until within a few years nearly all the varnish used by consumers in the New England States was procured from New York or imported from London, notwithstanding that most of the gums used in its manufacture were,



as now, imported into Salem and Boston, Mass. . . . . The uninitiated who suppose that varnish is all alike except that it is a little thicker or a little thinner as may be required, will be surprised to learn that there are from thirty to forty different kinds, each having its specific use. As turpentine improves by age, so varnish requires age before being used, and it must be kept in a warm place at a steady temperature.—*Amer. Artisan.*

## Trimming Boom.

### HAMMER-CLOTH OLD-FOGYISM.

If we were called upon to produce a picture which in itself was to stand as the representative of everything old-fogyish, we know of nothing better fitted for our purpose than a drawing of the Hammer-cloth of Felton's time. This aristocratic "institution" in our day, is still, as it ever has been, hedged in by conventionalities so powerful in application, that any attempt at improvement in the getting up has invariably ended in failure—a pitiful monument to defunct aristocracy, or *faded* gentility. We need not go to Europe for examples. One has only to visit our Central Park some pleasant afternoon, to find these huge lumbering figure-head excrescences attached to coaches pushing their way through the throng of lighter and more sensible mechanism, "showing off" like an old junk man of war among a fleet of modern yachts. If these senseless contrivances ever had any other use than as receptacles for dirt and a refuge for moths, they have from our point of view proved total failures. Why American ambition should ever adopt them, is a mystery we find difficult to solve, and comfort ourself with the hope that in this country, at least, they will soon become as rare as angel-visits—fewer still, and far between. Let England have them exclusively to herself, where—if anywhere—they more properly belong.

### HARNESS WASH.

TAKE neat's foot oil, and ivory, or patent black—the latter well pulverized, or to be made so before using. Mix thoroughly—adding the black until the oil is well colored, or quite black. In cool weather the oil should be warmed somewhat before mixing. With a sponge apply a light coat of the mixture, only what the leather will readily absorb, until the harness is dry—which will be in from two hours to a half or a whole day, depending upon the weather and previous condition of the leather; wash thoroughly with soap suds, use *good Castile soap and cold rain water* (warm water should never be used on harness leather). Apply the sponge. Rub off with buck skin. This will give the harness a nice glossy surface, and the leather will retain a good color, and continue pliable for months. If it becomes soiled with mud or sweat, an application of soap and water, as above directed (without oiling), will be sufficient to give it a bright appearance.

Two applications of this oil and black mixture a year (or once every six months) will be sufficient to keep harness, as ordinarily used, in good order. It may be necessary for livery men, and others who use harness constantly, to apply oil oftener, but in most cases two oilings a year, and washing with suds when soiled, will keep a harness in good trim for sight and service. This process will give a large dividend in extra service and durability,

to say nothing of improved appearance. We are assured that the same, or a similar application, is just the thing for carriage tops which are made of top leather. The only difference in treatment is, that less oil should be used, or rather a lighter coating applied; and it should be washed off before drying in, top leather being thin, and much more penetrable than harness. Of course the mixture would not answer for enameled leather, of which some carriage tops are constructed.

### CARRIAGE TOP DRESSING.

ON the second page of the cover to this monthly part, our readers will find Messrs. Richmond & Pray's advertisement of a new article known as Crosby's Carriage Top Dressing. Although we have not tried it ourself, yet we find those who have, everywhere commending it as the nicest article for renovating an old top ever invented. It acts as a charm in softening leather tops, and never cracks in the coldest weather, which the very best enameled leather, as now prepared, is apt to do. The proprietors have numerous recommendations to its worth, and there is very little risk in giving it a trial.

## Editor's Work-bench.

### TRADES UNIONISM IN EUROPE.

SOME individuals in this country comfort themselves with the idea that Trades Unionism, which has grown into such monstrous proportions in the old world, will never amount to much in the new, either in checking trade or benefiting its members. How far these impressions may be confirmed, time alone will determine. Meanwhile, those who are giving "aid and comfort" to trade combinations among us, will do well to ponder over the warnings supplied by the facts elicited from an examination of some of the members of such combinations, under the Parliamentary Commission sitting in London. The charges which from time to time have been made that the Unions act as restrictions upon trade, interfering with the rights of employer and employed, and that the leaders act tyrannically towards their own members, have been fully proved. Nay, more than this: to accomplish their wicked ends incendiarism and murder have been resorted to in Sheffield—one of the strongholds of Unionism—which now, since their doings have been "ventilated," its advocates both in Europe and here are trying to smother in a general denial of the facts, or by repudiating the conduct of the criminals. Indeed, a recognized organ of Unionism among us has the assurance to say, through a correspondent, that matters have been much exaggerated—that too strong a coloring has been given to the truth. An attentive friend has favored us with a copy of the *London Standard*, from the pages of which we condense a few facts, for the benefit of the public.

For many years, in Sheffield, the Trades Unionists



have been noted for their violence and tyranny towards all who thought fit to differ in opinion from them. When employers took apprentices against their consent, or members refused to pay dues or worked for lower wages, or individuals on solicitation refused to join the Union, those who were obnoxious either have had their dwellings blown up, their tools stolen, or else in some instances been murdered. The villains even went so far as to openly threaten an editor of one of the local papers with assassination if he did not desist from exposing their evil deeds. It was only by promising legal immunity to those who confessed their guilt, that the Commissioners obtained the evidence which now, on recital, has served to shock every right thinking mind. How much remains yet untold, it is difficult to say; but this is certain, that when some of these culprits professed to have sworn to all they knew, they have afterwards retired to confer with their associates as to how much more they had better divulge, when they have returned to the Commissioners with fresh tales of wickedness and horror.

One William Broadhead appears to have acted as the "Head Center," in this wicked business, of some 60,000 men, of various Trades Unions, who, like the "Old Man of the Mountain" we read of, sent forth his emissaries, to burn-out or murder his victims, as he might will. An agent of his—Hallum by name—testified that Broadhead had paid him for blowing-up some workshops and for stealing tools in some instances. When questioned closely about his agency in the murder of a laborer by the name of Linley, fearing and trembling in an hysterical fit, after a promise of protection from the Commissioners, it finally came out that the witness and a man by the name of Crookes had been hired by the Head Assassin for £7 10s. apiece, to so far lame Linley that he might never be able to work again; but that the wound he had received at their hands from a gun had ended fatally after six months of intense suffering. In these statements Hallum was confirmed by the testimony of his confederate Crookes. Even the monster Broadhead himself, when placed upon the stand, not only acknowledged his agency in the murder of Linley, but in that of many others who were inimical to Unionism, stating as a sort of palliative for the crime "that he had ordered them killed with great regret." He further confessed to having blown-up the house of a butcher who did not belong to any Union, simply because he had harbored an obnoxious brother-in-law who did. One man he had ordered crippled for life; another pounded until he was nearly dead; besides blowing-up seven buildings, some of them tenanted. He confessed to having paid for these outrages out of the funds of the National Association of Organized Trades, of which he was treasurer, at the rate of about £10 for an explosion and £15 for a murder. Such hypocrisy did this modern Thug exhibit in this

business, that in some instances he has even gone so far as to offer a reward for the detection of those who had committed these crimes, and besides attended public meetings called in relation to these outrages, where in vehement addresses he has bitterly denounced the authors. Crowning all this villainy, when Broadhead left the witness stand, he had the impudence to demand for his services the usual witness fees from the Government. By other witnesses it was shown that, among the members generally belonging to the Unions, it was well understood that men were employed to steal the tools of such as were obnoxious to them, as well as to commit murder.

In this examination the secretary of the Amalgamated Society of Engineers—William Allen—made the following statements, which we copy from the *London Times*, going to prove the connection of Trades Unions in this country with similar institutions in Europe and elsewhere, and giving some idea of the enormous power these Unions must wield through money influence:

"The witness stated that the society was formed in 1851 of a number of societies which had previously existed, and it now numbered 33,600 members, with an annual increase of 2,000 or 3,000 a year. There are, he said, 308 branches—namely, in England and Wales 238 branches, having 27,856 members; in Scotland 33 branches, having 3,218 members; and in Ireland 11 branches, having 1,371 members. In the British colonies there are 14 branches, having 626 members—namely, in Australia, Canada, Malta, New Zealand and Queensland. *The United States have 11 branches with 498 members.* In France there is only one branch, having 30 members. *All these branches are governed by one code of rules, and the members of the foreign branches are principally Englishmen. Those in France are all Englishmen.* Each member pays 1s. a week, and the society has now a fund in different banks, in round numbers, of £140,000. The annual income in 1865 was £86,885, made up, besides subscriptions, of entrance fees, each member having to pay an entrance fee varying from 15s. to £3 10s. The expenditure in 1865 was £49,172, the heads under which it was distributed being: Members out of employment, £14,076; to sick members, £13,785 14s. 9d.; superannuated members (members who are "too old to gain the ordinary rate of wages at the trade," being allowed 7s. to 9s. a week each) £5,184 17s 4d.; on the death of members and members' wives, £4,887; and the sum of £1,800 among eighteen members who met with accidents and were unable to follow the trade. Then there is a benevolent fund, made up of a compulsory levy on every member. It should be here remarked that a member on ceasing, for any reason, to be a member, loses all these benefits, except those who have received the injury money, and they are entitled to the benefits on paying 6d. a week."

We have neither space nor inclination to follow out this subject here; but we cannot help remarking, in connection with the above in italics, that any one who will look over the calls for meetings, the proceedings in such meetings, and the reports of membership, &c., in the



special organs of our American Trades Unions, that the bulk of names there given are unmistakably foreign. Thus far Americans, as a general rule, keep away from these Unions, looking upon them with an eye of suspicion. How much longer this will continue is questionable.

#### DIFFERENCE OF TRACK IN DIFFERENT LOCALITIES.

MORE than seven years ago we called the attention of our correspondents to this subject, and received from several sources information as to width of track, the writers expressing themselves in favor of adopting a uniform one throughout the country, so as in this particular to abate one source of annoyance both to manufacturers of carriages as well as their customers. Although we succeeded in awakening the public mind to the consideration of this important matter—especially is it important to carriage-makers—yet no action has hitherto been taken in the proper direction for remedying the evil. We foresaw that such would be the result, and so predicted at the time. Two years afterwards we compiled and published a table giving in a condensed form the principal widths of track throughout the country. We find this article recently reproduced in substance by a cotemporary without giving us the proper credit. This, however, is getting to be so common a practice with editors that perhaps we ought not to complain, especially in a case where, if success should follow, great benefit would accrue as a natural consequence.

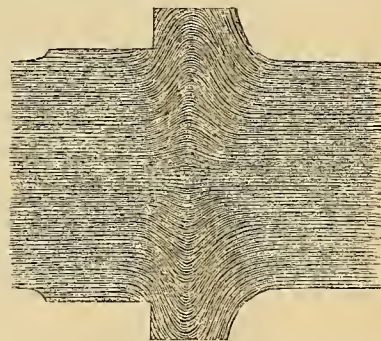
Let us again look at some of the evils this state of affairs entail upon the carriage manufacturer and dealer. A—, from Massachusetts, where the *legal* track is 5 feet 4 inches, wishing to purchase a New York vehicle, steps into a city factory, where he finds ready-made an article which just suits him—all but the track, that he discovers is *only* 4 feet 8 inches, too narrow by eight inches for his locality. What is to be done under such circumstances? One of two things. The manufacturer must lose a sale, or else be at the trouble and expense of making the necessary alterations in conformity with the Massachusetts decree. To do this mechanically, without greatly injuring the beauty of the job, is a difficulty which can only be fully realized by the workman who undertakes the alteration. Indeed, so much is the business dreaded that few—unless they want to sell very badly—will undertake it, preferring to let a customer go away without purchasing. The body may be too wide for the new track, or the dusters will need to be readjusted, and beyond all the paint will have to be matched. This last business, as all practical mechanics know, is almost impossible, unless—which is not often the case—the builder has some paint of the same color still standing in the cup from which the job was painted to do it

with. Even in this latter case, where the carriage has stood some time, this desirable end can only be reached in time some distance beyond.

But how are we to obtain a uniform track all over this country? Simple application to State legislation can never effect it, nor will individual agitation alone accomplish it. It then evidently requires the united effort of the leading men in the trade, and we suggest as the shortest way of securing this desirable object, a petition to Congress for a uniform law, legal alike in all the States of this Union. Some may treat this as too small an affair for the consideration of our National Legislature, but is it not of far more importance to the public in general than much of the business done there every session? As a carriage-maker, we think so; and a little reflection must convince the entire community that an important benefit would thereby accrue to the pleasure as well as business public, of incalculable value. Who will be the first to move in this matter, and what shall be the width of our uniform track?

#### ARCHIMEDEAN AXLES.

WE take pleasure in calling the attention of our patrons and the trade generally to the "Archimedean axle," manufactured solely by Messrs. Barber, Sheldon & Co.—Hayden and Letchworth, Agents, (see advertisement)—Auburn, New York. In our experience as a carriage-maker we have suffered much from imperfection in axles. In this we think we are not alone, and that we venture nothing in saying that all carriage-builders will agree with us, that more damage has resulted from broken carriage-axles than from all other imperfections in a vehicle put together. Having suffered sorely in this respect we speak feelingly, and are glad to be able to say, that by using the "Archimedean axle," carriage-makers are likely to find relief from the damages and risks heretofore existing in axles.



One peculiarity in this axle is a new mode of manufacturing the collar (patented May, 1866), wherein the collar is upset under mechanical pressure, and the fibres of the iron are thrown into *the shape of an arch*, at that point, thereby *not diminishing* its strength as is done when welded on, but in fact *very materially* increasing it above what it would be with the straight fibre, as found in the original iron bar. In this new process uniformity of collar and shoulder is obtained, so that each axle of a given size will perfectly fit every other. The iron also, we think, is compacted to increased strength by the pres-



sure to which it is subjected. These views are fully justified by actual result as exhibited by tests of strength repeatedly made upon the manufactured axles, and by samples of the axles split after upsetting, showing the arch form of the fibre and its compact condition, a very fair representation of which will be found in the cut accompanying this article. The workmanship on these axles proves that the manufacturers design to have them correspond in value with the patented improvement. In corroboration of our views as to the value of these axles we find that some of the most important dealers, east and west, express their judgment in high terms of approval. We recommend that carriage-builders make a trial of these axles.

#### NEEDLESS SENSITIVENESS.

OUR late article on co-operation seems to have stirred up the anger of a contemporary to an alarming extent, culminating in the assurance "that working men *can* manage their own business, and much better than anybody else." We are very glad to hear this, and shall be much better pleased to hear of the first coach-makers' co-operative establishment that has proved successful. To the extent of our memory thus far they have all proved a failure, after a brief trial, chiefly for the reasons before mentioned. Indeed, so far has our remarks met the approbation of those conversant with the facts, that it has been pronounced by Mr. Rhein, of Baltimore, who originated the first establishment in that city having for its object carriage-making, the most truthful article he has ever read on the subject, confirming every word.

Our opponent says there is a vast difference between joint-stock companies and co-operative institutions. Very well, let us note the distinction. In a joint-stock company the stock or capital is divided into transferable shares, which the owner has the disposal of without consulting his partners, and is not, in most cases, liable for the company debts. Co-operation simply means *joint-operation*—labor with mutual efforts to promote the same object. The difference may be that co-operation intends to carry on business unmindful of capital; but we fail to see it in that light, and so probably will those to whom co-operatives may look for sympathy.

The sneers with which our opponent treats our article on co-operation, cannot in any case be considered argument, nor can his denial of our sincerity blind the public eye to the fact that thus far every attempt at joint carriage labor, in this country, has ended in failure. So far are we from wishing to discourage any one in an attempt to better his condition, that we are willing every journeyman in the land shall make the trial, and if need be have a co-operative shop erected in every town and village of the Union; but we are not content that these visionary theorists, to promote their *private* ambition, should be per-

mitted to ignore the laws of human nature, nor resort to such subterfuges as contradicting historical facts, unnoticed. The truth is—and every man of age and experience knows it—there are very few persons in the world who have "brains" enough to carry on such a complicated business as coach-making to a successful issue, when singly directed; and until human nature is differently constituted, we are quite sure it can not be effected by a community of interests, where every individual is supposed to have "his say" about matters. But try it; and should it not appear in the end that "too many cooks have spoiled the broth" we shall be the first to rejoice at co-operative success.

#### SOMETHING NEW.

UNDER the above caption, in the advertising pages, our readers will find the card of Mr. Charles Weeks, who has now set up business for himself at 80 Fourth Avenue, where he intends to keep for sale a full assortment of materials for carriage-builders of the first quality, on as reasonable terms as can be bought elsewhere. Our long acquaintance with Mr. Weeks warrants our saying from personal knowledge, that those who trade with him will receive gentlemanly treatment and fair dealing. We therefore bespeak for him a trial from our personal friends who may want anything in his line.

#### THE NEW KITTATINNY BLACKBERRY.

ABOUT twenty years ago, in the neighborhood of the Kittatinny mountains, Warren county, New Jersey, a Mr. Wolverton found growing, in its natural state, a blackberry, which he took home and set out in his garden. Very little attention was paid to it until the Rev. Mr. N. Pettit, in connection with S. H. Coursen, Esq., undertook its cultivation, about seven years ago, in the open field. To this field, about a mile northwest of Newton, after a cold collation at the Anderson House, a select party of editors and members of the New York Farmer's Club and their ladies, on invitation of E. Williams, Esq., of Montclair, New Jersey, made an excursion of sixty miles by rail on the 8th day of August, to look at the vines and test the qualities of the fruit. The raid made on the berries by the company showed that they were considered good and properly appreciated. On the return of the party to the Anderson House, a meeting was held to talk about fruits. A committee of five having been designated by the chairman (General Halstead), they retired, and in a few minutes returned and offered the following resolutions:

*Resolved*, That the thanks of this party are due to Mr. WILLIAMS for his generosity in providing for his guests an excursion so replete with pleasurable enjoyments.

*Resolved*, That the thanks of all fruit-growers are eminently due to Mr. WILLIAMS for his labors in introducing the Kittatinny blackberry, and that we do most cordially give our approval to this excellent variety of a fruit so valuable, be-



lieving as we do that it meets in quality, productiveness and hardness especially all that is claimed for it; in short, that it possesses everything required for a first-class berry.

The chairman made a speech complimentary to New Jersey, and was followed by Dr. J. V. C. Smith, who highly extolled the blackberry he had eaten that day, and said he had been overwhelmed with the politeness of the Jerseymen. He found them riding in \$2000 carriages—a sure sign of their prosperity—while in New York, where he resided, the people had to put up with those costing only \$1,000. The development of the Kittatinny was perfectly amazing, and its sanitary qualities for children above price.

Mr. Lawton, of New Rochelle, the cultivator of the berry known by that name, spoke in a complimentary manner of the Kittatinny, very modestly alluding to his berry first introduced in 1853 or 1854. He admitted the Kittatinny was as good as the Lawton, differing only in shape. Should the Kittatinny exceed the Lawton, he would be delighted. Mr. Quinn said the Kittatinny had all the good qualities desirable in a blackberry, and that where the Lawton was winter-killed, the Kittatinny stood unharmed. Mr. A. G. Baldwin said the Kittatinny was a sweeter berry than the Lawton, and does not turn red when sent to market. Another gentleman said, in his locality they were letting the Lawton run out and introducing the Kittatinny. The Kittatinny, as our readers will see from an engraving of the berry, is much longer than the Lawton, with which all are familiar, and, from the testimonies elicited on this visit, every way superior. We can only find room to add, that should our friends wish to try this berry, they will find our friend Mr. E. Williams, of Montclair, N. J., (who, by the way, is a brother of the author of the "Blacksmith's Daughter," now publishing in this Magazine,) a responsible man, and worthy of their patronage.



#### LITERARY NOTICES.

THE *Atlantic Monthly*, *Our Young Folks*, and *Every Saturday*, are three serials, the two first monthly and the third weekly, published by Messrs. Ticknor & Fields, of Boston. The two first are entirely original, and each fills its sphere with marked ability, and are alike creditable to our nationality as vehicles of American literature and taste—except the theology of the Atlantic editor, to which we cannot subscribe. But all do not think alike; if we did, we should not have room for censure, and very little to write about. The last number of *Every Saturday*—that for August 10th—is especially interesting to us. This work is made up of selections from the choicest foreign current literature, much of it published from advance sheets, ahead of all other publications of a simi-

lar kind in America. In cheapness and value it has no rival. Single numbers, 10 cents.

## Patent Journal.

### AMERICAN INVENTIONS.

May 14. (64,633) SLEIGH BRAKE.—Frederick Cohlmeier, Keck's Center, N. Y.:

I claim, *First*, An improved sleigh brake formed by the combination of the draught-bars F, supporting-bar G, bent levers H, and dogs I, with each other and with the frame and tongue of the sleigh, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the bar M, and levers N, with the draught-bars F, and with the frame of the sleigh, substantially as herein shown and described and for the purpose set forth.

(64,634) SPRING FOR VEHICLES.—D. I. Columbia, R. V. Stocking, and C. W. Woodruff, Morrison, Ill.:

We claim, *First*, Suspending the bodies of vehicles upon bands of india-rubber, so applied that the action of the load shall take effect in the elongation of the springs and it be raised by their contraction, substantially as described. *Second*, The combination of the india-rubber bands H, standard D, and oscillating lever E, substantially as and for the purpose set forth.

(64,700) WAGON BRAKE.—John W. Phillippi, Stahtstown, Pa.:

I claim, *First*, The bolster A, arranged and combined with the grooved friction-roller B, and axle C, by means of bands *b'*, *b'*, *b*, *b*, substantially in the manner and for the purpose as herein set forth. *Second*, The rods F, F, and rods *e*, *e*, as arranged for combining the brakes with the bolster and axle, substantially in the manner and for the purpose as herein set forth. *Third*, The construction of an elongated slot *f*, in the coupling-pole, in combination with the bolster and friction-roller, substantially in the manner as described. *Fourth*, The check or stop as arranged and combined with the coupling-pole, substantially in the manner and for the purpose as herein set forth.

(64,711) CARRIAGE-CLIP.—George B. Salmon, St. Paul, Minn.:

I claim the combination of the thill-iron E, clip B, and rubber-plate G, and bolt *b*3, the whole constructed and operating substantially as described and for the purposes set forth.

(64,715) ATTACHING THILLS TO VEHICLES.—N. H. Shaw, Holderness, N. H.:

I claim, *First*, Suspending the shaft to its coupling on carriage-axle, between two bearings or ear-pieces thereof susceptible of adjustment, substantially as described. *Second*, A shaft-coupling having that part of the same attached to the axle made in two parts or sections secured and hung together at one end and one upon the other with the shaft-strap or bar suspended by a center-bolt between ear-pieces at their other ends, substantially as and for the purpose described. *Third*, The conical-shaped bearings between the shaft-strap or bar and the part of the coupling secured to the axle, substantially as described.

(64,754) MACHINE FOR MAKING WAGON CLIPS.—George Feightner, Wooster, Ohio:

I claim the stationary die G, and movable dies C, F, in combination with the die-box B, constructed as and for the purpose set forth.

(64,794) CARRIAGE WHEEL.—Arthur Prentiss, Prentiss Vale, Pa.:

I claim the wheel-rim or felloe when swaged or otherwise formed into suitable shape of sheet metal either in use or many pieces, in combination with the grooved tire B, either when this grooved tire B is made the principal tire or used in connection with the supplemental one, as shown in Fig. 1.



## A BOOT-MAKER'S "TURNOUT."



Crispin, having made his "pile" in the boot trade, sets up his "establishment," exemplifying his idea of Boot-ee (beauty) in the form of his equipage.

## CURRENT PRICES FOR CARRIAGE MATERIALS.

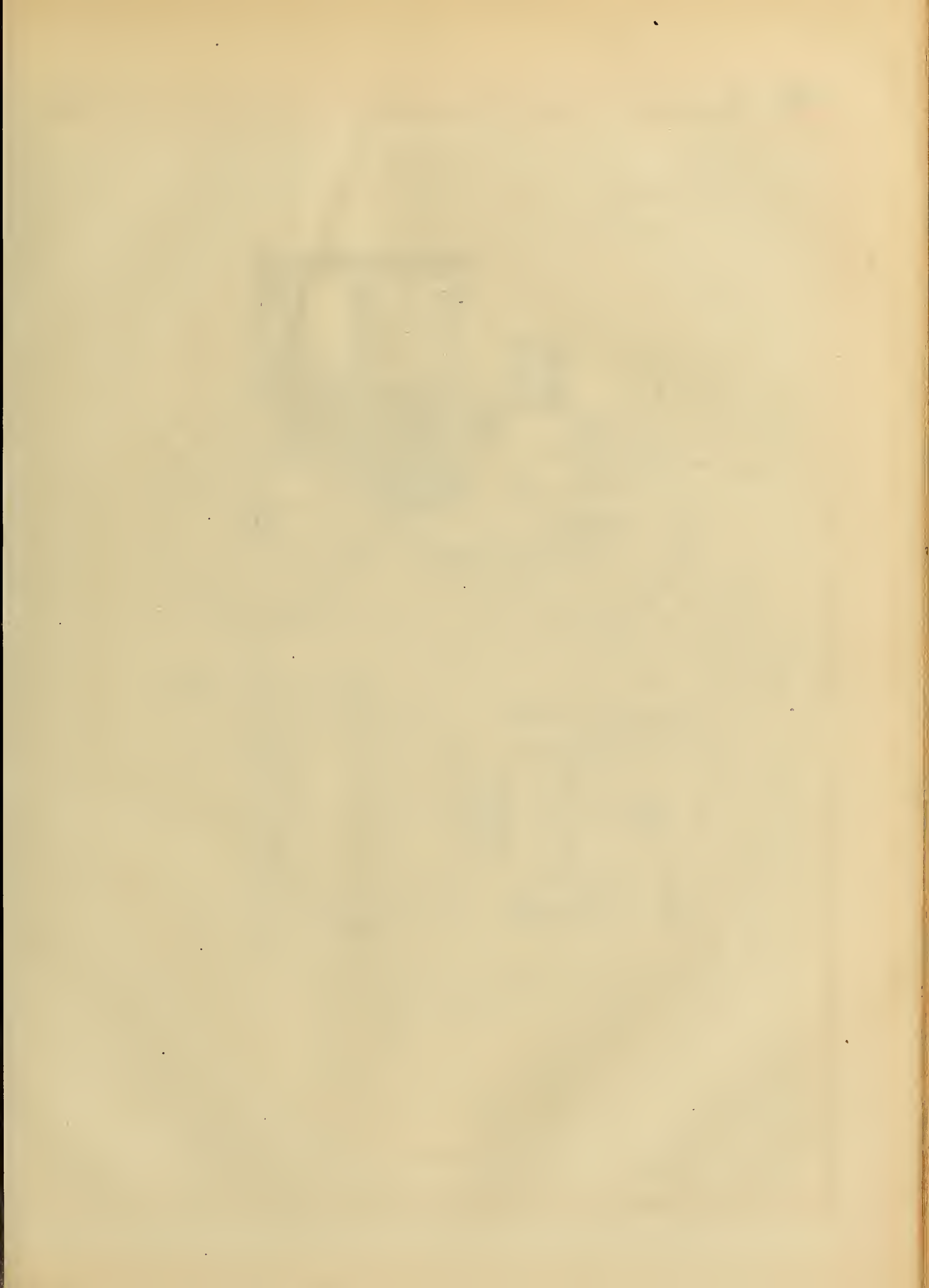
CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

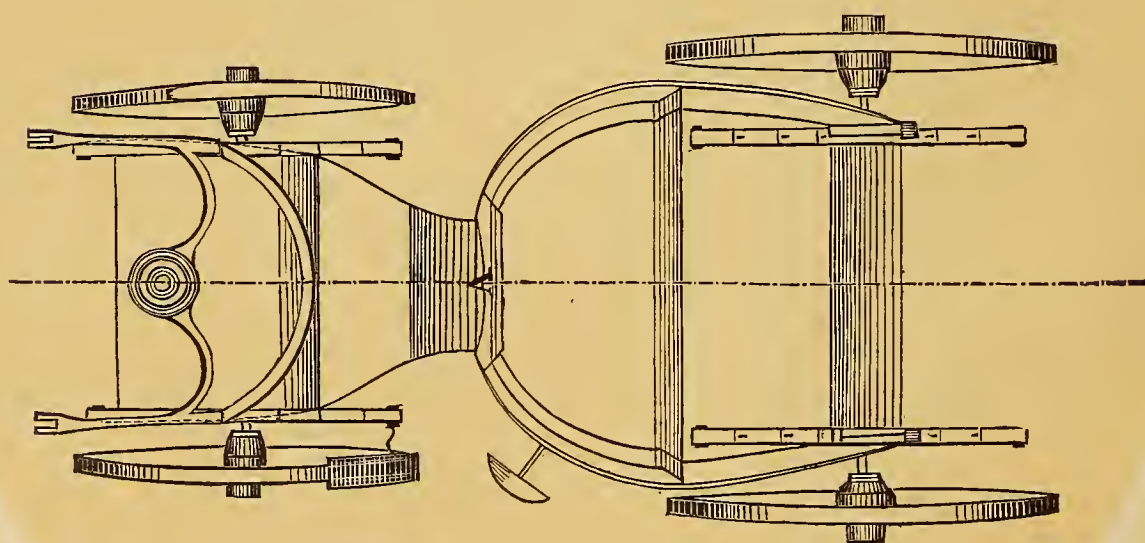
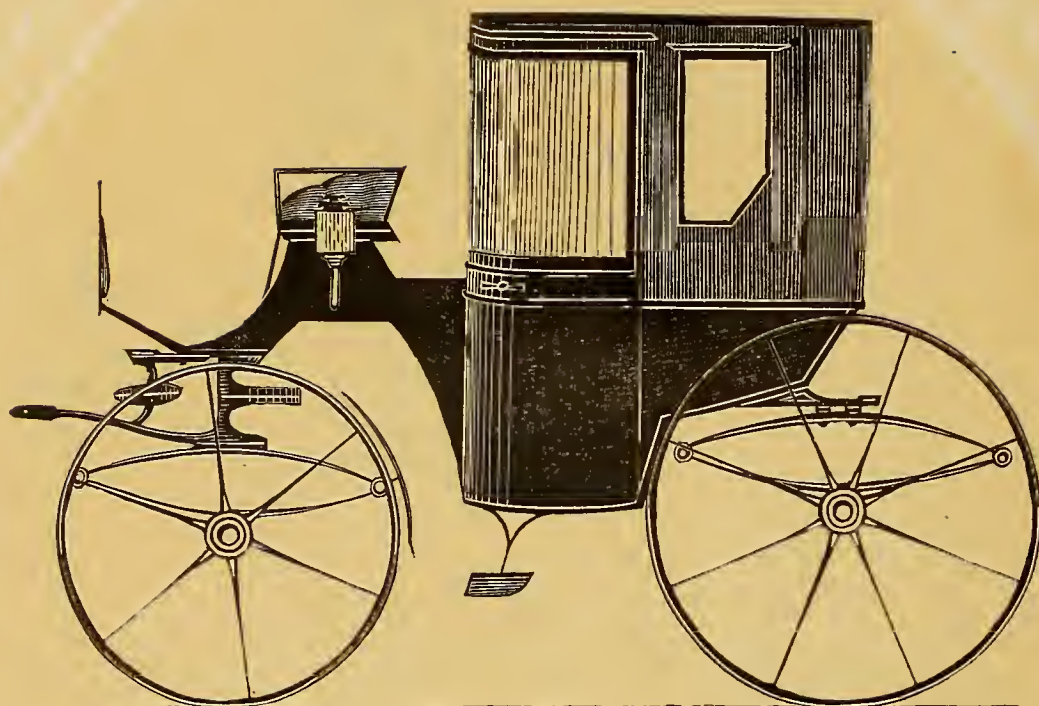
NEW YORK, Aug. 16, 1867.

Apron hooks and rings, per gross, \$1.75 a \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 9c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1½, \$7.50; 1¾, \$8.50; 1⅞, \$9.50; 1⅝, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1½, \$8.25; 1¾, \$8.75; 1⅞, \$10.75; 1⅝, \$13.00.  
 Do. Half pat., 1 in. \$10; 1½, \$11; 1¾, \$13; 1⅞, \$15.50; 1⅝, \$18.50.  
 Do. do. Homogeneous steel, ⅝ in., \$14.00; ¾, \$14; ⅞, \$15.00; long drafts, \$4 extra.  
 ☞ These are prices for first-class axles.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3½ in. and under, \$1; larger, \$1 a \$3.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, under 1¼ in., \$2.25 per set; extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 10 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. ½ in., \$1.50; ⅝, \$1.50; ¾, \$1.70; ⅞, \$2.10; 1, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 25c.; per large gross, \$2.50.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 60c. a \$1.  
 Castings, malleable iron, per lb, 20c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$4 a \$6; lining, \$3 a \$3.50. (See *Enameled.*)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cortelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.

Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 70c.; 5-4, 65c.  
 Do. Ducks, 50 in., 85c.; 5-4, 80c.; 6-4, 95c.  
 ☞ No quotations for other enameled goods.  
 Felloc plates, wrought, per lb, all sizes, 25c.  
 Fifth-wheels wrought, \$1.75 a \$2.50.  
 Fringes, festoon, per piece, \$2; narrow, per yard, 18c.  
 ☞ For a buggy top two pieces are required, and sometimes three.  
 Do. silk bullion, per yard, 50c. a \$1.  
 Fringes, worsted bullion, 4 in. 50c.  
 Do. worsted carpet, per yard, 8c. a 15c.  
 Frogs, 75c. a \$1 per pair. Glue, per lb, 25c. a 30c.  
 Hair, picked, per lb, 50c.  
 Hubs, light, mortised, \$1.20; unmortised, \$1.— coach, mortised \$2. Japan, per gal. \$2.75.  
 Knobs, English, \$1.40 a \$1.50 per gross.  
 Laces, broad, silk, per yard, \$1.00 a \$1.50; narrow, 10c. to 16c.  
 Do. broad, worsted, per yard, 50c. a 75c.  
 Lamps, coach, \$18 a \$30 per pair.  
 Lazy-backs, \$9 per doz.  
 Leather, collar, dash, 30c.; split do., 18c. a 21c.; No. 1, top, 31c.; No. 2, enameled top, 28c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c.  
 Moquet, 1½ yards wide, per yard, \$8.50.  
 Moss, per bale, 10c. a 18c.  
 Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. a 20c.; ½, lead, door, per piece, 40c.  
 Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c. Name-plates.  
 Oils, boiled, per gal., \$1.80.  
 Paints. White lead, ext. \$14.50, pure \$15.50 per 100 lbs.; Eng. pat. bl'k, 40c.  
 Pole-crabs, silver, \$5 a \$12; tips, \$1.50.  
 Pole-eyes, (S) No. 1, \$2.35; No. 2, \$2.60; No. 3, \$2.85; No. 4, \$4.50 per pr.  
 Sand paper, per ream, under No. 2½, \$5.50; Nos. 2½ & 3, \$6.  
 Screws, gimlet, manufacturer's printed lists.  
 Do. ivory headed, per dozen, 50c. per gross, \$5.50.  
 Serims (for canvassing), 16c. a 25c.  
 Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.  
 Shaft-jacks (M. S. & S.'s), No. 1, \$2.65; 2, \$3.10; 3, \$3.35.  
 Shaft-jacks, common, \$1.25 a \$1.40 per pair.  
 Do. tips, extra plated, per pair, 25c. a 50c.  
 Silk, curtain, per yard, \$2 a \$3.50.  
 Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.  
 Slides, ivory, white and black, per doz, \$12; bone, per doz, \$1.50 a \$2.25; No. 18, \$2.75 per doz.  
 Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.  
 Spring-bars, carved, per pair, \$1.75.  
 Springs, black, 19c.; bright, 21c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.  
 If under 36 in., 2c. per lb. additional.  
 Spokes, buggy, ⅞, 1 and 1⅞ in. 9½c. each; 1½ and 1¼ in. 9c. each; 1¼ in. 10c. each.  
 ☞ For extra hickory the charges are 10c. a 12½c. each.  
 Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8 25 cts.; 3-4 x 1-16, 28 cts.  
 Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½; 3-4 x 5-32 a 11 c; heavier sizes, 9½c. currency.  
 ☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.  
 Stump-joints, per dozen, \$1.40 a \$2. Tacks, 7c. and upwards.  
 Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.  
 Terry, per yard, worsted, \$3.50; silk, \$8.  
 Top props, Thos. Pat, wrought, per set 80c.; capped complete, \$1.50.  
 Do. common, per set, 40c. Do. close plated nuts and rivets, \$1.  
 Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.  
 Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.  
 Do. Marshall's Machine, 432, \$2; 532, \$2.25; 632, \$2.60, gold.  
 Tufts, common flat, worsted, per gross, 20c.  
 Do. heavy black corded, worsted, per gross, \$1.  
 Do. do. do. silk, per gross, \$2. Do. ball, \$1.  
 Turpentine, pr gl., 80c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.

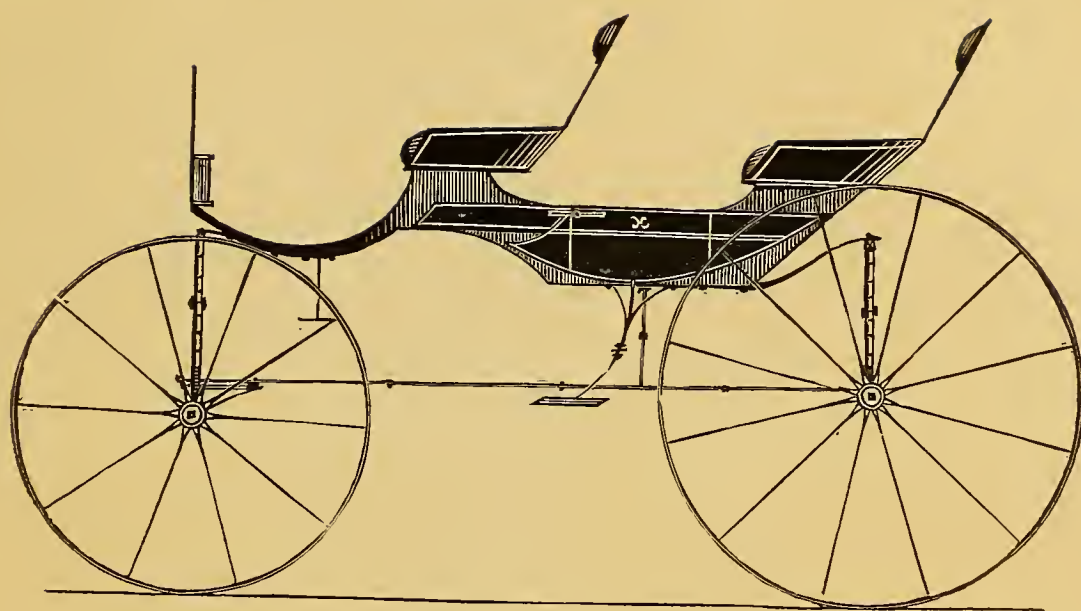






NEW COUPÉ, WITH ELLIPTICAL DOORS.— $\frac{1}{2}$  IN. SCALE.  
*Engraved from the Moniteur de la Carrosserie expressly for the New York Coach-maker's Magazine.*  
*Explained on page 72.*





BEACH-WAGON.— $\frac{1}{2}$  IN. SCALE.

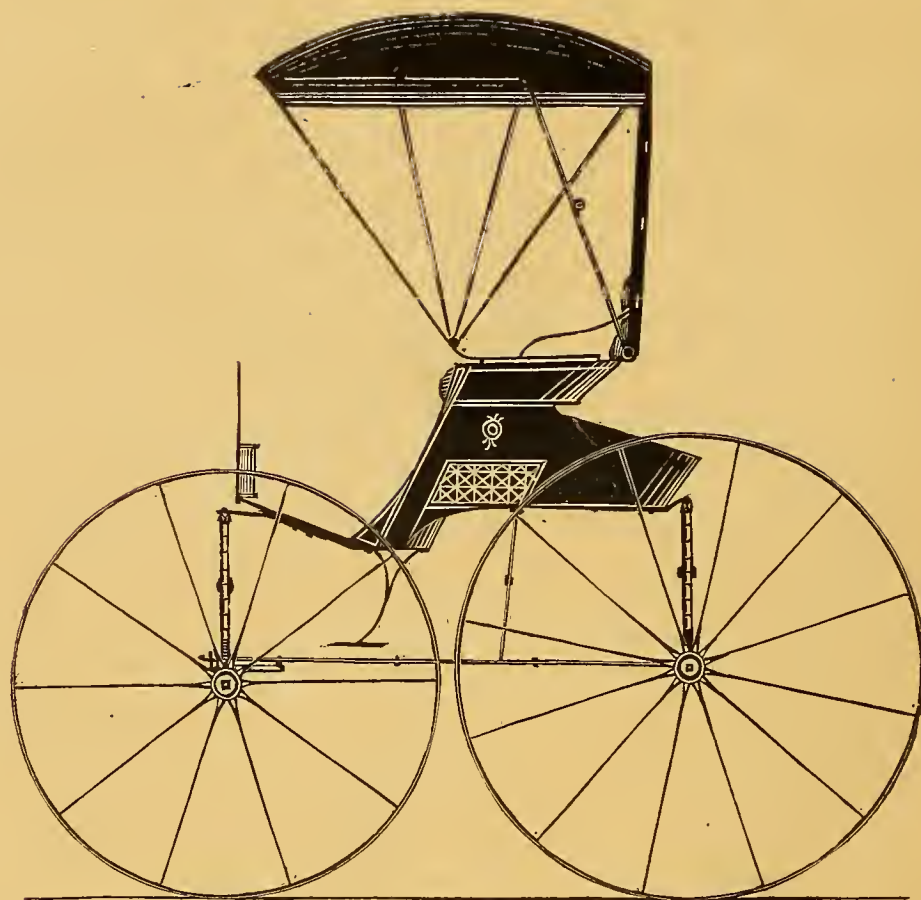
*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 72.*







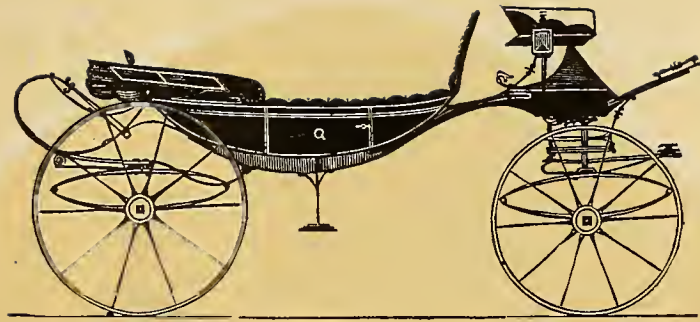


DEEP-FRONT COAL-BOX BUGGY.— $\frac{1}{2}$  IN. SCALE.

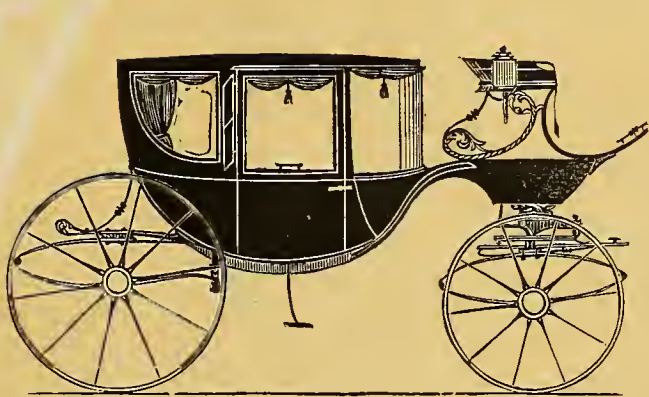
*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 72.*

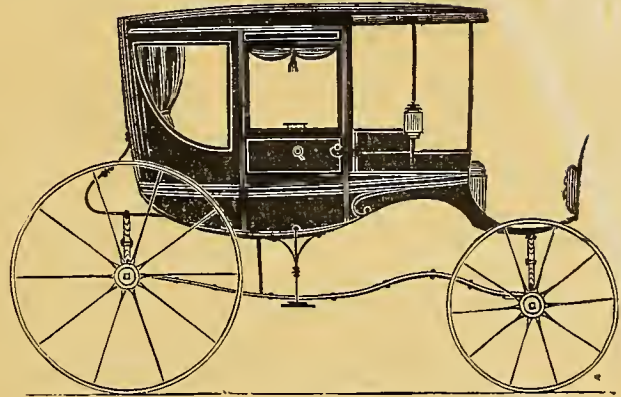




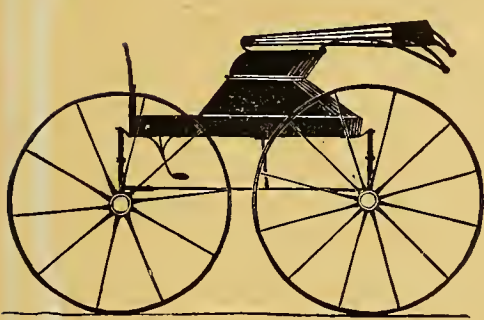
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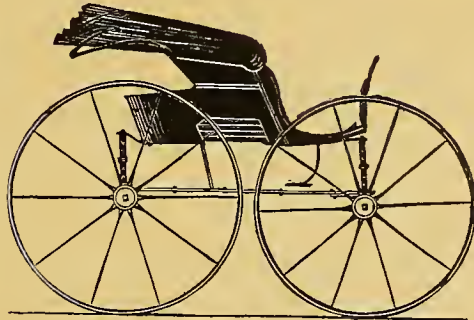
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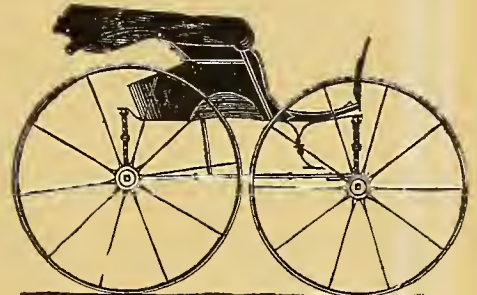
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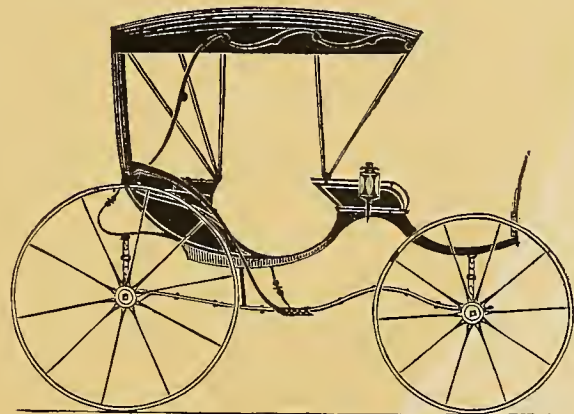
No. 5.



No. 6.



No. 7.



No. 8.

DESIGNS IN VARIETY FOR BUSINESS ADVERTISING.— $\frac{1}{4}$  IN. SCALE

*Reduced for the New York Coach-maker's Magazine from copyright designs.*

*Remarks relative thereto on page 73.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, OCTOBER, 1867.

No. 5.

### Mechanical Literature.

#### CONVENTION OF THE JOURNEYMEN'S INTERNATIONAL UNION.

THE fourth annual convention of the Journeymen Coach-makers' International Union, Wm. Harding in the chair, commenced its session in Cincinnati, on Wednesday the 7th of August. Delegates from thirty-three of the subordinate Unions were present, twenty-five of the fifty-eight not having sent representatives, or if so, they were absent; S. Smith Williams of Rahway having been elected Assistant Secretary during the session, and the time for meeting fixed at from 9 to 12 A. M., and 2 to 5½ P. M., the President next read his annual address, embracing several suggestions, among others that the Union be resolved into a benevolent one, after the manner of the Masons and Odd Fellows, appropriating allowances to members in necessitous cases; and recommending the acceptance of cards from similar Unions in Great Britain and the Continent of Europe. The subject of apprenticeships was submitted for some definite action from the Convention; the eight-hour system was referred to as having made no progress among coach-makers, although it had among other trades. Co-operative shops under the control of the Union, would remove all necessity for strikes, and one was recommended for every city. One had been established in Baltimore, and what had been done there, other cities might do. The equalization of wages was likewise recommended in different sections of the country, as nearly as possible, all of which was referred to appropriate committees.

The Secretary next read his report, from which it appears that the receipts of the past year have been \$8,809 34; expenses, \$7,641 86; leaving a balance of \$1,167 48 in the Treasurer's hands. Communications having been read from delegates elect giving reasons for their absence, the President next announced the names of the committees for the session: On Finance—Briggs, Phillips, Rylands, Hubbard and Kriner; on Secret Work—Morrow, McCabe, Shotwell, Capron and Phillips; on Constitution—Brandt, Donohue, Coffin, Reynolds and

Weaver; on General Good of the Organization—Marshall, Luce, Smith, Lamb and Peek; on Journal—Peek, Hubbard, Rebbeck, Briggs and Knowlton; on Beneficial System—Hagerty, Buntc and Thompson; on Apprenticeship—Knowlton, Happersett, Carson, Marshall and Smith; on Ways and Means—Ware, Hasson, Peek, Snay and Curtis.

On motion, so much of the reports of the President and Secretary as related to a change of session from one to three years, was taken up and referred to the Committee of the Whole. The discussion of this question took a wide range, after which Mr. Ware moved that the whole subject be postponed to a future day, which motion being put, was lost. A motion to extend the session to periods of three years was lost, yeas 1, nays 32.

Among the sections acted upon, was one taxing each member of the Subordinate Unions six dollars a year, payable in monthly installments for the benefit of the International Union, which was amended by substituting thirty cents, and afterwards laid on the table, as was also a proposition to pay full wages to such members as should be thrown out of employment, by the performance of duty imposed by the Parent Union. Having by vote decided that the Subordinate Unions be supplied with a uniform set of books, by the International, the chair next appointed as additional committees: On Apprentices—Thomas Breman, H. H. Rebbeck, and George W. Liber. On Eight Hour System—New York, Breman; Pennsylvania, Mooney; District of Columbia, I. Reynolds; Delaware, Hasson; Ohio, Snay; Kentucky, Phillips; Connecticut, Rylands; New Jersey, Williams; Massachusetts, Thompson; Maine, Knowlton; Missouri, Smith; Michigan, Liber; Tennessee, Weaver; Iowa, Goldfreitch; Indiana, Marshall. On Equalization of Wages—Committee of the Whole. Strikes—Snay and Thompson. Mileage—Curtis and Lamb.

The proceedings of the three following days are of so little interest to the public that we omit them. The afternoon of the fifth day was varied by invitations from George Bogen & Sons and Chas. Bottler for the members of the Convention to visit their wine cellars during its session, which was readily accepted and thanks voted therefor. The evening session was taken up with entertaining the delegates of a Tailors' Union. Several speeches were made, one of which by Mr. Harding and another from Mr. Cashman, we give from a Cincinnati paper:



On being presented by the chair, Mr. Harding said: At last we have an International Union of Coach-makers. Possibly many of you have labored under the impression that we have not had such an organization. But we have brought them here before you to-night, in order that you may see them, and learn what they can do, what they have done, and what they propose to do for your interest in this city, and for the interests of other coach-makers in the United States. There are many in Cincinnati who do not belong to this Union. We sympathize with you in your difficulty. But we say to you, come with us: be united, and stand together with us. We have a power now so strong that it is impossible, when you are in our organization, for any employers to refuse any reasonable demand you may make on them. We don't come to you to ask you to help establish this power. Not a bit of it. It is already done. The house is built, the furniture is in it; the viands are on the table; we only ask you to come in and partake of the repast. We are only here to offer, and beg of you that you should no longer stand outside this Union. Stand with us shoulder to shoulder for the sacred rights of labor.

Let me contrast your condition here in February last, with the condition of your brethren in another city. At that time you were reduced 15 and 20 per cent. on your prices. You had a Union in Cincinnati, but you had so clipped it of its usefulness that it had not the power to save you; and you had to submit to the humiliation of allowing your employers to take off 15 to 20 per cent. of your wages. In the city of New York they had a Union, and were required to submit to the same humiliation. Did they do so? No. [They *did* for several months, and the speaker knew it when he asserted to the contrary. The "muss" in the spring was simply to have this percentage, taken off last Fall, put on again, nothing more. Ed.] They knew they were freemen; knew it was an injustice, and they rose in their might and resented it. Then the great and mighty power which they had inaugurated stood by them, until, after three weeks, their employers had to recede from their attempt to deprive their fellow-men of the just reward of their labor. But you to-day are getting 15 to 20 per cent. less than you ought to have; and every one of you has lost one hundred and fifty a year out of your wages, rather than pay four or five dollars to support an institution like ours. Is there any business in this city that could give as much profit for your money as you would have got by investing five dollars in the International Union and securing a hundred and fifty dollars by so doing?

We say to you now, let by-gones be by-gones, and beg of you to say once more, "I am a free man, and I will enter the Union, because I know that so long as I remain in it I shall be protected in my rights."

Mr. Wm. Cashman, of New York, President of the Tailors' International Union, said:

The last men that come to understand their own interests are the working men. We may show the amount of benefit received through association, and yet, for the paltry sum they have to pay in each month they lie back, and instead of coming forward to aid a good work, they throw cold water on it, and discourage those who put themselves forward. There is another class, and you will find them in all your workshops, who throw cold water on the whole movement, saying it is a money-making operation to somebody. Others will cringe to

the foreman, and never is so happy as when he can injure one of his fellow-workmen and step into his shoes. These classes are the ruination of every business. They look at this movement through their own miserable selfishness; and yet they are so blind that they cannot see where their real interest lies. Apart from the wages question, if we look at another purpose of the organization, and see what a moral influence it brings to bear on its members, is it not worth what it costs? Still you will find men who will cringe and crawl, like a snake on his belly—for what? For the purpose of humiliating the laboring man, and bringing degradation on his calling. If there is a man here who does not belong to a labor organization, he is only a mere photograph of a man; he carries a man's face, but he is a monkey inside. If there is a coach-maker in this room who don't belong to the Union—if there is one here who, after seeing the delegates of this Convention assembled from distant parts of the country for the purpose of promoting their interests, keeps aloof from them, and withholds his encouragement, he is a traitor to his own best interest, as well as that of his brethren.

The speaker presented this matter at considerable length, and in a very clear and forcible light, showing, also, that under this system of organization the old feature of strikes would be to a great extent avoided.

The morning of the sixth day was spent in discussing various proposed changes in the constitution, and making an allowance of \$162 to the "subordinate" in Cincinnati. In the afternoon the committee on finance reported on the President's accounts, finding that he had received during the year from subordinate Unions \$1,534.24 for charters and fees, and expended in traveling and board, and salary, \$2,042.42, which on motion was accepted.

The committee on the eight hour system having submitted a report, it was accepted, but action was postponed under the impression that by keeping up agitation through the press and by meetings and circulars, more good could be done than by strikes at present. The committee on the equalization of wages having reported, Mr. Harding moved that a committee of six be appointed to investigate the matter, hold conferences with the bosses, and report at the next conference to be held in Troy. Having re-elected Wm. Harding President and John B. Peek Vice President for the ensuing year, the Convention, without finishing its business, adjourned to the wine vaults of Bogen & Sons, where the hospitality of "mine host" was commended and drank in copious "horns," to the great delight of the visitors.

The seventh and last day's proceedings were begun in finishing the work so unceremoniously broken off to visit the wine cellar the previous day, by electing John Lodewick Treasurer, J. D. Ware Secretary, and Messrs. Brandt, Hasson and Shotwell, members of the executive committee. The salaries of the President and Secretary was fixed at \$1,000 each.

The committee on resolutions reported a series of resolutions acknowledging in fitting terms the many kindnesses shown the delegates during their presence in this city, and tendering thanks to Union No. 10, of Cincinnati, for its attentions; to Mr. Garrison, proprietor of the Clifton House, where the delegates were entertained; to George Bogen & Son for their hospitality; to Union No. 1, of New York City, and No. 15, of Newark, N. J., for their pluck in resisting the encroachments of avaricious employers; to the officers of the Convention; to the press



of this city for favors, and to Union No 11, of Louisville. A resolution condemning the course of the editor of THE NEW YORK COACH-MAKER'S MAGAZINE, especially in the August number, was passed.

[From "wine-bibbing" in George Bogen & Son's cellar, to condemning the course of the editor of this Magazine, may be quite natural with some members of the International Union; but to attempt to "condemn" him in a matter which is beyond their jurisdiction, is the height of impertinence. Probably our exposé in August of the outrages committed in Newark has stirred up the anger of these "Internationals." There is an old saying that "when wine is in, wit is out." ED.]

Amendments to the Constitution were adopted, allowing members thrown out of work by orders from the International Union, wages for three months, provided they in the meantime do not find employment, and should they be obliged to work for less wages, the loss to be paid them, and providing that no member who has not paid his dues shall be entitled to relief in time of strikes. The Committee on Ways and Means estimated the expenses of the coming year at \$6,725. The assessment of each member being fixed at thirty-five cents monthly (\$4.20 yearly) amounts to \$8,000, leaving a margin of \$1,875, was reported and adopted, after which a pin in the form of a coach, was presented to the President by the members of the Cincinnati Union. The President having made a suitable speech, the Convention adjourned to attend a mass meeting in the evening.

The mass convention announced for the evening, at the Molders' Hall, No. 99 West Fifth street, was well attended. Mr. Buente, of No. 10, of Cincinnati, was called to the chair. Remarks were made briefly by Messrs. Harding and Rylands. They were followed by Mr. Smith, of St. Louis, who spoke at more length of the working of the Union in the city of St. Louis. The employers of that city have been very bitter against the whole Union movement, but their eyes have been opened, and they see that it is to their interest to cease their opposition. The speaker had made an experiment one year by employing good mechanics who were always "Union" men, and he demonstrated that it was the best way to carry on business.

He was very severe on the foremen who, for the sake of what they called a "posish" became the private confidential aiders of their employers against the interests of the journeymen. Some of them seemed to think their "position" was worth five dollars a week to them, and so gave that amount to their bosses.

He earnestly exhorted the coach-makers of this city to organize and unite their energies with the Union.

Mr. Hubbard, of Worcester, Mass., said he was not accustomed to speak in public, but he felt such an interest in the welfare of workingmen, that he could not sit still. It was his custom when at home to go quietly about his work. While here in attendance on the Convention, he still felt like working for the workingmen, and so had consented to use his voice in aid of the interests of the Union. He referred to the difficulties of the coach-makers in this city, and urged them to take a bold and decided stand by uniting their strength. They could join without letting their employers know, if they choose. For himself, he did not hide his connection with the Union. His name would be in every issue of the journal for the next six months. [Applause.] But if, for any reason, any did

not wish to have it known, it was now so arranged that they could be accommodated. He referred to one or two instances where the Union had worked good without anything like a strike. In his own Union they desired an equalization of wages, and determined that each one should make an effort in his own behalf first. The effort was individually made, and there was a uniform accession to the demand. This was simply because the employers knew the Union was a power and a unit.

Again they desired to establish a system of weekly payments, and the success was more than could have been expected. In one shop where the hands had only been paid once in three or six months, the efforts brought the payments to a monthly regularity, and in the other shops they agreed to pay a portion weekly, and when any one needed all his wages to live on, he got it. Cincinnati is the criterion—the guide to the prices of the West as New York is of the East. The wages in the West seem to be kept down by you. Come into our Union, and we will stand at your back, and when the time comes put you through. He closed by earnestly recommending the establishment of a co-operative factory, as a means of relieving the journeymen from the rod of iron now wielded over them by employers.

Mr. I. D. Ware, of Philadelphia, Secretary of the International Union, took exceptions to the statement made previously, that the International Union did not stand by Cincinnati in its late troubles. The trouble had begun before Union No. 10 was formed, and it was admitted, on the express condition that the International Union should not assume any responsibility of that strike.

Mr. Capron said it was only a little joke of the President's that he was put up to speak. He knew that at home he was of a retiring disposition, and never said anything if any body else would say it, but he supposed it was a training for him so that when he got back he could know how to talk to the weak-kneed. He had attempted to talk a little the other evening, but as he continually kept forgetting what he had said last, he could not tell what to say next. [Laughter.] But he wanted to have the people now present, the mechanics of Cincinnati, come into the Union. He who would be free must himself strike the first blow. Before you can be aided by us you must do something for yourself. You must come forward and enroll yourself at once.

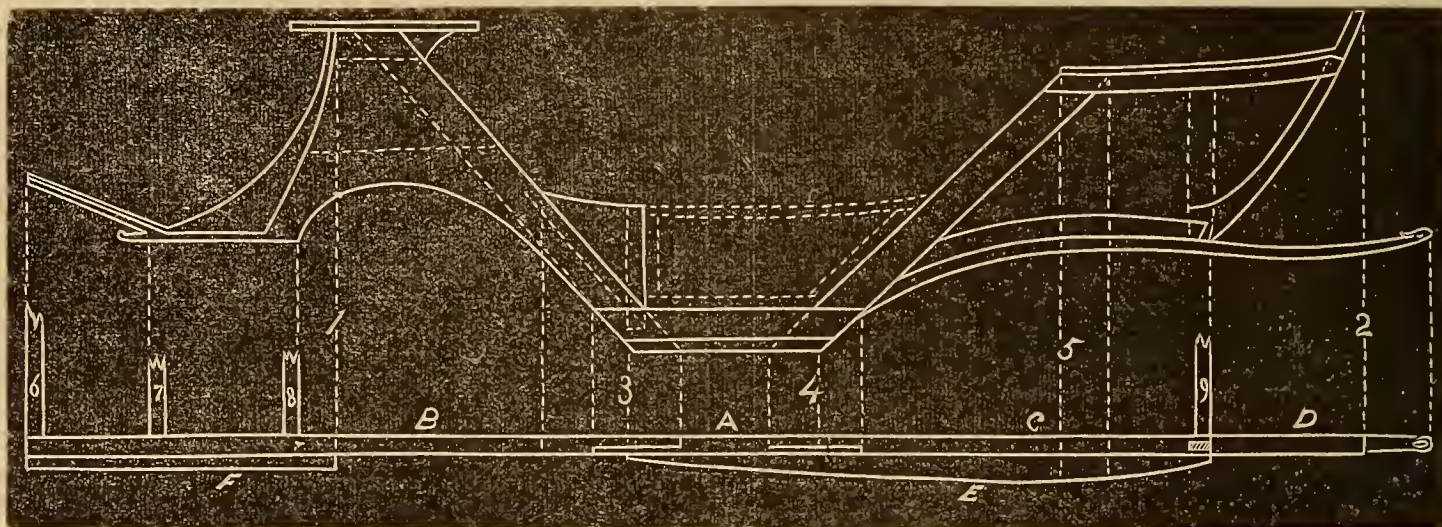
After continuing for a short time in the same strain, he suggested that a recess be taken to receive the names of new members.

He had scarcely been seated before a score or more of candidates came forward amid loud applause, to "join the Union." This put the meeting in excellent humor, and the signatures kept coming in until apparently every one in the hall had become members. An address from John Reynolds of Washington followed, after which the Convention adjourned for the Session.

[An attentive friend in Cincinnati sent the above in time for our last issue; but the absence of the Editor from the city caused an unavoidable delay. ED.]

TO REMOVE RUST FROM IRON.—Every particle of rust on iron may be removed by first softening it with petroleum, and then rubbing well with coarse sand-paper. To paint iron, take lampblack sufficient for two coats, and mix with equal quantities of Japan varnish and boiled linseed-oil.





CENTRAL PARK PHAETON, WITH CANT.—THREE-QUARTER INCH SCALE.

## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

### BODY CONSTRUCTION—PART TWENTY-FIRST.

THE diagram which accompanies this article is intended to aid the builder in the construction of the Phaeton body given on Plate I, in this volume. As it is very simple, we need not say much in explanation.

Begin by drawing dotted lines 1, 2, 3, 4, 5, at proper distances, according to distances previously decided upon. The framing will readily be understood from the drawing, a good portion of which is "lap-work."

On the cant, A points out the short rocker; B and C the two chief pillars; D the back portion of the pump-handle; E cant or sweep-line, and F the short projecting front rocker. Figs. 6, 7, 8, and 9 refer to so many cross-bars in the body.

## THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

### CHAPTER III.

LANDLORD. A wonderful young man!

BEAUMONT. How wonderful?—are his cabbages better than other people's?  
—*Lady of Lyons.*

DEAR SIR: I have the honor to announce that at the last regular meeting of the Greendale *Histrionics* you were unanimously elected an *active* member thereof. A punctual attendance is required.

By order of the President, A. P. FORBES, *Sec.*

A smile passed over Walter's face as he carefully folded the above note, after receiving it from the post-office and reading it over twice, and placed it safely in his pocket. In truth, his star did seem in the ascendant. If that much-abused and venerable dame, Madame Fate, who in the imaginative minds of most young persons control the circumstances and create the events that surround them while wandering along the highway of life, had stepped forth bodily in Walter's path, and with her cheeriest smile, like the fairies of old, had asked him what he wished, he could not have mapped out the events to transpire so as to bring about the objects in view better than they were transpiring in rapid succession. Consequently he had no occasion, over some seemingly unfortunate event, to growl out—"Just my luck!" but

instead that placid smile above noted, so indicative of *all right*, as he lit his cigar and sauntered slowly towards his hotel.

Upon reaching his destination he discovered a young man, dressed in the height of fashion and of a decidedly foppish appearance, conversing with the landlord. A few moments after he left mine host to the (apparently) more agreeable companionship of his newspaper, and approaching Walter, exclaimed in that easy, impudent, affected tone of your fashionable fop,—

"Mr. Cummings, I believe!"

"The same, sir;" answered Walter, with a nod.

"My name is Barnes—Augustus Amelius Barnes—at your service. You have undoubtedly heard of me."

Now Walter had never had that honor, but he saw at a glance that to acknowledge the fact would be considered unpardonable ignorance on his part, so he wisely kept silent, and Mr. Augustus Amelius continued—

"You had the honor of being elected a member of our society last evening, and I thought I would call and form your acquaintance as I happened to have business here. Have a performance next Thursday evening—suppose you've seen the cast of the play—*Lady of Lyons*—old and hackneyed, but Miss Bell wanted to try Pauline, and between you and me her word is law with the president and manager,—and she finally prevailed on me to take Claude.

"A fine part to show your dramatic abilities," interrupted Walter.

"Yes, but don't admire him much; rather insipid; too much love and sentiment, not enough fire,—prefer something higher; think I'll play Hamlet for 'em—tragedy is my forte—but just for accommodation concluded I'd do him, as they could find no one else to fill the roll," and he gave his cane an extra flourish as he finished.

"No doubt but they are all truly grateful, particularly Miss Bell," and he laughed, in spite of himself, at the absurd egotism of the speaker.

"Of course we will see you at our meetings," continued the youth. "By the way, let's go over and take a drink together."

"Thank you," said Walter, and with a meaning look he added, "I have no small vices."



"Well said—ha, ha," cried Augustus, with a feeble attempt at a laugh; "you must have studied Claude yourself, you are so apt at quotations. Well, I confess I wish I had none; but as I am going to call on some ladies I must fortify myself. By the way, call on me when you have a leisure hour; office just up the street; old folks passing the summer at the plantation four miles out of town. Glad to see you at any time. *Au revoir.*" And the exquisite crossed the street and entered the saloon with all the airs of a Beau Brummel.

"Insupportable coxcomb," thought Walter. "If that is the style of a man that Miss Bell prefers, my acquaintance with her shall be very brief;" and leaving his seat he sauntered slowly down the street towards the shop. He found the jour. he was to succeed still puttering away on his body—a light Rockaway that should have been built in six days at the utmost, but as he had already consumed that much time and only had the job framed together, Walter thought he could safely calculate on a rest of a week or two more.

All the jours at work for Mr. Markall were good clever fellows in the main, but like so many good clever fellows, they would have their Saturday night's spree, besides their half dozen drinks during the day and evening. To their various invitations to take a drink Walter had invariably refused, so that when he passed round among them he noticed most of them gave him the cold shoulder; so like a true diplomatist as he was, he saw the necessity of talking himself into their good graces, for like Hamlet's players, "better have a bad epitaph than their ill repute while you live."

Decidedly the best workman in the whole crowd was the smith,—a middle-aged man of superior intelligence, but upon whose whole appearance dissipation had left its indelible trace.

"Splendid fellow when sober," said Mr. Markall, after Walter had made some remark as to his character and workmanship, "splendid fellow, and a very interesting family of children, but perfectly uncontrollable when under the influence of liquor,—rather dangerous, in fact," and the worthy boss hastened to the store-room to fill an order from the smith-shop for two bolts.

An hour or two having passed away, and Walter having accomplished his object, returned to the hotel, where he found a note awaiting his perusal from Miss Bell, informing him that there was to be a rehearsal at her house that evening, and inviting him to attend. Such an opportunity to form the acquaintance of the *elite* of Greendale society was not to be slighted; so at a fashionable hour he finished his toilet, and wended his way thither. On his arrival he found some dozen young ladies and gentlemen assembled, and after a formal introduction to the president, that worthy took it upon himself to make the tour of the rooms and introduce him to every person present. To each one Walter had a few words to say—a compliment to the softer sex and a joke for the sterner—so that when the tour was completed he found himself the principal object of attraction and surrounded by fully half the persons present.

The rehearsal was called at eight; but who ever heard of punctuality under such circumstances? There was so much news to be told, and so many rumors to set afloat, and so much gossip to be retailed by the small measure, that no wonder the little French vase clock on the marble-mantle chimed forth the hour of nine before

the manager could get one of the huge parlors cleared, with Madam Dechappelle and Pauline in their respective positions, and Col. Dumas ready for the first scene.

Taking a seat with the rest in front of the folding-doors where he could see everything that transpired, Walter watched and listened with the eye and ear of a critic. As it was the first rehearsal, with four more to follow, the business of the play, together with the proper positions of the actors, were all that was necessary, and so all went through with their respective parts quietly, reading them principally from the book, excepting Mr. Augustus Amelius Barnes, who took a very different view of the matter. That worthy had a will of his own, and what he did not know there was no use in any one's trying to teach him. So he insisted on taking the *right* when the manager said *left*; he would sit down when he ought to stand up, and *vice versa*; for had he not seen Mr. Macready play the part on the regular boards? yes, indeed, and in Old Drury at that, and he ought to know how to do it; and so, after confusing everybody, and getting things mixed generally, together with a sample and style of declamation that would have made Garrick tremble, not only Walter but all present mentally gave thanks when he had strutted his brief hour, and *spouted* his last line.

When the members were getting ready to depart. Walter found Miss Bell alone for a moment. "Well," said she, "what thought you of our rehearsal? I know though what you would say, so you need not answer and I will save you one fib. Grand effort on the part of Claude, wasn't it? Talent at a great discount in this market.

"If," said Walter, in a half-serious, half-comic tone— "if a manager in want of attractive talent should apply to me, I would undoubtedly refer him to the Greendale Histronics."

"Especially the Claude Melnath, who thinks he is to be, but—" and her voice fell to a lower tone, "but *entre nous* I think it doubtful if he is. This is the first heavy part I have essayed, and of course I desire to succeed, but if not properly supported, I fear a failure. You could take the part by being notified, say to-morrow, could you not?"

"I presume so," he answered, with some hesitancy, "for I have played it once under similar circumstances; but—"

"No buts, if you please sir," she said, interrupting him. "I will manage so that no one shall accuse you of being too forward for a new member, so don't worry yourself, Mr. Propriety, on that score," and several persons now pressing forward to bid her good-night caused them to separate.

The next day Walter was not at all surprised when the president and Mr. Augustus Amelius Barnes called upon him and desired a private interview. "I have called," said the last-named worthy when alone, "to request a favor, being nothing more than to play the part of Claude Melnath. Fact is, I have so much business to attend to that I have no time left for study; and, besides, I go to Selma to-morrow to be gone two days. So you see the impossibility of my filling the engagement. Am sorry; not so much on my own account as that of my friends, who will never forgive me for the disappointment. Miss Bell, though very sorry that I had to give it up, and almost determined to give up her part too, expressed a desire that you should try it, and of course you would not refuse her."

After the requisite amount of urging and the necessary



number of objections on his part, Walter finally agreed to attend the rehearsal that evening and try the part; after which his visitors departed. And so he found himself occupying a position in the Greendale Histrionics after a two days' membership that some had striven to occupy for years without success, and all through the influence of Miss Bell. Viewing the circumstances as they were, can we blame him if, when smoking his after-dinner cigar, he gave his fancy free reign, and pictured the day at no great distance when he should throw down his jack-plane, and turn his attention to raising cotton. Ah those happy, happy hours of reverie—those seer-enchanting vistas of the future—far happier oft-times than that future can be! But we are lingering too long on these scenes—let us hasten.

The auspicious evening at length arrived. If the committee on invitations had had a special meeting with the clerk of the weather, they could not have arranged a more favorable one. A slight shower about two o'clock P. M. had laid the dust and cooled the atmosphere—for it was now April, and quite warm—then a bright sunshine for an hour or two, and the king of day descended to the western horizon, where a gold and purple flecked cloud awaited to receive and crown him with more than regal splendor.

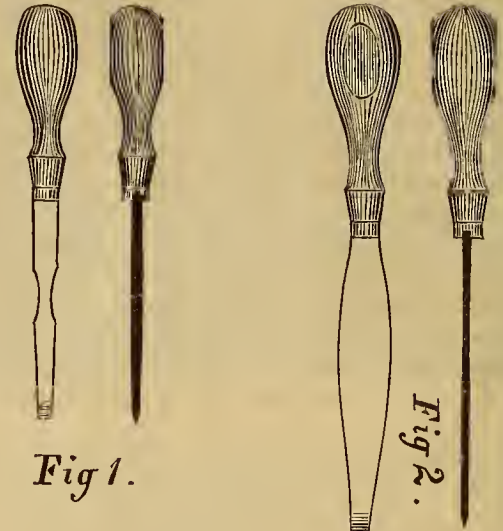
#### THE SCREW-DRIVER DISCUSSION.

MR. EDITOR: In the July number of your interesting Magazine I find a new Richmond in the field, under the cognomen of "A Raw Hand," on the subject of screw-drivers. His remarks bear strongly the characteristics of hypercriticism, and a lack of experience in the art and mysteries of coach-making; therefore I am compelled, in justice to myself, to return to the subject again, and the more so as I am convinced that he ignores all mechanical laws and theories, and can scarcely be serious in his views. That such assertions as he makes in the face of a great number of facts to the contrary, and at a time when the utility of a long screw-driver is fully realized by at least nine-tenths of the experienced workmen of this country, the merits of which are substantiated by such an extensive application of them, is somewhat extraordinary.

He starts out with the proposition that "Body-maker" and myself—neither of us—apprehend the true reason of the superiority of a long over a short screw-driver. This is merely a difference of opinion. Speaking for myself, I must deny the assertion by saying that I think, in fact *I know, I do*.

He says, "A long screw-driver is not necessarily more efficient than a short one." I will show in the course of this argument that it is. It strikes me very forcibly that he admits the necessity and the superiority of a long screw-driver, when he says "that long screw-drivers have longer as well as larger handles. Consequently the operator can grasp them more perfectly, and their length enables him to place himself in a more advantageous position for a great effort than when he has a short one." He may have placed this paragraph inadvertently in his article; but still it is there, to the great detriment of his argument. In his argument—at least the greater part of it—he intends to convey the idea that a short driver is as efficient as a long one; consequently, from his standpoint, he must argue that a short lever is as efficient as a long one. Any school-boy should know to the contrary. He also comes down unceremoniously with the assertion

"that *elasticity* has nothing more to do with it than *electricity*." If he and "Body-maker" are still doubtful in regard to the efficiency of a certain amount of elasticity, I will here give them an illustration of two different screw-drivers:



No. 1 shows the side and edge view of the ordinary screw-driver, used in some sections of the country where they have not been enlightened on the subject. You will see that the centre—taking an edge view—is swelled to stiffen it, if possible.

In No. 2 is a perspective view of my model driver, showing the side and edge. You will notice the broad flat centre; the edge shows a uniform thickness, giving it a *CERTAIN amount of elasticity*.

I at one time used the driver depicted in No. 1; but by experience I have learned that when I wish to drive a screw extremely tight, or loosen one, invariably the long elastic driver is brought into requisition, because I have learned that the other is useless in such cases. If "Raw Hand" and "Body-maker" are still doubtful, let them take a flat bastard file and have a screw-driver made after the model of No. 2. I am satisfied that *they* will be convinced—as well as every one working at our business in this city have been—that Mr. Peek with an elastic driver can turn the driver with a proportion of one hundred pounds, and turn the screw with a power of one hundred and one; or, if necessary, with the same instrument will turn a screw up with one hand, that "Raw Hand" cannot turn out with his short driver and both hands.

I have resolved the *experimentum crucis* "Raw Hand" has given "Body-maker" and myself, and it did not result very much in his favor. I will give the particulars: I took a screw-driver, with the blade five inches in length, and drove a No. 20 2½-inch screw into the end of a hard ash stick as far as I could turn it, and then taking the driver and changing the handle to a blade 8½ inches in length, I turned the screw three and one-quarter times around. Changing the handle to my long elastic driver, the blade of which is not "a yard, a rod, or a mile long," but just 11 inches, and possessed of a *certain amount of elasticity*—put into it by a "learned blacksmith"—I turned it twice around. Those who saw the experiment are satisfied that "Raw Hand" must necessarily "throw up the sponge," or give us another problem more difficult, in order to sustain his argument.



Begging pardon for trespassing on your space, I consider this *quantum sufficit* for "Raw Hand" at this time.

JOHN B. PEEK.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—V.

In the celebrated work of Rossellini, published at the expense of the Tuscan government, there are several battle and other scenes in which the chariot figures, copied from monumental bas-reliefs found on the walls of a temple at Karnac, commemorative of the victories of Memphthah, or as he is by some called, Menepthah I, in various portions of Asia and Africa, about sixteen hundred years before Christ.\*

This series begins with the representation of an attack upon a castle, occupying an elevated position, in which many men are slain on both sides. The castle has been omitted in our picture as unnecessary to our purpose.† In this bas-relief, the upper portion of which has been destroyed by time, the king is represented as having dismounted from his chariot to accept the surrender of the enemy, who is seen emerging from a forest in a supplicatory posture. To signify how sincere the enemy is, two men are shown in the act of felling a tree, two others easing the fall with ropes, fastened high up among the branches. The two chief actors, being shod with sandals, distinguishes them above the rest as leaders; the others being barefooted subordinates merely. The conqueror—who in nearly all instances is shown in colossal proportions, as a mark of honor—extends the right hand, holding the reins of his horses and his bow in the left, as likewise does the fallen chief, all of which is strikingly significant and suggestive. Behind the chief victim, two more kneel in abject submission, with hands spread out, with others as before described.

The horses—for there are two intended—are much more true to nature than in the previous picture, although still faulty, the harness also being much improved and more elaborate. The body of the chariot, rounded at the top corners and plain, exhibits much improvement in art over our former example. The bow case and quivers, too, have been added as conveniences, since our last chariot was built.

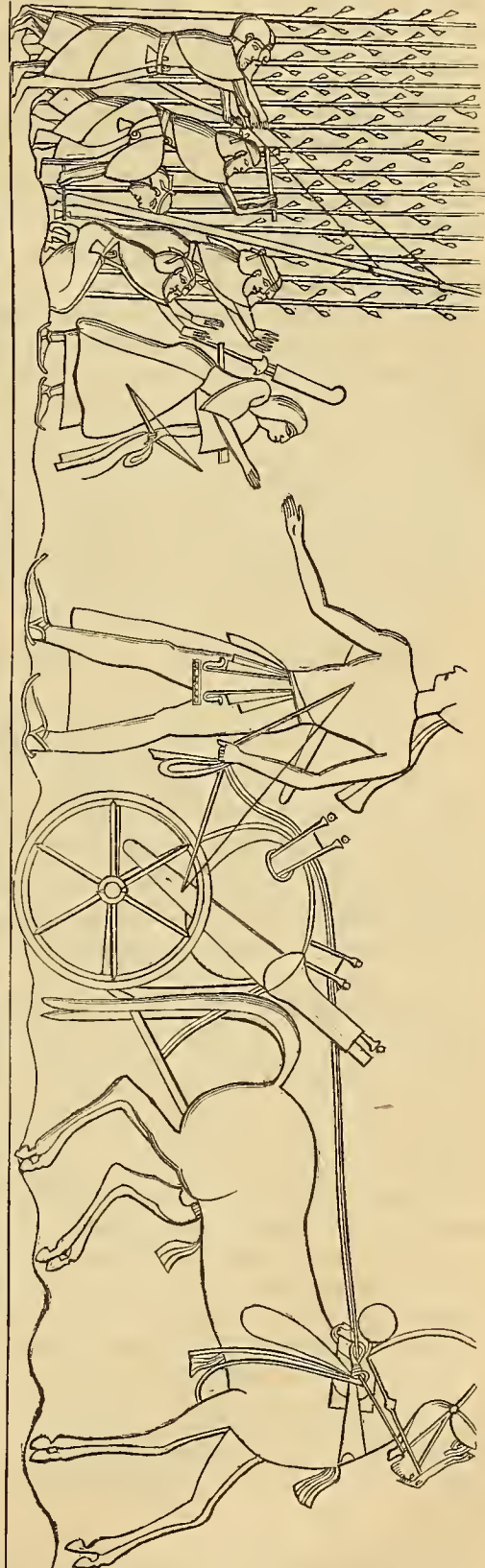
The next plate, in the series, which probably ought to have been first shown, shows the battle still in progress, a warrior having alighted from his chariot, and seizing the bodies of two victims by throwing his right arm about them, bears them off, the while holding in his left several instruments of war, and the leading strings to which several victims are secured, taking them off the field. Time has much defaced the original in this case likewise. The following, or third plate, gives a representation of the ceremonial offerings to Amun by Memphthah, as a mark of gratitude for his recent victories, but are of little interest here.

In plate xlix we have another view of this same battle, in which a warrior is observed standing in a chariot, the sides of which are very open, so much so that his legs are exposed through the side panel, the corners of which are also rounded. The castle is here still distant, between which and the principal combatant's chariot the field is thickly strewn with the wounded, the dying and the dead, the warrior still having a drawn bow in his hand ready to fight. Another compartment of this same plate (Fig. 1) represents the enemy with upraised hands indicative of a wish to surrender, having fallen on their knees, in token of supplication.

Allusion has been made, in this article, to Amun, the god of

the Thebans, and although theology is foreign to the subject, still, in order to be well understood hereafter, digression may be excused, while we extend to it a brief review. In

SURRENDER OF THE ENEMY TO THE ARMY OF MEMPHTHAH I, IN BAS-RELIEF, FROM THE WALLS OF AN EGYPTIAN TEMPLE AT KARNAC.



Egypt the god Amun—called by the Greeks and Romans Jove, as a deified derivative of the mystic Jehovah—is lord of the gods of Egyptian mythology, and one of a triad (Ammun, the male; Maut, the female, and

\* See Monumenti dell' Egitto e della Nubia disegnati della spedizione scientifico-letteraria Toscano in Egitto distribuiti in ordine di materie interpretati ed illustrati dal dottore Ippolito Rosellini, direttore della spedizione Professore di lettere storia e antichità orientali nell'Università di Pisa, Membro ordinario dell' Instituto d Archeologia e corrispondente di varie Accademie d' Europa: Pisa presso Niccolo Capurio, e c. MDCCCXXXII.

† Rossellini, vol. i, plate xlvii, No. 1.



Khonso, the offspring) whose combination expresses "demirvrge intellect, mother, and created things—attributes of the true God."\* These abstract notions of his divinity were represented in different figures, as Pthah, Osiris, Amun, Maut, Neith, &c. But the Egyptians did not stop here, for the subtlety of philosophical speculation entered largely into their original theories, dividing into numberless subdivisions the divine attributes, of various degrees, into first, second and third orders. But according to Herodotus,† the Egyptians never sank so low as to bestow divine honors upon their heroes. This was left for after times.‡ Believing as they unquestionably did, in rewards hereafter according to actions in life, they were scrupulously exact in religious matters, as all historians certify who have treated upon this subject. As a nation they recognized the All-Seeing Eye in Amun, and rendered him homage as the dispenser of benefits, even on earth. Their religion, however, did not impart so great a degree to their lives as to end in asceticism. Even in their feasting, when presenting their guests with the carved images of the dead, they were reminded of immortality and therefore told to "look upon this, then drink and enjoy yourself; for when dead you will be like this." As we have elsewhere observed, they looked upon life as the inn from which they were to remove to a future state.

## Pen Illustrations of the Drafts.

### NEW COUPE WITH ELLIPTICAL DOORS.

*Illustrated on Plate XVII.*

WE transfer this new design, without alteration, to our pages, from the *Moniteur de la Carrosserie*, where it is mentioned as having been patented in France. We subjoin the original and add an English translation, as nearly literal as the idiom of the language will permit:

Ce modèle prend son titre de sa forme de portes arrondies sur le devant, et anticipées sur le coffre du siège. Il a pour nouveauté d'être tres-court de train, léger, logeable et commode. Par cette nouvelle combinaison des portes elliptiques, l'arrière-train se trouve avancé de 20 centimètres de plus que les autres coupés déjà connus.

Son avant-train, à hémicycle excentrique (système du même anteur), est tout en fer forgé et d'une seule pièce, dessous comme dessus, sans jointures ni boulons, et offre en réalité des avantages par sa simplicité et sa solidité incontestables, vu qu'il n'y a pas de dislocations possibles, puisqu'il est d'une seule pièce et qu'il pèse 15 kilogrammes de moins que les avant-trains ordinaires.

En résumé, ce système de coupé, perfectionné par la disposition des portes et de son avant-train, de 21 centimètres, permettant de raccourcir l'avant et l'arrière-train, de 40 à 45 centimètres de plus que les autres coupés, il en résulte une économie tres-notable sur la traction.

This design receives its name from the shape of the

\* Gliddon's Ancient Egypt, chap. iii, p. 32, New World Edition, 1843.

† Herodotus, *Euterpe* ii, v. 50.

‡ Herodotus, *Euterpe* ii, 78.

doors, and the circumstance that the front boot-rocker sets into the body [this is seen at A], back of the seat. It has the novelty of being easily drawn, and is light, commodious and convenient. By this new combination of elliptical doors, the hind under-carriage is brought forward about eight inches more than in the ordinary coupés. [The meaning is, the fore and hind wheels are coupled eight inches shorter in this case.] The fore-carriage has a half-circular eccentric [fifth-wheel] (after a plan of the same inventor), wholly of wrought iron, in a single piece, top and bottom, without either joints or bolts, and really offers advantages by its simplicity and incontestable solidity, seeing that it is impossible to dislocate it [throw it out of gear], as it is in one piece only, weighing thirty pounds less than an ordinary fore-carriage.

In adopting this system of coupés, perfected by the disposition of the doors, and with the running gear front and back brought about eight inches nearer together, the coupling is shortened from fourteen to fifteen inches as compared with other coupés, resulting in a very notable economy of traction (draught.)

[On the same Plate we furnish a birds-eye view of the carriage before described, showing the manner of constructing the doors, and other novelties connected therewith. As our readers will understand, a patent in France is no bar to the use of an invention among us, unless the proprietor takes out a patent at Washington also. This has not as yet been done.]

### BEACH-WAGON.

*Illustrated on Plate XVIII.*

OUR Artist, in this instance, has produced a design of great originality, and succeeded in perfecting a very light and tasty vehicle for those visiting the sea-shore, or taking an airing in the city park. The rocker forms a very important part in the construction of the body, as is shown in the tinted portions thereof. As a cheap way of building, we suggest that the side panels be worked out in white-wood, with the principal moulding solid. The seats project, say one inch, over the sides. The wheels, 3ft. 3in. in front and 3ft. 10in. back, should be made about as heavy as those for the common cabriolet,—a little stouter in proportion to the body, as driving on sand is trying to wheels.

### DROP-FRONT COAL-BOX BUGGY.

*Illustrated on Plate XIX.*

THIS design differs in many points from anything we have ever before given in this Magazine, but is perfectly practicable. To render it sufficiently strong to stand the strain brought upon it, will make it necessary to frame a front pillar on the *inside* of the body, from a point over the branch of the step, extending in an angle to the underside of the seat, behind which pillar should be framed an



L, one end of which must be locked into the side of the pillar, and the other end into the long bottom-side, this L being halved together at the turn. To form the "round" of the drop requires that a bar connecting the two pillars be framed across (rounding on the back side), on a level with the long bottom-sides. The brackets, likewise, should be framed into the pillars. To make all secure needs a good wrought-iron plate, so shaped that it will cover both the long and short bottom-sides, including the brackets, and extend half-way up the pillars, all in one piece, well secured by screws. It is a good idea to spread a coat of whitelead over the *bed*, before screwing on the plates, as when this becomes hardened, it contributes very much to the efficiency and security of the whole structure. Wheels, 3ft. 10in. and 4ft. 2in.

DESIGNS IN VARIETY FOR BUSINESS ADVERTISING.

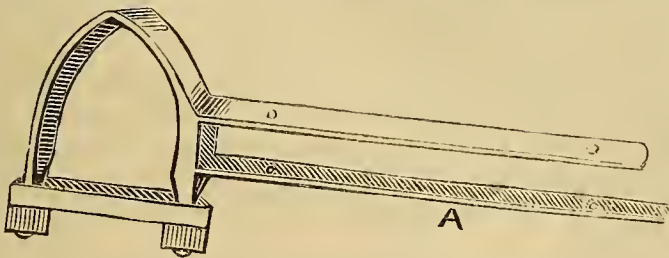
*Illustrated on Plate XX.*

WE have the satisfaction of informing our readers that we will send by mail, postage paid, electrotypes of any of the designs figuring on the above referred to Plate, on the receipt of \$2.50. We have had them reduced from the most fashionable engravings we have published, expressly for business advertising, or as ornaments to envelopes, circulars, &c. When orders are given specify the number, printed beneath each cut, and be very particular to add the address, plainly written out.

## Sparks from the Anvil.

### COUPLING FOR DOUBLE PERCHES.

WE herewith furnish the reader with an improved clip for coupling the back ends of double perches to the hind-axle, far preferable to any in common use, and free



to all. The bottom perch-plate A, welded at the end, may, from one continued piece, and in connection with the T's in front, and the two clips back, make a perfectly solid and substantial finish. The practical mechanic will see at once the superiority of this arrangement over any other.

### SILVER STEEL.

SOME five miles easterly of New Milford, Connecticut, is situated Mine Hill, which just now is attracting considerable attention in that neighborhood from the operations there going on in making preparations to obtain direct from the ore a superior quality of what is called by the

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stockholders "silver steel." It is said that there is but one other mine of the kind in the known world, and that is located in Germany. The New Milford silver steel manufacturing company claim that their steel is far superior to the German article in toughness and other desirable qualities.

Several years ago the ore—which is now being extracted from the earth—was known to adventurers, some of whom tried to work the mine, but failed from various causes, the principal one being a lack of means. The sides of the hill give unmistakable evidence of their labors, in deep excavations, some of which have been partially filled again with rubbish or hidden from view by the growth of trees with which time has crowned the summit of the hill, during forty years. How much money the original claimant has obtained by forfeitures from purchasers unable to meet their contracts we know not, but we hear he has expended large sums in lawsuits to maintain his "squatter claim" to the possession unto a successful issue, and lately sold his "right and title" to the company named for a large sum. This company have nearly completed their works, comprising several buildings with the necessary furnaces, machinery, tramways, &c., having already employed some one hundred and fifty men in mining the ore, and other employments connected with developing the wealth of the mine. About \$3,000,000 have already been expended in purchasing the land—about one hundred acres—erecting the necessary buildings and labor.

In a late visit we saw great quantities of the steel in "pigs" ready for refining, in which state the owners have been offered \$250 per ton and refused it, as not meeting their estimate of its value. It certainly bears evidence of superior toughness and is very heavy, two qualities calculated to enhance its value for many purposes in which steel is used, especially in the making of chisels, axes, &c. Should this "silver steel" prove in time to be as good as the company now claim that it is, the public may expect to derive much benefit from this new development—especially that class of it known as mechanics—in being able to obtain tools for use in various occupations, superior to any yet found in endurance.

## Paint Room.

### THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

THE eye, that exquisite work of creative wisdom, is designed as the organ to convey to the brain and to the thinking faculty the impressions of external and distant objects by means of the sensations conveyed to the retina. The external force which acts upon this organ is that of light. Whether light be viewed, as in the earlier days of optical science, as something, whether a fluid or a force, emanating in rays or in right lines in all directions from bodies luminous, either directly or secondarily, *i. e.*, by reflection, or as consisting in the rapid vibration of an elastic medium or ether pervading all space, the effects which alone need engage us here are the same.

The great source of light to our world is the sun; but light is also shed down upon us by the stars—the suns of other systems than our own. These are probably the



only self-luminous bodies of which we have any cognizance.

Our world, also, receives light by reflection from the moon and planets, and from the light emitted from burning substances, whether in quick or in slow combustion, such as gas-light, candles, etc., amongst the former; phosphori of various sorts of the latter class. Light is also elicited by the electric discharge, by sudden change of chemical or of molecular state, as in explosion, certain crystallizations, etc., and by violent mechanical action, as when iron is hammered until it becomes red-hot, or air under certain conditions suddenly compressed so as to flash and ignite tinder. All these are very commonly considered as direct sources of light, but the high probability is that in the case of the light capable of being elicited by any known process from any terrestrial substances, it is given forth merely from where it had been before in some form stored up, and, like heat, was primarily derived from the sun; so that in a philosophic classification, artificial light is only that secondarily returned to us, and is in that respect in the same range with reflected light.

Light, as emitted by the sun or stars, is, with a few exceptions in the case of the stars, colorless; it stimulates the eye to recognize form, and had material substances no special powers of their own in acting upon light, the latter would indeed enable us to discern objects, but these would be alike *colorless*, and be only perceivable by differences of illumination and of shadow.

The light emitted from heated or burning bodies on our globe is rarely colorless. In some cases—as for example, in the red, blue, and green fireworks of our theatres, etc.—this coloration is striking.

Whether viewed as matter or as motion, light is transmitted to us from the sun at a speed across intervening space of 200,000 miles per second in round numbers, as first determined by observations upon the occultations of the satellites of Jupiter. Although to the eye directed to the unobscured sun, apparently both colorless and homogeneous, its rays or undulations consist of at least three sorts—those which affect the eye with the sensation of *light*, those which are recognizable as *heat*, and others which, though invisible and incapable of being felt, yet exist, and are active in producing *chemical* change.

The first of these, though colorless to the eye, may be made to convey to us the additional sensation of *color* by either *refraction* or by *reflection*. When a ray or beam of light impinges *obliquely* upon the bounding surface of a denser medium passing out of a rarer one, or *vice versa*, it is bent or refracted from its right-lined course.

Thus in the vertical section of an empty rectangular box (Fig. 1), upon which the light of the sun  $s, t$ , shines obliquely over the top edge at  $t$ , leaving all that portion to the left of  $t, b$ , or  $t, b, n$ , in shadow,  $s, t$  and  $b$  being in one straight line marking the boundary of the cut off sunshine. Now, if the box be filled up with water to  $v, w$ , the boundary of the shadow will retreat from  $b$  to  $r$ , and the portion  $r, m, b$ , will no longer be in shadow, that is to say, the

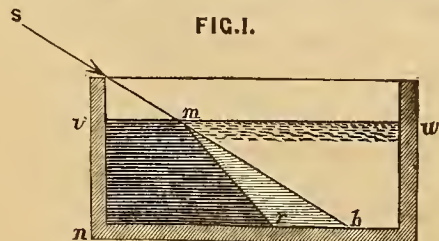


FIG. 1.

marginal beam  $s, t, b$ , will have been bent at the surface of the water into the line  $m, r$ , or *refracted*. The angle through which it is bent is always the same for the same medium. But it was the glorious discovery of *Newton*, that when a ray of colorless light is so refracted, all its parts are not refracted alike, *i. e.*, through the same angle. The beam, for example, if passed through the oblique surfaces of the glass prism (Fig. 2), is not only *refracted*, *i. e.* all bent more or less by the prism, but also *dispersed*; that is to say, the beam becomes split up into others having different refractive angles, and on emerging

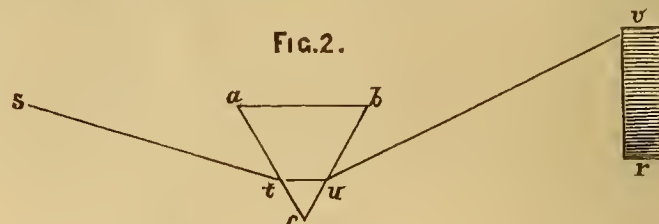


FIG. 2.

from the prism, the before colorless beam, if received directly into the eye, or upon a white surface, communicates now the sense of color to that organ.

The beam  $s, t$ , transmitted through the prism  $a, c, b$ , is refracted at the first surface  $a, c$ , into the direction  $t, u$ , and emerging from the second surface  $c, b$ , is again refracted and dispersed through the angle of dispersion,  $v, u, r$ , and the beam of light upon the white receiving surface, presents a variously and gloriously *colored* stripe. The different colors are always in the same order, from  $v$  to  $r$ , and in the same relative proportions, and if we adopt the division of the colors given by *Newton*, these are in the order, from  $v$  to  $r$ , *i. e.* from those most refracted to those least so, as follows: Violet, indigo, blue, green, yellow, orange, red.

This is a real, and, so far as refraction and color are concerned, an ultimate potential *decomposition* of colorless light, for if any one of those colored beams be transmitted again through a second prism, it is again refracted indeed, *i. e.* bent from its course, but it emerges of the same color as before, and is now all refracted through the same angle, but each differently colored beam through a *different* angle for the same medium or prism. Blue, yellow, or red are proved to exist in all parts of the colored stripe  $v, r$ , called the *spectrum*, and it has been inferred that in fact there are but these three primary colors, the other four of *Newton* resulting from the various superpositions of these. We need not here enter upon this question, and for our present purposes it will be most instructive to abide by *Newton's* nomenclature and division.

If the dispersed and differently-colored rays thus separated by the prism be received upon a line of suitably-disposed mirrors, so that each is reflected back, and all thrown again upon a single point, their superposition there, will be found to result once more in colorless light—another proof that the decomposition is real.

Upon examining narrowly a large, well-defined spectrum, *Fraunhofer* discovered in it numerous dark lines of variable widths, whose positions (parallel to the bands of color) are constant for the same sort of light whatever be the nature of the refracting medium (*i. e.* of the prism), but whose number and positions, &c., differ for light from different sources, such as solar and artificial light. These lines have become to the physicist as landmarks, enabling



the widths of the respective bands of color to be fixed with a precision impossible in Newton's time, as well as other important properties of light to be discovered. The fixing of the positions of these dark lines has, in fact, been the basis of one of the most extraordinary advances in the means of human knowledge ever made, namely, *spectrum analysis*, by which the material substances constituting the masses of the sun, stars, comets, and planets, have become in part revealed to us. If the whole length of the spectrum from *v* to *r*, (Fig. 2) be divided into 360 equal parts, then the following is the distribution of color: Violet, 109; indigo, 47; blue, 48; green, 46; yellow, 27; orange, 27; red, 56. The spectrum, when examined by special methods along its length, is proved to consist, not only of light, so divided as to affect the eye with the sense of colors, but that in connection with these, it differs in different places in *luminosity*, *i. e.*, in the mere power of exciting the optic nerve.

(To be continued.)

## Trimming Room.

### LEATHER SPLITTING.

IN the commerce of leather in France, we apply the word crust to that part of the leather which is nearest the flesh, and which is separated from the other portion of the skin bearing the hair. The strength for resistance in a tightly stretched skin is entirely in the portion nearest the flesh; the fibre, as we approach the upper or grain side, gradually becoming looser, and the force to resist stretching, gradually diminishing in such a manner that it is always here that the breaks or cracks in leather begin to manifest themselves, with the slightest increase of the usual strain.

If, then, the grain of such leather be removed, the force of resistance and the expansion of the balance will be much more even, and the whole will be better balanced, as it were; the grain will no longer be present to mark by cracks and fissures where the excess of strain began to operate.

Before the genius of inventors was directed to the invention and perfection of leather-splitting machines, leathers were used in their entire thickness, and if only a moderate thickness was required, they obtained it by shaving off as much as they found necessary from the flesh side of the hide. Now, for the purpose of preserving its strength and making its capacity for extension even and regular, this was the very contrary of what should have been done.

Since the employment of machines for splitting, the manufacturer is able to employ the grain for the purposes to which it is best adapted, and to make the crust, or flesh side, serviceable to the best advantage, notwithstanding that the latter was in discredit for some time. We well recollect the repugnance with which the general public beheld anything made of the crust of shaved or split leather. People then thought that all parts would crumble into pieces in the hand when the grain was taken off. Since it has entered into consumption it has come to be a great necessity, and is largely used to manufacture saddlery and trim carriages, in trunk making, in forming the tops of sabots and galoskies, and when waxed and varnished, &c., in inferior grades of shoes, shoe tips, &c.

The hose and the leather piping we exhibit, are made of the split crust of the leather, as above mentioned; their quality is no less a recommendation than their reasonable price. Tubing and hose made of the entire leather with the grain on, become slacker and tighter by the influence of water or the weather. With those made of split leather the case is different; the effect of shrinking and expanding is produced in the first wetting they get, and they never again change their form, but remain rigid, notwithstanding all the changes that may take place in the temperature. The grained leather then is easily altered by atmospheric and other influences; the crust, on the contrary, remains firm and not liable to moisture.—*Picot & Co., in La Halle aux Cuirs.*

## Editor's Work-bench.

### RESULT OF STRIKES ON TRADE.

INDIVIDUALS sometimes learn wisdom from experience, but large bodies of men seem not so apt to be benefited thereby. Some of the labor conventions recently held in this country, ambitious to "dignify labor," have lost sight of its duties, and claimed for it more than justice demands.

These "bodies of concentrated wisdom" have not yet profited by the numberless failures and losses strikes have entailed on employees and employers, but still advocate them in many cases, even going so far in one instance as to propose applying to the next session of Congress for an award of \$25,000 to assist them in *humbling* capital—a capital idea, forsooth!

A year has scarcely passed since we had a grand strike among the ship-carpenters of this city, assisted by others abroad, in confident expectation that the bosses who, in the language of labor agitators, are only tyrants, dependent on them, would have to succumb. Did the workmen succeed? Yes, in destroying the shipbuilding trade here, and sending it to other cities, and even out of the country! Has the more recent strike in Chicago, for the eight-hour law, proved more successful? We believe not. It only resulted in the employment of men, *when they were needed*, by the hour! Have the seven thousand men employed in the iron works in and around Pittsburg, who last January *demand*ed \$9 per ton for a certain class of work, and struck because it was not paid, done any better? After several months of idleness they were glad to get \$8, and go to work. It is estimated that this strike cost the workmen \$2,850,000, and the county suffered a loss of \$5,000,000 at least. The coal-miners in La Salle, Ill., in March last, *demand*ed a change in the rules which governed their operations, and struck because their wishes were not granted. In this case 400 men were thrown out of work, causing a loss of over \$200,000. There are other strikes which might be noticed, the most of them with like results.

The men paid for talking in Chicago, in September,



about "the rights of labor," no doubt are held in high esteem by their constituents, but these should never forget that labor has its necessities and duties as well as its "rights," which no amount of "gas" can set aside; and that, as a cotemporary has well said, "organizations which plant themselves firmly on their rights alone are one-legged concerns, ready to topple over at any moment." Right thinking men have long since acknowledged that capital has its rights as well as labor, and that both are subject to the inexorable laws of supply and demand. These cannot be broken with impunity, and the sooner this truth is understood the better will it be for all classes of men.

#### PROPOSED MECHANICS' INDUSTRIAL EXHIBITION.

INDUSTRIAL exhibitions have frequently been held in the old world, in which alone the workingman's skill has been shown, but such, as yet, remains to be tried in this country for the first time. Several gentlemen in New York who feel a deep interest in the welfare and success of the laboring classes, on the evening of the 22d of August, met at the private residence of Dr. E. B. Guernsey, 89 East Eleventh Street, to make arrangements for holding a grand exhibition of mechanical skill in New York City next spring.

On motion of Mr. Kinsella, a journeyman optician, Dr. Guernsey, who is himself an inventor of note, was appointed Chairman, and W. C. Robinson elected Secretary. On taking the chair the Doctor said that the proposed enterprise which they had in view, was one of great importance to the laboring classes throughout the country, as it would tend to elevate the taste and skill of the journeyman mechanic, besides giving to the world many new inventions and improvements in their respective callings. All the fairs heretofore held have been under the control of parties having very little interest in the laboring classes, the articles exhibited being the products of labor, but the property of capitalists, the honors and profits of which went to the credit of the shop proprietor instead of the workman. It was proposed in this enterprise to inaugurate a new system in which the journeyman mechanic should himself exhibit the product of his own labor, and reap the entire reward thereof. The Chairman, in the course of his remarks, referred to the industrial exhibitions which have been held in London, Lambeth, Leeds, and Birmingham, and said there was no reason why such should not prove successful here as well as in those old countries. Several others addressed the meeting, some of whom had conferred with working men in this city, most of whom were found favorable to this proposed fair.

At this meeting a committee was appointed to prepare a circular to be sent to the various workshops

throughout the United States, calling the attention of the journeymen mechanics to the subject, and inviting their co-operation in furthering the objects of the exhibition. This circular, dated August 22d, 1867, reads thus:

*To the Journeymen Mechanics of the United States:*  
At a meeting of the representatives of several leading trades, held in the city of New York on the evening of the 22d of August, A. D. 1867, it was resolved to invite the co-operation of the journeymen mechanics of the United States in preparing such objects of their skill and handicraft in the various departments of their labor as they may feel inclined to manufacture before or after their hours of regular labor. Such articles so manufactured will be placed in the Grand Exhibition of Industrial Products, to be held in the city of New York, at such time and place as will be hereafter designated by the Committee in charge of the proposed undertaking. The various Committees on the Location of Articles, Award of Premiums, on Exhibition, and on the Sale of Articles, will be composed jointly of leading scientific and professional gentlemen, and skillful mechanics, whose names will be announced when the Temporary Committee are convinced of the success of the proposed enterprise. All communications relating to the proposed exhibition, addressed to the Secretary of the Committee, will receive a circular giving a complete delineation of the proposed exhibition.

#### REMITTANCES THROUGH THE POST-OFFICE.

AT no time since we began this publication have we found so much ill management with the mails as now. Scarcely a week passes without our having received advices that on such a day money has been sent to us, which we are obliged to acknowledge never came to hand. A little care on the part of our friends would avoid all this loss and consequent ill feeling. Never remit bank bills if it can be avoided. Such are not safe in the hands of the present order of post-office clerks; but where it can possibly be done, send us, as preferable, a post-office order which, for any sum under \$10, only costs 10 cents. These can be had at the chief cities and towns throughout the Union, by applying to the postmaster, who will give all the necessary instructions in regard thereto. *A remittance by post-office order cannot by any possibility result in loss, for if stolen, the money cannot be obtained by the thief.*

Next to a post-office order—where such cannot be obtained—send us a draft on some New York house payable to our order. Drafts for large sums could probably be had at country banks for less percentage than a post-office order, and be equally as safe.

When neither of the above can conveniently be obtained, register your letters in which money is inclosed. An experience of nine years has proved this to be a very safe mode of remitting, never having failed to receive all such sent us. As the law now stands it is necessary to affix the registry fee as well as the postage to the letter



in stamps at the office of mailing, otherwise it may be sent to the Dead Letter office, at Washington, instead of to us. Do all this, as well as putting in the money and sealing the letter in the presence of the postmaster, and be sure and take his receipt for it. Letters sent in the manner above described will all be at our risk. *We will be responsible in no other.* We hope our friends will make a note of this.

### EDITORIAL CHIPS AND SHAVINGS.

**PATENTS.**—Our columns have been so filled with other matter that we have run behind with our Patent Journal. To help bring it up, we have this month been obliged to make our editorials brief.

**THE NEWARK OUTRAGE.**—Mr. Wm. N. Fitzgerald, one of the accused in the Newark affair, detailed in the August number, states that the courts will decide his innocence, and asks that the public will suspend their judgment until after trial of the case.

**NEW HINGE FOR COACH DOORS.**—C. E. Schwind, of New York city, has recently patented a coach door-hinge, designed to facilitate the taking off of the door in painting, &c., more readily than can be done with the hinge in common use. This is done by combining the two halves of the hinge with a detachable piece or slide, so that when the door is open, these parts or halves may be easily disconnected, without interfering with the moldings—a thing heretofore causing the workman much trouble and annoyance.

**LONDON ON WHEELS.**—Londoners support 5,000 cabs, 1,500 omnibuses, and 24,000 horses, besides all the other sorts of vehicles which human need can require or human wit invent. The yearly revenue of the London General Omnibus Company is about £500,000.

**BROKEN DOG CARTS.**—"Have you ever broken a horse?" inquired a horse-jockey of a reckless-looking young man. "No, not exactly," replied the young man, "but I have broken several dog-carts."

**CARRIAGES UNITE FAMILIES.**—The editor of the Boston *Transcript* declares himself in favor of carriages on the ground that they tend to unite families.

## Patent Journal.

### AMERICAN INVENTIONS.

May 14. (64,801) **WAGON BRAKE.**—John F. W. Schultz, Moline, Ill.:

I claim the arrangement and combination of the levers D, C, F, bar G, rod T, lever U, when the whole is operated in connection with pulleys I, J, and chain H, substantially as set forth.

(64,820) **VEHICLE.**—John G. Wilkinson, Quincy, Ohio:

I claim, *First*, The arrangement of the rocker-shaft F, with its divided lever H, rods G, G, and crank-axle B, with the frame D, in the manner substantially as and for the purposes herein specified. *Second*, The rocker-shaft F, when constructed in the manner as herein set forth.

21. (64,829) **CARRIAGE-WINDOW FRAME.**—Francis Baker, New York City:

I claim a carriage-window frame swiveled or pivoted to uprights F, arranged to move in and through the carriage-body and bent springs K or L, hooks or catches N, and studs I, substantially as and for the purpose described.

(64,850) **WHEEL VEHICLE.**—James W. Drew, assignor of one half to J. N. Townson, Stockbridge, Mich. Ante-dated May 16, 1867:

I claim the crooked sway bar H, and the cross-bars I and J, in combination with the axle C, C, and the axle-guides G, G, the whole constructed and operating in the manner and for the purpose herein described.

(64,865) **ATTACHING THILLS TO VEHICLES.**—Thompson Hersee, Jun., Buffalo, N. Y.:

I claim a thill coupling composed of a clip A, so constructed as to have a chamber in its front part to receive a piece of india-rubber or other elastic substance C, and also to receive the cross-head *e* of the thill-iron D, the front plate *e* of the chamber being notched or forked at its upper end, and the top plate *a* of the clip over the chamber having an aperture made in it to allow the cross-head of the thill-iron to pass into the chamber, with a projection *f* to serve as a guard to prevent the casual rising of the cross-head *e*, substantially as shown and described.

(64,866) **CARRIAGE SPRING.**—B. T. Henry, New Haven, Conn.:

I claim an elliptic spring having one or more ribs *d* formed upon its surface, substantially as and for the purpose set forth.

(64,913) **TIP CART-BODY FASTENING.**—John E. Seavey, assignor to himself and J. E. Bryant, Kennebunk Port, Maine:

I claim the cart-body fastener made substantially in the manner and for the purpose and to operate as specified; it being composed of the weighted arm A, the eccentric *b*, the yoke B, and the bearing D, formed and arranged as explained.

(64,936) **ATTACHING CARRIAGE-THILLS.**—A. R. Bartram, Redding, Conn.:

I claim, *First*, The adjustable coupling A, in combination with the cross-bar C, substantially as set forth. *Second*, The tang B, of the coupling A, provided with a groove as set forth, in combination with the socketed cross-bar C, and the set screw E.

(64,942) **CARRIAGE TRIMMING.**—Charles Bried, Newark, N. J.:

I claim rubber or gutta-percha tubes, sleeves, or rings, or compounds of gum-elastics, when made and used in the forms and for the purposes herein above designated.

(64,955) **CARRIAGE WHEEL-HUB.**—L. Dorman, Worcester, Mass.:

I claim, *First*, The combination of the grooved wooden part A, with the metal shell B, substantially as and for the purpose set forth. *Second*, The combination of the grooved wooden center or core A, and the spokes E, with the slotted or metal shell part B, substantially as and for the purpose set forth.

(64,961) **DEVICE FOR LUBRICATING WHEELS, ETC.**—John C. Fish, Barnstable, N. Y.:

I claim a lubricating apparatus, constructed of a reservoir in which is located the tube *c*, provided with openings as described, and with a perforated movable tube *i*, operating substantially as described.

(65,010) **LAMP HEATER FOR VEHICLES.**—Edwin H. Reynolds, Rising Sun, Md.:

I claim, *First*, A casting B, having a perforated top *a*, side openings *b*, partition G, and outlets *d*, in combination with a detached lamp, the whole being constructed and applied to the bottom A, of a vehicle, substantially as and for the purpose described. *Second*, The combination of the above-mentioned casting B with a glass lamp chamber. *Third*, The shields *n, n*, arranged beneath the tubular projections *d, d*, substantially as and for the purpose specified.

(65,017) **ATTACHING CARRIAGE THILLS.**—Gottlieb Schreyer, Columbus, Ohio:

I claim, *First*, The construction upon a clip-strap B of a



perforated lug D, with conical enlargements *b, b*, on its sides, adapted for receiving the slotted thill-iron E, and a bolt G, substantially as described. *Second*, The construction of the clip-strap B with lips *c, c*, for holding rubber blocks *d, d*, and also with a perforated lug D, having conical enlargements upon it, substantially as described and for the purpose set forth. *Third*, The combination of the slotted thill-iron E, conical lug D, and a tapering bolt G, substantially as described.

(65,021) SLEIGH BRAKE.—Henry Sipe, Sipesville, Pa.:

I claim the rock-shaft *b*, and arms or elbow-levers *c, c*, in combination with the brake-bars *d, d*, and pole or tongue *a*, arranged and operated substantially as described.

28. (65,039) WAGON-BODY.—J. H. Aldrich, Nashua, N. H.:

I claim the arrangement and combination of said sill A, with cap B, for the purpose herein described.

(65,068) SHAFT TUG.—Kasson Frazer, Syracuse, N. Y.:

I claim a new article of manufacture in a shaft tug composed of the parts A, B, C, substantially as and for the purposes specified.

(65,091) ELASTIC BUTTON FOR CARRIAGES.—Theodore E. King, Painesville, Ohio:

I claim, *First*, The adjusting screw C, in combination with the rubber collar D', arranged in relation to the curtains, in the manner and for the purpose substantially as set forth. *Second*, The rubber collar D', and adjusting-screw C, as arranged in combination with the button-hole E, and curtains, for the purpose and in the manner described.

(65,119) SHIFTING RAIL FOR CARRIAGE-TOPS.—Uel Reynolds, New York City:

I claim the wooden shifting rail to which the metal slat-irons and prop-blocks are attached, as set forth.

(65,150) PROP FOR CARRIAGE-TOPS.—Charles R. Abbot, Elmira, N. Y.:

I claim, *First*, The shank B, B', when made in two parts, and constructed and operating substantially as and for the purposes set forth. *Second*, The shank B, B', in combination with plate A, ferrule C, and screw D, substantially as and for the purposes set forth. *Third*, Securing the shank B, B', and ferrule C, together by a tongue and groove *o*, and pins and holes *r*, substantially as and for the purposes set forth.

(65,168) VEHICLE.—John S. Campbell, Newton, N. J.:

I claim, *First*, The carriage or sleigh body A, when made of hard rubber and provided with flanges *b* and *c*, and cross-pieces *d*, substantially as and for the purpose herein shown and described. *Second*, The running gear of wagons and sleighs when made of rubber, substantially as herein shown and described.

(65,182) ATTACHING THILLS TO VEHICLES.—George F. Dietz, Burlingham, N. Y.:

I claim a carriage-clip formed in two parts so as to be adjustable, when so constructed that one part can be moved on the other without loosening the clip on or detaching it from the axle.

(65,199) PROPELLING WHEELED CARRIAGES.—D. S. Fisher, Cedar Spring, Ind.:

I claim, *First*, The frame A, with small frame D, shaft *a*, spring E, cogs *d, t*, and axle B', with cog-wheel *b*, all constructed, arranged, and operating in the manner substantially as and for the purposes specified. *Second*, The segment F, shaft G, ratchet I, lever H, and bar R, all constructed and arranged for guiding the vehicle in the manner as set forth.

(65,201) CARRIAGE-SEAT.—Chester D. Flynt, Collinsville, Ill.:

I claim the spring cushion C, in combination with the frame A, and the bands B, substantially as described.

(65,236) HOLDER AND SEAT FOR WAGON BRAKES.—Henry C. Koehensperger, Thornville, Ohio:

I claim, *First*, The holder A, constructed substantially as described, in combination with the brake-bar or its equivalent, as set forth. *Second*, The combination of the holder A, and rubber D, substantially as and for the purpose specified.

(65,257) CARRIAGE WHEEL.—William F. Morton, New Haven, Conn.:

I claim the double collar with its bars and flanges all cast in one piece, when the double collar is fitted to bind the hub and the flanges to support the spokes, substantially as herein described and set forth.

(65,293) SHAFT COUPLING.—John Stephen, Womelsdorf, Pa.:

I claim the bar B, provided with grooves, and the rubber *c*, when used in combination with the barrel D, when constructed in the manner substantially as and for the purposes specified.

(65,311) WAGON BRAKE LOCK.—Thomas Urie, Springfield, Iowa:

I claim the eccentric *c*, in combination with the rod *d*, the slotted lever *a*, and the segment-plate *b*, for locking a wagon brake by means of the connecting-rod *g*, constructed, arranged, and operating substantially as and for the purposes described.

(65,317) CARRIAGE SHACKLE.—F. M. Weller, Evanston, Ill. Ante-dated May 16, 1867:

I claim the carriage shackle constructed and operating substantially as herein described and specified.

June 4. (65,332) WAGON BRAKE.—C. G. Bennet and S. A. Drake, assignors to C. G. Bennet, Farmer Village, N. Y.:

We claim, *First*, In combination with the brake-bar *b*, the relieving or raising cam C, constructed and operating as and for the purposes herein shown and described. *Second*, Suspending the brake blocks B, of wagons and other vehicles from an axial point located near that of the ground wheels *w*, substantially in the manner and for the purposes herein shown and described.

(65,384) SECURING WAGON-SEATS.—Elias Hoxie, Montezuma, N. Y.:

I claim, *First*, Securing the seat to the wagon sill by means of two or more bolts F, extending from the sill A to the sill C, so that no holes are made in either for the said bolt to pass through nor are they otherwise weakened, as set forth. *Second*, The bolt F, in combination with the nut D, and slotted plate E, all made and operating substantially as herein shown and described.

(65,385) WHEEL FOR VEHICLES.—Elias Hoxie, Montezuma, N. Y.:

I claim the metal ring B, arranged around the hub A, and pivoted to a zigzag flange C, substantially as herein shown and described.

(65,403) CARRIAGE TOP-PROP REST.—H. W. Libbey, Cleveland, Ohio:

I claim the metallic sleeve A, and cushion B, combined as and for the purpose set forth.

(65,411) AXLE FOR WAGONS, ETC.—F. McManus, Ellenburgh Center, N. Y.:

I claim winding the part of a wooden axle upon which the wheel revolves with metallic wire, substantially as herein shown and described and for the purpose set forth.

(65,414) HANGING WAGON-SEATS.—Henry F. Moore and James S. Blaisdell, assignors to Henry F. Moore, Medford, Mass.:

We claim so attaching the hinges C to the body and seat of the wagon that the seat will be allowed to slide back and forth, substantially as and for the purpose described. We also claim in combination with the above the pins *h*, or their equivalents, for locking the seat B in place, substantially as set forth.



(65,428) AXLE-BOX.—William H. Pollard, assignor to James H. Gould, Seneca Falls, N. Y. :

I claim the box A, provided with the corrugations *a, a*, operating in connection with the hub, as herein set forth.

(65,498) ATTACHING THILLS TO CARRIAGES.—Chas. D. Miller, assignor to himself and C. H. Warner, West Meriden, Conn. :

I claim, *First*, The combination and arrangement of the bar *f*, extending between the heads E, with the socket C, and pivot D, each constructed with a slot their entire length to receive the bar *f*, and so as to operate in the manner herein set forth. *Second*, The arrangement of the groove *h* on the pivot D and the pin *i*, in combination with the socket C, substantially as and for the purpose specified.

(65,521) HUBS FOR WHEELS.—George E. Whitmore, Housatonic, Mass. :

I claim the combination by which the wooden part of the hub is incased and supported at both ends and on its periphery by the iron flanges, enabling the wheel-maker to drive the spoke firmly into the smallest hub and thus attaining the desired qualifications of elasticity and strength.

11. (65,541) WAGON AXLE-TREE.—Cornelius L. Campbell, Binghamton, N. Y. :

I claim making the skein of the same angle from end to end in combination with the depressions G, G, on the large end or "shank" of the skein, substantially in the manner and for the purpose herein described.

(65,549) ATTACHING DRAFT TO VEHICLES.—George S. Curtis, assignor to himself and Ellis G. L. Faxon, Chicago, Ill. :

I claim the combination of the ordinary whiffle-tree M, and pole A, with the bed-plate B, the jaw E, the rod C, the rubber spring G, and the washer J, and nut N, for the purpose of tightening or loosening the spring G, when all are constructed and operate substantially as and for the purposes herein described.

(65,622) WAGON-AXLE AND BOX.—John N. and Theodore Wallis, Fleming, N. Y. :

We claim, *First*, The collar D, in combination with the thimble E, and box B, when all are constructed, arranged, and operated substantially in the manner and used for the purpose specified. *Second*, Securing the said band C, to the box B, as and for the purpose specified.

(65,641) DIE FOR FORMING THILL COUPLINGS.—L. Burns, assignor to himself and Josiah Wilcox, Rochester, N. Y. :

I claim, *First*, The thill coupling constructed as described, by swaging the blank A, in the dies D E and M N, as herein shown and described for the purpose specified. *Second*, The dies D, E, provided with the holes F, and opening H, the dies M, N, with equal shoulders L, all constructed as described for the purpose of forming the thill coupling, substantially as herein set forth.

(65,681) WAGON SPRING.—Garret C. Lansing and John G. Ostrom, Rhinebeck, N. Y. :

We claim the flat wooden springs *a, a', a'', a'''* etc., when arranged in pairs, each pair at right angles across the other, substantially as and for the purpose herein shown and described.

(65,700) SLEIGH BRAKE.—William Sloan, Highland, Iowa :

I claim, *First*, The jaws E, pivoted to and straddling the runner A, prong G, and handle F, when constructed and arranged as herein set forth for the purpose specified. *Second*, Attaching an arm or prong G, to the brake E, F, substantially as herein shown and described and for the purpose set forth.

(65,761) JOINT FOR CARRIAGE-BRACES.—F. B. Morse, New Haven, Conn. Ante-dated May 21, 1867 :

I claim the cone *d*, formed upon an inverted conical ear *c*, on the one part, combined with a corresponding ear E, provided with an internal conical seat upon the other part to correspond to the cone *d*, the whole constructed substantially as herein set forth.

(65,762) METHOD OF MANUFACTURING SHACKLES FOR CARRIAGE-THILLS.—F. B. Morse, New Haven, Conn. :

I claim the method herein described of forming the square-backed shackle-blank described and represented by Fig. 8 of the drawings.

18. (65,876) CARRIAGE.—Caleb Conderman, Hornellsville, N. Y. :

I claim the springs E, in combination with the body or frame A, substantially as and for the purpose described.

(65,891) WAGON SPOKE MACHINE.—Charles C. Dupue, Wayne, Mich. :

I claim securing the spoke in position to be acted upon by means of the pivoted dog R, substantially as herein shown and described.

(65,910) CARRIAGE.—James Hatfield, Cleveland, Ohio :

I claim, *First*, The centers *a'*, constructed with radial arms *b*, in combination with the bands B, spoke *d*, and keys *p*, substantially as and for the purpose described. *Second*, The wheel B, spindle C, as arranged in combination with the stays D, boxes E, E', for the purpose and in the manner as set forth. *Third*, The cross-rail C, arm L, links L', and brackets M, in combination with the stay D, and screw G, as and for the purpose substantially as herein described. *Fourth*, The stay D, screw-pins I, G, in combination with the spindle C, axle-tree A, substantially as and for the purpose set forth. *Fifth*, The adjusting screws O', coupling O, and reach K', arranged substantially as and for the purpose set forth.

(65,983) WAGON BRAKE.—George S. Ziegenfuss, Doylestown, Pa. :

I claim, *First*, The brake F, in combination with the lock-bar E, and bolts *f*, or their respective equivalents, substantially as described. *Second*, The pole H, carrying the lever K, and rack *h*, in combination with the cord *k*, pulleys L, *l*, and lock-bar E, or their respective equivalents, substantially as described. *Third*, The combination of two or more independent brakes applied to a wagon or other vehicle, adjusted so as to be brought into play either separately or together, substantially as described.

25. (66,030) ADJUSTABLE TIRE FOR WHEELS.—D. J. Kirkman and E. H. Gray, Winchester, Ill. :

We claim, *First*, The cap C, when constructed substantially as and for the purpose set forth. *Second*, The shoe D, when constructed substantially as and for the purpose specified. *Third*, The cap C, and shoe D, as constructed in combination with bolt-heads *e, e*, and screw-bolt *d*, substantially as and for the purpose described.

(66,049) WAGON.—S. W. Slocumb, Albany, Ill. :

I claim, *First*, The circular bearing C, in combination with the hub D, when constructed substantially as described. *Second*, The combination of the circular bearing C, hub D, plate E, and ring F, substantially as described. *Third*, The circular bearing C, when attached eccentrically to the axle, and in front of a line passing through the center of the wheel, substantially as described. *Fourth*, The arrangement of the bolsters H, when placed in the rear of the axle, and the axle when placed in front of a line passing through the center of the wheel, substantially as described.

(66,076) DUMPING WAGON.—Nicholas Clute, Schenectady, N. Y. :

I claim the plates on the bed-frame, in combination with the rollers connected to the body or movable frame, or their equiv-



alents, substantially as described. I also claim the stops at the rear end of the movable frame, provided with catches to lock it to the bottom frame, substantially as described. I also claim, in combination with the plates and rollers above claimed, the crank-shaft, pinion, and rack fastened to the movable frame.

(66,114) THILL COUPLING.—Frederick Ballard, Waverly, Md.:

I claim, *First*, The combination of the spring G, bore F, and pressure-bolt E, constructed and operating in the manner and for the purpose specified. *Second*, The soft metal bushing K, provided with a square opening *k*, and used in combination with the bolt D, and tubular eye I', of the thill-iron, substantially as described.

(66,118) BLACKSMITH'S STRIKER.—George Bell, assignor to himself and Jonathan Strim, Martinsburg, West Va.:

I claim the combination of the spring R, adjusting device *w*, frame V, hammer and lugs C, J, chain K, and treadle L, all constructed and arranged as described.

(66,130) MANUFACTURE OF BLANKS FOR CARRIAGE-THILL SHACKLES.—James B. Clark, Plantsville, Conn.:

I claim, *First*, The carriage-shaft shackle-blank, so formed between dies that the body *b* of the blank is curved, substantially as herein shown and described. *Second*, The dies A and B, for making the said blank, when so constructed and arranged as to form the rounded corners and the curved body of the said blank, substantially as herein shown and described.

(66,163) WHEEL-WRIGHT'S MACHINE.—Samuel Mills and J. R. McIrvin, assignor to James J. Robinson, Clifton, Ill.:

I claim the stock A, with the notch *c*, adjustable-arm D, and graduated end *b*, slide B, provided with pin *a*, and pointer K, arm G, and slotted-plate F, arranged to operate substantially as herein set forth for the purpose specified.

JULY 2. (66,343) SHIFTING-RAIL FOR CARRIAGES.—Henry F. Holt, assignor to himself and Thaddeus C. Abbott, Fredonia, N. Y.:

I claim a self-fastening shifting-rail for buggy tops, constructed substantially as herein described.

(66,373) SLEIGH-RUNNER FOR BUGGIES.—John S. McIntire, Chicago, Ill.:

I claim, *First*, The pipe-box B, provided with flanges *a*, and arm C, constructed substantially as and for the purposes specified. *Second*, The hook D, set screw E, and pipe box B, in combination with the axle G, and runner A.

(66,405) WAGON-HUB BORING MACHINE.—William Snodgrass, assignor to himself and James Statler, Macomb, Ill.:

I claim, *First*, The laterally adjustable frame, having the chucks V, Q, mounted therein, in combination with the cutting and feeding mechanism, arranged to operate as and for the purpose set forth. *Second*, The cutter-bar H, pivoted upon the front end of the carriage C, in combination with the screw-rod E, mounted on the carriage and arranged to operate the cutter-bar, as described. *Third*, The strap *m*, or its equivalent, arranged to unite the independent chucks V and Q, for the purpose of causing both to revolve together when motion is applied to one, substantially as herein set forth. *Fourth*, Feeding the cutter-bar to its work by means of the screw-thread Q', on the chuck Q, wheel S', mounted on the shaft S, and cord *u*, attached to the carriage C, when said parts are arranged to operate as herein shown and described.

(66,413) BUTTON-HOLE FOR CARRIAGES.—S. C. Talcott, Ashtabula, Ohio:

I claim, *First*, The washer A, provided with the arms E, disk B, and serrated washer C, arranged in the manner and for the purpose substantially as set forth. *Second*, A washer, Fig. 3, in combination with the disk B, substantially as described

and applied to the purpose set forth. *Third*, The serrated washer C, in combination with the disk B, when applied to the purpose and in the manner specified.

(66,426) DRAY.—Francis Van Doren, Adrian, Mich.:

I claim, *First*, The platform E, when provided with rollers F, in the manner set forth, in combination with the dray-frame A, substantially as and for the purpose herein shown and described. *Second*, Having rollers F, F', arranged on the surface of a dray, for the purpose of facilitating the loading and unloading of the same, substantially as set forth. *Third*, A dray when so made that its platform or bearing portion is made in shape of a detachable skid, substantially as set forth.

9. (66,493) THILL ATTACHMENT.—H. R. Hoagland, Montezuma, N. Y.:

I claim the combination of the thill attachment D, with the clip-head B, when said clip-head is provided with a uniform transverse bore open at both ends, and also with a transverse slot whose sides shall form an acute angle with the arm A, substantially for the purpose set forth.

(66,496) TOP-PROP NUT FOR CARRIAGES.—James Ives, Mount Carmel, Conn.:

I claim as a new and improved article of manufacture a top-prop nut, constructed with a solid head on screw-tapped socket.

(66,544) CARRIAGE SHAFT COUPLING.—C. A. Willard, Belleview, Ohio:

I claim the slide G, as arranged in combination with the stay B, and shaft C, provided with a notch F, for the purpose and in the manner as set forth.

(66,569) MACHINE FOR FORMING WAGON AXLES.—J. E. Cromwell, Jackson, Mich.:

I claim the arrangement of the pendent frame T, containing the gear-wheels Y, Y' and W, pattern N, resting on the gauge-pulleys M, the movable frame A2, saws and cutters I, and I', lever nuts D2, screw feed-shaft L, and weights G2, substantially as herein shown and described and for the purposes specified.

16. (66,702) ELLIPTIC SPRING.—Robert Gray, Litchfield, Ill.:

I claim projecting a rib *a'*, from the convex side of a leaf of the spring so as to form a rounded parabolic curve or elliptical curve, as shown in Fig 3, and substantially for the purpose set forth.

(66,746) SHIFTING TOP FOR CARRIAGES.—Antoine Soursin, St. Louis, Mo.:

I claim the combination and arrangement of the seat A, its loops *a*, and knobs A', the shifting rail B, substantially as set forth.

(66,747) MACHINE FOR ADJUSTING CARRIAGE-TOP BOWS.—Antoine Soursin, St. Louis, Mo.:

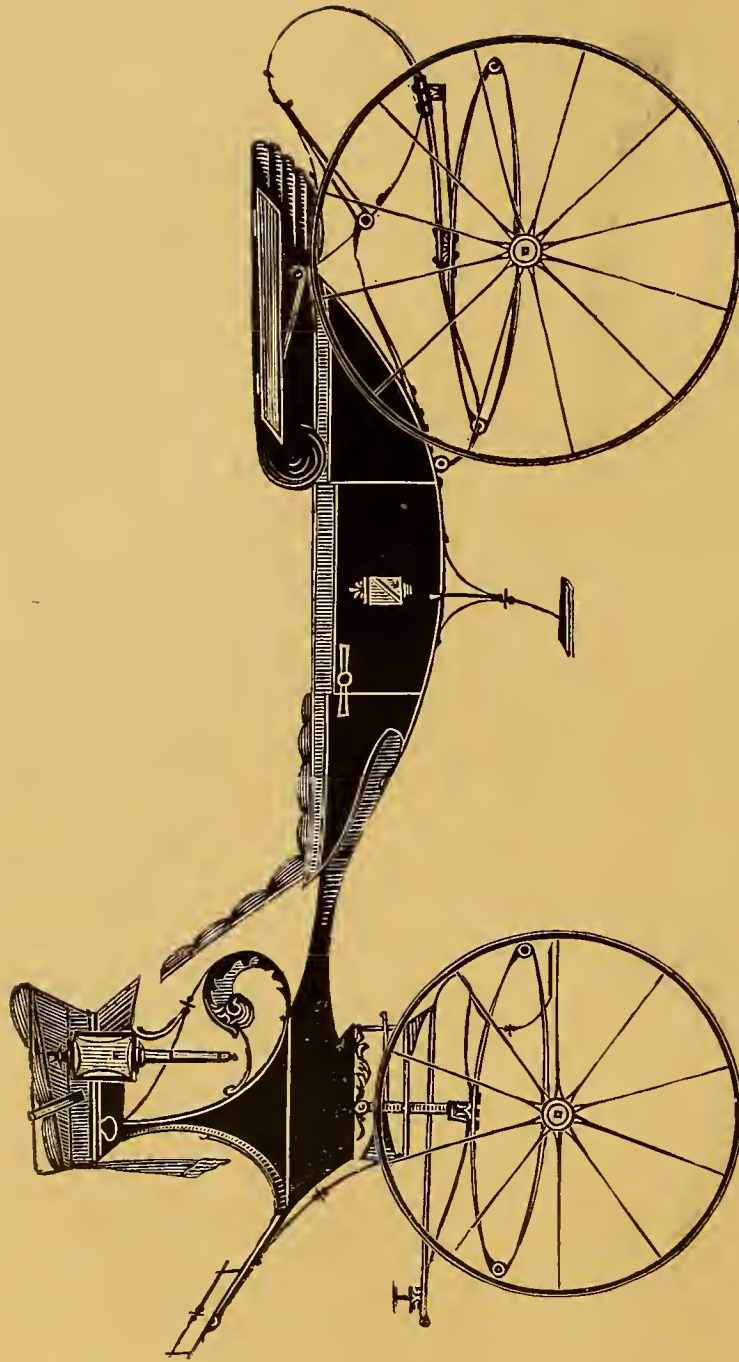
I claim, *First*, An adjustable framework E, E', when applied to a carriage-body or seat in such a manner as to form a false work or frame on which to place and adjust the carriage bows or hoops preparatory to fixing the said hoops on the vehicle, substantially as herein described and set forth. *Second*, The bed-plates A, A1, A2, when combined and arranged substantially as herein set forth, for the purpose of adjusting the machine laterally and longitudinally on the vehicle to which it is applied. *Third*, The posts D, when combined with the pendulous posts D1, and the adjusting arms D2, as herein described and set forth. *Fourth*, The graduated beams E, in combination with the beams F' and D, and the screws F2 and *e*, as and for the purpose set forth. *Fifth*, The sliding-stick I, I', when constructed and employed as and for the purpose set forth.

(66,760) CARRIAGE-CURTAIN BUTTON-HOLE.—Edwin L. Yancey, Utica, N. Y.:

I claim the plates A, B, arms G, and slide D, as arranged in combination with the curtain I, for the purpose and in the manner as set forth.





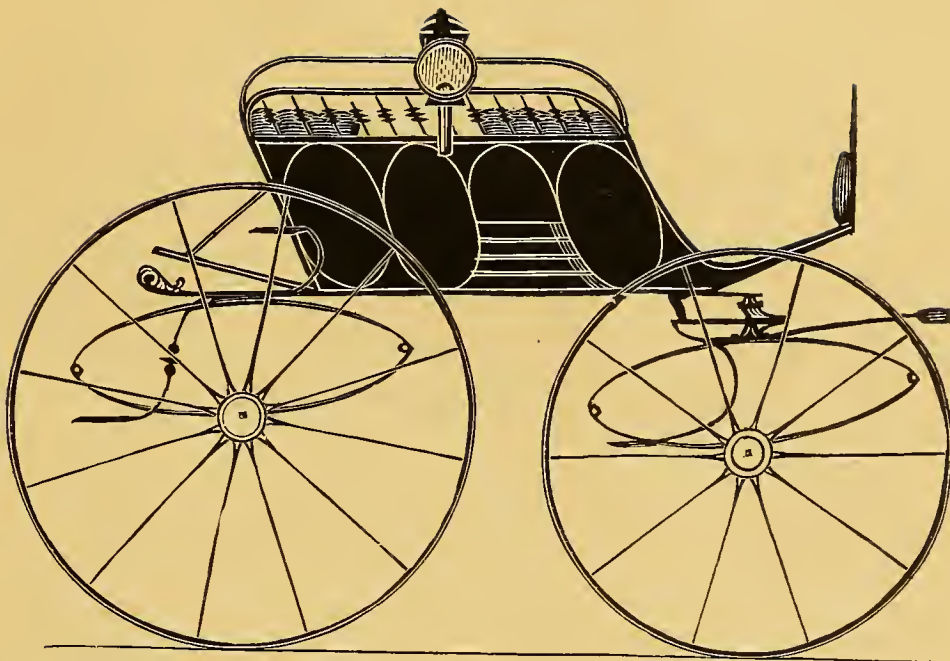


CALÈCHE WITH METROPOLITAN BOOT AND C-SPRINGS.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 85.*





IMPROVED BEVERLY DOG-CART.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 85.*







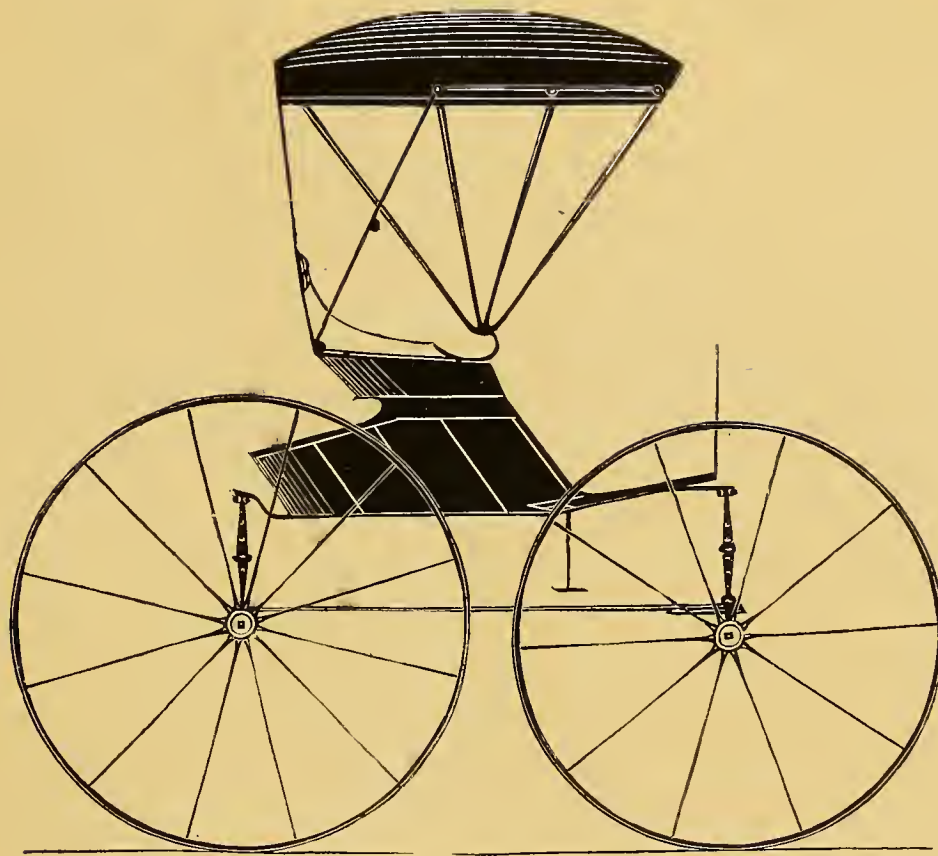


PHYSICIAN'S PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 85.*





COAL-BOX BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 85.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT

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No. 6.

## Mechanical Literature.

### THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

#### CHAPTER III *Continued.*

WALTER had passed most of the afternoon in an old and long unused cotton shed at the outskirts of the town, where he had plenty of room to practice his declamation unheard and unseen, for nothing so completely takes the wind out of the sails of your novice in such matters than just as he is in the middle of a fine passage to see a couple of mischievous eyes peering at him through a crack in the fence, while a broad grin shows the inward satisfaction of the listener in thus being a "dead head."

The character of Claude Melnotte, though by no means an easy one, was well suited to his talents. He could sympathize with the proud but low-born peasant, he could feel the enthusiasm of his poetic soul so exquisitely portrayed in rich and copious language; and then the grief, the despair, the remorse and final triumph of love, gave a fair opportunity for the portrayal of passion—the art of acting.

And so the hour arrived. He had donned his peasant's dress and was pacing to and fro across the small but neatly arranged stage, collecting himself for the ordeal through which he knew he must pass, when he was startled somewhat by a low voice saying—"Will you be so kind as to show me Miss Bell's room?" He turned and saw close by his side a young girl—the stage was darkened, so that he could not distinguish her face, but her *petite* figure told him she could not be more than sixteen. "Whose room did you say?" he asked. "Miss Bell's," she repeated; "I am in a great hurry, please, sir, for I fear that I am late." That voice, so sweet, so clear, yet so full of anxiety, seemed to penetrate his very soul. "Certainly," he replied, "follow me;" and he led the way to the door. She carried a large basket on her arm, apparently filled with clothing, and as she turned to thank him, he obtained a fair view of her face, but only for an instant, when noticing his ardent look of admiration,

she turned away and knocked timidly at the door. But that look was enough to convince him that he was not mistaken when he thought so sweet a voice and a fair face must be inseparably connected. As Miss Bell's was almost a perfect type of the brunette, so hers was of the blonde. Her skin was almost transparent in its pure whiteness, her hair of bright auburn fell in profuse ringlets round her neck, and then her eyes—so large, so dovelike! She gave Walter one look, only for an instant, yet in that instant he thought he could penetrate her soul and read nought but purity therein.

The door opened, and he heard Miss Bell's voice in rather a loud and angry tone exclaim to Nellie, "You have come finally, have you; you have kept me waiting for half an hour, and you know I cannot brook a moment's delay," and the door closed.

A poor girl, thought Walter, but how very beautiful, and strange how her voice keeps ringing in my ears. After all, your brunette for strength of intellect, but your blonde for strength of affection; and he passed on to the door that led from the stage. A little boy, cap in hand, stood but just without. "Well, my little friend," said Walter in his kindest tone, "what is your wish?"

"I am waiting for my sister Nellie," he answered.

"Your sister, why is she going to play to-night?" asked Walter.

"Oh no, sir," he answered; "she only came to bring a dress for Miss Bell to wear."

"So that is her errand, is it," he said; "well now tell me what is your name?"

"Willie Seymour, sir."

"Well, Willie, don't you want to go in front and see the play and all the finely dressed ladies and gentlemen?"

"Oh yes, sir," he answered eagerly, "if—if sister could go with me."

"Well, we will see what can be done," returned Walter; and taking his memorandum book he tore out a leaf, wrote a few words, and handing it to the boy, continued—"When your sister comes give that to the door-keeper, and if he does not let you both in, come back here immediately and let me know."

"Thank you, sir; oh how we did want to see the play!" said the little fellow, and he could scarcely keep his feet for joy.

What anxious faces and beating hearts that thin curtain conceals from the happy, gay and expectant throng



in front. We have before hinted that the audiences were very select, and in truth they were; only the *bon ton* of Greendale possessed the magical *open sesame* to these exhibitions, and the night in question the audience was more *recherché* if anything, and more numerous than usual. The vague whispers that a new member who had won high honors in other fields was to play the part of the hero, magnified as Dame Rumor always will magnify everything that passes from her tongue, caused every person who possibly could to help swell the number.

The prompter's bell was heard. The whispers with which they had managed to beguile the half hour of waiting were hushed, the curtain rose slowly, and Madame Deschappelles and Pauline with her boquet were discovered. The latter was received with much enthusiasm, but before the scene was half over, her keen eye detected the fact that the audience were anxiously awaiting the entrance of another character. The scene changed to the third, the cue was given, and Claude entered. Fashionable and select audiences are generally too refined to let their enthusiasm break forth in an audible shape, but in this case it was an exception. So handsome did he look in his white peasant's suit that the ladies all applauded, and of course the gentlemen, as all gentlemen are in duty bound, followed suit. For a moment he was confused. The brilliant lights, the crowded auditory, the heart-felt plaudits—but he did not forget the customary bow, and by the time the applause subsided, so that he could be heard, "Richard was himself." From that moment he ignored the fact that there was an audience. He became so thoroughly identified with the character that he seemed to forget all the real surroundings and live only in the gorgeous creations of the poet, and when he made his first exit, he felt that his success was certain. Poor, short-sighted mortals that we are, how little do we dream what the next hour has in store for us!

Augustus Aurelius, in the mean time, must not be lost sight of. Up to the raising of the curtain he had been behind the scenes, making himself generally useful, as he expressed it, but in reality putting himself continually in somebody's way. "Can't stay in front," said he to Walter in his usual affected style, "'cause all the ladies are scolding me for giving up my part. In vain I tell them the facts of the case—business, absence, &c.—for the dear creatures are so constituted that they can't take an excuse if it happens to be opposite to their wishes," and the exquisite gave his cravat an extra touch before the glass, swung his cane and departed to bore some one else. During Claude's first scene he was seated between two young ladies, and when the act closed, one of them turning to him exclaimed with a mischievous smile, "You made a good exchange, Mr. Barnes, when you turned your part over to that gentleman. What did you say his name was?"

"Yes," chimed in the other before he could reply, "he is playing the part much better than you would have done it."

With these words rankling in his bosom—for your real fops are not only vain but very sensitive when their ability to do anything and everything is questioned—he left the hall with the determination to counteract the favorable impression Walter was making, if possible. Passing in the street the opportunity presented itself.

As before stated, the jours at Mr. Markall's shop were addicted to an occasional spree, and on the night in ques-

tion they were out on that laudable undertaking, and just as Augustus Aurelius stepped out on the street, the blacksmith, painter, and body-maker—whose place Walter was to take—were passing by.

"Hallo!" said the blacksmith, who was, perhaps, more inebriated than either of the others, "hallo, you degenerate namesake of the great Roman Emperor! art thou the Cerebus that guards these doors? If so, let us in."

"Yes," said the painter, seizing him familiarly by the hand; "yes, thou great and good Augustus Aurelius, we demand admittance to witness the *debut* of a brother chip."

"My successor that is to be," added the body-maker, tragically.

"What do I hear!" cried Augustus, eagerly; "is he a mechanic?"

"Yes," said the blacksmith; "Walter Cummings—that's his name, isn't it, boys—is as good a mechanic in reality as you are a lawyer—in your own estimation," and all laughed heartily and loud.

Augustus Aurelius saw his chance, and he improved it. After inviting the trio to take a drink at his expense, which they were not slow to do, he gained them admittance to the hall, and then left them, to carry out his own designs.

The sudden change, the brilliant assemblage, and the inherent principles of decorum, caused our three jours to remain quiet during the second act, but during the third they manifested a disposition to become boisterous. In truth, Walter was reaping golden opinions, and at the end of the fourth act the enthusiasm of the audience burst forth in hearty approval; and far above it all the blacksmith and his two companions could be heard, so loud, in fact, as to draw the attention of nearly all present upon themselves. Then our young limb of the law saw it was time for him to strike. It was easily done. The trio had already nearly accomplished his object, but it wanted a grand *coup d'état* to finish it. Passing up to where Mrs. Bell was seated, he bent over her and whispered, "What do you think of Claude?"

"Wonderful young man," she answered, fanning herself vigorously.

Now we do not pretend to say, by any means, that Augustus was *smart*, in the common acceptance of the term; but then the dullest fool will sometimes say a good thing, and his answer could not have been more *apropos*.

"How wonderful?" he said, quoting the answer to her assertion, "are his *carriages* better than other people's?"

"What!" she cried, "his *carriages*—what do you mean? You do not pretend to say Mr. Cummings is a mechanic—a poor carriage-maker?"

"I certainly do," he answered. "His shopmates near the door yonder are the loudest in their applause. He came here to work for Markall."

"Oh, dear!" exclaimed the *real* Madame Deschappelles of the evening, fanning herself still more vigorously; "and he has been visiting at my house. How dare he be guilty of such presumption! Your arm, Augustus; I will go and see Mary immediately." And they passed behind the scenes together.

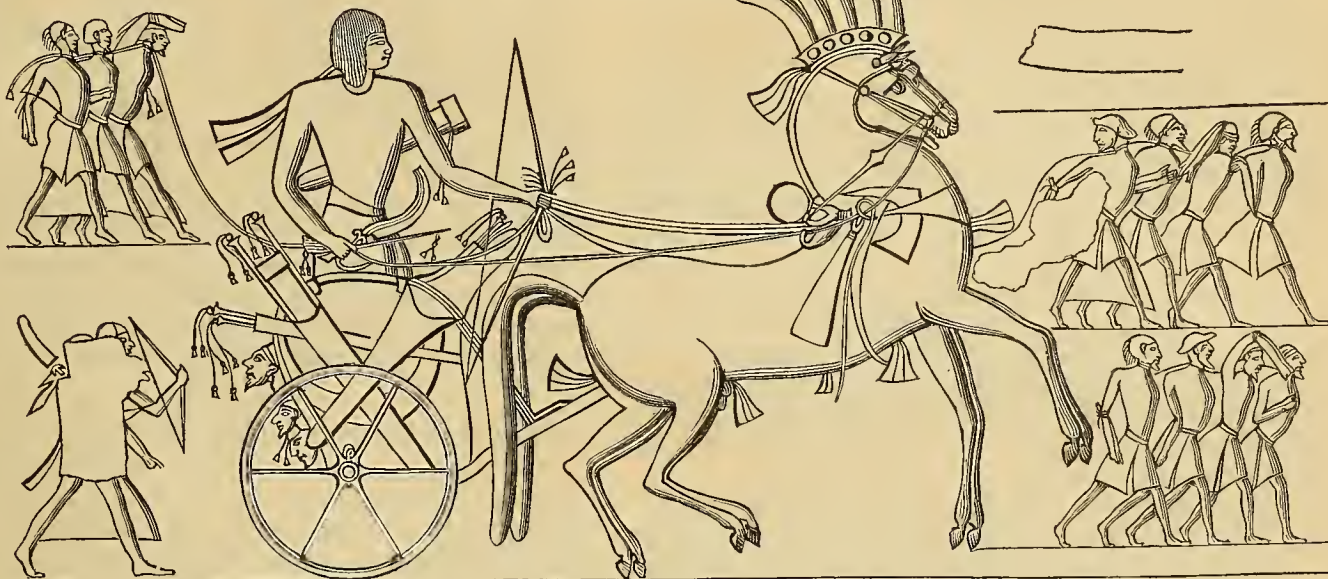
This was just what he wanted. The appearance of the three jours, and Mrs. Bell getting up and leaving the hall, caused everybody to whisper to his or her next neighbor, and before the curtain rose for the fifth and last act, every one knew that Walter Cummings was a poor mechanic. Oh ye hewers of wood and drawers of water! attempt



not to gain admittance in the magic circle of the rich and proud, for they *can* do without ye.

The last act was tedious. During his first scene Walter felt that something was wrong, but what it was he could not surmise. At his second and last entrance, as he had time to look about him, he took a careful survey of the hall, and seeing his three craftsmen together, he at once comprehended the true state of affairs. For a moment it dashed his ardor somewhat; but just then, in the farthest corner, shrinking apparently from observation, he saw the poor seamstress and her little brother, and her

look reassured him, so that he ended his part with his usual skill. But the audience were listless and inattentive—more interested, apparently, with their own whisperings than at what was passing on the stage.



THE VICTORIOUS HOMEWARD MARCH OF MENEPHTHA I., FROM A BAS-RELIEF AT KARNAC.

The curtain fell, and with it a feeling of relief, as he hurried to his dressing-room and changed the military habit of the hero to his citizen dress. The common sitting, or in theatrical parlance, the green-room, connected with the hall, had been fitted up as a refreshment room for the occasion, and thither Walter wended his way. It was partially filled with the relatives and friends of the members, and unnoticed he made the circuit of the room two or three times, and was about to leave, when Miss Bell entered. He determined upon one bold stroke to see how matters stood, but her proud mien and haughty look told him the result before he made it. Advancing towards her with his sweetest smile and with an extended hand, he exclaimed—

“Miss Bell, now that all is over, allow me to congratulate you on your decided success this evening.”

“I am in no humor to receive flattery just now,” she replied, as she passed on towards her mother, without noticing the proffered hand.

“What insufferable presumption,” said her mother, ostensibly *aside*, but loud enough for him to hear. “A mechanic to impose upon us so—it is really insupportable;” and she used her fan more vigorously than ever.

Stung to the quick by this deliberate insult, Walter turned to the secretary, who happened to be standing near, and said, loud enough to be heard by all present—

“What a great pity it is, Forbes, for the honor of your association and the pride of your auditors, that you have not sufficient talent among yourselves to present a

passable evening's entertainment without having to go outside of your very *elite* circle. But then, ‘*non omnia possumus omnes*,’ as your favorite poet says. So *au revoir*.” And he left the room abruptly.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—VI.

LAST month we gave our readers an illustration of one of the victories of Menephta I., copied from a bas-relief on the walls of a temple at Karnac. The present taken from another bas-relief in the same temple repre-

sents the triumphal return of his victorious army into Egypt, which, although it gives no new features in chariot building, is highly interesting, as showing the customs and habits of that ancient nation.

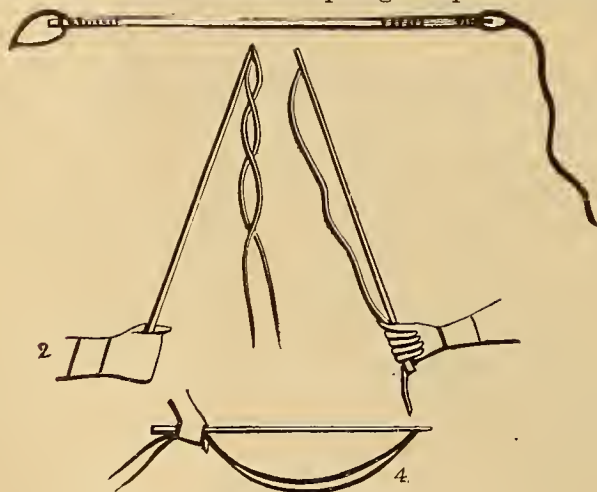
Although the artist, doubtless, intended to paint a picture of the king with the same chariot and horses as the last, it will be found on comparing the two together, that the furniture of both horses and chariot differ in many essential points. Here the king—as usual, of colossal proportions—is represented as grasping the falchion in his right hand, at the same time holding the reins, a bow and lotus flowers in his left, while at his shoulder dangles an empty quiver, showing that the conqueror's work has ended. At the rear of the chariot hang the heads of three slain enemies; three live ones, bound, following in the rear with two others, evidently guards to the king. Preceding the chariot other victims are seen bound in a similar manner as the others we have mentioned, except that the hands of a few are more securely bound with a sort of ring. An examination of the costume convinces us that the procession is comprised of different nationalities, probably representing the prisoners in several different battles. Flowers in profusion are seen in the bas-relief, all expressive of victory. The ostrich feather head ornaments, which time has effaced in the former design, are here shown in “full feather.” Leaving our hero to a triumphant march homeward, we may be permitted a little digression, while we examine some of the internal furniture of Egyptian chariots.



We have no evidence of there ever having been any seats for the accommodation of the occupants of chariots; for in all cases they are represented as standing. If these ever sat, they probably did so sitting on the top rail. We often find representations among these Egyptian bas-reliefs—especially should it be an enemy—where they are shown falling out of the hind end. In some Egyptian chariots the bottoms or floors were formed of rope, interlaced, answering in some degree the purpose of openings, as in our times we see in Italian carts. The crooked pole, as seen in the present and other examples, we find is an old "institution."

When in battle, a general always had a number of attendants in readiness (see Homer's Iliad, 109, 113). Whenever he dismounted from his car to lead his troops over hilly and precipitous heights inaccessible to chariots, to the assault of a fortified town, or for any other purpose, they took charge of the horses, and keeping them in some secure place, they awaited his return or followed at a short distance, and a second car with fresh horses was always ready in the rear, in order to provide against accident or the still less welcome chance of a defeat. (2 Chronicles, xxxv., 24.) As in later times among the people of Greece this employment was neither servile or ignoble, and if Hector (Il., 325), Nestor (Il., 16), Ulysses (Il., 513), and others were not ashamed to act in this capacity, Egyptian officers of note, in like manner, undertook the management of their own cars, and prided themselves on their skill in driving as in wielding the javelin and bow.

Wilkinson says: "In driving, the Egyptians used a whip, like the heroes and charioteers of Homer; and this, or a short stick, was generally employed even for beasts of burden and for oxen at the plough in preference to the

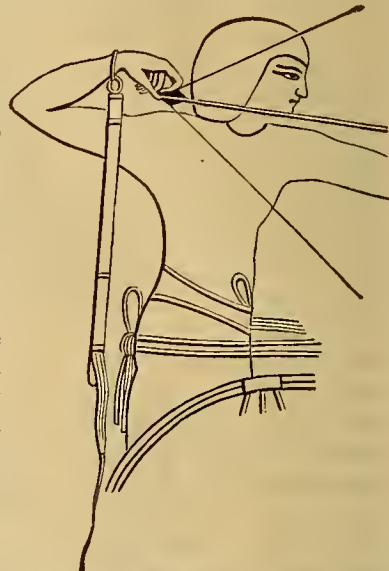


ANCIENT WHIPS.

goad. The whip consisted of a smooth round wooden handle, and a single or double thong; it sometimes had a lash of leather or string about two feet in length, either twisted or plaited; and a loop being attached to the lower end, the archer was enabled to use the bow while it was suspended from his wrist."

Often when one chieftain encountered another on the field of battle, he leaped down from his car, and substituting the spear, battle-axe or falchion for the bow, he closed in with the enemy; the lifeless body of the foe, left on the field, being stripped of its arms by his companions. Sometimes a wounded adversary, incapable of further resistance, having claimed and obtained the mercy of the

victor, was carried from the field in his chariot; and the ordinary captives, who laid down their arms and yielded to the Egyptians, were treated as prisoners of war, and were sent bound to the rear under an escort to be presented to the monarch and to grace his triumph after the termination of the war. The hands of the slain were then counted before him, and this return of the enemy's killed was duly registered to commemorate his success and the glories of his reign, a subject which occurs more than once on the walls of Medenet Haboo; and the great picture sculptured in the inner area of that building represents Rameses seated in his car, while the tellers, taking the hands by the thumbs, place them in a heap before him, and count them to the military scribe.



WHIP SUSPENDED FROM THE WRIST.

#### TRADE UNION OUTRAGES IN LANCASHIRE.

A COMMISSION to investigate Trade Union outrages in Lancashire commenced their examination on the 4th of September. It seems from facts already developed that the Lancashire men have been guilty of outrages almost equal in atrocity to those which were lately developed in Sheffield. The following developments are given as examples of the course which Trade Union men have hitherto taken to carry their points in any case when they were at issue with employers:

The Rusholme outrages occurred in April, 1862. A body of twenty armed men went to the brickcroft of Mr. Edward Smith, at 11.30 P. M. Alarmed by the police, they made off and were pursued. Overtaken, they resisted, and wounded two policemen. Their object was to destroy bricks. At Reddish, in 1864, Messrs. T. & W. Meadows introduced an improvement in the making of bricks, by which they would have saved 10d. in the 1,000. The men claimed this and struck. Three, without leave, returned and worked with non-Union men. The Union men offered to return if the three were discharged. Messrs. Meadows retained them. The Union men returned; and six of them attacked and nearly killed one of the three, who being yet in bodily fear, works under an assumed name. Of the six assailants three were sentenced to twenty years' penal servitude. Mr. Barlow, brickmaker, lives between Manchester and Stockport. Because he had withdrawn from the Union, and his sons did not join it, a porter bottle charged with powder and a fusee was thrown in at his parlor window. Sometime afterwards another was thrown in at the bedroom window. Some time afterwards another was thrown into the bedroom, the roof of the house was partly blown off, and Mrs. Barlow was injured and made ill for many months. The watchman, saved one night by a dog which seized the foremost of a gang of intruders, had his horse hamstrung next night. Another canister or bottle with an unex-



ploded fusee in it, was found in the stable at a subsequent time. Mr. Barlow's son was also thrown down by two ruffians, and was shot by the explosion of a pistol in his own pocket. Mr. Barlow is threatened every week, and is in bodily fear. The murder of Police-constable Jump at Smallshallowfield, near Ashton, in June, 1862, resulted in the execution of a man named Ward at Liverpool, and the transportation of another for life. The murder was committed in an encounter of the police with eight Unionists who had been destroying 8,000 bricks at Stalybridge. They belonged to Mr. Clifford, who would not employ Union men. In 1861, Mr. Hobson, of Ashton, had a dispute with his men about changing the mould for bricks. They struck, and at night five men entered the yard. They encountered a bulldog, had a desperate fight with it, and, having stabbed it three places in the head, got away. The men were never discovered. Mr. Tetlow, master brickmaker, Hurst, Ashton, does not employ Union men. In November, 1861, combustible bottles, filled with blasting powder, naphtha, and slugs, were thrown into two of his windows, and did a little damage. The offenders could not be traced. Mr. Tetlow's bricks have been destroyed by throwing needles into them. In November, 1860, at Droylsden, a brickmaker named Rogers had a dispute with his men, and employed non-Union men; and one night the watchman, named Newton, was fired at and shot in the head. In 1860 Mr. John Simpson, brickmaker, Stockport, had a dispute with his burner, George Baylay, whom he could not get rid of, who threatened him and fulfilled his threat by spoiling a large kiln of bricks which had to be paid for as if they had been good. In 1863 he had 25,000 bricks destroyed by men walking over them in their stockings, and some with their shoes wrapped with rags to prevent their being traced. They cut to pieces barrels, planks, trestles, and brick tables. In 1864, two men armed with guns, having frightened the watchman into his hut, set the brick shed on fire, and knocked down the walls of new bricks. They had their faces blackened. They poured liquid on the roof of the shed, and it burnt brilliantly. The men fired several guns at him to frighten him. He drove away the men that were firing the shed by discharging his revolver at them. Some of the neighbors saw the fire, but were afraid to go to his assistance, and also saw the men running away. The police were soon on the spot, and found a two-gallon bottle and a can partly filled with naphtha, and some smaller bottles. The naphtha was on fire in many places, but was put out, as the timber was very wet. Messrs. Whitehead, of Ashton-under-Line, about two years ago, became obnoxious to the Unions, and a great quantity of clay that they themselves had tempered (indeed, the thing had happened because they themselves had tempered the clay, instead of allowing Union men to do it) was all utterly spoilt because needles were thrown among it, and, consequently, no person could put his hand upon it.

### Pen Illustrations of the Drafts.

CALÈCHE WITH METROPOLITAN BOOT AND C-SPRINGS.

*Illustrated on Plate XXI.*

WITHOUT laying any special claim to novelty, we present this design as a very fashionable one for the times.

Those who wish for more leg-room, can get it easily by supplying a sunken bottom to our design. As it stands—with Metropolitan boot, short perch-stays, and C-springs—it makes a very light-looking job, worthy of a millionaire. Wheels, 3 ft. 4 in., and 4 ft.

IMPROVED BEVERLY DOG-CART.

*Illustrated on Plate XXII.*

THIS design is an improvement on the original Beverly English dog-cart—hung usually on two wheels—by cutting in a "wheel-house" to the side, so that mounted on four wheels there is room for turning much shorter. The hind-seat is arranged in such a way that it answers equally well for the accommodation of a portion of the hunting party, or the convenience of a servant. For the party seat there is a back on hinges, turning up when the falling or back foot-board is in place. This style of dog-cart can be constructed very light, weighing not more than four hundred pounds.

PHYSICIAN'S PHAETON.

*Illustrated on Plate XXIII.*

THOSE who are continually calling for something new, will find their wishes met in this design, it being rather too novel to be—well, we leave the reader to decide what. Combining the seat and toe-board of a buggy with the quarter of a victoria, the artist has made an odd looking vehicle, appropriately *finished* by oddly hanging it off on a C-spring. It very aptly illustrates Sam Patch's famous saying, that "Some things can be done as well as others." Wheels, 3 ft. 10 in., and 4 ft. 2 in.

COAL-BOX BUGGY.

*Illustrated on Plate XXIV.*

THE bodies of these buggies are made very narrow on the bottom, to facilitate turning short, and with considerable flare on the side to furnish sufficient seat-room. This kind of a buggy can be built very light—with a top not exceeding two hundred and forty pounds, including the shafts.

### Sparks from the Anvil.

WEARING-OUT AND CORRECTLY SETTING  
AXLE-ARMS.

BY HENRY HARPER.

CANNOT this great annoyance be remedied? Is it the quality of the iron, the shape of the axle-arm, the lubricating matter, or the sandy roads on which wagons are driven, that makes the difference in the wear? I have heard all these excuses made by different persons when they have been so unfortunate as to build a carriage or business wagon that wore out the axle-arms in an unusual short space of time. A case, once in a while, happens that contradicts any one and all of the above causes. A



wagon made with the cheapest axles is driven on roads without guards against getting sand into the axle-box, until one heavy set of tire has been worn out and another nearly so, yet the axles are just as good as they were the first day in use.

Another thing equally strange has come under my observation. Manufacturers, who—so far as property is concerned, are of the first order of responsibility—at one time urged, with a good show of reason, that great allowance should be made for the quick wearing out of axles because they were used on sandy roads, are now circulating their hand-bills, far and near, warranting their wagon and carriage-axles against heat or wear so as to injure them, so long as the proper set, corresponding with the dish of the wheel which they give them, is preserved. I suppose I shall not betray secrets by telling how they set them, inasmuch as there is not a wagon-maker in the whole land but what will say, "That is just what I have always known," and many unscrupulous ones will add, "That is just what I have always practiced."

These men who warrant their axle-arms against heating and wearing, set them so that the under side of the wheel stands on a "plumb spoke," as it is called. By this they mean that the face of the spoke shall stand in the same direction that a weight would fall providing the wagon is standing on level ground. In this arrangement the load will not incline the wheel more to one side than the other. If it has any inclination, it will be counteracted by the load. This pressure to keep the wheel from falling over is derived from the load and transferred from one end of the axle-arm to the other, which causes the inequality of bearing. A wagon is not always used on level ground, consequently an uneven pressure is continually changing from one end of the axle-arm to the other; but the average of uneven ground, is a level, and if the bearing of the axle-arm is set on the proper angle with the dish of the wheel, the average pressure will be equal. The wear will generally correspond with the pressure. Yet there are cases when wear produces heat to such an extent that the iron becomes soft and yields to the friction, so as to be used up in a remarkably small space of time—sometimes in a few hours. This is appropriately termed "cutting-out," from its quick results, being more like cutting than wearing.

Is it not strange that wagon and carriage-makers, who so unanimously agree in theory, should so often disagree in practice? The rule is definite. None can frame an excuse for departing from it, unless they admit they are not competent to practice it. Yet it is talked of as if it was an easy thing. I cannot see any cause for this strange practice other than that from a long course of deceiving customers on this point, they have come to the unwise conclusion that deception, in some cases, is as good as the truth. I do not want to make a personal application of these remarks, but would most earnestly urge any one who thinks the coat will fit him, to try it on.

If you are in the habit of pretending that you set the axle-arms *out of the way*, expecting the load will bring them *in the proper position*, it is positive proof that you do not know how to set them right. If you did you would do so, and not make the equally fatal admission against your work, that it was liable to spring out of place when loaded, unless it was loaded with just enough to spring it in place. All these subterfuges to cover up ignorance is an injury to the craft and the community; but above all,

to the person practicing it. Men should learn that truth is the foundation of wisdom.

Every manufacturer should have the following well established in his own mind: Do I know how to set the under side of an axle-arm to an angle that will hold the under side of the wheel on a plumb spoke as positively as I know how to get the width of the required track, in feet and inches? There is no excuse in trusting this all-important matter to hired help; but if you can do no better, the next best thing to learning, is to have positive proof that your help has the desired knowledge. When he is asked, he will be an exception to the general rule, if he does not claim to know all about it. The secret is a simple problem in geometry that compares the angle of the dish to the wheel and the angle to the taper of the axle-box, and using the excess that either may have, for the pitch to the under side of the axle-arm. If the dish has the excess, the under side will pitch down at the point; if the taper has the excess, it will pitch up. If they are equal, the under side will be horizontal. This is as positive as that adding two to four will make six, or that taking two from it will leave four, and requires no more mental effort in geometry than solving this problem in mathematics; providing the operator has tools to solve the problem with. Yet apply to the very best geometrician, without explaining to him the way of working it, and it is probable he will be foiled.

I hope manufacturers will have sufficient interest in conducting business on scientific principles to ask teachers of geometry—which abound in every village and city—to solve this problem. If they cannot do it, the practical manufacturer will know how much he is indebted to the science of invention, which has simplified this all-important question, so that the workman, unlearned in geometry, can solve the problem and make the application practical for any kind of work he is called to do.

Knowing how to compare the angles and apply the result to setting the axle-arms, instructs the operator in another important matter. If it is desired to set the tread of the wheel either out or in from a plumb spoke to any given distance, it is as easily done as adding two to six or subtracting the same, and with the same certainty of result the first time trying.

Well authenticated experiments, that have been tried, show that if the departure from the true pitch runs as far as one-fourth of an inch, in an eleven-inch arm, from the true line, a heavy load will heat and cut out the axle-arm. The effect will increase in a shorter arm in the proportion that the length of the axle is contained in the radius of the wheel. From this it will be seen that in setting an axle there is little margin for guess-work; and those who think they are going to succeed in the future as in the past, without exactness every time in this all-important matter, will find their reputation as first-class workmen gone.

#### STIVERS & SMITH'S SHIFTING-RAIL.

SOME complaint has been made to us against the importunities of a certain individual in claiming damages for infringements on the above named rail which has induced us to make inquiries, in the proper direction, as to the genuineness of his authority in the matter. We have no doubt of the legality of the patent, and have the word of Mr. Stivers that he has no intention of distressing the craft by tyrannical exactions, and therefore informs



the public that any one who chooses—even where infringements have been made—can settle with him by purchasing the right to use on very easy terms and thus avoid all trouble from his attorney. We have known Mr. Stivers for many years, and believe him a gentleman who would not give the public any needless trouble, or a moment's pain, if he could avoid it.

## Paint Room.

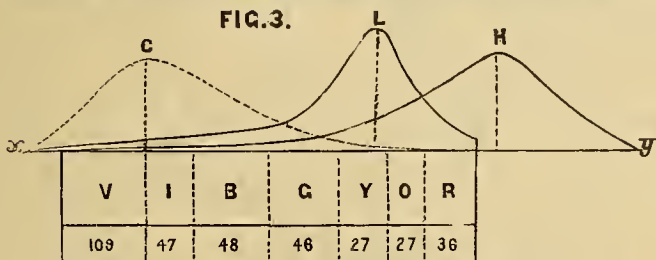
### THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

(Continued from page 75.)

THESE *visible* rays are also found to be accompanied by two distinct sets of *invisible rays* possessing respectively the properties of exciting the sensation of heat and producing the physical effects of heat, and of exciting or increasing chemical action. These rays, the discovery of which respectively was due to the elder Herschel and to Berard, are called the *calorific rays* and the *chemical rays*, and the extraordinary fact with respect to them both is, that they are found in greatest abundance and power outside the visible spectrum altogether, so that the maximum amount of the calorific rays are beyond the visible extremity of the red end of the spectrum, and that of the chemical rays beyond the visible extremity of the violet end.

Thus in the following diagram, Fig. 3. The rectan-



gular band below the line *x, y*, represents in length and width the *colored* spectrum, the color being indicated by the letters, and their respective widths by the figures beneath. The curve marked L indicates the variation of luminosity, which it will be seen culminates about the center of the yellow, and is least in the violet and the red. Thus it is that yellow, orange, and green are said by colorists to give light in a picture, and are sometimes designated as "advancing" or prominent colors, and that print upon a yellow or straw-colored ground can be read in a feebler light than even on pure white paper. The curve H is that of the *calorific rays*, the highest point of which shows the maximum heating power to be beyond the red end, and more or less of these invisible rays of heat to extend far away beyond the visible spectrum. One of the most striking facts in relation to those invisible heat rays is that ascertained by Sir John Herschel, namely, that when concentrated they can be rendered visible, and that their calorific effect upon the eye is that of a dull lavender grey.

The curve C is that which follows the march of the *chemical rays* which are found to have their maximum power near the passing of the deepest blue or indigo rays into the violet. These rays, as has been said, extend beyond the violet end, and are not found beyond the red,

and are of very little power in the red. With the calorific rays we have little further concern here, but the chemical rays are operative and important in all that relates to artificial coloring or painting, in dyeing, &c.; to the properties of these chemical rays, photography in all its varied branches owes its existence. Artificial colors are subject to many chemical changes, dependent upon the atmospheric or other agencies to which they are submitted, even in the dark, but such changes may occur in certain cases, or with certain artificial colors or dyes, without any other agency than that of the chemical action of light itself; and all chemical action due to external material chemical agents is exalted by the exposure of the color or dye, &c., to such agency, and to that of light also.

By special methods it has been shown that the three colors, red, yellow, and blue, are found diffused in all parts of the spectrum, and that their relative proportions or intensities of respective color along the length of the spectrum R, *v*, Fig. 4, are given by the three overlapping curves; R being that of the red, Y that of the yellow, and B that of the blue color.

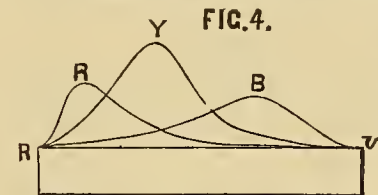
Red, yellow, and blue, are thus the fundamental bases of all color, and in the preparation and use of artificial colors or paints, all colors, tints, and tones may be produced by suitable mixtures of *white*, red, yellow, blue, and *black*. Why white and black must be added to the list we shall state further on.

Besides the decomposition of colorless light into colored light by refraction and by reflection, as has been explained, its decomposition may be effected by absorption, the extinction, or stifling within the mass of material bodies, of

certain of the rays of the colorless light, leaving the others only to be reflected back to the eye from the surfaces of those bodies.

This is the nature of all colors in natural objects. Color is not a property inherent in any substance, except in so far as it is thus elicited by their varied powers of so absorbing some and reflecting the remainder of the colorless light incident upon them. That color is thus only produced, may be made manifest by the facts that any colorless body, as white paper, silk fibre, &c., assumes for the time the color of whatever part of the spectrum it is placed in, and that colored bodies assume a deeper tint when placed in the part of the spectrum of like color with themselves, whilst, if placed in a ray of a color different to their own, they appear of a color made by the mixture of both, always, however, with more or less of apparent blackness, because no earthly color is pure, and nearly all are compound. Hobbes also has another proof of color not being inherent in matter—the fact that the reflections of colored objects, seen in the surface of colorless and transparent water, are themselves colored as the objects reflected are.

The sunbeam alone affords perfect purity of color. If the body be *homogeneous* and *transparent*, like a thick slab of colorless glass, all the light nearly may pass through, or part be reflected, but it is still colorless. If the body be transparent, but made of a great number of thin superposed plates, the light is broken in its transmission by repeated refraction, and if the plates be sufficiently numerous and thin, the transparent substance seems





opaque, and approaches *whiteness* in color. Thus a large number of thin watch-glasses superposed, though each quite transparent, appear opaque, and present the aspect and lustre of a great pearl. This also is the cause of the *nacre* of mother of pearl or other shells made up of thin superposed plates of carbonate of lime, crystallized in the form of arragonite. The *play of color*, however, in such shells, and also in minerals, such as precious opal or Labrador spar, arises from other causes, into which we cannot enter in this elementary paper.

To absorption and to the phenomena of *dispersion*, *diffraction*, and *polarisation* of light also, are due all the glorious colors and play of these, which makes the plumage of birds, and the coats and scales of insects and of fishes more magnificent than anything human art can approach.

Bodies which appear *white* are those (as in the instances given) which reflect as colorless light, *all* the rays they do reflect; *black* bodies are those which absorb the whole or nearly the whole.

*Texture*, *i. e.*, the nature of the surface of bodies, has an important influence upon their apparent colors. A polished surface of silver reflects light, which stimulates the eye, and enables the form to be discerned, but conveys no sense of color, but if the surface be rough or "matted" it appears white.

All rough surfaces appear deeper in color than smooth ones of the same actual tint. A piece of rough woolen cloth appears much deeper in color than a piece of satin, though both have been dipped in the same dye.

Paper is whiter as its surface is rougher, and its texture of transparent fibres looser. Hence, cardboard made by compression is darker in tint than the paper pulp fibre from which it was made.

So that surfaces which consist of finely divided and closely-packed filaments or particles extinguish much light. Thus black velvet or silk is one of the most intense of blacks. Yet it may be shown experimentally by looking at a surface of black velvet through a telescope, the object glass of which has been obscured to light, except a narrow concentric ring round the edge (by gumming centrally upon it a round disc of tin foil), that its blackness is not the blackness of darkness—in which case we could not see it thus at all. We see it and other black bodies by *sheen*, *i. e.*, by some colorless light which they all reflect more or less, and by the contrast of their outlines against surrounding objects.

Mere subdivision of transparent substances may produce blackness. Thus Brewster found that a perfectly black and opaque surface upon a pure and transparent crystal of quartz, was only due to a film of equally transparent quartz in a state of excessively fine division, *i. e.*, a crystalline powder.

Such is probably the cause of the black color of charcoal, which differs little chemically from the transparent and crystallized diamond.

We cannot pursue the subject of the relations of texture to color here, however, at all to the length its importance demands in relation to the painter's art.

(To be continued.)

#### DECALCOMANIE.

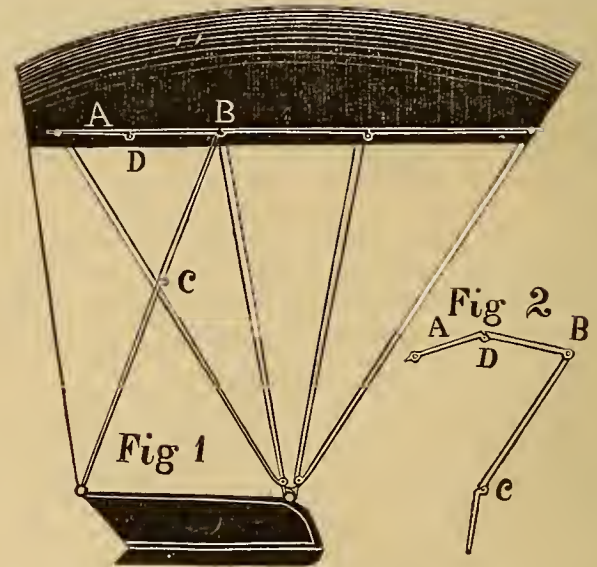
MANY correspondents have written us regarding an ornament ready prepared for transmission to the side panels of buggies and other vehicles, which heretofore we

have been unable to supply. We would now inform all wanting the article, that we can furnish by mail, in sheets of about forty figures, representations of flowers, birds, animals, &c., in colors, at \$2.25 the sheet; but the money must accompany the order, or we shall pay no attention to them. There is one serious drawback to this mode of ornamentation, the figures on each card being all nearly similar, and not as well adapted in form for crests as might be done, or suits our idea of tastefulness.

### Trimming Room.

#### IMPROVEMENT IN CARRIAGE-TOP JOINTS AND FASTENINGS.

THIS invention, patented by Henry M. Curtis, of Ypsilanti, Michigan, August 6th, 1867, is especially designed to prevent what has heretofore proved one of the most serious drawbacks in preserving the original beauty of a bow leather top, *viz.*: the springing out of place of the back-bow, caused by the shrinkage of the leather and the almost incessant shaking of the vehicle over uneven roads. This is so common that in more than one sense it may be pronounced *chronic*; a disfigurement to the very best constructed work.



CURTIS' CARRIAGE-TOP JOINT AND FASTENING.

Fig. 1 gives a perspective view of the combined joints and fastenings as applied to a buggy-top.

Fig. 2 represents a sectional drawing in duplicate, of the joint and counterbrace, B, C, D, the letters in both figures, designating like parts.

The object of this invention is such, that it provides a combined brace and joints, so as to produce a double brace, holding the top forward and upward, and keeping the top smooth by means of an extra brace and joint, as shown at A, in the accompanying drawings, running from the prop-iron in the center of ordinary buggy-top braces at B, and so combined that the working of the joint in brace, lettered C, will work the joint D in brace A.

Those wishing to purchase shop, county or State-rights, should apply in person or by letter to Henry M. Curtis, Ypsilanti, Mich., or C. E. Mason, Wellington, Lorain Co., O. Mr. J. Dolan, who represents the interest of Mr. Mason in New Jersey, and has the right of that State for sale, may be addressed by mail at Blairstown, N. J.



## Editor's Work-bench.

### TO SUBSCRIBERS COMMENCING WITH DECEMBER.

OUR mail-books show a long catalogue of subscribers who began their year with the December number of 1866. To such, this number of the Magazine will be the last, unless they renew their subscriptions. We trust that all will do so for an entire year; but to those who choose— if only for the remaining six months—to complete a volume, we offer it for \$2.50, sent either in a registered letter or by post-office order, as “greenbacks” are not safe to remit otherwise. Direct all letters in the simplest and plainest manner possible. Such additions to our name and address as “Editor of the New York Coach-maker's Magazine,” and the like, are strong invitations to post-office clerks to look inside, if nothing more. Some folks, you know, have *curiosity* strongly developed—especially about money matters—and therefore all temptations to excite it should be carefully avoided by honest people.

### NEW YORK CITY GOSSIP.

It is but a few years since the carriage shops in all New York city did not exceed a dozen. To-day they number about seventy-five, twenty-five of which would be called by our country friends respectable, but many of the remainder “one-horse concerns.” In addition to these there are several carriage “warehouses,” where carriages are kept on sale, but not manufactured, making in all about eighty. The reputation which some of these establishments have gained for their carriages, by labor and careful finish, is world-wide—so much so, that we are constantly inquired of—especially by a certain class, too penurious to take our Magazine and keep themselves posted—“What is the very latest New York style?” We shall not undertake to say, here, what they are, our special business being in this article to note some of the most important changes now being made in some of the locations.

Some months ago our readers were told in these pages that our friends, Messrs. Brewster & Co., contemplated opening a carriage repository on the corner of Fifth Avenue and Fourteenth Street. The building originally occupying the premises has for some months been in course of alteration and enlargement, making the establishment now forty-five feet by one hundred, with four stories and basement, the ceiling of the first floor being nineteen feet high. The interior finish of this and the other stories will be of plain black-walnut and whitewood, in oil and wax. At the foot of the main staircase leading to the second story, in place of the usual newel-posts, will stand two large figures, carved in walnut—one representing a coachman, and the other a groom, in full livery. The front on

Fifth Avenue will be graced with columns in the Doric order, the roof Mansard, and the architecture generally that known as the “French Renaissance.” On the Fourteenth Street side will run a court-yard, eighteen by one hundred feet, inclosed with an iron railing, designed for the exhibition of carriages. The structure is sufficiently large to hold one hundred and seventy-five carriages. Messrs. Brewster & Co. expect to occupy the premises during the present month, and, knowing their habitual kindness in making visitors welcome, we promise our friends who may call upon them from the country a friendly welcome and a gratifying visit.

Messrs. Miner, Stevens & Co., having very recently sold their fine building in Walker Street, have removed their manufacturing business to Thirteenth Street, near the Fourth Avenue, and leased the large store, 656 Broadway, near Bond Street, for a warehouse, in which to sell their own manufactured work. The building—four stories high—has a frontage on Broadway of thirty feet, and a depth of one hundred and thirty-feet, ending on an inclosed alley at the rear, sufficiently broad to admit the free passage of carriages. This building has all the modern conveniences, and is, besides, light and airy, constituting one of the best establishments in the city. The firm have already taken possession, and have on sale a very fine collection of carriages, a specimen of which our readers will find a design of, on one of the plates accompanying this issue.

Still farther up Broadway, near Fortieth street—number 1404—Mr. Joseph H. Godwin, late of Elizabeth Street—which street, formerly so famous as the rendezvous of light carriage-makers, is now deserted—has recently erected a very fine carriage manufactory, thirty feet front, one hundred and thirty-three feet deep, which, with the basement, is five stories high, in which a son of the proprietor and his former manager have now established themselves, under the firm of Brown & Godwin. A few days ago we visited the place and found everything in good working order, giving promise of a successful business. Indeed, from the present turn affairs are taking, Broadway is likely to soon become the Long-Acre of New York, in carriage building. It already has some twelve repositories and manufactories of respectable size, and a few others of “no particular size,” to which there is a daily prospect of more being added soon. To an old carriage-maker, like ourself, who knew this city and its carriage shops nearly forty years ago, at a time when there were not more than two or three decent ones within the city limits, this increase is very gratifying, and although we may not be favored with the sight, we predict that the time is not far distant when this city will be *the* carriage emporium of the civilized globe, not only numerically, but likewise artistically. The strides which art has taken



in this direction during the past ten years warrants this belief, and therefore we have no hesitancy in saying so, although our European friends may question it. Our go-a-headitiveness has not in the least been checked by our civil war, as our enemies once hopefully predicted, nor can it be by its traitorous governmental head for any lengthy time.

#### REMITTANCES THROUGH THE POST-OFFICE.

WE must again caution our friends against sending remittances through the post-office in bank-bills unless they get their letters registered, because just now the department employs too many dishonest men. Every few days we are advised of money being sent us, that never came to hand, to our grief and the pecuniary loss of our friends. This may be provided against with a little care.

When you can, get a post-office order, and where this cannot be done, send us a draft payable at some house in New York to our order. Protect yourselves, as we will in no case be responsible for losses of money sent through the mails, unregistered. We have said this over and over again, and intend to follow out this determination.

#### THE EIGHT-HOUR LAW.

DURING the session of the International Union in Cincinnati, as reported in our last issue, the "eight-hour system was referred to as having made no progress among coach-makers, although it had among other trades." This last statement, like many others from the same source, needs proof to make the most casual observers believe. We have long since predicted the law, hastily passed by the legislative assemblies of several States, impracticable, and every day's experience confirms this prediction. So inefficient is the law, and so little is it regarded outside of the working men's Unions, that some of the most active of these members have become impatient and applied to the Governor of the State of New York, requesting him to issue a special proclamation, declaring the efficiency of the statute, and *forcing* employers to observe its provisions. Although Governor Fenton hastily and readily signed the document which made the enactment a law, he now finds himself powerless to carry it out, and tells his petitioners so without hesitation. He doubtless knew this when he sanctioned it, and "his friends" would have shown more wisdom had they not undertaken to thwart the operation of the "law of necessity," which in its exactions is paramount to all others.

The eight-hour law has certainly proved a failure, not only among coach-makers, but among all classes of mechanics. The four most busy months of the year have passed, and labor of all kinds is cheaper now than when the law first became such, by twenty per cent. Labor—especially among coach-makers—is so great a drug in

the market, caused by dull sales, that some shops have already cut down the hours of work, with a proportionate reduction of wages. This does not look encouraging for the eight-hour advocate, nor does it argue much in favor of the spirit in which it originated. It is, however, on a par with many other foolish things conceived in the brains of demagogues and party-leaders, whereby they hope to benefit themselves, and for which the hard-working man has to pay. These can only hope through agitation to lengthen out their few days of official pride, keeping the public mind in a fever—and thus put a few more dollars in their purses. But the day of reckoning approaches, and soon the poor man's eyes will be opened; then it will be seen who is the true friend of the laborer.

A lesson has already been taught, which to a reflective mind ought to be convincing, and that is: the utter folly of depending upon the promises of demagogues, and trusting to the tricks of political aspirants to office for relief from the exactions of labor and the faithful performance of daily duties. The utmost they can do is simply to promise, in a case like this.

#### REVIEW OF TRADE.

It seems like folly, almost, to waste ink and paper in reviewing a trade in which little or nothing is doing, and yet, this may not be pronounced a profitless task, since we are told "there are lessons in stones." In June, we told the public that "the continued high price of material and labor had to a considerable extent checked the manufacture of the finer class of work, beyond that ordered beforehand." This—with a few spasmodic exceptions—fairly expresses the *status* of trade during the entire season throughout the country, although our "International" friends have labored to *tickle* us with such "straws" as that "trade is good and still on the increase"—"Trade good, with fair prospects"—"Trade the same as at last report"—or, "Trade for this time of year is very good," all of which we find some men ready to gulp down as veritable opiates for the cure of a dull business, or something else. Well, as Barnum says, "some people like to be humbugged" for the momentary *sensation* it affords them, and perhaps, after all, we show no charity in pitying such.

The truth is—as everybody knows—the past has been the dullest season seen for many years, in other employments as well as that of carriage-making, much of which has been caused by labor agitations, in which the workman is promised more pay and less work, to his great disappointment individually and the discouragement of his employer pecuniarily. We shall not expect much improvement in trade until the time arrives when demagogues become satiated with office, or their dupes send them off on a *fool's errand*. May that time hasten on.



## ABOUT SPECIMEN NUMBERS.

No specimen numbers are sent from this office until the same is paid for, the charge for which is now 50 cents each. When paper and printing was much cheaper than at present, we sometimes furnished specimen copies in the hope of securing a subscriber, but our experience went to prove that such beggars, nine cases in ten, were only *spongers* upon our liberality, never having any higher motive than stealing from us from month to month, under different names, the entire volume. Strange as this may seem, by comparing the autographs we proved to our satisfaction, that there are many mean enough to engage in just such small business as we have alluded to. To stop this we adopted the rule of charging for all specimen numbers the amount paid, for which we are willing to make allowance for and deduct from the yearly subscription, when requested to do so, and the number obtained is specified.

## EDITORIAL CHIPS AND SHAVINGS.

THE "MITTIMUS."—Many years ago, in the village of Old Cheshire, New Hampshire, a culprit was brought before a squire and ordered to jail to await the action of the court. "Why don't you take the prisoner off?" demanded the squire of the sheriff. "If the Court please, I can't take him to jail without a *"mittimus."* "Well then," replied the squire, "take mine from under the shed, but be sure and return it safely!" This "mittimus" of the squire's was a razeed, square-topped old chaise; and in that town and throughout all the region round about, even unto this day, that style of vehicle is called a "mittimus."

STRAY HORSE.—The Parkersburg (Va.) *Times* prints the following "estray notice"—

THE STATE OF WEST VA. to the clerk of Wood county:

WE, James Cooper, Ransom Rector and John Stephen, three freeholders of said county, do hereby certify, that by virtue of a warrant to us directed buy W. W. Taylor, a Justice of said county, we have this day on our oaths viewed and appraised a mare taken up by Calip Barrett on his lands as an estray, and assesst the value of said estray at forty dollars with a blase in the fase one white hind foot a lump on the left flank, blind in left age supposed to be sixteen years old color brite sowwel about 14 hands high." Where is the schoolmaster?

HIGH HORSEMANSHIP.—A contemporary gets off the following *highly colored* mode of horse-back riding in Paris: "Make a pair of enormously large wheels, and place a carriage-body over the axle and shafts so high that the horse can travel under it and between the wheels. You will have a most symmetrical turn-out, such as they use in Paris, a beautiful dissolving view of driver, horse and carriage in one, defying man's wit to tell where either begins or ends, and a lofty perch where you can both see and be seen."

HORSES AND CARRIAGES NOT USED.—A correspondent, writing from Venice, says: "The streets of water are wider than those of the land, and are filled with boats as the streets of other cities are filled with carriages for conveying passengers and baggage," and that "not a horse or

carriage has ever relieved the weary in the narrow walks of Venetia, and a real live horse would be as great a curiosity to thousands of the people, as a genuine hippopotamus would be to the aborigines of our western plains."

HOW TO CURE BALKY HORSES.—The way to cure balky horses is to take them from the carriage and whirl them rapidly around till they are giddy. It requires two men to accomplish this, one at the horse's head, the other at his tail. Don't let him step out. Hold him to the smallest possible circle. One or two doses will generally cure; three doses is final with the worst horse that ever refused to stir. I have seen a very balky horse started off, lively as a lark, *by merely hearing the remedy talked off.*

SWISS CARRIAGE ROADS.—It is said there is not a toll-gate in Switzerland. Government has forbidden by law anything which tends to interfere with travel between the different cantons. The fine carriage roads everywhere seen are kept in repair at the expense of the cantons through which they run, the original costs having been equally borne by them and the federal authorities.

GRANT'S IMPROVED CARRIAGE RAIL.—By examining the advertisement under this head on the outside of our cover, it will be seen that the address of the proprietors is changed from Waupun, Wis., to Rochester, Minn.

## LITERARY NOTICES.

THE contents of the *Atlantic Monthly* for October are the Guardian Angel; Themistocles; Ben Johnson; Uncharitableness; The Rose Rollins; International Copyright; The Flight of the Goddess; The Throne of the Golden Foot; The Autobiography of a Quack; Writings of T. Adolphus Trollope; A Native of Borneo; By-Ways of Europe; Dinner Speaking and Reviews and Literary Notices.

*Our Young Folks* for October is illustrated by a full page engraving of "Sir Aylmer slain by the White Knight," by John Teuniel, and nineteen original designs of less dimensions. The letter press—always expressly written for the work—is varied and deeply interesting. We often think how much pleasure we lost in our boyish days in not having a work of this character to amuse us. Every head of a family ought to subscribe for it by all means.

*An Essay on Man*, by Alexander Pope, with fifteen original illustrations and notes by S. R. Wells, in paper covers 50 cents, and *The Gospel among the Animals*, by S. Osgood, D. D., have been received and placed on our table. Both published by S. R. Wells, 389 Broadway.

## Patent Journal.

## AMERICAN INVENTIONS

July 16. (66,761) CARRIAGE-CURTAIN BUTTON-HOLE.—Edwin S. Yancey, Utica, N. Y.:

I claim the plate C, provided with the arms D, E, and cap H, as arranged in combination with the curtain G, for the purpose and in the manner as set forth.

(66,771) HARNESS SHAFT LOOP.—B. J. Aurand, Mount Gilead, Ohio:

I claim as a new article of manufacture a harness shaft loop, constructed as described, consisting of the wooden or metallic ring B, having raised flanges *a*, upon its outer and inner sides,



between which are fitted, flush with the periphery and inner circumference, the continuous leather band and lining, as herein described for the purpose specified.

(66,772) THILL COUPLING.—James Auten, Chili, N. Y. :

I claim the combination and arrangement of the rubber blocks *b, b*, and the packing *f*, with the clip made in two parts *c, d*, connected by bolt *E*, as shown and described and for the purpose set forth.

(66,784) ATTACHING THILLS.—Charles Boynton, Lyons City, Iowa :

I claim the spring or rigid piece of metal *C*, the packing *H*, and the adjustable bolt *F*, when constructed, arranged, and operating substantially as and for the purposes above set forth.

(66,789) ATTACHING THILLS TO VEHICLES.—John D. Brunner, Doylestown, Pa. :

I claim the bar *A*, provided with the slot *o*, as herein described, when used with the head *D*, and bolt *E*, in the manner and for the purposes specified.

(66,817) ATTACHING THILLS TO SLEIGHS, ETC.—H. F. Edwards and W. C. Whiting, Worcester, Mass. Antedated July 8, 1867 :

We claim the combination of the connecting-rod *a*, with a key *s*, or its equivalent, attached, with any number of slotted eyes *c, c, c, c*, through which the rod *d* may pass, and in which it may turn, the key *s*, and the slots in the eyes *c, c, c, c*, being at such relative position as may be desirable or convenient, in the manner and for the purpose set forth.

(66,866) WAGON BRAKE.—Benjamin B. Monroe, Jackson, Mich. :

I claim the slotted blocks *F, F*, connected to the bars *E* by the bails *a, a*, when arranged with the bar *H*, and rod *G*, and operating in the manner substantially as and for the purposes specified.

(66,875) MACHINE FOR TENONING SPOKES.—G. H. Ober, Newbury, Ohio :

I claim arranging two cutters upon a frame in such manner that they can be adjusted to cut tenons of different thickness, when used in combination with an adjustable table *G*, and clamp *P*, all constructed to operate substantially as described.

(66,882) WAGON BOX.—D. H. Peterson, Terre Haute, Ill. :

I claim, *First*, The grooved and flanged irons *G* and *H*, in combination with the end and side boards *C* and *B*, of the wagon box, substantially as herein shown and described and for the purpose set forth. *Second*, The irons *F* and *E*, constructed substantially as herein shown and described, in combination with the side-boards *B*, and bottom bars *D*, of the wagon box, as and for the purpose set forth.

(66,917) WAGON BRAKE.—Seth Warren, Hollis, Maine :

I claim, *First*, The combination and described arrangement of the sliding-frame *i, i, j*, with the rocker *c*, the pieces *i, i*, working through the holes in the cross-bar *e*, and having the brakes with the crank-shaft *o*, all operating as and for the purposes specified. *Second*, The combination and arrangement of the two cross-pieces *e* and *f*, united by the rods *h, h*, upon which moves the rocker *c*, as and for the purposes set forth. *Third*, The brake when so arranged by means of the crank *o*, as to press against the wheel when the carriage has a forward motion, and to be thrown up and thus relieve the wheels in backing, in the manner and for the purposes herein set forth and described.

23. (66,952) APPARATUS FOR HEATING TIRES.—McDowell Darrow, Rochester, N. Y. :

I claim a tire-heater having compartments *c, c*, and registers *f, f*, and which is otherwise constructed and arranged as described, and which operates as herein set forth.

(66,953) COMBINED CLIP AND BRACE FOR CARRIAGE SPRINGS.—John H. Deal, Hornellsville, N. Y. :

I claim the double clip *a, a*, connecting strap *b, b*, and brace *D*, constructed in the manner described, in combination with the double link-plate brace *d, d*, applied substantially as and for the purposes herein set forth.

(66,954) STEP FOR SPRING WAGONS.—John H. Deal, Hornellsville, N. Y. :

I claim placing and securing a plate or disk to form a step on the iron, or connecting link of platform springs, for express or other wagons, substantially in the manner herein described for the purposes set forth.

(66,956) "FIFTH" WHEEL FOR CARRIAGES.—John Deeble, Plantsville, Conn. :

I claim forming a connection and bearing of the two parts of a fifth wheel at their intersection with the reach by means of the yoke *f*, and the wheel *b*, so as to support and hold the two parts of the fifth wheel together, the whole constructed and operated substantially in the manner herein set forth.

(67,028) WAGON BED.—Ezra F. Conner, Greensburg, Ind. :

I claim an adjustable extension of a wagon bed, consisting of the several parts *D, E*, and *F*, arranged to operate substantially in the manner and for the purpose set forth.

(67,126) WAGON BRAKE.—George Long, Marlboro Township, Ohio :

I claim, *First*, The peculiar combination and arrangement of the front bed-piece *D*, connecting-link *k, k*, and compound levers *E1, E1*, substantially in the manner and for the purpose specified. *Second*, The peculiar combination and arrangement of the lever *O* with the lever *P*, forming a compound anti-brake lever, substantially in the manner and for the purpose specified.

(67,128) SPRING WAGON.—Warren Mansfield, South Braintree, Mass. :

I claim, *First*, The arrangement upon rocker *B*, of springs *C*, connected as described with the wagon body at *i*. *Second*, The arrangement of volute spring brace *d*, connected as described with wagon body *H*, and rocker *B*, when the rocker carries springs *C*, attached to the wagon body, substantially as described.

(67,142) COUPLING REACH FOR BOB SLEIGHS.—Abraham L. Smith, Marengo, Mich. :

I claim the arrangement and combination of the two metal reach-bars *C* and *D* with each other and with a pair of bobsleds, when such bars are constructed and connected substantially in the manner and for the purposes herein set forth.

30. (67,187) ADJUSTING TIRES TO WHEELS.—W. J. Garland and N. Morgan, Winchester, Ill. :

We claim the arrangement of the tire *D, D'*, with its lugs *E* and *F*, screw *a*, bolt *b*, and slot *c*, substantially as described, in combination with a continuous felloe *A*, and its chamber *B*, constructed substantially as and for the purpose set forth.

(67,208) WHIFFLE-TREE COUPLING.—Francis B. Morse, New Haven, Conn. Antedated June 7, 1867 :

I claim the combination of the elastic presser with the recess *d*, and the screw-bolt *c*, when the whole is constructed, combined, and fitted for use, substantially as herein described.

(67,337) WHIP-SOCKET.—Theodosius Weaver, Harrisburg, Pa. :

I claim, *First*, A whip-socket in sections, flared or widened at a place suitable for the insertion of a locking device or lineholder, substantially as herein set forth. *Second*, A whip-socket provided with a set of single clutches rigidly attached or removable, to grip the rod in a dash, in combination with a brace, substantially as herein set forth. *Third*, The mode of preventing the revolution of a socket at its bearings on a rod by means of the indented arcs 1, 2, 3, 4, in Figs. 1 and 5, for the purpose specified. *Fourth*, The locking fastening, as shown in Figs. 3 and 8, and otherwise described. *Fifth*, The com-



bination of the bands B', K', B', K', with a socket, for the purpose specified. *Sixth*, The slides *o'*, *o'*, the holes *g*, *g*, *g*, *g*, Fig. 3, in combination with the brace-figure 5, and the screw E, for the purpose herein specified. *Seventh*, The combination of a tumbler or tumblers with a locking thimble, provided with a flange at top, the teeth 1, 2, 3, 4, key-hole *g*, key-guard 13, the toothed lock-shield 1, 2, 3, 4, the ledges R, V, A', handle H, stop S', when made to operate by a key, as herein set forth. *Eighth*, The combination of the subjects of the seventh claim with a circle of notches as shown in Fig. 4, or with two circles as shown at 12, Fig. 3, for the purpose herein set forth. *Ninth*, The combination of ring A, with a hook H', for the purpose specified. *Tenth*, Clothing or covering parts of a lock that come in contact with a whip-stock in a socket with a suitable material, substantially in the manner as and for the purpose herein shown and described. *Eleventh*, Inserting a key in a vertical or upright position in a whip-lock, as shown in Fig. 1.

(67,306) WHEEL-SPOKING MACHINE.—Alexander Humphries and John Kuthler, Mount Oreb, Ohio :

We claim a wheel-spoking machine consisting of the following members, to wit, the axial shaft G, adjustable pillow blocks I and J, swinging table L, and sliding rest O, constructed and operating substantially as and for the purpose set forth.

(67,371) PROP-BLOCK FOR CARRIAGE-TOPS.—W. H. Stickel, Knightstown, Ind. :

I claim the prop-block A, when provided with the dovetail groove *a*, adapted to receive the corresponding dovetailed elastic removable strip D, operating as described for the purpose specified.

August 6. (67,418) BUGGY-TOP JOINT AND FASTENING.—Henry M. Curtis, Ypsilanti, Mich. :

I claim the main and counter-braces A and C, when combined or joined together, and operating conjointly with the carriage-tops, substantially as and for the purpose set forth.

(67,484) THILL AND POLE COUPLING.—Edwin Bennett, Oxford, Mich. :

I claim the bar B, which is passed under the axle, and spread at its forward part to form a spring for clutching the egg-shaped shaft-iron by means of a bolt and screw E, for the purposes set forth.

(67,570) SLEIGH BRAKE.—W. A. Niver, Scott, N. Y. :

I claim an improved brake for sleighs, formed by the combination of the lever-dog E, chain H, roller F, and lever G, with each other, substantially as herein shown and described and for the purpose set forth.

13. (67,628) WAGON-BED.—Riley Bratton, Oskaloosa, Iowa :

I claim an improvement on ordinary wagon-beds as herein described, consisting of metallic standards with hooked ends fastening in staples, and the peculiar form of standards and location of staples, as my invention, by which a wagon-bed may be easily and quickly taken apart and put together.

(67,631) CARRIAGE COUPLING.—John H. Burrell, Jun., Charlestown, Mass. :

I claim a coupling made of the three parts A, B and C, substantially as described and for the purpose set forth.

(67,782) WAGON SPRING.—E. P. McCarthy, San Francisco, Cal. :

I claim the metal cups B, B, for receiving the ball and supporting the spring, in combination with the elastic ball C, suspended or held in place by the rod D, between the upper and lower portion of the spring, substantially as described.

(67,788) MACHINE FOR BENDING TIRES.—Francis Mills, Mount Vernon, Ind. :

I claim the arrangement of the adjustable rollers C, C, hung in either one of the fixed bearings B, B', the rollers E, hung in the horizontally-sliding head D, the crank-rollers G, hung in the vertically-sliding bearings F, in combination with the lever

H, suspended on the stirrup *d*, and provided with the rack *g*, to be held in place by the dog *e*, the whole mounted on the bench A, and operating as herein described.

(67,790) BOB SLEIGH.—George O. Momeny, Locust Point, Ohio :

I claim, *First*, Attaching the knees B, to the beams C, by means of the slotted braces G, when constructed and arranged as described, to allow lateral and vertical movement to the runners, enabling them to adapt themselves to the irregularities of the ground, as herein set forth. *Second*, The combination of the hook H, and eye I, with the forward ends of the raves D, and runners A, substantially as herein shown and described.

(67,794) SCREWING WHEELS OF VEHICLES ON THEIR AXLES.—Christian Oyster, Chambersburg, Pa. :

I claim the immovable key and the hinged washer, constructed substantially as described for the purpose specified.

(67,802) WAGON.—Edward Robinson, Greenbush, Wis. :

I claim, *First*, The combination of the segmental rack F, the catch *c*, pivoted with a spiral spring to operate it, the lever *a*, the tongue E, and the axle B, arranged and operating substantially as and for the purpose herein described. *Second*, The detached frame G, combined with the loop *d*, on the lever *a*, and the tongue E, arranged and operating substantially as and for the purpose specified.

(67,806) TIRE-SHRINKER.—Andross Rogers, Freeport, Ill. :

I claim, *First*, The shear-blades D, D, when constructed and operated in the manner herein set forth. *Second*, The combination of the lever C, the side B', the punch F, and the shear-blades D, D, the whole constructed, arranged, and operating as herein specified.

20. (67,838) SLEIGH BRAKE.—John Ast, Maquoketa, Iowa :

I claim the combination of the cranks E, and rod B, and lever L, with the slotted levers C, C, so as to operate substantially as above described.

(67,946) AXLE BOX.—Hugh Brady, Factoryville, N. Y. :

I claim the friction-rollers *e*, *e*, hung in the disk-bearings *g*, *g*, in combination with the partitions *d*, *d*, inclosed in the axle box *a*, constructed, arranged, and operating substantially as and for the purpose herein described.

(67,968) CARRIAGE-PROP.—William Finn, Poughkeepsie, N. Y. :

I claim the standard C, when provided with a dove-tailed, wedge-shaped tenon *d*, in combination with the plate B, which has a wedge-shaped dove tailed groove *e*, in a circular projection *b*, as set forth.

(68,002) WHEEL FOR VEHICLES.—H. A. Potter, Providence, R. I. :

I claim, *First*, The beveled fellocs A, in combination with the plate C, tire B, bolt D, provided with cam E, substantially as herein shown and described and for the purpose specified. *Second*, The sliding blocks F, H, in combination with the tire B, plate C, and bolts D, substantially as herein set forth and for the purpose specified.

(68,003) WAGON JACK.—R. B. Pruidle, Norwich, N. Y. :

I claim the arrangement and combination of the slotted post A, sliding gate B, with its hooks *e*, *e*, connecting-rod E, and crooked fulcrum-lever D, whereby the weight is raised and held by the lever without the aid of other fixtures, as herein described. I also claim the adjustable slide-frame *h*, *h*, attached to the gate B, in the manner described, operating substantially as and for the purposes herein set forth.

(68,015) MACHINE FOR PROPELLING STEAM CARRIAGES.—Elijah Ware, Bayonne, N. J. :

I claim, *First*, The combination of gear-wheels C, E, F, G,



arranged substantially as herein described for the purpose specified. *Second*, The running-wheel D, the break-wheel K, the pulley B, and the double-ratche P, in combination with the gear-wheels, substantially as described. *Third*, The break-wheel K, in combination with the gear-wheels, as described.

(68,017) WAGON WHEEL.—S. B. Welton, Waterbury, Conn. :

I claim the axle-box B, formed with a spiral groove upon its outer side, and adjustably secured in place in the hub E, by the set-screws C and D, substantially as herein shown and described and for the purposes set forth.

27. (68,113) MAKING EYES OF ELLIPTIC SPRINGS.—W. S. Richards, Bridgeport, Conn. :

I claim, *First*, The combination of the dies *g*, *i*, and *j*, with the lever D, or its equivalent, when they are constructed, arranged, and fitted to scarf the end and partially form the eye, substantially as herein described. *Second*, The combination of the dies *n* and *r* with the head of the ram *p*, when the head is provided with a tongue *o*, and the die *n*, has a slot or recess *m*, to receive the tongue, and the whole is fitted to produce the result of finishing the eye, substantially as herein described.

(68,121) CARRIAGE HINGE.—C. E. Schwind, New York City :

I claim the detachable piece or slide B, in combination with the two parts A, C, substantially as and for the purpose specified.

(68,130) AXLE.—Henry T. Tichenor, Fort Branch, Ind. :

I claim the combination of the skeins *a*, *a*, plate *z*, bands *b*, *b*, collar E, and cap D, with pin *d*, when arranged and used with the axle and hub in the manner and for the purposes specified.

(68,199) CARRIAGE-CURTAIN BUTTON.—Edward Howell, Ashtabula, Ohio :

I claim the cam *e*, and thumb-piece E, pivoted to the cam and arranged in relation to the rib *d*, and curtain, substantially as and for the purpose set forth.

(68,217) ELLIPTIC SPRING.—Edward C. Lewis, Auburn, N. Y. :

I claim the ribs formed upon the inner sides of the ends of the leaf B, fitting into the grooves upon the upper side of the leaf A, in such a manner as to keep the leaves in line with each other and preventing their lateral displacement, said ribs and grooves formed without having any corresponding depression or projection upon the opposite sides of the leaves, as herein described for the purpose specified.

(68,226) SLEIGH BRAKE.—H. F. Morton, West Sumner, Maine :

I claim the guides D, mounted upon a spring on either side of the sled, having both ends free, the lower arm being sufficiently long to reach the ground, and kept off it by the elasticity of a spring C, substantially as shown and described.

(68,237) SWINGLE-TREE.—Martin Ryerson, Huntsville, Ala. :

I claim a swingle-tree constructed of iron rods *a*, *a*, in a barrel form, bound together and supported by disks *b* and *b'*, *b'*, and arranged and applied substantially as herein described.

(68,274) CARRIAGE-SHAFT COUPLING.—Thomas H. Wood, Monroeville, Ohio :

I claim the spring D', section of the reach D, and pivots C, provided with ribs E, as arranged in combination with the lugs B and clip A, for the purpose and in the manner set forth.

September 3. (68,360) METHOD OF HOLDING WHIPS.—John Gibson, Jun., Albany, N. Y. :

I claim, *First*, Constructing whips with a hollow butt or handle end, for the purpose substantially as set forth and described. *Second*, The standard C, with or without the elastic washer *e*, or its equivalent, attached to the body, dicky-seat,

dash, or any other part of the carriage or sleigh, for the purpose set forth and described. *Third*, The hollow or bore *d* of the whip handle, in combination with the standard C, for holding the whip, substantially as set forth and described.

(68,397) WHEEL HUB.—Benjamin F. Taft, Groton Junction, Mass., assignor to Ames Plow Company, Boston, Mass. :

I claim the combination as well as the arrangement of the series of lips or bridges *c*, *c*, the cap-plates C, and the hub part A, provided with the sleeve B, and the spoke-receiving cavities or mortises arranged within it and with respect to the said lips, substantially in manner as herein before specified and as represented in the accompanying drawings.

(68,455) DETACHABLE BUGGY-TOP.—Albert M. Plimpton, Hornellsville, N. Y. :

I claim, *First*, The keys *j*, *j*, attached to the spring-holders *k*, *k*, operating substantially in the manner herein described. *Second*, The combination of the metal straps *c*, *c*, and *d*, *d*, with their openings *e*, *e*, *e*, *e*, the vertical studs *h*, *h*, and *i*, *i*, with their notches *f*, *f*, and the keys *j*, *j*, on the spring-holder *k*, *k*, for the purposes set forth.

(68,460) AXLE BEARING FOR WAGONS.—Hamilton Richardson, Janesville, Wis. :

I claim, *First*, The axle A, having its arm or journal composed of the single solid piece, with the friction rings or ferrules *a* applied thereto at its opposite ends, as herein shown and described. *Second*, The axle A, provided with the flange *n*, projecting over the inner end of the box, when used in combination with the box B, having the collar *t* arranged to shut over the shoulder on the outer end of the axle, as shown and described.

(68,479) WAGON-SEAT AND SPRING.—R. L. Allen, New York City :

I claim, *First*, Hinging the springs to eyes *a*, formed above and in front of the posts B, so that the springs will have their fulcrum upon the upper ends of the posts B, and securing the seat D upon the said springs, substantially as and for the purpose herein shown and described. *Second*, The posts B, springs C, and seat D, in combination with the staples E, all made and operating substantially as and for the purpose herein shown and described.

(68,486) RAIL FOR BUGGY-SEATS.—James Carlisle, Mount Gilead, Ohio :

I claim the bearing-bar C to a buggy or other seat, in combination with the rail E, when both are constructed so that the one will fasten to and upon the other, substantially as and for the purpose described.

(68,515) THILL COUPLING.—John Knox, Mount Gilead, Ohio :

I claim the spring *e*, combined with the slotted eye-bolt *e*, and grooved coupling-pin *g*, arranged and operating substantially as described.

(68,524) ADJUSTING THILLS TO CARRIAGES.—Martin J. Mellyn, Roxbury, Mass. :

I claim the lever A, and the clamp B, formed of the parts C and D, arranged and combined substantially as described for the purposes specified.

(68,554) CARRIAGE BOLT.—O. C. Burdick, New Haven, Conn. :

I claim a bolt having formed upon one or more sides of its neck a rib *a*, substantially in the manner and for the purpose as set forth.

(68,570) WHIFFLE-TREE IRON.—F. B. Morse, New Haven, Conn. :

I claim the herein-described whiffle-tree iron as an article of manufacture.

(68,578) SPRING.—George C. Smith and Boswell S. Judson, Matteawan, N. Y. :

We claim the wooden plates B, B', the rubber plugs C, C, and the metallic springs A, A, connected and used substantially as and for the purpose set forth.



10. (68,594) CARRIAGE WHEEL.—Augustus Beale, Stamford, Conn. :

I claim, in combination with a spoke and felly of the wheel of a vehicle, the socket D, and screw-cap C, when both parts are constructed, arranged, and operated in substantially the manner herein specified.

(68,596) CARRIAGE AXLE AND HUB.—La Fayette Blair, Painesville, Ohio :

I claim, *First*, Inclosing within a hollow tube H, an elongated spindle, constructed as shown in Fig. 5, and secured therein by the nut I, the said tube H being provided with bearings *h, h'*, annular flanges *a, b*, notch *g*, lubricating holes *e, d*, and the said nut I, with the broad annular flange I', and screw hole *d'*, all operating as and for the purposes set forth. *Second*, The hollow tube J, provided with the sleeve K, screw hole *i*, and plug L, in combination, and operating in connection with the subject of my first claim, substantially as and for the purpose stated. *Third*, The arrangement of the annular rim G, of disk D, and annular flanges *a, b*, of tube H, whereby an annular recess *k* is inclosed for the purpose of allowing water or dirt to escape through the hole *g*, substantially as herein set forth.

(68,646) RUNNING GEAR FOR VEHICLES.—B. F. Paine, Roseville, Ill. :

I claim, *First*, The bed-plate *g*, in combination with the arm H, axle N, and spindle X, constructed as described and for the purpose set forth. *Second*, The jointed tongue B, pivoted to the bed, as described. *Third*, The rod M, in combination with the rods R, tongue B, and axle N, substantially as described and for the purpose set forth.

(68,717) SHIFTING RAIL FOR BUGGY-TOPS.—Caspar Disser, West Union, Ohio :

I claim the combination of a carriage-seat and rail when constructed and provided with hooks and catches, substantially as and for the purpose described.

(68,729) EVENER FOR WHIFFLE-TREES.—Merritt Gally, Marion, N. Y., assignor to Orris Potter and Frederick Grandin, Walworth, N. Y. :

I claim the curved projections of the body of the evener E', E', the pivoted clevises for the attachment of straps or chains, in combination with the lever projections C, C, and constructed as herein set forth.

(68,737) COCK-EYE.—John Haggerty, East Springfield, Pa. :

I claim, *First*, The spring-bolt B, set in the bed A, and in combination with it, in manner and for the purposes as above set forth and described. *Second*, The bed A, bolt B, spring *b*, and plate C, or its equivalent, forming together a spring cock-eye, all substantially as and for the purposes above set forth and described.

(68,757) THILL COUPLING.—Cook C. Lawrence, Homer, Mich. :

I claim the plates *g, g'*, provided with disk segments *e, e'*, in combination with the slotted clip-plate *b*, constructed and operating substantially as herein described.

(68,766) CONVERTIBLE WAGON-SEAT, MANGER, AND TAIL-BOARD.—Chelton Matheny, Greensburg, Ind. :

I claim the wagon-seat convertible into a manger or into a tail-board, substantially as set forth.

(68,772) EXTENSION-BED FOR FARM WAGONS.—Samuel W. Meredith and David Mulligan, Greensburg, Ind. :

I claim, *First*, In combination with a wagon-bed A, a folding tail-piece C, permanently attached thereto by hinges C' and the side boards D, hinged to the tail-piece C, substantially as and for the purposes set forth. *Second*, The combination and arrangement of the bed A, hinged tail-piece C, with sides D hinged thereto, segment E, and staples F, substantially as and for the purpose set forth. *Third*, The combination and arrangement of the tail-piece with hinged sides, the wagon bed

and the spring catches I, substantially as and for the purpose set forth.

(68,773) MACHINE FOR DRIVING SPOKES IN WAGON WHEELS.—G. W. Miles, assignor to Hosler, Miles & Co., Michigan City, Ind. :

I claim the combination of the rotating shaft P, having the hammer attached thereto, with the vibrating frame N, eccentric Q, and post T, or its equivalent, when arranged to operate substantially as described.

(68,780) CARRIAGE JOINT.—Richard Nickson, Akron, Ohio :

I claim, *First*, The combination of the spring friction-block C with the joint, substantially as and for the purpose specified. *Second*, The hinged piece *a*, and spring catch *b*, in combination with the spring friction-block C and the fixed friction-piece B, and the bar A, substantially as and for the purpose specified.

(68,808) WAGON-HUB.—Welcome C. Tucker, Richmond Switch, R. I. :

I claim, *First*, The cup-flanges *c, e*, on the back and front ends of the wagon-hub B, upon which are fitted the corresponding flanges *a*, on the axle A and *n*, on the nut *d*, as herein shown and described. *Second*, In combination with the above, I claim the stationary collar *m*, and the adjustable collar *m'*, on the hub B, combined and arranged as and for the purpose specified.

(68,820) AXLE AND WHEEL CONNECTION.—John F. Welch, Hingham, Mass. :

I claim the above-described device for locking a carriage wheel to its axle, consisting of the plate *i*, with its screw *j*, the nut *b*, and the jaw-bars *a, a, a*, combined together and operating in connection with the ring *e*, applied to the axle, substantially as shown and explained.

(68,823) STAND FOR SUPPORTING WAGON AND OTHER WHEELS WHEN BEING PAINTED.—John N. Woodward, assignor to himself and Walter Scott, Aurora, Ill. :

I claim, *First*, The adjustable plate C, supporting the spindle D, in combination with the standard B, and a suitable detent, F, F', for retaining the spindle in any required position, substantially in the manner and for the purpose set forth. *Second*, The adjustable plate C, supporting the spindle D, in combination with the revolving standard B, plate, and detent F, F', for retaining the spindle and wheel placed thereon in any required position, substantially in the manner and for the purpose set forth.

17. (68,843) SHIFTING-RAIL FOR CARRIAGE TOPS.—Patrick G. Clancy, Augusta, Maine :

I claim, *First*, The arms *b, b'*, having the gain *c* decreasing in width from its outer to its inner side, and having the short shoulder *w'* and the rounded or beveled corner *s*, substantially as and for the purpose specified. *Second*, The wedge-shaped socket-plates *a, a'*, substantially as and for the purpose specified. *Third*, The combination of the bent arms *b2, b2*, with the notched arms *b, b1*, substantially as and for the purpose specified.

(68,844) THILL COUPLING.—Lyman C. Clark, Davenport, Iowa :

I claim the thill-iron B, constructed as described, in combination with the clip A, having the packing *a* arranged between the ears A''', on the plate A'', all arranged to operate as and for the purpose set forth.

(68,880) CARRIAGE CURTAIN-FASTENER.—Abel Hunt and Spencer Mero, Jun., Camden, Maine :

We claim the construction, arrangement, and combination of the parts B, C, D, F and G, and H, as represented in the several figures in the drawing.

(68,895) ATTACHING THILLS TO CARRIAGES.—A. Odell, New York City, assignor to himself and David Granger, Collinsville, Conn. :

I claim the combination of a shaft-iron made as hereinbefore



described, with an aperture, E, in it, with the non-movable jaws of a jack, substantially as described and for the purposes hereinbefore set forth.

(68,904) CARRIAGE.—James Rock, Hastings, England :

I claim the employment of springs or weights, substantially as hereinbefore described, to counterbalance the movable parts of folding carriage or wagon beds or coverings, in order to raise or close, or to assist in raising or closing, such heads or coverings. I also claim the combination as well as the arrangement of the bent levers *b, b'*, the connecting-rods *d, d'*, and the springs *a, a'*, also their combination with the jointed prop-bars *l, l'*, the carriage-body, and the movable back or part *e* hinged thereto. I also claim, in combination with the carriage-body, its joint-bars *l, l'*, movable back *e, e'*, and top piece *f, f'*, a means or mechanism, substantially as described, or the equivalent thereof, for effecting the movement of the joint-bars so as to close their joints by turning the part *f, f'* down into a horizontal position, such means being the angular teeth or feather, *k, k'*, of the prop-pin, and the elongated eye of the upper joint-rod *l*, the whole being as shown in Figs. 4 and 5, and as hereinbefore specified, the prop-pin *g* being fixed or applied to the part *f, f'* so as to turn or be movable therewith.

### CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

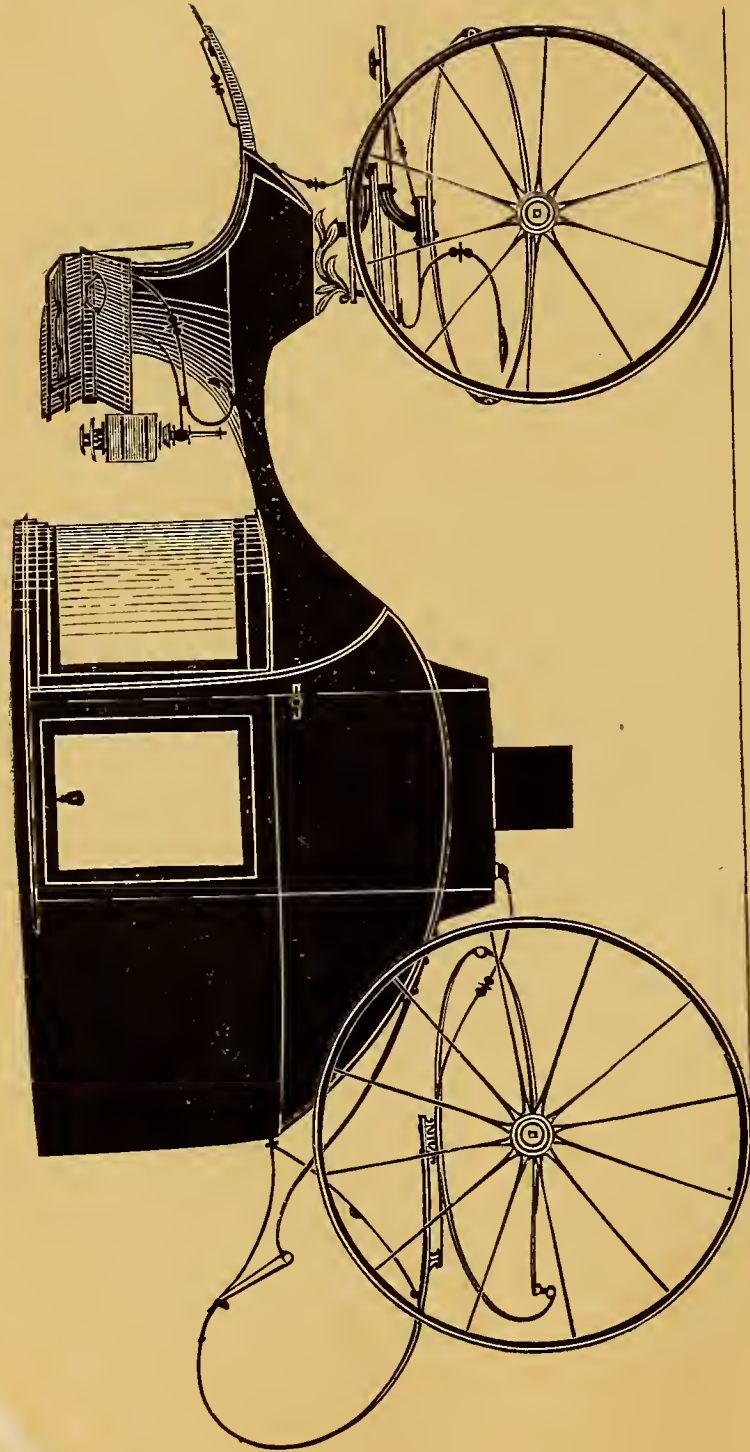
NEW YORK, Oct. 18, 1867.

Apron books and rings, per gross, \$1.75 a \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 8 1-2c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1½, \$7.50; 1¾, \$8.50; 1⅞, \$9.50; 1½, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1½, \$8.25; 1¾, \$8.75; 1⅞, \$10.75; 1½, \$13.00.  
 Do. Half pat., 1 in. \$10; 1½, \$11; 1¾, \$13; 1⅞, \$15.50; 1½, \$18.50.  
 Do. do. Homogeneous steel, ⅝ in., \$12.00; ¾, \$12; ⅞, \$12.50; long drafts, \$4 extra.  
 ☞ These are prices for first-class axles. Inferior class sold from \$1 to \$3 less.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3½ in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 20 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. ½ in., \$1.50; ⅝, \$1.50; ¾, \$1.70; ⅞, \$2 10; 1, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 25c.; per large gross, \$2.50.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 60c. a \$1.  
 Castings, malleable iron, per lb, 20c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$4 a \$6; lining, \$2.50 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.  
 Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 65c.; 5-4, 60c.  
 Do. Ducks, 50 in., 85c.; 3-1, 80c.; 6-4, 95c.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb., all sizes, 22c.  
 Fifth-wheels, wrought, \$1.75 a \$2.50.  
 Fringes, festoon, per piece, \$1.75; narrow, per yard, 18c.  
 ☞ For a buggy-top two pieces are required, and sometimes three.

Fringes, silk bullion, per yard, 50c. a \$1.  
 Do. worsted bullion, 4 in., 35c.  
 Do. worsted carpet, per yard, 8c. a 15c.  
 Frogs, 75c. a \$1 per pair. Glue, per lb., 25c. a 30c.  
 Hair, picked, per lb., 50c.  
 Hubs, light, mortised, \$1.20; unmortised, \$1. Coach, mortised, \$2.  
 Japan, per gal., \$2.75.  
 Knobs, English, \$1.40 a \$1.50 per gross.  
 Laces, broad, silk, per yard, \$1.00 a \$1.50; narrow, 10c. to 16c.  
 Do. broad, worsted, per yard, 50c. a 75c.  
 Lamps, coach, \$18 a \$30 per pair.  
 Lazy backs, \$1 per doz.  
 Leather, collar, dash, 30c.; split do., 18c. a 21c.; No. 1, top, 31c.; No. 2, enameled top, 28c.; enameled trimming, 30c.; harness, per lb., 50c.; flap, per foot, 25c.  
 Moquet, 1½ yards wide, per yard, \$7.00.  
 Moss, per bale, 10c. a 18c.  
 Mouldings, plated, per foot, ¼ in. 11c.; ⅜, 16c. a 20c.; ½, lead, door, per piece, 40c.  
 Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.  
 Name-plates. (See Advertisement.)  
 Oils, boiled, per gal., \$1.40.  
 Paints. White lead, extra, \$14.50, pure, \$15.50 per 100 lbs.; Eng. pat. black, 40c.  
 Pole-crabs, silver, \$5 a \$12; tips, \$1.50.  
 Pole-eyes, (S) No. 1, \$2.35; No. 2, \$2.60; No. 3, \$2.85; No. 4, \$4.50 per pr.  
 Sand paper, per ream, under No. 2½, \$5.50; Nos. 2½ & 3, \$6.  
 Screws, gimlet, manufacturer's 20 per cent. off printed lists.  
 Do. ivory headed, per dozen, 50c. per gross, \$5.50.  
 Serims (for canvassing), 16c. a 25c.  
 Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.  
 Shaft-jacks (M. S. & S.'s), No. 1, \$2.65; 2, \$3.10; 3, \$3.35.  
 Shaft-jacks, common, \$1.10 a \$1.35 per pair.  
 Do. tips, extra plated, per pair, 25c. a 50c.  
 Silk, curtain, per yard, \$2 a \$3.50.  
 Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.  
 Slides, ivory, white and black, per doz., \$12; bone, per doz., \$1.50 a \$2.25; No. 18, \$2.75 per doz.  
 Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.  
 Spring-bars, carved, per pair, \$1.75.  
 Springs, black, 18c.; bright, 20c.; English (tempered), 24c.; Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.  
 If under 36 in., 2c. per lb. additional.  
 Spokes (Best Elizabethport), buggy, ⅞, 1 and 1½ in. 9½c. each; 1½ and 1¾ in. 9c. each; 1½ in. 10c. each.  
 ☞ For extra hickory the charges are 10c. a 12½c. each.  
 Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.  
 Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½; 3-4 x, 5-32 a 11 c; heavier sizes, 9½c. currency.  
 ☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.  
 Stump-joints, per dozen, \$1.40 a \$2. Tacks, 7c. and upwards.  
 Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.  
 Terry, per yard, worsted, \$3.50; silk, \$8.  
 Top-props, Thos. Pat, wrought, per set 80c.; capped complete, \$1.50.  
 Do. common, per set, 40c. Do. close plated nuts and rivets, \$1.  
 Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.  
 Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.  
 Do. Marshall's Machine, 432, \$2; 532, \$2.25; 632, \$2.60, gold.  
 Tufts, common flat, worsted, per gross, 20c.  
 Do. heavy black corded, worsted, per gross, \$1.  
 Do. do. do. silk, per gross, \$2. Do. ball, \$1.  
 Turpentine, pr gl., 70c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.  
 Whip-sockets, flexible rubber, \$4.50 a \$6 per dozen; hard rubber, \$9 to \$10 per doz; leather imitation English, \$5 per doz. common American, \$3.50 a \$4 per doz.  
 ☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lb.  
 Varnishes (Amer.), crown coach-body, \$5.00; nonpareil, \$6.50.  
 Do. English, \$6.25 in gold, or equivalent in currency.  
 Webbing, per piece, 65c.; per gross of 4 pieces, \$2.40.  
 Whiffle-trees, coach, turned, each, 50c.; per dozen, \$4.50.  
 Whiffle-tree spring hooks, \$4.50 per doz.  
 Window lifter plates, per dozen, \$1.50.  
 Yokes, pole, 50c.; per doz, \$5.50. Yoke-tips, ext. plated, \$1.50 pair

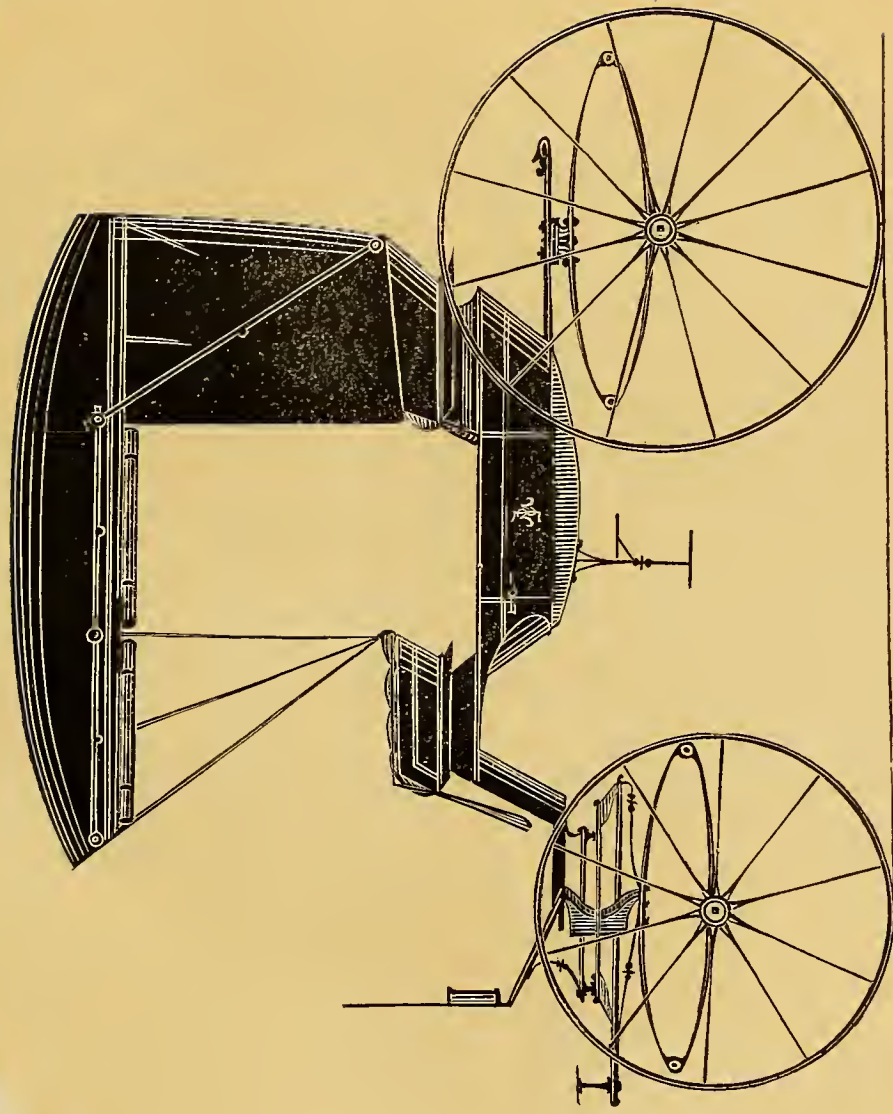






CLARENCE COACH.— $\frac{1}{2}$  IN. SCALE.  
*Engraved expressly for the New York Coach-maker's Magazine.  
Explained on page 102.*





CUT-UNDER NO-PERCH CABRIOLET.— $\frac{1}{2}$  IN. SCALE.

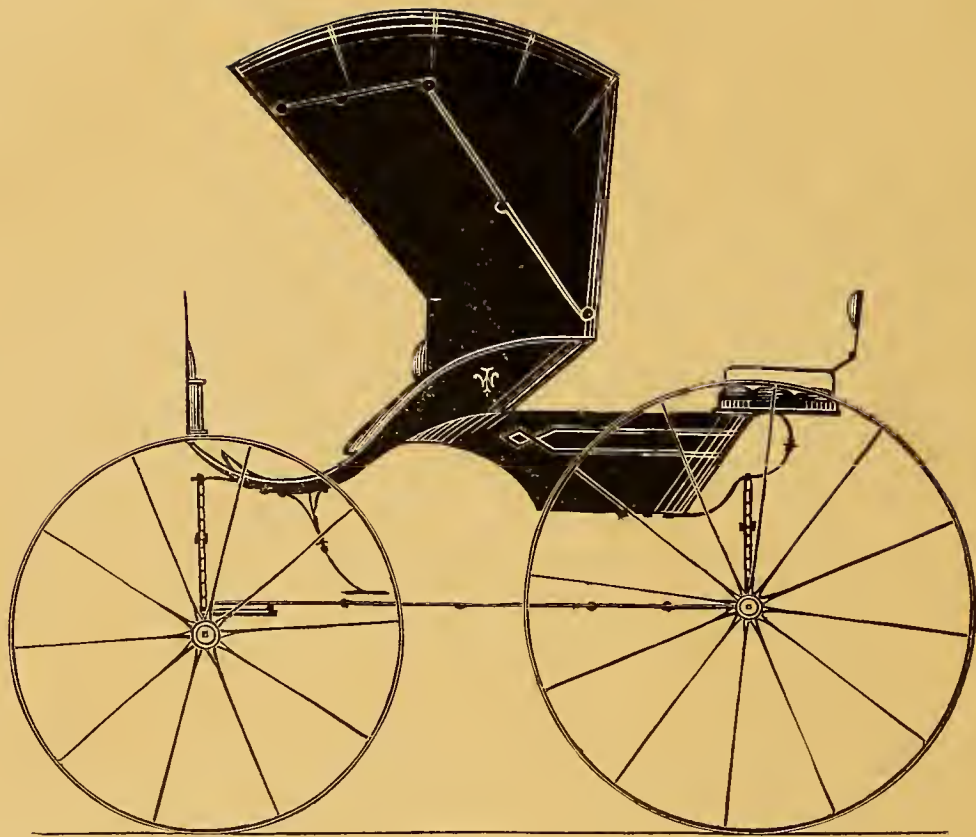
*Designed expressly for the New York Coachmaker's Magazine.*

*Explained on page 103.*







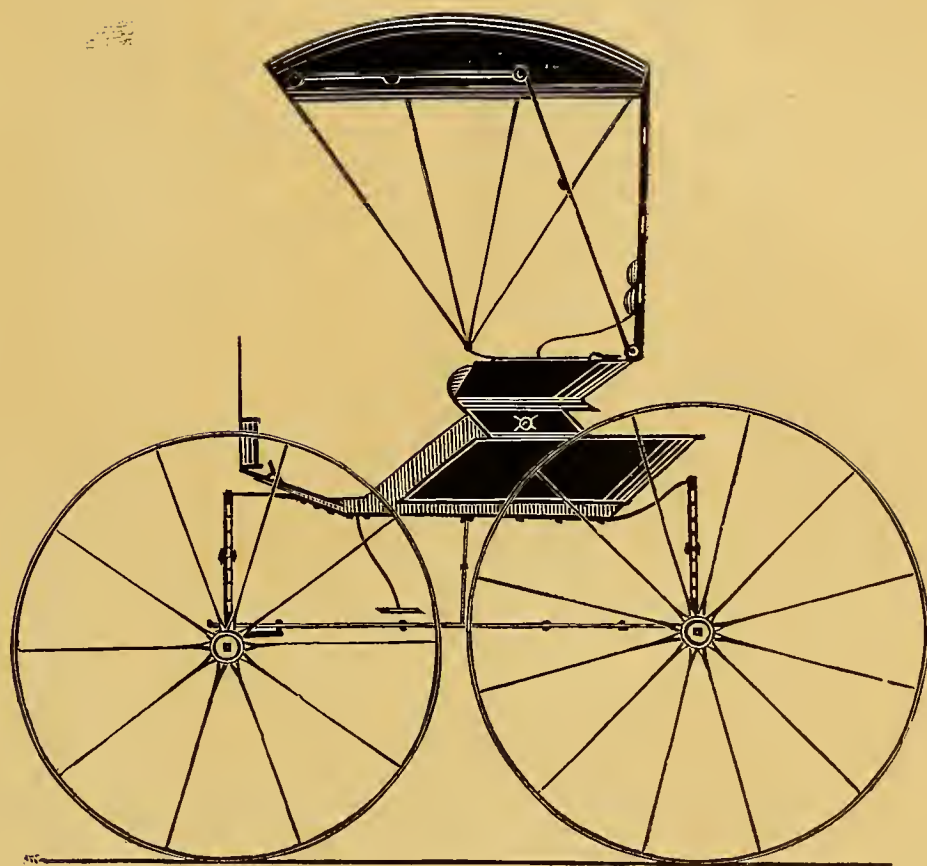


COMBINATION TURN-OVER SEAT PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 103.*





NOVELTY BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 103.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, DECEMBER, 1867.

No. 7.

## Mechanical Literature.

### THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

#### CHAPTER IV.

O THOU invisible spirit of wine! if thou hast no name to be known by, let us call thee—Devil.

*Cassio.*

WITH a proud and haughty step, that would have gained the at least momentary admiration of Miss Bell, could she have seen it, Walter descended the steps and reached the street below. He met many persons whom he knew, members of the association and their friends talking in little groups together, but he passed them by with scarce a look; while gathered round the door were groups of darkies of all ages and sizes, favored house-servants who had free passes, all eagerly and loudly discussing the play, with all the ardor, if not all the wisdom, of older and more learned critics. "Missus said he was only poor *white trash*, anyhow," exclaimed one of them. "Hush—sh!" said another, "there he goes now;" and a suppressed titter ran through the group. Passing on, scarcely noticing what direction he was taking, he rapidly pursued his way until he found his further progress suddenly arrested by loud and boisterous voices, and a hand was laid familiarly on his shoulder, while one exclaimed, "Heigh ho, boys! here he is, now. Come in, old *fel.*, and take a drink. No excuses, now, so come along;" and before he fully realized the fact, he was before the bar of the "Sunny South Saloon," in company with the jous before referred to, and two or three additions to their ranks, while Augustus Aurelius, with an extra flourish of his cane, and an extra pull at his lilac-colored kids, declared he would stand treat that trip. Walter was at that moment in the same mood as Claude Melnotte, when—

Passion turned to wrath  
 Resembled hatred most, the tempters found him  
 A revengeful tool for their revenge,

and he was soon touching glasses, and nodding with his

Entered, according to Act of Congress, in the year 1867, by E. M. STRATTON, in the Clerk's Office of the District Court of the United States for the Southern District of New York.

VOL. IX.—13.

companions right and left, as politely and apparently as unconcerned as though no such things as histrionic associations were in existence. Then others, not to be outdone in liberality by the young pettifogger, declared they must treat all round; and soon Walter called for cigars, and then some one moved they adjourn to the billiard-room, which was seconded and carried *instanter*. As they were passing out, Walter, who had managed to get by the side of A. A. B., Esq., took that worthy by the arm and turned one side. When they reached a deserted corner of the room, Walter, looking directly in the eyes of his companion, said in a low but terribly distinct voice: "Mr. Barnes, I have taken you aside to give you a little advice; and as it might make some remarks if overheard, I deemed it best for you that it should be given privately. You have played your cards well, sir, and you give promise some day of being a clever wire-puller to some broken-down politician, if you should live so long; but be careful, sir, how you choose me for a subject the second time; for, depend upon it, it will prove a dangerous game to you. I had never done you an injury that I know of; you volunteered to give up your part, and presented your excuses for so doing, which were satisfactory and deemed sufficient by the association; and, upon being offered the part, took it, as some one was bound to do; and by the low, contemptible mode of attempting to disgrace me in the eyes of my acquaintances and the public generally, you have proved yourself a villain, and by your method of so doing you have proved yourself a coward, and I now pronounce you a contemptible puppy, beneath the notice of any man;" and with a look of scorn that made the delicate Augustus wince, he left him and passed out in the street. Instead of joining the noisy crowd in the billiard-room, where they were knocking the balls about utterly regardless of the rules of the game, his better judgment caused him to turn away and walk rapidly down the street.

He had no particular destination, no particular object in view; all that he wished for was to get away from all humanity, with no companion but his own thoughts. And so he passed by his hotel, and coming to a cross street where all was still and silent, down it he turned with a slower step. The wide sidewalk was deliciously shaded with huge live-oaks and delicate china-trees, and as he neared the suburbs his step became still slower, and his head more erect, as his eyes swept over the gorgeous



scene before and around him, until he almost forgot the degrading circumstances attending the part he had recently enacted. Ere long his footsteps ceased altogether, and leaning against the friendly trunk of a china-tree, he gazed enraptured about him. It was indeed a scene well worthy the inspiration of a poet or the genius of a painter. Before him was a modest cottage, fairly embossed in a lovely network of evergreens and rose-bushes, while the full moon, just rising over the tree-tops to the east, threw its soft and mellow light over the whole landscape. The heavy dews sparkled with the lustre of countless diamonds on every leaf and flower, while the fresh and balmy breeze wafted a perfume rich as was ever breathed in "Araby the blest" from the pendent purple blossoms of the china, mingling with the softer odors from a thousand roses of the most brilliant hues, together with the richer japonica in its snowy purity—all rising like incense on the zephyrs wing that wafted it on; intoxicating the senses of those who inhaled it, not as wine intoxicates the drunkard, leaving him nerveless and wretched, but filling his whole soul with that thrilling ecstasy that lifts us above the earth, among those beatific visions as seen and described by the prophets of old. Why is it that even while gazing on such a scene the happy hours of childhood return and fill the heart with their glorious memories? Is it because the innocence of that period is inseparably connected with nature in all her purity and grandeur? Oh! sweet retrospect of stern, busy manhood, we only remember the happy hours—the sad ones are forgotten, obliterated from the tablets of childish memory. Poets love to sing of it in their most glowing strains, artists love to paint it in their most brilliant colors. Such was the prospect on which Walter looked, and thus was he filled with such thoughts, when a new actor came upon the scene. Upon the topmost branch of a live-oak near by a mocking-bird took his station, and commenced pouring forth song after song in imitable mockery, so rapid and true that they have to be heard to be properly appreciated and fully believed. First came the melodious song of the thrush, then the sharp cry of the cat-bird, followed by the martial, soul-stirring air of the bob-o-link, the shrill cry of the jay, and then robin red-breast awoke on his neighboring perch and heard his own notes, of which he was so proud, repeated in more musical tones than his tiny throat could boast; anon the piercing shriek of the hawk, so sudden and startlingly distinct that Walter almost held his breath expecting to see that fierce bird swoop down on some ill-fated chicken. Twenty-seven\* distinct songs of as many different birds did he listen to, and so absorbed was he in the pleasing occupation, that he failed to notice the approach of a party of men until they halted directly opposite, at the gate that led to the cottage before mentioned. Noticing that they carried a burthen of some kind between them, he stepped forth from the shadow of the tree, and discovered it to be a shutter apparently torn off from some building for the purpose, on which, stiff and motionless, lay the form of a man.

"What does this mean?" he asked, "what is the matter?"

"Ah Cummings," exclaimed a voice that he now recog-

nized as coming from the painter, "is that you, my boy?—had a serious fuss after you left us so suddenly; young Barnes came into the billiard-room cursing and abusing you in such a manner that Seymour, the smith here, pitched into him and gave him a good sound thrashing; but that worthy, having more faith in the efficacy of a weapon than in the noble art of *fistiana*, drew a pistol and shot him. Pretty serious wound, but not dangerous, I think, else he'd a been dead before this. But we are losing time. He lives here; so just give us a helping hand to bear him in, for we are about tired out."

Thus called upon, Walter hastened to obey, for he felt as though the generous-hearted but wrong-headed smith had received his injury by espousing his quarrel.

Ringling the bell they heard soft footsteps within, then the door was noiselessly opened, and they entered. The house seemed familiar to the painter, who led the way to a neat and comfortable sitting-room in the rear of the parlor, where they deposited their burden on two chairs. A low, half-suppressed sob, followed by a wild shriek, now attracted Walter's attention, and turning he saw his fair young acquaintance of the stage, as she sprang to the side of the wounded man, and grasping his hand in her own, cried in tones of heart-rending agony, "Father! oh father! say is he dead? Father! father! speak to me—it's your own Nellie; speak to her, and tell me you have not left me all alone in the world," and the hot tears coursed down her face, as his rigid form and pale lips seemed to affirm the truth of her worst fears.

"Hush, child!" cried the painter in a decided tone. "He's not dead, it's nothing but a scratch—fainted though from loss of blood, but we'll soon bring him to. Better make yourself useful, and get us some cold water; we'll want it now in a few minutes." In a moment she had ceased her sobs, and rising calmly, passed out of the room.

Walter, whose general information extended to some slight knowledge of surgery, unfastened the wounded man's clothing and examined the wound. The ball had entered the left side, and after a moment's examination he exclaimed, "Struck a rib, and glanced I think. Let us bring him to, and then extract the ball, if the surgeon does not arrive first." As the water had just arrived, the painter commenced bathing the face and forehead, while Walter washed the wound, tenderly and carefully, and in a few moments he began to show signs of life. First his lips moved, then a low groan was heard, and soon his eyes opened slowly, again his lips moved and he feebly articulated "water!" In a moment his daughter was by his side with the beverage, and after swallowing half a tumbler he said, in a low tone, "What is the matter?—what has happened?" but ere one could answer he added, "Ah yes! I know now—Barnes—is the wound dangerous?" "No," answered Walter, in a confident tone, "only a flesh wound; you'll be all right in a couple of weeks, perhaps sooner. All that remains to be done is to extract the ball, then dress the wound, and a little nursing, then *presto change!* Ah! here it is, just under the skin, as I thought; turn slightly on your right side; assist him there, one of you—that is right; one moment now." And while he was speaking he drew his pocket-knife, opened one of the smaller blades, made a slight incision, placed a thumb on either side of the ball, pressed together, and it dropped on the floor. "There, all right now!" he added; "the surgeon will find nothing to do

\* To some this number of tunes may appear apocryphal, but it is a fact that in the spring of 1861 the writer counted that number from one single mocking-bird in Alabama, which was then scared, else there is no telling how many more would have been added to his *repertoire*.



when he arrives; send some one after a few pounds of ice to dress the wound, then a good night's rest, and you are safe."

After the order was executed and the wound properly dressed, Walter signified his intention of remaining for the night, and soon after the rest took their leave. Then, as all became silent, the smith sank in a deep slumber, from which he awoke but once during the night, and then only to ask and receive a glass of ice-water, after which he dropped off to sleep again.

In vain did Walter urge his daughter to retire to her own room. She presented excuse after excuse for remaining, and remain she did the whole night long. Soon, when she became convinced that her father was in no danger, she became more communicative, and ere the morning dawned he found that she possessed a mind well stored for one so young.

In truth, the smith, dissipated as he was, was endowed with a liberal mind, and he had determined upon giving his children a good education if nothing else; and Nellie, our little heroine, had graduated with distinction some few months before at one of the best seminaries of the State. And so they talked of books and schools, of birds

and flowers, of poets and painters, and then Nellie gave her impressions of the evening's entertainment, which naturally led to a general survey of the modern drama from Walter, the last of which was all new to her; and when

"The morn, with russet mantle clad,  
Walked o'er the dews of yon high eastern hill,"

they were the best friends imaginable. And then the wounded man awoke again. In an instant Nellie was by his side with a glass of water, which he drank eagerly. Upon being asked how he felt he replied, "Much better than I anticipated last night. And so," he added, after a moment's pause, like all my troubles, this is the result of strong drink. Mr. Cummings, I call upon you to witness, and you too, my daughter, that this is a lesson I shall not neglect to profit by. From this hour I drink no more. Before Heaven and you as witnesses, I swear it."

"The wisest and best resolution you could make," said Walter. As for Nellie she said not a word, but tears filled her eyes as she threw her arms about her father's neck and kissed his pale lips, just as the first rays of the rising sun streamed through the window and crowned her head with a halo of glory.



PORTION OF THE TRIUMPHAL PROCESSION OF MEMPHTAH I.—FROM A BAS-RELIEF AT KARNAC.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—VII.

In the great work of Rossellini, before referred to, we find a series of plates—from liii to lix inclusive—giving us a continued series of representations of the battles, victories, and triumphal processions of Memphthah I., the powerful Egyptian ruler who figures so prominently in our last chapter.\* These, too, were copied by the learned Tuscan from the original bas-relievs on the walls of the justly-celebrated temple at Karnac. The original of the first plate in this series time has almost ruined, only a fragmentary portion of the chariot remaining. Plate liv represents a battle-scene in which a warrior may be seen standing upright in a chariot, the sides of which are so

much open as to expose to view nearly the entire person—then, apparently, the fashionable mode of building chariots—holding a bow in the left hand, while at the same time he grasps his sword with the right, one foot put forward of the front rail, and resting on the pole bracingly. Alongside of the chariot is shown a warrior enemy, grasping a broken bow with the left hand—showing thereby that he intends to fight no more—his right raised, with the fingers spread, pleading for mercy. Around, in multitudinous confusion, are scattered the wounded, dying, and the dead, pierced by the fatal arrow.

The third plate of this series presents us with a triumphal scene, the hero or king holding the reins in his left hand, at the same time grasping the whip and sword with the right, the heads of his slain victims dangling at the front and rear ends of the chariot, while in the van march

\* In the Tuscan explanation they are thus referred to: "Seguito della battaglie conquiste di Memphtha I., rappresentate in grandi basso-relievi sulla parete esterna sud-est dell' edificio Karnac." This king succeeded Ramses I., and flourished B. C. 1604, reigning eight years. He appears to have been a Theban by birth.



a host of fettered prisoners, with emblems of degradation prefixed to their foreheads. Many points in this picture are set-off with the lotus flower, as seen at the ends of the bow-case in the illustration accompanying this article.

Plate lvii represents another battle-scene, with a profusion of chariots, the bodies of which are very open at the side, and in the trappings of the horses there are many additions noticeable. But a finishing-touch is given to this interesting series in plate lviii, from which our engraving is copied, evidently intended to portray, with all the force art could convey, an Egyptian triumphal procession. Time, with its relentless hand, has invaded the original, as the tinted portions of the picture show, but enough remains for our present purposes. The victor, represented in the person of the king, drawn in colossal proportions, with a wreath band to his forehead, is seen stepping into a chariot, the sides of which are open, showing a double quantity of braces, there and in front, leading after him a portion of the victims set apart for this occasion. First march three manacled foot-soldiers, in a singularly distorted posture; behind these move two chariots, in which are mounted several other prisoners, their limbs also being bound in like manner to the first. In front of the chariot in the original picture—omitted in ours—other prisoners are seen on the march, with grief and sorrow strongly depicted in their countenances, a pitiful looking group.

According to Herodotus, the Egyptians were the first of any nation to introduce public festivals, processions, and solemn supplications, the Greeks afterwards having learnt these of them.\* Such being the case, we may with propriety close this article with an extract from the pages of Sir G. Wilkinson, describing a triumphal procession and its accompanying ceremonies:†

“When the victorious monarch, returning to Egypt after a glorious campaign, approached the cities which lay on his way, from the confines of the country to the capital, the inhabitants flocked to meet him, and with welcome acclamations greeted his arrival and the success of his arms. The priests and chief people of each place advanced with garlands and bouquets of flowers; the principal persons present addressed him in an appropriate manner; and as the troops defiled through the streets, or passed without the walls, the people followed with acclamations, uttering earnest thanksgivings to the gods, the protectors of Egypt, and praying them forever to continue the same marks of favor to their monarch and their nation.

“Arrived at the capital, they went immediately to the temple, where they returned thanks to the gods, and performed the customary sacrifices on this important occasion. The whole army attended, and the order of march continued the same as on entering the city. A corps of Egyptians, consisting of chariots and infantry, led the van in close column, followed by the allies of the different nations who had shared the dangers of the field and the honor of the victory. In the center marched the body-guards, the king's sons, the military scribes, the royal arm bearers, and the staff corps, in the midst of whom was the monarch himself, mounted in a splendid car, attended by his fan-bearers on foot, bearing over him the state flabella. Next followed other regiments of infantry, with their re-

spective banners; and the rear was closed by a body of chariots. The prisoners, tied together with ropes, were conducted by some of the king's sons, or by the chief officers of the staff, at the side of the royal car. The king himself frequently held the cord which bound them, as he drove slowly in the procession; and two or more chiefs were sometimes suspended beneath the axles of his chariot, contrary to the usual humane principles of the Egyptians, who seem to have refrained from unnecessary cruelty to their captives, extending this feeling so far as to rescue, even in the heat of battle, a defenseless enemy from a watery grave.

“Having reached the precincts of the temple, the guards and royal attendants selected to be the representatives of the whole army, entered the courts, the rest of the troops, too numerous for admission, being drawn up before the entrance; and the king, alighting from his car, prepared to lead his captives to the shrine of the god. Military bands played the favorite airs of the country; and the numerous standards of the different regiments, the banners floating in the wind, the bright luster of arms, the immense concourse of people, and the grandeur of the lofty towers of the temple, decked with their bright-colored flags streaming above the cornice, presented an imposing scene. But the most striking feature of this pompous ceremony was the brilliant cortege of the monarch, who was either borne in his chair of state under a rich canopy, or walked on foot, overshadowed with rich flabella or fans of waving plumes. As he approached the inner gateway, a long procession of priests advanced to meet him, dressed in their robes of office; censers full of incense were burnt before him; and a sacred scribe read from a papyrus roll the glorious deeds of the victorious monarch, and the tokens he had received of the divine favor. They then accompanied him into the presence of the presiding deity of the place; and having performed sacrifice, and offered suitable thanksgiving, he dedicated the spoil of the conquered enemy and expressed his gratitude for the privilege of laying before the feet of the god, the giver of victory, those prisoners he had brought to the vestibule of the divine abode.

“In the meantime, the troops without the sacred precincts were summoned by sound of trumpet, to attend the sacrifice prepared by the priests, in the name of the whole army, for the benefits they had received from the gods, the success of their arms, and their own preservation in the hour of danger. Each regiment marched up by turn to the altar, temporarily raised for the occasion, to the sound of the drum, the soldiers carrying in their hand a twig of olive, with the arms of their respective corps; but the heavy-armed soldier laid aside his shield on this occasion, as if to show the security he enjoyed in the presence of the deity. An ox was then killed; and wine, incense, and the customary offerings of cakes, fruit, vegetables, joints of meat, and birds, were presented to the god. Every soldier deposited the twig of olive he carried at the altar; and as the trumpet summoned them, so also it gave the signal for each regiment to withdraw, and cede its place to another. The ceremony being over, the king went in state to his palace, accompanied by the troops; and having distributed rewards to them, and eulogized their conduct in the field, he gave his orders to the commanders of the different corps, and they withdrew to their cantonments, or to the duties to which they were appointed.”

\* Herodotus, *Euterpe*, § 58.

† Ancient Egyptians, vol. i., ch. 4, pp. 277, 280.

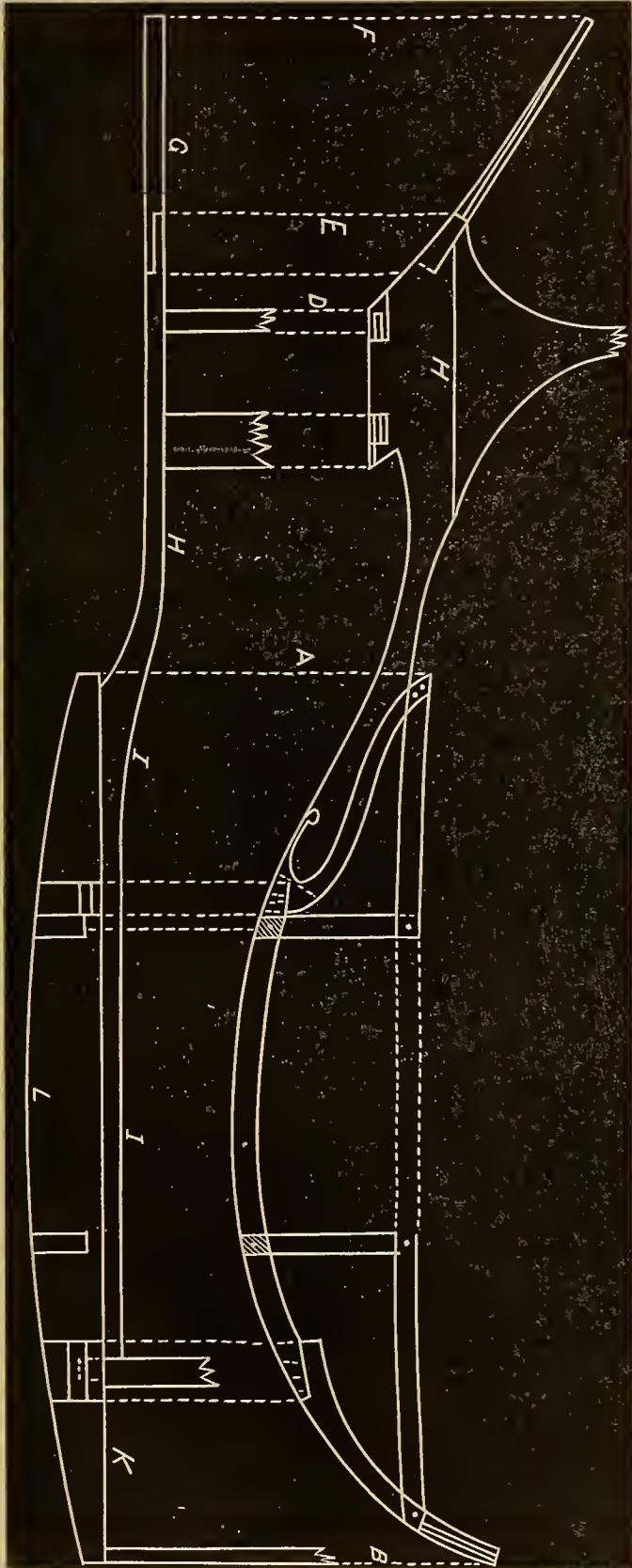


## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

## BODY CONSTRUCTION—PART TWENTY-SECOND.

OUR readers have in the diagram accompanying this article, an illustration of the mode of constructing the



CALECHE WITH METROPOLITAN BOOT AND CANT—THREE-QUARTER INCH SCALE.

caleche, found on Plate 21, in this volume, which is very easy and simple in the details.

Having found the extreme length of the body proper, draw the lines A and B, as in the diagram; next, C D E and F. Having now the distances for different portions of the body, next proceed and lay out the draft on the black-board as we have done, to do which requires a "mechanical eye" and some taste.

In the cant added to our design, at the bottom, F is the front bracket, screwed to rocker H; I, position of the front pillar, to which the rocker should be screwed from the inside, after framing, with wood-screws; J the chief rocker; K the back pillar; the swell (cant-line) of the body is found in the line L, which in this instance is greater than comports with our idea of propriety, but can easily be accommodated to fancy or taste, in the builder. The front rocker H, being paneled with white-wood, requires a panel of the most perfect dryness, or else the job will soon afterward show defects. For the information of the reader we shall here add what has before been said in these volumes, that "it would be well to get your panels out a couple of days before you require them, and steam them on the concave end, and bend them on a press, to fit the concave. You can afterwards, in a day or two, take them off the press and glue them on perfectly dry without any trouble. Some body-makers steam their panels and glue them on wet, which makes them liable to come off again. All panels should be put on as dry as possible, and should the weather be cold there ought to be great care taken to have all the panel-cauls, or straps, well heated when you lay them on the panels; then when you apply the screws, the heat penetrates the panel, and warms the glue, so that the work is more perfect." This is the way in which the cabinet-maker proceeds, generally laying his veneer over a surface scratched with a tooth-plane, such being much better fitted for gluing upon than a hard and smooth one. There was a time in our memory when the coach-maker depended almost entirely on nails and screws to make his panels secure; but this has been omitted by the modern workman—except when it can be hidden by mouldings—as very detrimental to the beauty of the carriage, since puttying over the heads of nails and screws is sure to show in the course of time, after being run. This is one and perhaps the chief reason why panels ought to be kept free from such imperfections, and secured as firmly as possible with glue alone, and afterward well painted for protection from the elements.

## FELLING AND SEASONING TIMBER.

MR. EDITOR:—As it must be acknowledged that everything tending to improve the art of coach-making, either in theory or practice, is of primary importance in this country, I have ventured to send a few ideas on the subject of felling and seasoning timber used in the business. Should they prove well-founded, on a just view of the matter, they will, perhaps, (although much has been said on the subject,) elicit from some of your correspondents information that I have no doubt will prove valuable to many of your readers.

Ash timber is generally felled for carriage-making purposes about May, when the sap is rising in the tree, and this is chosen by many because the bark strips off easier then. This is very injudicious, and injurious to



the timber; for the capillary tubes, or grain, being full of moisture, the tree contains a greater quantity than would be the case if felled in the winter, which is the time I should recommend, and which some years ago was the practice. I believe that when winter-felled timber was used for carriage-making, very little if anything was ever heard about dry rot. It is my opinion that winter-felled timber is of a better texture than spring-felled, as the vessels are not distended, and the cold causes a contraction of the fibres, which in the spring are dilated with the heat and sap. Now my idea of the cause of the dry rot is this: that in spring-felled timber the moisture it contains, when evaporated, leaves a secretion in the vessels which, when it meets with a peculiar state of atmosphere, undergoes a fermentation, and causes ultimately a decomposition of the timber.

Another thing which I think tends much to hasten the decay of some of our coaches has been the indiscriminate use of different kinds of timber. Now it has struck me several times, whether or not by bringing timber of different species in contact with each other, a chemical action may not arise from the different juices of the timber favorable to decomposition, or what we call the dry-rot. I think it probable some such action might take place, but I am not chemist enough to follow up experiments on this subject, nor have I either time or opportunity.

The seasoning of ash timber appears to me to be egregiously wrong, and attended with great labor and waste of time. I more particularly allude to the large lumber-sheds of the West, where lumber is piled up on pile, or stacked up in large quantities, until wanted for use, thereby causing a loss of time in selecting the proper thicknesses to be used. There is also another thing I wish to note here—though not connected with the dry-rot yet deserving of notice—that many valuable pieces of timber are spoiled by the sawyer, by taking off so much in thickness as not to allow for shrinkage in seasoning. Were only this to be done, there would be a great saving in lumber to the manufacturer, as well as gaining the pleasure of the employee.

J. B. P.

#### FRENCH WAGES AND WORKMEN.

A REPORT rendered to the Foreign Office this year, by Mr. Julian Fane, secretary of embassy at Paris, speaks of wages of skilled artisans in various towns in France as ranging from 5*f.* to 10*f.* a day; for inferior workmen, from 2½*f.* to 3½*f.*; for workwomen in a clothing establishment, from 2*f.* to 4*f.* or 5*f.*; for children, from 1*f.* to 2*f.* The general rate of wages in France may be said to have increased about 40 per cent. in the last fifteen years, but the rise in money wages has been accompanied by a very considerable rise in the price of the ordinary articles of consumption, and in rent of lodgings, so that the improvement in the position of the laborer, meaning his power to supply himself with the necessaries and comforts of life, has been far from commensurate with the rise in the money value of his labor. Still, the relative proportions in which money wages and the price of commodities have risen leave a margin in favor of the former, and to this extent there has been a rise in real wages, enabling the laborer to feed, lodge, and clothe himself somewhat better than he could fifteen years ago. This has been the natural consequence of the rapid development of industrial enterprise, and the in-

creased demand for labor; and it may also have been affected by the greater facilities afforded to the laborer by the influence of opinion, and recently by legislation, to claim a larger share in the profits of production. It is difficult to estimate the relative price of labor in England and France. The rate of money wages may be higher in one country than in the other, but no just comparison can be instituted unless the quantity and quality of labor supplied in each case are fairly appraised. It is a question which only experts can decide, and they differ upon it. Combinations to influence the rate of wages were formerly punished in France as misdemeanors, but three years ago a law was passed under which they are not illegal unless accompanied by violence (including insults) or menace, or fraudulent manoeuvres, including false representations. Ample advantage has been taken by the workmen of this change in the law. There is scarcely a trade in France whose members have not combined in the last three years for the purpose of increasing the rate of wages and diminishing the duration of labor, and their efforts to this end have usually met with success. The employers, for the most part, assert that the law has proved to them an unmitigated evil, submitting them to the tyrannous coercion of the employed.

Various forms of the co-operative system are in course of trial in France, with a view to prevent or lessen this collision of interests. The association of masons, for instance, is one that has met with remarkable success; some of the workmen are shareholders, and others are engaged as ordinary laborers and have no share in the profits, while some members of the association are simply holders of capital. In other establishments the workmen are allowed to share in the profits of the business, by means of rewards or prizes allotted to them, or to the more worthy among them, by the proprietors at the end of the year, or by facilities for procuring food, clothing, lodging, and education for their children on advantageous terms. Mr. Fane gives it as his judgment that the fault in the organization of the co-operative societies has been generally too much faith in the combination of skill and labor, and too little regard for the advantages of capital; and that the workman should aim at becoming, in some measure, a capitalist himself, by the aid of societies of consumption enabling him to effect savings in expenditure, before he seeks to become a co-operator with the capitalist in industrial enterprise.—*Jour. of the Society of Arts.*

#### Pen Illustrations of the Drafts.

CLARENCE COACH.

*Illustrated on Plate XXV.*

THIS kind of vehicle is becoming more and more popular, in this country, every day; indeed, it is already very fashionable in our aristocratic circles; so much so, that a well made and finished carriage finds a very ready sale. The design given on Plate XXV. has, by permission, been drawn from a carriage just built by Messrs. Miner, Stevens & Co., of this city. It is the most perfect carriage of the kind we have seen, the lines of the body being very graceful and easy, as will be seen in our drawing, where the artist has succeeded admirably in



copying the original. Every improvement of the old world has been adopted in this vehicle, and some features decidedly American added, rendering the job perfectly unique in several respects, one of which is the rounded seat and boot, in combination with the scroll-irons. The inside linings of brown satin and carpets of an entirely new pattern, finished by a superior trimmer, imparts to the whole a richness in finish seldom attained. The price asked for this carriage is \$2000.

We add a few dimensions: the front wheels are 3ft. 6in., back do. 4ft.; hubs  $5\frac{1}{2}$  by  $8\frac{1}{2}$ in.; felloes  $1\frac{5}{8}$  deep,  $1\frac{3}{8}$  tire; door 22in. wide.

CUT-UNDER NO-PERCH CABRIOLET.

*Illustrated on Plate XXVI.*

FOR those generally termed the middle classes, there has never yet been invented any carriage more convenient or more *respectable* than this kind of vehicle—the cabriolet. They are generally made light enough for one horse, and are very easy for the passengers—two very important considerations in a family carriage. This one under consideration, having no-perch and a high cut-under, will turn in a very narrow street with ease. Wheels 3ft. 2in. and 4ft. 2in.

COMBINATION TURN-OVER SEAT PHAETON.

*Illustrated on Plate XXVII.*

IN this design are combined the gig body and the coal-box buggy, with the additional turn-over seat. This will make a very fine carriage for two; servants or children to occupy the back seat. In our judgment there is no better color than black for the painting, or blue for the trimming. The wheels in this instance are 3ft. 10in. and 4ft. 2in. and should have an inch spoke.

NOVELTY BUGGY.

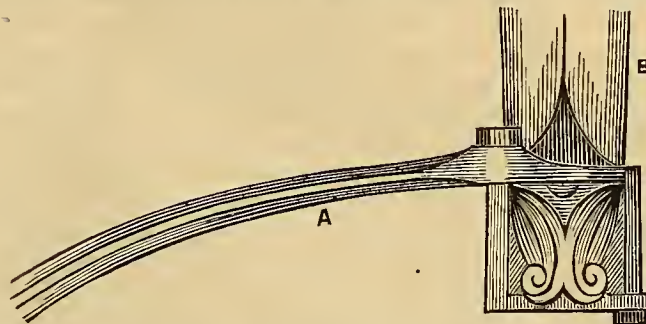
*Illustrated on Plate XXVIII.*

We have called this the Novelty Buggy because of the singular arrangement of the seat supports, and the tinting or painting of the side quarters, although in other respects this does not differ much from some other designs previously illustrated in this work. Probably we cannot do better in this connection than to call the attention of our readers to the patent fifth-wheel clip of our friend J. Irving, which will be found in the advertising columns of this Magazine. The advertiser and patentee is himself a practical workman and at the head of one of our city carriage factories, and is supposed to know whereof he writes. We understand that the improvement is applicable to most vehicles, and that it is more efficient and much cheaper than the ordinary fifth-wheel.

## Sparks from the Anvil.

### NEW LOOP FOR SPRING-BARS.

A NEW and very secure method of attaching the body-loop to the ordinary spring-bar, is obtained by forming the clip, as shown in our diagram, where A represents the loop, and B the spring-bar, in perspective. The heads



of single bolts, as commonly used, are very liable to break off over uneven roads from concussion, and especially is such the case with physicians' vehicles, often leaving them crippled, away from any repairing shop, to the great injury of their patients. This method of coupling the loop to the bar renders all perfectly secure from any such mishaps. The clip, if made light, will make a neat finish, and at the same time supply a most effective and secure coupling. Our readers will understand that this loop is not patented, but is given for the benefit of the public; not, however, without fear—as has before been done—that some individual will apply for and obtain one from Washington, where sufficient care is not taken to look into such cases before issuing the patent.

### GENERATING HEAT IN AXLES AND OTHER MACHINERY.

BY HENRY HARPER.

THE subject of generating heat in machinery seems to have been dropped of late years, either because recent discoveries have cleared away the mist that previously surrounded it, or else it has become so mystified by those who have tinkered, that men of common sense avoid it. Men who jumped at conclusions, without regarding the principles on which they are founded, readily receive a theory presented by Prof. Tyndall of the Royal Institute, London, in a course of lectures delivered before that body in 1861 or 1862. If his theory is correct, succeeding events do not speak well of science being made practicable, for I am not aware of its having been applied to one single invention since it was promulgated. To be sure some ardent philosophers have spoken of it as if the question was settled beyond a doubt, and have explained how the sun keeps up the immense supply of heat that it is throwing off continually, etc., yet the practicability of the thing does not come any nearer to us than those apparently learned dissertations, which every one knows are mere speculations.

The theory Prof. Tyndall proposed, which has become so popular in this country, was, that power developed in motion, when resisted was converted into heat, and heat when expended was converted into motion. The only



practical demonstration of this theory was, that a cannon ball when forced against a target was found to be *cissing hot*, after the collision. This was discovered in the experiments made at Shoeburyness, England, in trying the strength of armor plate—although the Professor did not make that fact known in his lecture. The balance of *his* practical proof of the phenomena amounts to simple assertions, the truth of which no one could demonstrate or contradict, except by analogy of reasoning; as for instance, he dropped a ball of lead sixteen feet, and stated that according to a mathematical calculation of its velocity the heat would be raised three-fifths of a degree Fahrenheit. This analogy would show that the resistance of the velocity of a rifle-ball would heat it to 960°, which he said would be more than enough to fuse it, and therefore recommended his audience to notice if such was not the case. An American journal has pronounced this a *model lecture* worthy of a great effort on the part of its author. To its reasoning a Professorship in the "Royal Institute" has given the argument a stamp of infallibility. Other scientific men in Europe published letters claiming a share to this wonderful discovery, and those letters have been republished here, hence we have the flippant assertion that Joule has shown so and so; Myer has shown thus and so; Tyndall has shown so and so, and so on with all who have been represented as having a share in it.

A practical man who sees through all this flummery, is sickened at these confident and unmeaning expressions which so readily fall from men's lips in relation to this matter. If he wants to speak the truth that practical demonstrations force on his mind, he must first gravely argue away these jack-o'-lanterns of science who will be sure to appear to the wondering gaze in some other department of rotten and decayed logic, their natural element. No ponderous matter is ever put in motion and then stopped without a power of resistance equal to that which gave it motion. For instance, when a rifle bullet is shot vertically, the power that gave it motion must receive an equal power of resistance to stop the motion that carried it into the air. Through the effects of gravity and the atmosphere through which it passes, at last it receives the equilibrium of resistance, when it stops. At this point, according to Prof. Tyndall's theory, it would receive enough resistance of motion to have melted it; but it must be brought down by the force of gravity, consequently it must come down superheated, enough to melt it twice over, the instant it strikes the ground.

I do not know how such glaring absurdity was ever overlooked, unless it was hidden by a confusion of technical terms that men of professed science sometimes indulge in when they are in a muddle themselves. It must be known to every person who has had a life of experience, that matter does not necessarily become heated when its motion is resisted, and that the power of motion cannot be stopped without an equal power of resistance.

The careful observer will always notice one thing: *that when cohesion is violently interfered with*, by rending asunder the atoms held together, heat ensues; and that heat has an intensity proportioned to the amount of cohesion that the matter contains. For instance, if we pound iron so as to change its shape materially, the first blow will heat it so that it cannot be held in the fingers. An equally heavy blow on putty will change its shape still more than the iron, yet the heat from one blow will not

be perceptible to the touch of fingers; nevertheless a succession of blows will heat it so that it becomes blood-warm.

If cold water is thrown on unslacked lime, the most minute particles that are held together in a comparatively firm stone, are rent asunder, and heat ensues. The same phenomenon is presented in every instance that has come under my observation, and its intensity is proportioned to the intensity of cohesion that holds the atoms together.

The cannon ball that Prof. Tyndall tells us was heated when it struck the target, received such a shock from the collision that cohesion was unable to hold the matter that it contained in its place, therefore the result was heat. If the ball had been stopped by gravity, a sand-bank, or cotton bale, it would have been just as effectually stopped, and no heat would have ensued. The argument cannot be used that the heat would be imparted to other matter surrounding it. We all know that heat can be produced in an instant within the mass, but cannot be imparted from the mass only by process of time.

If iron is pounded by a hardened steel hammer, heat is imparted to the iron, but not to the steel hammer. Observe the difference in the two; the iron that has become heated without being put in motion, has its shape changed by severing the bonds of cohesion, while the hardened steel hammer that *has had its motion resisted, but not had its shape changed*, is as cool as ever to all appearances. Could there be any more conclusive proof of the fallacy of Prof. Tyndall's theory?

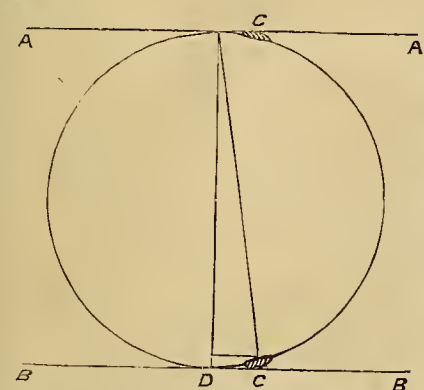
A new and true theory on the subject, as they claim his was, could not have been submitted to the American people at that time without producing practical results. In the item of war missiles, there would have been patent shells that would have exploded just at the time the most destructive effect would be attained, without provisions for igniting other than destroying motion. I can see no end to the long train of inventions that the announcement of such a truth in science, as it was represented to be, would have produced. But sad to relate (so far as practical results are concerned) it fell still-born on the hands of the midwife that acted as accoucher.

We may search through all the known causes of heat produced, and nine-tenths of it will have these coincidents apparent to our perceptions, to wit: cohesive attraction has been destroyed or overcome for the time being. In the exceptionable cases, perhaps, we cannot make out the coincident, neither can we find proof that it does not exist.

In machinery, if we guard against interfering with cohesion, we shall be relieved from both heat and wear which always go together, and which it is equally desirable generally to avoid. The most general way to avoid it is to place friction-rollers between the rubbing surfaces so that the particles are prevented from interlocking and being carried away by contrary motion. This way is far more common than many are aware of; in fact, it is the only way that friction or heat is ever prevented from developing itself. All invention can do is to have those rollers large enough for the desired object, and to keep them within the proper place. We can have a distinct idea of their effect when the friction-rollers are three feet or three inches in diameter, but it does not make the same impression on our minds when they are so small that the most powerful magnifying glass will not disclose



their shape. The required size of them depends on the polish or the roughness of the rubbing surfaces to be protected. The mechanical effect is the same. The largest friction-roller is a lever; the smallest friction-rollers of which lubricating oils are composed are spheres, consequently levers which all spherical matter is, be it large or small.



If we suppose A A to be a plane surface running over B B, and the space between them a friction roller to prevent the uneven surface at C C locking together, and breaking off so as to produce heat, there will have to be a power to lift the weight of A A over C. The weight rests on the line D, but the inequality C takes the weight off from the line D, and forms a fulcrum for the friction-roller to lift A A over it. The line D C represents the short arm of the lever, and C the long arm. The short arm is contained in the long arm nine times, therefore the lifting power is nine times as much as the weight, both of which must be supported by the fulcrum C. If the cohesion that holds the fulcrum together is sufficient to sustain the weight, no heat will be generated; but, if it gives away like the iron before the force of the hammer, instant heat is produced. The same heat may be produced by the friction-roller indenting itself into the rubbing surfaces, thereby overcoming the power of cohesion. Again, if the friction-roller is of less diameter than the height of the inequality C, there is no power to lift it over the obstruction. All of these facts are incidents that produce heat, and have to be taken into consideration either in friction-rollers or lubricating matter.

(To be concluded next month.)

## Paint Room.

### THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

(Continued from page 75.)

THE velocity of propagation (whether by transmission or by undulation) of colorless light as a whole, we have already stated. When this light is separated, as in the spectrum, it has been proved that the light producing the sensation of each color is propagated with a different velocity of undulation.

The rate of vibration or undulation of the elastic ether is such that the red ray makes in the same time about half as many vibrations as the violet one, the other colored rays being intermediate; but as all the rays are propagated through space with equal velocity (about 200,000 miles per second), so the wave of vibration of the red ray must be about double the length of the violet one.

Fraunhofer has found that red light while passing through a distance of one metre, or 39.37 English inches, makes 1,351,351 such vibrations; while violet light in passing through the same makes 2,564,102 vibrations.

Red light, therefore, affects the eye with 421 billions of vibratory impulses in one second of time, while violet light strikes the eye with 799 billions such impulses in the same second of time.

To their differences in the rapidity of vibration of the rays of light of different refrangibilities and to their mutual relations are owing their powers of producing on the eye not alone the mere perceptions of colors, but those of their harmonies or discords, or as they are sometimes popularly called, of their matches and contrasts, good or bad. As the differences in the rates of vibrations of musical strings communicate to the ear the sense of sounds, high or low in pitch, and as concords, discords, and even *silence* may be produced, by the reaching the ear together of such vibrations, in respect of whether the vibrations are in unison or in multiple or sub-multiple proportion to each other's time of vibration, or in no commensurable proportion—or as one vibration is opposed to another so as to extinguish each other and make silence out of two sounds; so do the conjoint actions of these rays of light, vibrating at different rates, give the sense of color, of its harmonies, discords, and even extinction. Two or more notes forming a concord or a discord; two or more rays of differently colored light entering the eye together either produce harmony or the contrary.

When all the rays in the proportions found in the natural solar beam enter the eye together, the equilibration of their respective differences in the lengths or times of wave vibration by mutual action, results in *colorless* light. To this very commonly (even in works of exact science) the name of *white* light is applied, but with less propriety, whiteness and blackness are in reality matters due to the texture of the surfaces and to the molecular constitution of material bodies.

The analogies, though imperfect, between vision and hearing, light and sound, may be placed more clearly before the eye thus—the spectrum colors being arranged in the upper line, and the notes of an octave in the second:

Red.	Orange.	Yellow.	Green.	Blue.	Indigo.	Violet.
<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>a</i>	<i>b</i>
1	2	3	4	5	6	7

But the immeasurably greater delicacy of the impressions which the eye has been prepared to receive, as compared with those of the ear—exquisitely delicate as is even that—may be judged of when we consider that while the red ray, which moves the most *slowly*, impresses the eye by 421 billions of vibrations in a second of time, the lowest audible note, the slowest vibration of sound, strikes upon the ear only thirty-two times during the same time, and the fastest vibration we can hear moves not one thousand times faster. The shrill note of the cricket is almost the acutest that can be heard by human beings, and even this is inaudible to some ears.

On the other hand were our eyes, which discern all colors within as it were a single octave, more exquisitely delicate than even they are, we might be conscious of colors beyond the red and violet ends of the spectrum, of which at present we have no notion; and it may be that other animals, insects in particular, may enjoy colors denied to man.

What has been said as to the colors of opaque natural bodies being due to the absorption of some, and the reflection of the remaining rays of the colorless light, is



also true of colored diaphanous substances, such as stained glass, colored varnishes, colored translucent jelly, &c.

Here some of the rays of certain refrangibilities, *i. e.*, of certain colors, are stopped in the medium, and the remainder pass through and give to it their own color as that advances to our eyes. The color stopped, and that which passes through, are necessarily such as together make colorless light.

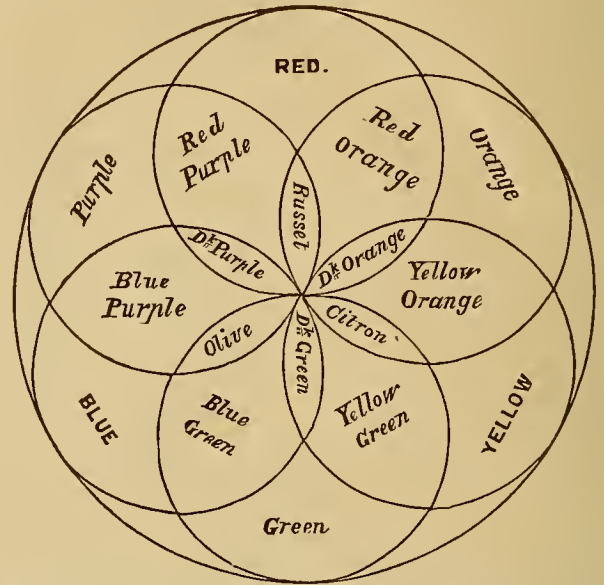
In certain substances which are imperfectly diaphanous, the color which passes through, or is transmitted, may be observed, and also that which is stopped, and which can be seen, not by looking *through*, but by looking *at* the object, by reflected light.

Thus certain varieties of glass, which are deep green by transmitted light, appear deep red when thus looked at by the light reflected back from the surface. An interesting and historical instance of this exists in the celebrated glass vessel which held the fabulous blood of St. Januarius at Naples, and which was formerly believed to have been excavated out of a solid block of emerald. The French *savants*, however, at the end of the last century dispelled so much of the fable by proving that the vessel was of green, but very peculiar, glass, and which appeared red by reflected light. Thus, also, it may be frequently remarked that the pieces of rich ancient crimson glass in the windows of cathedrals, which appear of that color from the interior or by transmitted light, when looked up at from the exterior, and, therefore, seen by reflected light, appear as patches of a dirty whitish green, and nearly opaque color.

From what has been already stated as to the separation of the color rays and of the combinations and interferences possible between the vibrations producing them, it will be understood that not only may any color or tint be produced by combination of the three fundamental spectrum colors, but that if any two colors or tints be produced, which we may call C and C', the former by any given combination of spectral tints, and the latter, C', by the like combination of all the remaining tints in the entire spectrum, then these two colors, being such as if mixed together would produce again colorless light, are called *complementary colors*, *i. e.*, C is complementary to C', and *vice versa*. Such colors when pure and of equal intensity are perfect and harmonious contrasts. But if C or C' contain more or less of any one tint (no matter how complex may be the mixture of tints in either) than is just sufficient to make up with the other colorless light, then the contrasts *may be not* harmonious. It will not necessarily be a discord in color, but whether it be a harmony or a discord more or less marked (in pure colors such as those of the spectrum), depends

upon what is the tint, in excess or in deficiency, and what is its proportion in excess or in deficiency present, in relation to the others that go to the complete spectrum.

Fig. 5.

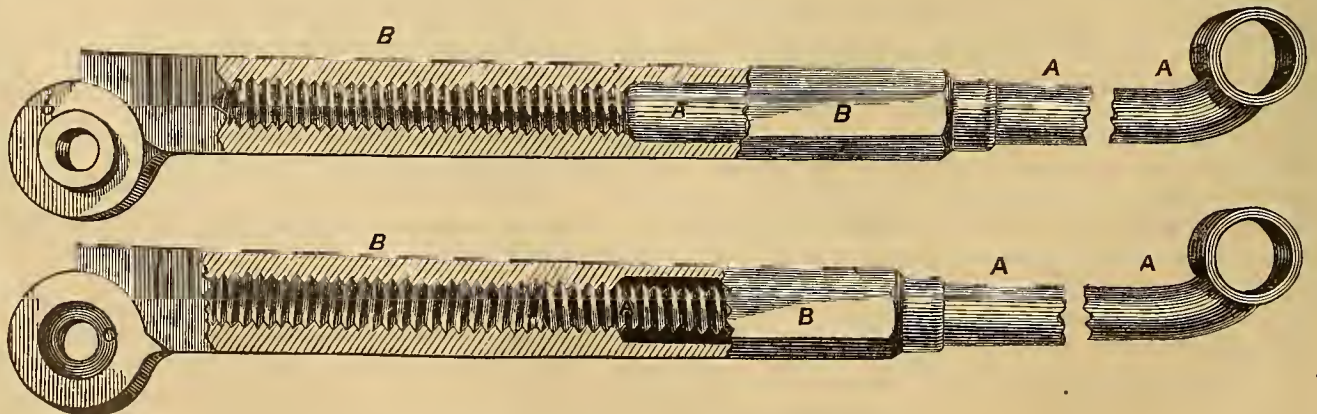


The general nature of these complementary colors is rendered partly clear by the diagram, Fig. 5, in which the three fundamental pure colors are found combined two and two (passing round circumferentially) as in the spectrum, into the *binary tints*, purple, orange, and green, and these taken diametrically opposite are complementaries. So also the overlapping circumferentially of these in pairs produces the *ternaries*, red-purple, red-orange, &c., and taken diametrically show their respective complementaries, and these again overlapping produce quaternary compound tints and their diametrically opposite complementaries. The centre point would in reality in the case of any artificial colors, be a neutral gray, because none such are pure, but in the solar beam it would be colorless light.  
(To be continued.)

### Trimming Room.

#### SEARLS' PATENT ADJUSTABLE JOINTS FOR FALLING-TOPS.

This invention, duly secured by a patent, is calculated to save the expense and trouble of drafting and piecing



SEARLS' ADJUSTABLE CARRIAGE-TOP JOINT.



out the joints for carriage-tops, a labor always perplexative even in skillful hands. The Searls joint are so well contrived that they may, with equal facility, be adjusted to both old and new carriage-tops, as will appear on examination of our engraving and description.

The accompanying drawings give a view of two sections of the joint split longitudinally, so as to exhibit the screw and socket by which it may be lengthened or shortened at will on each end from one-half to two and one-quarter inches. The upper half represents the part A, screwed entirely into the knuckle or stump-joint portion B, the lower half C being at its greatest length and only partially screwed in. By this simple arrangement these joints may be adjusted to any sized top.

Another improvement connected with this joint is the form in which the hinge is constructed. The separate halves are so contrived that the journal *b* fits into a recess *c*, so as to relieve the strain on the rivet, and make this point fifty per cent. stronger than when made after the old pattern.

These joints have been patented by A. Searls, of San Francisco, California, and will be manufactured by the American Prop-Joint Company, 31 Chambers street, who will supply all respectable dealers in carriage materials with them, either curved or straight, put up in packages containing three sets complete, nicely japanned and ready for use, at the rate of \$4 the set, or \$12 the package.

### Editor's Work-bench.

#### TRADES' UNIONISM IN LEEDS, ENGLAND.

LEEDS, like Manchester, elsewhere reported, has had its troubles with Trades' Unionists. In the spring of 1864 a building for the accommodation of the Assize Courts was in course of preparation, to be done on a certain day, when the Union carpenters and joiners gave notice that they intended to curtail the hours of labor three and a half hours on Saturday afternoons, without having their wages reduced at all. The contractor being opposed to all combinations, either of employers or workmen, declined to discuss the matter with the Union, when the officers withdrew all the members in his employ, under the impression that Mr. Thorpe must succumb, as his work had to be finished by a certain time. If successful in this instance, they intended to take up every shop one after the other, until they succeeded in their object. These proceedings drove the contractor into joining the Masters' Association, when, by a general lock-out, the men were thrown out of employ for some time, and were only set to work again after both sides had made important concessions.

The plasterers of Leeds insist that no one shall learn a trade after he becomes sixteen years old, and that boys fourteen and sixteen years *must* be indentured until they are twenty-one, and no employer shall have at one time more than three apprentices. Mr. J. Wilson's men struck against payment of work by the hour in 1866, and he had to give way by advice of the Masters' Associa-

tion. Mr. Robert Branton's workmen were withdrawn from his shop by order of the Union; the men said, when inquired of, they did not know what for, and referred him to the club to find out. A brother of his having previously been "tabooed" in hiring Union men "for life," he was induced for fear of like treatment to make the inquiry. The club told him they objected to his educating his only son to his own business, since his health had failed in another trade, and *sentenced* him to pay 6*l.* 10*s.* "expenses," and then they would *consider* whether his men should return or not. Mr. Branton afterwards obtained four non-Unionists, when the club withdrew its members, paying them their full wages, and stopping the employer's business. The brother James Branton was *ordered* to discharge a man who had not regularly learned the business, and did so. For months afterwards as fast as he hired men they left him without assigning any reason for so doing. After a while he found out that the "club" would not let its members work in the shop because a man by the name of Gott had not paid a fine it had imposed. When remonstrated with, the workmen admitted that "it did not look right," but pleaded the orders of the club. In this case, some of the men were convicted for leaving work without notice, and sent to prison for a month. An appeal to the Sessions confirmed the decision. The "life-sentence" against Mr. Branton "emptied his shop" of workmen from June 1864 to April 1866, nearly two years, and then was only repealed in deference to the wishes of a Union executive, Mr. Williams, an old fellow-workman of his in London. The past summer Mr. Wilson hired a man, giving him 38*s.* a week, he being a non-Unionist with a wife and three children. Five shillings of his wages he gave his father and mother, besides help supporting an infirm brother and paying weekly installments in liquidation of an old debt. The Union entrance fee is 22*s.* 6*d.*, which, as soon as he could spare, he offered to join the Union with. Because he did not do so before, the Union members left as in Branton's case, to stop them, Wilson offered to advance the 22*s.* 6*d.*; but the poor man, whose name was Pennington, not seeing how he could repay the money, "*sacrificed himself*" and obtained other employment. For defying the Union the men told him they would "shelve" him, that is, prevent his getting work in any shop under Union influence.

In 1832, Mr. Barker, a builder, succeeded his father in a business he had carried on for thirty years. A Union having been organized in Leeds, the son was informed that unless his non-Union men joined the Union his shop would be emptied. This the non-Union men would not do, and consequently the Unionists struck for a year, "the club" fining its members so much a day should any engage work there. At the end of a year the National



Association of Operative Plasterers sent him a note, intimating that his works were open to any member of the Society, on condition that non-Society men were *encouraged* to join it, should he not knowingly employ such. But even this concession came too late, for Mr. Barker was now bankrupt. He affirms, "I am fully satisfied that Trades' Unions have been my complete ruin; and had they not by their interference so restrained my trade, I might have been at this moment in a respectable position." Mr. Wilson above-mentioned says, in a letter to the Trades' Union Committee of Parliament, "it is no use denying it, the Union is omnipotent with us, and we have to bow to it and do its behests; we have had to give up entirely our own judgment and our own independence, and we have to do as the Union through Mr. Williams bids us."

The facts here given we have re-written from a long article in the *London Times* of a late date, all showing the *beauties* of Trades' Unionism in a business point of view, as lessons for study by the few whose *sickly sentimentality* leads them to give "aid and comfort" to these combinations against what they are pleased to call capital, with the one-sided design of benefiting self only.

#### A NATIONAL CARRIAGE MUSEUM.

No department of art presents a greater variety of interesting subjects than that of carriage-making, and the interest in carriages is not confined to those engaged in the manufacture merely, but has its admirers among that great body we call the public. The historian in every age has taken notice of them, and recorded their uses, in connection with public ceremonies and private employments. Probably no one production of mechanical skill has greater claims upon the curiosity of the public mind than things vehicular.

Carriage museums have already been instituted in St. Petersburg, Paris, and Cluny, and considerable progress made in securing objects of interest connected with the trade for exhibition. The St. Petersburg buildings are chiefly filled with the carriages of royalty, which having been already described on page 129, volume vi, we shall omit at this time. The Parisian institution has, we believe, not made much progress as yet; and the Italian—devoted almost exclusively to carriages of the sixteenth century—has not more than half-a-dozen in its collection. But although very little progress has yet been made in Europe in this direction, yet it encourages us to hope that so worthy and desirable an object as that now begun, will at a future day grow into such proportions as to attract the attention of the world, and set an example which shall find imitators elsewhere. This subject has already been advocated in England, where many curiosities suited to the purpose still remain; but we believe, as

with us, no important action has been taken for securing them as the nucleus of a museum.

In our own country, we would like to find some one engaging in this work with sufficient energy to show that he meant to do something. Such a person would find the Beekman coach in this city; the Philadelphia coach, now stored in Dunlap's shop; the fragments of Washington's, remaining in the Patent-office at Washington, and numerous specimens of European manufacture in Boston and elsewhere, worthy of his attention. In addition to such old relics as we have named, there would be a long list of "improvements" in the shape of shaft-couplings, king-bolts, fifth-wheels, axles, springs, &c., which of themselves would form a collection of no inconsiderable interest, and which, with other articles connected with the business to be found all over the country, would amount to something of deep interest and worthy of preservation.

#### CARRIAGE BOOTS.

It is now about three hundred years since coaches were introduced into England, in the days of Queen Elizabeth. An examination of the Queen's coach, of which fortunately a drawing has been preserved, shows that the "boot" as understood by modern coach-makers had no existence, its place being merely supplied by a toe-board, while in those of her subjects not even this was found. The first approach to a boot, seems to have been invented near the close of the seventeenth century, or about one hundred years thereafter. Even the "hammer-cloth" then only covered a ricketty looking frame, very open and insecure one would think. As late as 1750 the boot was nothing more than a rough box, the embryo boot making its appearance a few years later. (See Figure 20, page 76, vol. iv., of this Magazine.)

The Salisbury-boot, which Felton says was so called because they were originally used to the Salisbury (England) stages, were first applied to carriages in 1780, or thereabouts. The name thus secured has descended to our times, as may be seen in the illustrations on page 173, vol. ii. At the beginning of the present century an old writer mentions them as being the most fashionable coach-box then in use, "peculiarly convenient to carry parcels in, or to contain the coachman's requisites, having a large flat bottom, resting on the framings or blocks." These were of various patterns, some of which were not in design, much behind the more modern appendages occupying their place. The difference seems to be that in our forefathers' day the object was to make them as large and showy as possible for the stowage of luggage; while now the effort is to diminish them as small as possible so as to conform with the fashion in everything else. The fashion, like most others, seems to have been copied from the French, where they are now made very small, as may be seen from the latest designs received.



## EDITORIAL CHIPS AND SHAVINGS.

**ECONOMICAL HEARSE.**—The French have in use a new hearse so contrived that it carries the priest, the mourners, and the defunct in one vehicle.

**PARISIAN OMNIBUSES.**—They have omnibuses in Paris with stairs leading to the roof. The fare on top is three sous, inside six sous. A sign at the end limits the number of passengers for top as well as inside, and when the prescribed number of seats are taken, a sign lettered *complet* is shown, so that no one else need attempt to get in. No passengers are taken except at prescribed points about a half-a-mile apart, even when there is room for another, and to carry out the rules and take the fares a man is stationed at the entrance to enforce them.

**LOYAL WHEELS.**—A story, rather ridiculous, is traveling the rounds of the press, to the effect that the black Emperor Soulouque, has been imposed upon by a machine fixed to the wheels of his carriage, which at every few revolutions emits a sound easily mistaken for the loyal cry of "*Vive l'Empereur!*"

**IMPROVEMENT WITH A VENGEANCE.**—A contemporary with a great show of enterprise, takes our sleighs in the September number, entrusts them to the hands of a German—by the way the same individual "did" the greater part of his designing previous to becoming blind—who fixes them up with "improvements" sufficient to render them impracticable as working drawings; these one month afterwards, when published, being palmed off as the very best designs ever placed before the public. *Vive la humbug!*

## Patent Journal.

## AMERICAN INVENTIONS.

December 17. (68,924) **CARRIAGE SHACKLE.**—Levi Wilkinson, assignor to Oliver F. Case, New Haven, Conn.:

I claim the combination of the detachable block C and the bar B, when the said block itself forms a part of the bearing of the coupling, and when the whole is constructed and arranged so as to operate substantially as and for the purpose specified.

(68,925) **CARRIAGE CURTAIN-FASTENER.**—Amandus Woeber, Davenport, Iowa:

I claim, *First*, Providing a rubber flap with eyelet-hole attached outside and over metallic eyelet, substantially in the manner and for the purpose as herein described. *Second*, The rubber flap with hole, as attached and arranged, in combination with metallic eyelet and curtain knob or button, substantially in the manner and for the purpose herein described.

(68,926) **SELF-ACTING WAGON BRAKE.**—James F. Wood, 2d, Cohocton, N. Y.:

I claim, *First*, The forked right-angle lever A, as constructed and connected with the tongue or pole D and the rod Q, to operate the brake-bar N, substantially as and for the purposes set forth. *Second*, The slotted metal plate F, as constructed and attached to the pole D by the pin or bolt C, to prevent the lateral movement of the pole while it allows it to move freely end-ways.

(68,930) **WAGON-STEP.**—William Youngblood, New York City:

I claim, *First*, The employment of a step or steps, secured upon the axle outside of the wheel or wheels of a wagon, and located immediately over the hub or hubs of said wheels, sub-

stantially as and for the purpose herein described. *Second*, The construction and arrangement of the step D with the nut C and guard E, substantially as and for the purpose set forth.

(68,951) **CARRIAGE-ATTACHMENT.**—George J. Capewell, West Cheshire, Conn.:

I claim, *First*, A holder or plate B for the fender-rollers A, made of such a form as to act as a step to the wagon or other vehicle, substantially as described. *Second*, Securing the fender-roller holders B to the vehicle in such manner that the rollers can be adjusted without detaching the holders, substantially as described for the purpose specified. *Third*, The washer F, at the ends of the rollers A, for the purpose described.

(68,966) **CARRIAGE SPRING.**—Thomas DeWitt, Detroit, Mich.:

I claim a carriage-spring composed of the parts B, B, C, connected together and used in connection with the studs *d, d*, arranged in relation with said parts, substantially as herein shown and described.

(68,980) **CONSTRUCTION OF CARRIAGE-BODIES.**—Simon P. Graham, Richland Center, Ind.:

I claim a carriage-body made of sheet-metal formed in parts or sections, connected together in the manner shown and described, as a new article of manufacture.

(68,983) **WAGON.**—L. D. Harvey, Harvey, Mich.:

I claim making the tongue-hounds A, A, with the cross-bar *a* and tubular head *b*, all out of one solid piece, substantially as and for the purpose described.

(68,999) **MODE OF SECURING FELLOE-JOINTS.**—James W. Lawrence, assignor to Brewster & Co., New York City:

I claim the T-headed bolt *e*, constructed as described, for securing felloe-joints laterally and radially, substantially as and for the purposes herein described.

(69,012) **THREE-WHEELED VEHICLE.**—John W. Minor and Daniel P. Ward, New Bedford, Mass.:

We claim, *First*, The sections of cylinders C and E, one revolving within the other, substantially as and for the purposes herein shown and described. *Second*, The flange D, projecting from the rim of the cylinder for fastening on the outside and forming a lip on its inner side, substantially as described. *Third*, The wheel F, attached to a three-wheeled vehicle when the said wheel is attached to a horizontal section of a cylinder which has free horizontal motion, substantially as described.

(69,034) **BOW-IRON FOR VEHICLES.**—George W. Slater, New Haven, Conn.:

I claim, *First*, The bed-plate A, constructed of one piece, as and for the purpose set forth. *Second*, The slats *g*, so formed as to be attached to the bed-plate A, by means of knuckles *d*, in the manner herein described. *Third*, The ears *s*, on slats *g*, used in forming thimbles to receive the bows, as herein set forth. *Fourth*, The bed-plate A, in combination with slats *g* and bows *c*, the whole constructed and operating substantially as herein set forth.

(69,035) **WAGON BRAKE.**—Andrew P. Smith, Greensburg, Pa.:

I claim the combination with the running-gear of the wagon of the sliding-bed, the friction rollers, the inclined slots, the draw-bars, the rock-shaft, and the brake-lever, the whole being constructed, arranged, and operating as described.

(69,038) **ODOMETER.**—James C. Spencer, assignor to himself and Archibald B. Vandemark, Phelps, N. Y.:

I claim the combination of the cog-wheels D and E, in the box C, the worm-gear *a*, the ratchet-wheel *c*, operated by the spring-pawl *d* on the rock-shaft *e* and the hub A, provided with the pin *h* for giving motion to the rock-shaft by the arms *g, g*, arranged and operating substantially as herein described.

(69,044) **SHAFT COUPLING.**—J. W. Taylor, Oshkosh, Wis.:

I claim the hollow cylinder *a*, provided with friction-rollers



*e, e*, substantially as described, when used in combination with the dual-pronged head *c*, as and for the purposes set forth.

24. (69,064) METAL SLEIGH-KNEE.—William D. Baughn, Milford, Mich.:

I claim the tenon D, with the slot F, through which passes the bolt above described.

(69,075) DUMPING WAGON BOX.—George R. Clark, Livonia, N. Y.:

I claim the construction and relative arrangement of the several parts *a, d, S, f, h*, and D, constituting a dumper wagon-box, substantially in the manner and for the purposes herein shown and described.

(69,094) WAGON SPRING.—B. Hershey, Erie, Pa.:

I claim the use of the torsion spring, with its attachments above described, as applied to freight wagons or carriages of whatever kind to which they may be properly attached.

(69,104) CAST-IRON KNEE FOR SLEIGHS.—Benjamin Knapp, Bloomville, Ohio:

I claim the knee or brace D, of cast or wrought metal secured to and combined with the frame and runner of a sled or sleigh by means of clips or bolts fitting in grooves along each side of the knee, substantially as set forth.

(69,105) WHIFFLE-TREE.—John W. Larmore, Harrison, Ohio:

I claim the arrangement of the perforated stretcher A, *a, a'*, hooked rod B, *b, b'*, adjustable loop or hook C, *c*, and set screw D, for the purpose set forth.

(69,119) CARRIAGE-TOP.—Peter Owens, Chicago, Ill.:

I claim, *First*, The bow-iron of a carriage-top and seat-iron B, when constructed substantially as described, and connected or jointed together by means of the strap C, and screws D, substantially as and for the purposes set forth. *Second*, Providing the bow iron A, with the piece F, when constructed and operating substantially as and for the purposes described.

(69,125) SPRING FOR VEHICLES.—Eugene J. Post, Vienna, N. J.:

I claim, *First*, Constructing elliptic steel springs, twisting the leaves or blades right and left so that the center portion is at an angle with the plane of the ends, thereby obtaining greater strength and elasticity, substantially as herein described. *Second*, The metal seat or spring blocks *d, d*, constructed as and for the purposes specified. *Third*, So securing the ends of duplex contra twist springs together as to prevent them from spreading apart under the pressure of a load, as herein described. *Fourth*, Connecting the joints at the ends of double springs so that they may be adjusted to bear more or less weight and also may be made to be more or less elastic, by apparatus constructed and operating substantially in the manner herein described.

(69,147) AXLE FOR VEHICLES.—J. B. Wilson, assignor to Eleanor Wilson and Allen T. Wilson, May's Landing, N. J.:

I claim, *First*, An axle consisting of a central wooden shaft A, and metal ends B, B, having hollow arms *c*, constructed for the reception of the ends of the said shaft, substantially as described. *Second*, The metal end B, consisting of a hollow journal *a*, collar *b*, and an arm *c*, when the said parts are constructed and arranged in respect to each other, substantially as and for the purpose set forth.

(69,190) THILL COUPLING.—Lyman Derby, New York City:

I claim the curved thill-iron E, in combination with the roller C, covered with india-rubber or other suitable material, and fitted between lugs or ears *a, a*, at the front side of the clip B, and the bottom-plate *a*, of the lugs or ears curved at its upper surface, substantially as shown and described.

(69,194) TURNING-PLATE FOR CARRIAGES.—Thomas A. Edmison, Lakeport, Mich.:

I claim the plate C, in combination with the turning-plate

or ring of a vehicle, substantially as and for the purpose described.

(69,197) CARRIAGE SPRING.—W. H. English, Macon, Ga.:

I claim an elliptic or semi-elliptic spring for vehicles, constructed of curved elastic steel plates, applied with a narrow or thin rib of steel to their exterior surfaces, substantially as shown and described.

(69,208) WAGON SPRING.—C. P. Hawley, Mosher-ville, N. Y.:

I claim, *First*, The arrangement and combination of the frames E, E, with the lugs *b*, pins *a*, staples *c*, links *b*, or their respective equivalents, with the spring F, all made and operating substantially as herein shown and described. *Second*, The slotted hinged frames E, when so arranged that the bearings will be brought nearer to the axles the heavier the load, as set forth.

(69,224) ADJUSTABLE RAILING FOR VEHICLES.—Charles Krebs, Springfield, Mass.:

I claim an adjustable railing for the seats of vehicles which is attached by means of the notched pieces *a, a*, and *b, b*, on the rail, and the pieces *f, f*, having the latches *i, i*, upon the seat, the parts being arranged substantially as and for the purpose described.

(69,227) WAGON-TONGUE SUPPORT.—O. Lapham, El Paso, Ill.:

I claim the combination of the spring E with the rear end of the tongue D and with the hounds C, substantially as herein shown and described and for the purpose set forth.

(69,233) CARRIAGE-CIRCLE.—Joseph R. McGuire, Warren, Ohio:

I claim, *First*, The dowel-pin D, and groove F, when constructed and arranged in relation to each other, in the manner and for the purpose substantially as described. *Second*, Section C, when constructed with clips H, in combination with section B, constructed with clips J, O, in the manner as and for the purpose substantially as set forth. *Third*, The reach M, when constructed with stays N, in combination with the cross-rail I, and king-bolt L, when constructed and arranged in the manner as and for the purpose set forth.

(69,251) ATTACHING YOKES TO POLES FOR CARRIAGES.—Uel Reynolds, New York City:

I claim the eye *c*, and notch *d*, upon the socket *b*, in combination with the yoke *f* and stop-horns *h* and *i*, substantially as and for the purposes set forth.

(69,270) THIRD-SEAT FOR CARRIAGES.—Austin E. Thayer, Plymouth, Conn., assignor to M. B. Bryant, Brooklyn, N. Y.:

I claim the seat B, provided with a hinged leg C, and hinged to the seat A, and constructed in the manner described so as to be folded beneath the seat A, as herein set forth.

(69,273) METHOD OF ATTACHING HORSES TO CARRIAGES.—William H. Townsend, Camden, Ohio:

I claim, *First*, The clasp D, in combination with frame-work *h*, and pin *e*, substantially as and for the purpose described. *Second*, The clasp *d*, provided at its outer end with strap *m*, and at its inner end with back-bands K, in manner and for purpose set forth.

(69,286) MACHINE FOR MAKING WAGON-WHEELS.—Francis J. Weber, Carey, Ohio:

I claim the combination of perforated rod E, and key *r*, with the staff *n*, and its gauge-pin *t*, substantially in the manner and for the purposes described.

(69,291) SECURING WHIP-SOCKETS TO CARRIAGES.—Frederick Wood, Bridgeport, Conn.:

I claim the herein-described clasp for securing whip-sockets, constructed so as to be attached and united in the manner set forth, as an improved article of manufacture.



October 1. (69,305) CARRIAGE-SHAFT COUPLING.—Jesse P. Barrick, Massillon, Ohio :

I claim the pivoted or hinged stop J, and spring I, arranged in relation to the coupling in the manner and for the purpose substantially as set forth.

(69,306) CARRIAGE BUTTON.—William P. Bateman, assignor to himself and Nathan F. Mathewson, Barrington, R. I. :

I claim a carriage button as constructed with the head eccentric to the body, and with a journal to project from the head, and with a screw and a prismatic base to its body, as described. I also claim the carriage button as not only made with the head eccentric to the body, and applied thereto by means of a journal, so as to be capable of being revolved relatively to it as specified, but as having a prismatic base, and a screw to project therefrom, as explained.

(69,307) MACHINE FOR MAKING WAGON WHEELS.—Alonzo Beswick, Paris Richardson, Jun., and John W. Brown, Kelly, Ill. :

We claim the combination and arrangement of the cross-bar C, and movable bar E, with the guide-bars H, H, operating in the manner and for the purposes set forth. We also claim the auger-frame W, in combination with the screw M, and guide-bar H, operating substantially as described and for the purposes stated.

(69,333) METHOD OF MAKING CARRIAGE-BOLTS.—Samuel Frisbie and Andrew S. Upson, Farmington, Conn. :

We claim the method, substantially as herein described, of making bolts with heads and square necks, such method consisting in enlarging or swelling that part of the rod which is to form the neck and at the same operation forming a rudimentary or preliminary head thereon, and subsequently forming the square neck by squeezing and the finished head by compression, the whole mode of manufacture being substantially as described.

(69,335) THREE-WHEELED CARRIAGE.—John Gehr, Mercersburg, Pa. :

I claim, *First*, The ring B, working in the groove *a''*, of the wheel A, and having the projections *b'*, *b'*, substantially as and for the purpose specified. *Second*, The spring D, bent in the form shown, attached to the wheel A, by the bolts *d*, *d*, and bearing the carriage at *d'*, substantially as and for the purpose described. *Third*, The metallic guard E, substantially as and for the purpose specified.

(69,350) AXLE.—S. D. Littlefield, assignor to himself and Horatio D. Knight, Burlington, Wis. :

I claim, *First*, The beveled flanges *e*, *e'*, for covering the collar E and the nut D, and protecting them from grit and sand, substantially as specified. *Second*, The projections or lugs *x*, *x'*, for stationing the collars *d* *d* temporarily upon the skein, substantially as set forth.

(69,354) WAGON SPRING.—James McDuffie, Heller's Corners, Ind. :

I claim the spring A, in combination with the gibs and keys B and the bar C, said springs and bar being constructed in the manner and for the purposes herein described and set forth.

(69,356) CARRIAGE-POLE.—Christian K. Mellinger, Millersville, Pa. :

I claim the plate A, with its slots *b* and eye *a*, forming the adjustable shackle for carriage-poles, when arranged, constructed, and applied in the manner and for the purpose specified.

(69,364) CARRIAGE-STEP.—Charles Parker and William Vogler, Canterbury, N. H. :

We claim, *First*, A vibrating carriage-step, operated by mechanism connected with the forward axle, substantially as described. *Second*, The vibrating step *a*, in connection with the fan-shaped arm *d*, levers *b*, *b'*, and cross-bar *c*, substantially as described. *Third*, The step *a*, provided with fan-shaped arm *d*, substantially as described.

(69,367) DEVICE FOR HEATING TIRES.—Charles H. Reno, Barrington, N. Y. :

I claim the chamber A, pipes C and D, and branch-pipe E, when made and used as and for the purpose herein specified.

(69,369) HITCHING DEVICE FOR WHIFFLE-TREES.—Henry and James M. Saunders, Oxford, Ohio :

We claim the application to the whiffle-tree A of the arms or stops B, the cases D with the spring-bolts C encased therein, with the cords *c*, and pulleys *d*, when the same are arranged to operate as herein shown and described.

(69,386) ELLIPTIC SPRING BRACE.—M. Barker, Humphrey, N. Y. :

I claim the arrangement of the brace-rods C, D, their outer ends secured to the center of the lower part of the springs A, B, their inner ends pivoted to the vertical wheel E pivoted to the wagon-box, as herein described for the purpose specified.

(69,394) ATTACHING THILLS TO CARRIAGES.—Samuel S. Bliss, New Bedford, Mass. :

I claim, *First*, Securing the side-irons B, B, when the same are constructed with solid conical bearings or centers, F, F, to the thill A, by means of clamp-bolts D, D, or in any equivalent manner, substantially as described. *Second*, The combination of the thill A, side-irons B, B, having solid conical bearings F, F, and clip-iron C, with its conical socket or seats E, E, when the same are constructed, arranged, and operated substantially as described and for the purposes set forth.

(69,397) FOLDING SEAT FOR CARRIAGE-BODIES.—Richard F. Briggs, Amesbury, Mass. :

I claim the combination and arrangement of the support *b*, slotted friction-plate *d*, and slotted upright support *c*, substantially as described for the purpose herein set forth.

(69,402) ATTACHING THILLS TO VEHICLES.—Edward M. Butler, Croton Falls, N. Y. :

I claim the rubber cushion I, or its equivalent, applied to the center-pin of shaft-couplings, substantially as and for the purpose described.

(69,403) CARRIAGE WHEEL.—John G. Buzzell, Lynn, Mass. :

I claim, *First*, The swiveled spokes B', when crimped to give them elasticity with the coils *b'*, substantially as herein shown and described. *Second*, The single spokes B, their outer ends swiveled to the rim C, and their ends screwing into the hub and adapted to be turned to regulate the strain of the wheel, as herein set forth for the purpose specified. *Third*, The single spoke B or B', their inner ends secured to the hub A, out of the same horizontal lines with the coils *b'*, as herein set forth for the purpose specified. *Fourth*, The combination and arrangement of the removable ring D, coiled swiveled spokes B, B', whereby the strain and elasticity of the wheel are adjusted, as herein set forth for the purpose specified.

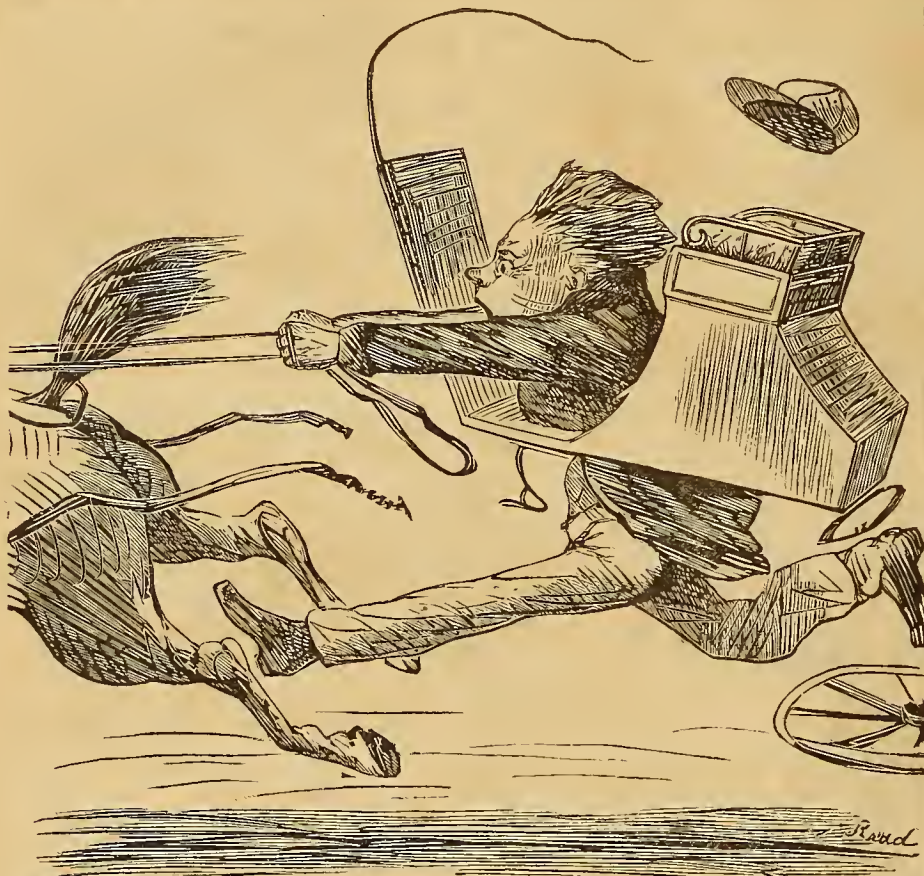
(69,404) WAGON.—Vasco M. Chafee, Xenia, Ill. :

I claim, *First*, Hinging the tongue or shafts of a wagon or other vehicle to the front axle, so as to obtain a direct center draught, substantially as set forth. *Second*, The combination of the tongue C with a center hinge at G and the side-braces H, attached substantially as and for the purpose set forth. *Third*, The plate F, forming the sand-board axle-plate and reach-receiver, combined substantially as described. *Fourth*, The combination of the bolster A, plates E and F, reach D, brace I, and king-bolt K, substantially as set forth.

(69,469) THILL COUPLING.—E. M. Naramore, assignor to himself and W. M. Naramore, North Underhill, Vt. :

I claim, *First*, The bed-piece A, constructed substantially as described for the purposes set forth. *Second*, The knuckle B, formed of the parts *a*, *b*, *c*, in combination with the bed-piece, substantially as described. *Third*, In combination with the bed A and knuckle B, I claim the spring-catch C, with its link *f*, and spring J, substantially as and for the purposes herein set forth.





The fast young man, who never stops for trifles under any circumstances.

### CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, NOV. 18, 1867.

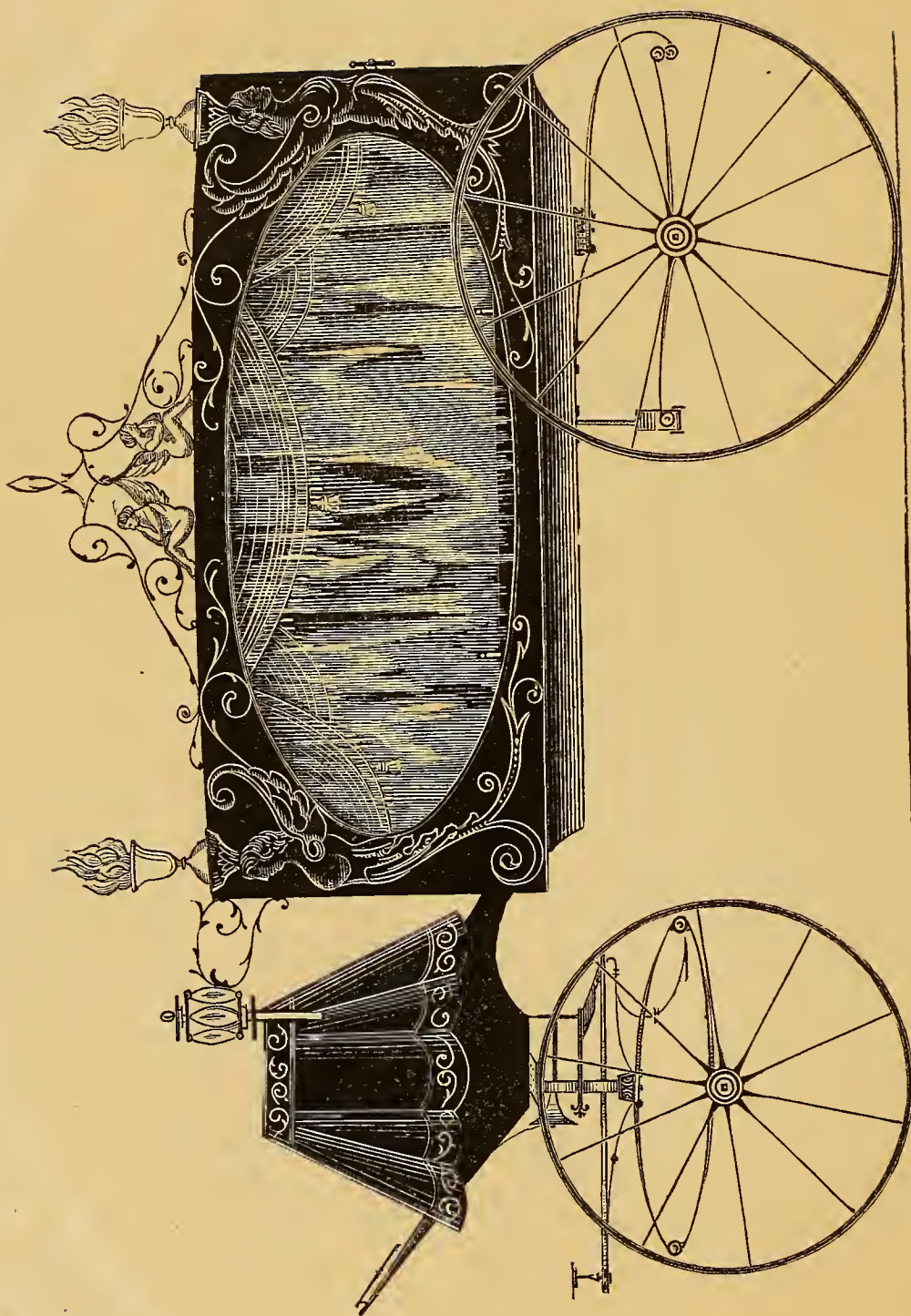
Apron hooks and rings, per gross, \$1.75 a \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 8 1-2c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1½, \$7.50; 1¾, \$8.50;  
 1⅝, \$9.50; 1½, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1½, \$8.25; 1¾, \$8.75;  
 1⅝, \$10.75; 1½, \$13.00.  
 Do. Half pat., 1 in. \$10; 1½, \$11; 1¾, \$13; 1⅝, \$15.50; 1½, \$18.50.  
 Do. do. Homogeneous steel, ⅝ in., \$12.00; ¾, \$12; ⅞, \$12.50;  
 long drafts, \$4 extra.  
 ☞ These are prices for first-class axles. Inferior class sold from \$1 to \$3 less.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3½ in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 20 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. ½ in., \$1.25; ⅝, \$1.50; ¾, \$1.70; ⅞, \$2.10; 1, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 20c.; per large gross, \$2.25.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 55c. a 90c.  
 Castings, malleable iron, per lb, 18c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$3.50 a \$5; lining, \$2.50 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.

Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 70c.; 5-4, 65c.  
 Do. Ducks, 50 in., 82c.; 5-4, 75c.; 6-4, 90c.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb, all sizes, 20c.  
 Fifth-wheels wrought, \$1.75 a \$2.50.  
 Fringes, festoon, per piece, \$2; narrow, per yard, 18c.  
 ☞ For a buggy top two pieces are required, and sometimes three.  
 Do. silk bullion, per yard, 50c. a \$1.  
 Fringes, worsted bullion, 4 in. 50c.  
 Do. worsted carpet, per yard, 8c. a 15c.  
 Frogs, 50c. a \$1 per pair. Glue, per lb, 25c. a 30c.  
 Hair, picked, per lb, 50c.  
 Hubs, light, mortised, \$1.20; unmortised, \$1.—  
 coach, mortised \$2. Japan, per gal. \$2.75.  
 Knobs, English, \$1.40 a \$1.50 per gross.  
 Laces, broad, silk, per yard, \$1.00 a \$1.50; narrow, 10c. to 16c.  
 Do. broad, worsted, per yard, 50c. a 75c.  
 Lamps, coach, \$18 a \$30 per pair.  
 Lazy-backs, \$9 per doz.  
 Leather, collar, dash, 30c.; split do., 16c. a 20c.;  
 No. 1, top, 30c.; No. 2, enameled top, 28c.;  
 enameled Trimming, 28c.; harness, per lb, 50c.; flap, per foot, 25c.  
 Moquet, 1½ yards wide, per yard, \$8.50.  
 Moss, per bale, 10c. a 18c.  
 Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. a 20c.; ½, lead, door, per piece, 40c.  
 Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c. Name-plates.  
 Oils, boiled, per gal., \$1.80.  
 Paints. White lead, ext. \$14.50, pure \$15.50 per 100 lbs.; Eng. pat. bl'k, 40c.  
 Pole-crabs, silver, \$5 a \$12; tips, \$1.50.  
 Pole-eyes, (S) No. 1, \$2.35; No. 2, \$2.60; No. 3, \$2.85; No. 4, \$4.50 per pr.  
 Sand paper, per ream, under Nos. 2½ & 3, \$6.  
 Screws, gimlet, manufacturer's 20 per cent. off printed lists.  
 Do. ivory headed, per dozen, 50c. per gross, \$5.50.  
 Scrims (for canvassing), 16c. a 25c.  
 Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.  
 Shaft-jacks (M. S. & S.'s), No. 1, \$2.65; 2, \$3.10; 3, \$3.35.  
 Shaft-jacks, common, \$1.10 a \$1.35 per pair.  
 Do. tips, extra plated, per pair, 25c. a 50c.  
 Silk, curtain, per yard, \$2 a \$3.50.  
 Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.  
 Slides, ivory, white and black, per doz., \$12; bone, per doz., \$1.50 a \$2.25; No. 18, \$2.75 per doz.  
 Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.  
 Spring-bars, carved, per pair, \$1.75.  
 Springs, black, 17c.; bright, 18c.; English (tempered), 22c.;  
 Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.  
 If under 36 in., 2c. per lb. additional.  
 Spokes (Best Elizabethport), buggy, ⅞, 1 and 1½ in. 9½c. each; 1½ and 1¼ in. 9c. each; 1½ in. 10c. each.  
 ☞ For extra hickory the charges are 10c. a 12½c. each.  
 Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.  
 Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½c.; 3-4 x 5-32 a 11 c; heavier sizes, 9½c. currency.  
 ☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.  
 Stump-joints, per dozen, \$1.40 a \$2. Tacks, 7c. and upwards.  
 Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.  
 Terry, per yard, worsted, \$3.50; silk, \$8.  
 Top-props, Thos. Pat. wrought, per set 80c.; capped complete, \$1.50.  
 Do. common, per set, 40c. Do. close-plated nuts and rivets, \$1.  
 Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.  
 Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.  
 Do. Marshall's Machine, 432, \$2; 532, \$2.25; 632, \$2.60, gold.  
 Tufts, common flat, worsted, per gross, 20c.  
 Do. heavy black corded, worsted, per gross, \$1.  
 Do. do. do. silk, per gross, \$2. Do. ball, \$1.  
 Turpentine, pr gl., 70c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.





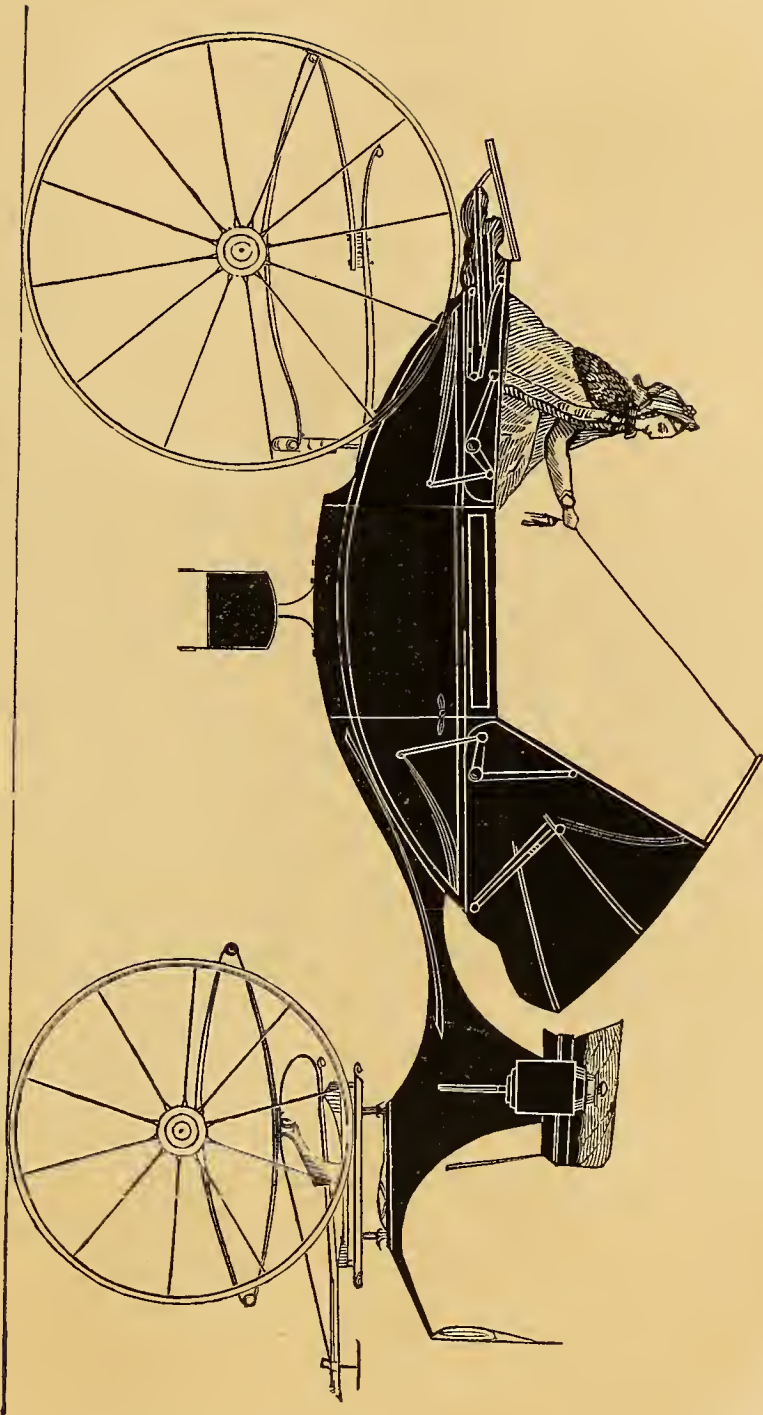




NEW OVAL GLASS HEARSE.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 117.*



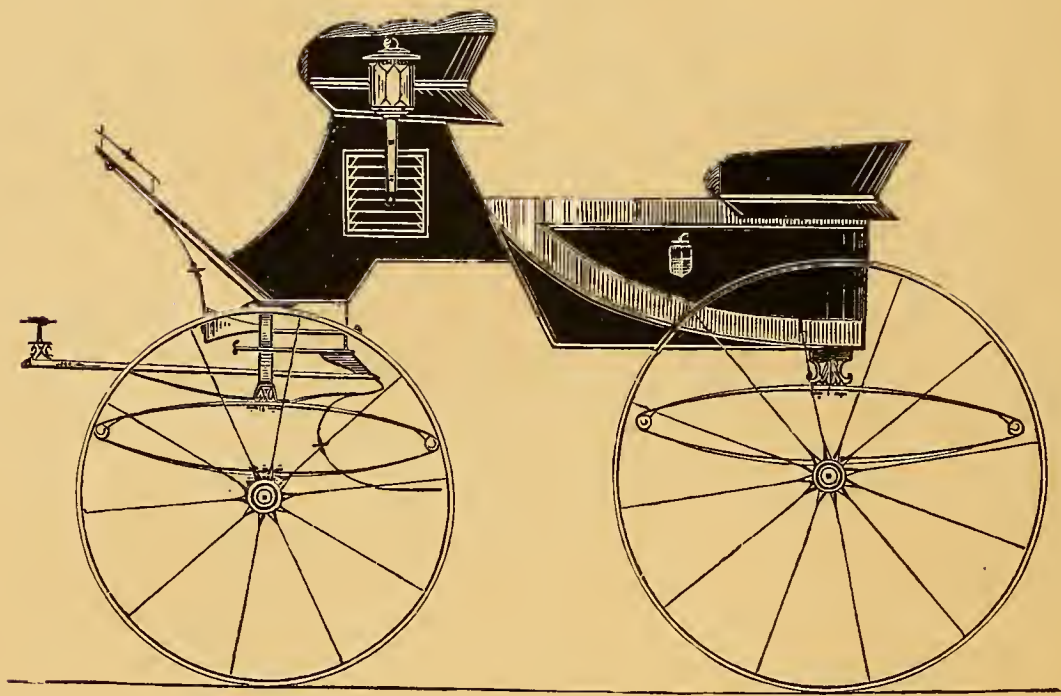
AUTOMATICAL LANDAU.— $\frac{1}{2}$  IN. SCALE.  
*Engraved expressly for the New York Coach-maker's Magazine.*  
*Explained on page 117.*







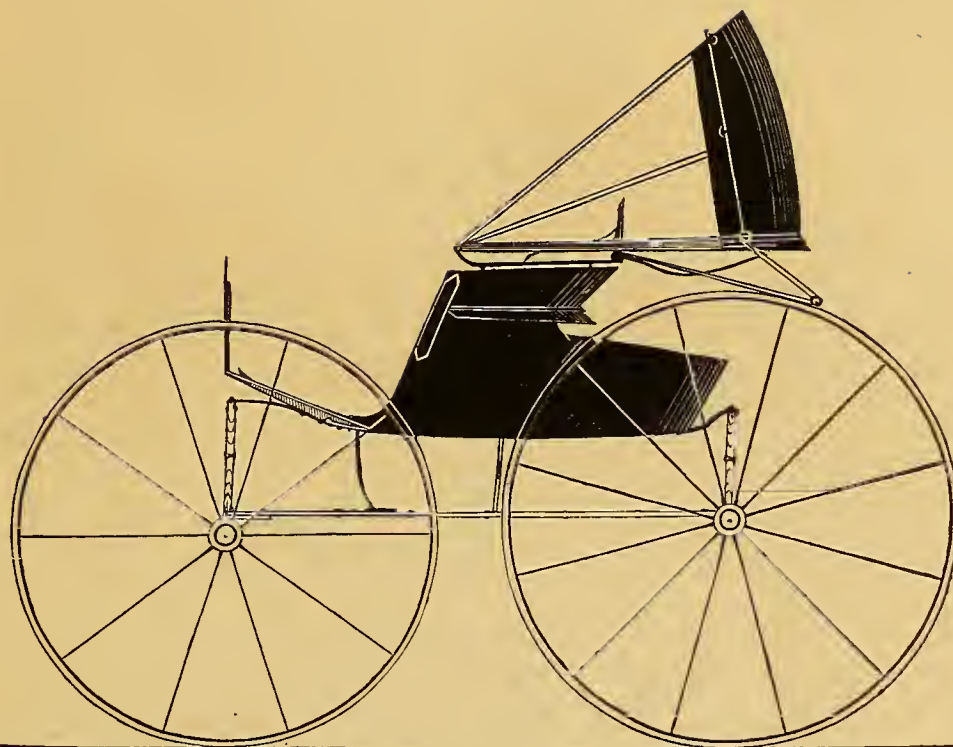




DOG-CART PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 117.*



HALF-PILLAR COAL-BOX BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 117.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT-

Vol. IX.

NEW YORK, JANUARY, 1868.

No. 8.

## Mechanical Literature.

### SLEIGHS AND SLEIGH-MAKING.

As the season for using sleighs approaches a few hints in regard to their construction will not be out of place. The manufacture of sleighs is carried on, to a greater or less extent, in all of the New England States, in Northern and Western New York, in the Northern part of New Jersey, and the northern portions of the Western States. A few are built in other sections, but there is so little call for this work in more southerly latitudes that it is almost impossible to find workmen, outside of the localities we have mentioned, who can turn out a creditable sleigh.

The most popular sleigh ever introduced is that which goes by the name of the "Albany jumper," and it is the prettiest sleigh in use at the present time. The "Portland" sleigh has for some time contested the lead with this favorite, and meets with many admirers, it being both lighter and cheaper. A new and pretty style of sleigh is now made, with a body very much like the Victoria phaeton in general appearance; the seat can be made separate from the body if desired. The body is either finished with a slab side or paneled; if paneled, the bottom rail must be bent. The same pattern may be used as with the "Albany jumper," and also the same top pillar. The body of the front of the seat must be about eight inches deep; the seat should pitch back about three-quarters of an inch, and be framed in the bent bottom side. The body should flare about half an inch on each side at the front end of the seat, which must project over the side of the body about four inches in front, running nearly straight to within six inches of the back, at which point the round corner begins. The seat is eight and a half inches deep at the front corner, with three inches flare. The Stanhope pillar and the molding connected with it should retain the sweep of the "Victoria." The back of the seat should be eighteen inches in the center, and about twelve inches at the corner, and if it be made loose from the body care must be taken not to break the sweep of the back quarter; with proper attention this sweep may be kept perfect, and one or two inches sweep be put in the back. This, if made solid, will require a plank about three inches thick. Another way

of making the seat is to let the bent piece run up the back, mortising in a back rail and paneling it the same as any other. The ends may be got out of one-inch whitewood, with a three-inch corner block; screw this corner block against the bent rail, and round off the corner until it comes to the edge of the back molding. The body, in front of the Stanhope pillar, should be about five inches deep, running up to a point where it comes in contact with the runner; it should measure about two feet in front of the seat, and nineteen inches on the seat. The running part should be made light and strong, nothing but the best of timber being used throughout; the knees should be about three-quarters of an inch thick by an inch and a half at the top, and the same thickness as the runner at the bottom. The middle knees should not be less than eighteen inches long between the shoulders, framed perfectly plumb, and thrown out at the bottom not far from four inches; they must also be framed in the runner, so that the spaces will be the same between them, and at the same time pains should be taken to have the front knee-frame in the runner at a point about three inches from the ground. When the runner is set up, allow at least six inches brace to the front and back knees. The runner should be about one inch deep by one inch thick, and be allowed to run back at least three inches beyond the extreme end of the body. Care should be taken that the dash is not made too high; all that is required is to have it high enough to stop the balls from the horses' feet.

The fenders should be framed about nine inches from the body, not over three-quarters of an inch square, and neatly chamfered, leaving a place between the front and middle knee for a step-plate. There is no need of loading down the sleigh with iron work; the T-plates, with the under braces, should be solid, and a plain brace from the runner to the knee, allowing the back one to run up to the body at a point a little below the seat, also a brace from each knee to the fender, are all that are required. A seat-brace should be run from the front knee to the runner, on which should be welded an eye for the thill-coupling; care should be taken to get the eye at a point, so that when the thills are on and lifted to their proper height the runners will run level. For shoes use the best cast-steel; it pays in the end. The track varies from three feet to three feet six inches, or even three feet eight inches on the heavier sleighs.

A very pretty style of painting is to use lake on the



families, and to force the observance of the rules thereof by acts of violence, when such acts were considered necessary. That in order to prevent any recurrence of similar acts of violence, and to promote the well-being of all the inhabitants of the borough, it is essentially requisite that the artisans should have restored to them the same power of lawfully enforcing obedience to their rules, for the good government of their trades, which they possessed in 1565, 1596, and 1624, as herein rehearsed. That a copy of these resolutions be sent to the Right Hon. the Earl of Derby." The resolutions found a seconder, Mr. Woodcock, and there was a chorus of condemnation of them. One member pointed out that the town had gained nothing in reputation by the late commission, and that it was not well just now to court another commission—to wit, of lunacy. Another thought the Council was humiliated by being asked to consider the resolutions at all, and said there was not a man in England beside Mr. Ironside who would have proposed them. Several showed how absurdly retrograde and in restraint of trade the resolutions were. The resolutions were ultimately negatived, the mover and seconder only voting for them.

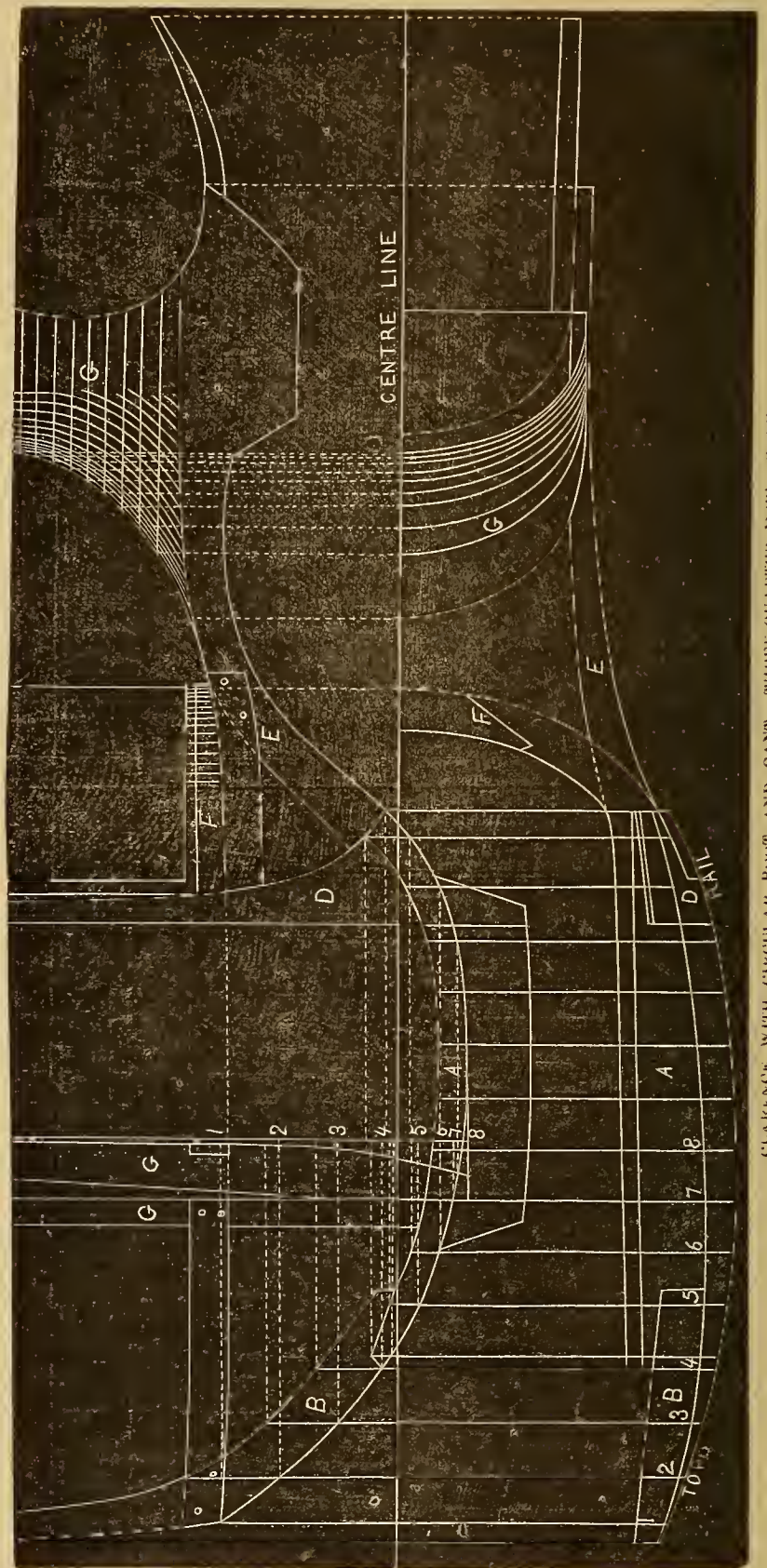
## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

### BODY CONSTRUCTION—PART TWENTY-THIRD.

THE diagram which accompanies this article is intended for the assistance of the workman in building the body of the clarence, illustrated on Plate xxv, of this volume. When transferring a cant to the blackboard, always, in the first place, draw a line for a base from which to work, and then ascertain the width of the body on the seat at the back, and in front. From these points you will be enabled to make the necessary calculations for the top-rail. Having laid down this top-rail on the cant, next find out the sweep of the bottom-side, A A. In the drawing, we have given the face side of the standing-pillar, C, showing the true turn-under of the body.

The perpendicular lines seen on the cant-board, and intersected by dotted lines in the draft, correspondingly numbered, constitutes what is known as the square-rule—improperly called the French rule—without a knowledge of which it is very difficult to build, correctly, this class of work. When laying this on the board, begin by setting one leg of the compasses at numeral 1 of the dotted lines (beside the standing-pillar), and get the distance from the standing-pillar (where it begins to turn under) to the perpendicular line, correspondingly numbered on the cant below. This distance is next pricked-off at that point, and afterwards the other remaining numbers are gone through with in the like process, until all are "pricked off," as in our example.



You now have the sweeps of the bottom-sides and back-pillars B B; from these sweeps you can strike the insides of both the bottom-side and standing-pillar. D D shows the position of the front-pillar; E E the neck rocker; F the compass-front—which may be spliced as shown in our diagram—and A A different sections of the framing for the formation of the boot. The best mode of constructing this kind of boot is to build it up with layers of well-seasoned two-inch whitewood, firmly glued



together. When this is sufficiently dry "dress it off" to the proper shape, covering the whole with untanned leather, and finishing all with a neat moulding at the bottom to hide the tacks.

## Pen Illustrations of the Drafts.

### NEW OVAL GLASS HEARSE.

*Illustrated on Plate XXIX.*

SEVERAL hearses have been given in this Magazine, but none of them have suited our notion of what should constitute a carriage for the dead, better than the one here presented to the public. The only objection to it may be found in its elaborate design, but this in our judgment constitutes its chief excellence over all others we have seen. Although supplied with an oval side-glass, the outline of the body is nearly of a square form, which arrangement gives ample space for the carved figures of the cherubims that adorn the ends. This job will be greatly improved by giving the panel some swell, both horizontally and vertically, thereby avoiding the unsightly disadvantage of having the figures standing out in advance of the central portion, as they will if laid on a flat one. The inside trimmings of fine black broadcloth in folds, edged with heavy gimp, and silken tassels, *inside* of the glass, sets off the hearse very tastefully. The sunken bottom is intended to be of a concave form as shown by the tinting. The lamps, as they are never lighted, are designed "more for ornament than use." The hammer-cloth—which we have so often ridiculed in pleasure carriages—is more appropriate here, as it contributes a sombreness to the cortege, consistent with the feelings of us all on the loss of friends dearest to our hearts. The wheels in this instance are 3ft. 8in. and 4ft. 4in., with a spoke about 1½in. wide.

### AUTOMATICAL LANDAU.

*Illustrated on Plate XXX.*

OUR readers, like ourself, may be a little curious to know why this vehicle is termed automatic. If so, they will learn from Webster's (Unabridged) Dictionary, that "*automatic* is now applied to self-acting machinery, or such as has within itself the power of regulating entirely its own movements, although the moving force is derived from without." In this instance the power *without* is furnished by the lady *within* the carriage, who is in the act of raising to its place the front half of the head, by means of a cord, as seen in the drawing. This landau formed one of the chief attractions in the late Paris Exhibition, the inventor of which—an English coach-builder—claiming for it many advantages over the old and clumsy process of opening and closing the head, as it can be done four or five times in a minute, "without the driver getting off his box, and without giving time for a

shower-bath in the interior before the apparatus is set right." The construction of the apparatus is plainly seen in the drawing, and therefore need not be described in detail. The inventor received for it a gold medal.

### DOG-CART PHAETON.

*Illustrated on Plate XXXI.*

A CERTAIN class of customers in this locality seem to be very partial to this kind of vehicle, especially when "sporting it" through the Central Park, since it is well calculated to show them off to the best advantage, and attract the attention of the mixed multitude of curious observers, who on a sunshiny day hover about the place "thick as bees" or leaves in that poetical valley—Val-lambrosa. As this is one of the plainest kind of jobs we shall be brief, merely adding that the blinds in the fore-quarter are real, and the tinting in the back-quarter *done* in paint. The wheels are 3ft. 6in. and 4ft. high. The New York price is about \$550.

### HALF-PILLAR COAL-BOX BUGGY.

*Illustrated on Plate XXXII.*

As our readers have seen, the past season has been productive of a curious variety of buggies, chiefly after the coal-box pattern. The drawing here presented differs in some respects from any heretofore published in this Magazine, a prominent feature in which is the swept bottom-side, which in some degree takes off from the side panel that heavy look we are accustomed to see in the coal-box buggy. Price \$450.

## Sparks from the Anvil.

### GENERATING HEAT IN AXLES AND OTHER MACHINERY.

BY HENRY HARPER.

*(Concluded from page 105.)*

IF two metallic surfaces of the same metal are brought into such close contact that no irregularities absolutely intervene, cohesion will be the result, and separating that cohesion would produce heat, the same as in any other case; therefore, two pieces of the same kind of metal can not be run on each other with any considerable amount of pressure without producing unfavorable results. No matter how well polished the metal is, a lubrication must keep them from touching each other on this account. If the rubbing surfaces are composed of different kinds of metal, that from the internal structure of particles, will not cohere,—such as iron and brass, iron and Babbit metal, &c., heat is less liable to be generated when the lubricatory composition is removed from between them. Again, if iron was running on lead, the latter would not have sufficient cohesion to break off, or overcome the cohesion of the iron, and as the lead would be the part that gave away, its cohesion being less would produce less heat.

Whenever the case will admit, a soft metal for a bear-



ing surface to the box is preferable. The axle requires a certain amount of strength that will not admit of soft metal in its composition, therefore advantages in many cases can be derived from making the box revolve, as in the case of a road wagon over that of the railway wagon, in which the axle revolves. In the former case the bearing and rubbing is brought on one side of the axle and the whole circumference of the box. In the latter case the bearing and rubbing is brought on the circumference of the axle and one place of the box, therefore it will not admit of the box being made of softer metal than the axle.

It has always seemed to me that railway engineers have overlooked a very important point in not making the axle stationary. The foregoing advantage would be one inducement, and saving the twisting strain on the axle, that is made on curves of the track, would be another important point gained. The well known fact that car axles become weakened from long use so that an ultimate breakage is the result, is wholly attributable to the fact that a strain of lever-power is made on the axle at every curve that forces the tread of the wheel to slide just as much as one track is shorter or longer than another.

There must be a bearing surface sufficient to keep friction-rollers (in which is included lubricating compositions) from being crushed. One sphere will bear a certain amount; therefore, when the amount of pressure is increased above its capacity the requisite number must also be increased. Again, the bearing must be of a nature that will not readily decompose in the situation it is placed in. For instance, there is an oil that is derived from manufacturing stone coal into gas, that is called machine oil. It answers very well for many purposes in lubricating machinery; but when it is used for lubricating the interior of a steam chest, the heat decomposes it so quickly that the metallic rubbing surfaces are allowed to come together and wear out in perhaps a few minutes.

It is a mistake that lubricating matter produces its effect on rubbing surfaces by filling up the pores and uneven places with its small atoms. Quicksilver affords a remarkably easy lubricator, so long as its atoms are retained in a spherical shape necessary to all fluids; but when their spherical form is changed by converting it from a fluid into the angular shape of a powder, like vermilion, calomel, &c., the lubricating quality is destroyed. In this case the atoms would be divided so that they would fill up the porous nature of the rubbing surfaces more effectually, yet the quality of lubrication would be lost. Just the same result would be produced if we should tread upon an even surface covered with shot—the application of any lateral power would throw our feet from under us, but if the pressure could be made on the shot with sufficient force to flatten their surface from the spherical shape into a disc they would lose the power to move our feet from under us. The loss would be simply destroying the lever power. The same would be the loss of the lubricating quality of fluid matter.

With the foregoing facts in view, it is an easy matter to direct our efforts against heat and friction in machinery with intelligence, knowing to a certain extent what effect the application is going to produce; and if it does not produce the desired effect, the cause can with tolerable accuracy be arrived at.

The heat and friction on railway axles, boxes, and on common road wagons, is most generally occasioned by throwing the weight unequally on one of the two extremi-

ties of the box and axle-arm, and so constructing it that it is continually kept there. For instance, a wagon wheel is placed on the axle-arm so that the spoke on the under side of the wheel is perpendicular to the horizon, the weight will fall on that spoke through the centre from end to end. Move the wagon on uneven ground and the bearing is thrown off from the centre of the spoke, and if not prevented it will fall to the ground. To prevent this, the axle box is formed—which is a cross section at the top of the spoke—extending out each side of the upper end of the spoke—on light work three and up to six inches for heavier work. If the wheel attempts to fall over, the bearing on the extremity of the box opposite to the way it is falling has an unequal pressure that balances the wheel back to its position. If it attempts to fall the other way, a pressure on the other end of the box sustains it. These strains are occasioned by the uneven surface of the road over which the wagon is traveling, and the amount depends upon the distance that the tread of the wheel is carried either in or out from a vertical position by the unevenness of the road. If it is out of place one inch, with a six-inch box, one-third of the load is taken from one end of the axle-arm and added to the other; if it is two inches, two-thirds changes from one extremity to the other; and three inches entirely relieves one end from the pressure and carries it to the other. The box twelve inches long would be subjected to just one-half of that uneven bearing, and any intermediate length the same proportion. An uneven road does not produce a continued effect on one end of the axle-arm, but the effect is continually changing from one end to the other so that the lubricating oil is not burned out by heat, and as long as it maintains its position between the two rubbing surfaces the axles can not break off or wear. A sudden pressure may bring them together and a certain amount of heat be produced, but at the next instant the oil absorbs the heat and that is the end of it.

The case is far different when by any mal-construction of the mechanic the tread of the wheel is permanently thrown out of position. Then the wagon receives from the commencement an inequality that in every motion it must sustain, and to add to the evil the inequality of wear increases still more the inequality of bearing. Sometimes one arm of the axle will be worn out before the other one is injured. Frequently one arm will cut out much quicker than an expert could cut it away with the file. The reason of this is, that heat is produced by breaking away the particles, and as it becomes more intense the iron becomes softer, and the same power will produce a greater effect to carry away the obstruction.

The position that the bearing of the axle-arm is pitched towards a horizontal line, determines the inequality of its bearing. This position varies as often as the dish to the wheel varies, and the taper to the box. If the angle of the box is compared with the angle to the dish of the wheel, the excess that the former has, will be the pitch of the bearing at the point, above an horizontal line. If the latter exceeds the former, the excess will be the amount that the bearing must pitch below a horizontal line at the point.

This calculation would involve a principle in geometry that would trouble the most expert geometrician to give a practical demonstration of, yet to the mechanic it is made as simple, by instruments for the purpose, as it is for the cooper to calculate the diameter of a barrel-head, and it does not take more time. The necessity of an exact calculation is as important to one as the other, notwithstanding



ing the disregard that some show to it. There is no more necessity of friction in wearing away an axle to a wagon, so as to injure it, while the other part of the wagon is being worn out, than there is for a barrel to leak for the want of a formula to calculate the diameter of a barrel head. The mechanic, at this day, who cannot calculate with mathematical accuracy the exact pitch of his axle before he sets it, is as incompetent as the cooper who cannot calculate the diameter of a barrel head so as to make it tight.

The bearing of an axle to a railroad car is generally made unequal by the axle springing them out of a straight line, so that at every half revolution the bearing comes on one side of the box and then changes to the other at the next half of a revolution. Or, it may be by the frame-work that the box rests on, being sprung out of place so that one side of the box is turned to the axle and receives the whole of the bearing. In the latter case time will wear away the exposed part of the box until the bearing becomes equal throughout the whole length of the bearing surface.

To sum up the whole matter, one cause produces heat in working machinery which we have described, and if we guard against that cause no inconvenience is sustained from it. In order to do it, we must abandon some popular but false theories in science, as for instance "the less the bearing surface the less the friction." Instead thereof, *we must look for an actual development of mechanical power in substances whose forms are so minute that they cannot be recognized in our vision and guard against any condition that would destroy or render inoperative those powers in substances that are large enough to be thoroughly recognized.* It is of great importance for us to know, that nature's laws—with which it works out so many stupendous results—are few, and that if we start from the apparently insignificant fountain-head, and patiently follow down the stream, we shall surely arrive at the great ocean of truth, as the result.

## Paint Room.

### BONE BLACK.

THE physical and chemical properties of animal coals have been known only a few years. Formerly to obtain a fine quality of black for painters, ivory was exposed to fire in a close vessel; but since, by the experiments of Mr. Figuiet, the superiority of animal coal has been discovered, many manufactories of bone black have been established for supplying painters, sugar refineries and other chemical manufactories with this article, independent of the still greater consumption of it in making blacking for shoes. Some manufacturers only fill earthen or iron pots with broken bones, lute on a cover with clay, pile these pots one on another in a potter's kiln, and on the pots feeling the action of the fire the lute cracks, and allows the volatile matter of the bones to escape while the carbonaceous residuum is left behind. But in this manner of proceeding the volatile matters are all lost. In the best manufactories of bone black, it is obtained as a secondary product, the bones being previously boiled to get rid of the grease they contain, which if allowed to remain would yield an acid that would unite with the volatile alkali, and consequently spoil the intended production of carbonate of ammonia,

—are distilled in large iron cylinders, and the volatile products afterwards carefully collected. These volatile products are an ammoniacal salt and liquor,—an oil of a most fetid odor,—which is burnt in lamps for the manufacture of English lamp black, carbonized hydrogen gas, which might be used for illumination, as it gives a whiter and more lively flame than the gas of mineral coal, but the smell of the oil dissolved in it is so disagreeable that it is used only to save fuel, and contribute to the generation of itself, by being led by pipes from the receiving vessels to the fire place, where, meeting with the air, it takes fire and burns. This application of the gas to heat the cylinders is carried to the greatest perfection at Gros Caillon, where the cylinders are heated with other fuel, and the distillation completed by consuming the gas in the body of the furnace. The cylinders are kept always hot, the charge being put in and drawn out on an internal half cylinder, of plate iron, so that the operations succeed each other constantly without intermission. The different kinds of bones, when distilled in close vessels, do not yield a similar kind of coal, for it varies considerably in quality. Some have supposed, that as the bones of young animals contain most gelatine, they should yield a deeper black, and more in quantity; but the large round bones, as the thigh bones of oxen, yields forty per cent. of black, while an equal weight from calves yields only from four to five per cent. The most intense of animal coals is true ivory black, and hence it is preferred for the use of painters. Animal coal is a mixture of phosphate of lime, quicklime, and the carbonaceous matter, or carbon of the chemical schools. The superiority of its properties depends on these four substances. The black obtained from ivory, horns, or bones, that contain much gelatine, is most generally esteemed, hence some manufacturers add to the bones any soft animal matter, as blood and the refuse of slaughter houses, previously washed in running water, to get rid of the excrementitious matters. The black left in the making of prussiate of potass, by the manufacturer of Prussian blue, who use blood, is highly esteemed for clarifying. Bone black that has been used for clarifying liquids, if well washed with water and heated again, is still more efficacious than at first. If two parts of bone black finely ground in water, is mixed with the mixture of fifty parts of camphor and one of lime, the small portion of coloring matter which is present in the rough camphor will be retained, and the cake of refined camphor will be whiter than usual. Whether the mode of grinding bone black in water and then drying it might be advantageously applied, I believe is not known, although I have been informed by a French painter that he had been in the habit of grinding his bone black in water, afterwards exposed it for some time to the sun, covered an inch with water, and when wanted merely to drain off the water, dry it by the sun and again grind in oil, claiming it made a more intense black.

J. B. P.

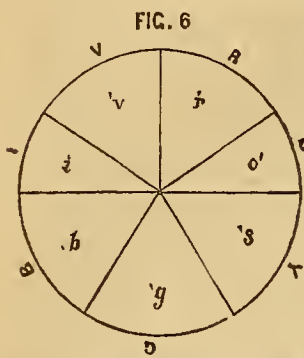
### THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

(Continued from page 106.)

NEWTON described a method by which the color or tint exactly complementary to any given color or tint may be found, graphically or mechanically. As in Fig. 6, a circle whose radius is unity, is divided round the 360





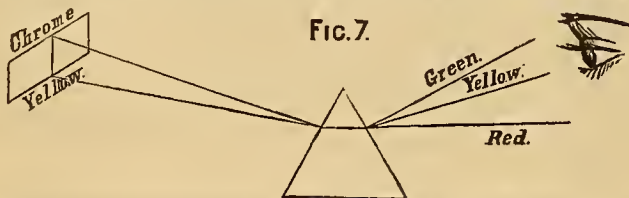
deg. of its circumference, into segments proportional to the numbers we have given in a preceding paragraph as being those proportionate to the respective colored rays of the spectrum, so that commencing at the top of the figure, and going round from right to left thence, *i. e.* reverse to the motion of the hands of a watch,

we have the seven sectors representing the seven prismatic colors, marked V, I, B, &c. Let the points marked in small letters *v, i, b, &c.*, be the centres of gravity of the respective arcs V, I, B, &c., of the circumference assumed equal in weight for the unit in length, *i. e.* for 1 deg. of the circumference.

Then the common centre of gravity of all these must pass through the centre of the circle; that will be, therefore, the centre of gravity for colorless light, or for all the arcs of colors combined. A diameter, no matter how or where taken, across this circle, shall cut it into two semicircles, each of which shall have a common centre of gravity for all the arcs or parts of arcs within it, and which shall equilibrate the common centre of gravity of all those of the other or opposite semicircle, and the combined colors of all such semicircles respectively shall be to each other complementary.

But let it be supposed that we add or diminish the quantity of any one or more colors in one such semicircle, *i. e.* that we add to or diminish the weight of any one or more of the arcs V, R, G, &c., of color, then the common centre of gravity of the whole circle will no longer be in the centre, but will pass somewhere to one side of it, and the sector of color within which it is now found will indicate the color that must be added on the opposite side of the diameter, so as to restore equilibrium (*i. e.* to make the other or opposite semicircle to the disturbed one complementary), and the distance from the centre, at which the centre of gravity of the whole circle after disturbance is found, will indicate the quantity of that color that must be added to restore such equilibrium, or complementary condition, while the direction of the line joining these centres points to the color that must be added.

For example, if as much more yellow, or yellow combined with orange and green, or even with a portion of blue and red, be added as shall bring the centre of gravity of the whole circle from the centre to a point *s*, in Fig. 7,



we can at once decide how much we must add to the weight of each of the arcs of color at the opposite side of the diameter which is normal to the line, joining *s* with the centre, *i. e.* how much violet and indigo light; and in proportion respectively to its own length, to each such arc, in order that we shall restore equilibrium, that is, restore the complementary condition of the colors of the opposite halves of the whole circle of color, *i. e.* of the whole spectrum.

If a scale of intensity of color be once arbitrarily

fixed upon for each of the tints of the spectrum, the artist can, by means of such a diagram and method, determine with considerable precision every possible problem as to harmonies or contrasts &c. of color; and having once obtained this mixture for a given tint, or intensity of tint, can recover the same at any future time in an unerring manner. Chevreul, in his great work "*Le Moyen de Définir et de Nommer les Couleurs, &c.*," has described accurately and fully how all this may be accomplished in the practice of the artist or painter.

Were we to place a circle such as here referred to, upon an axis at its centre and spin it round rapidly, the sectors having been colored artificially, it would, when viewed through a narrow slit, appear, provided the artificial colors were as pure as spectral ones, and if the colors were on an absolutely diaphanous and colorless circle, as of glass, perfectly colorless; and perfectly white, if on white paper or porcelain, &c., on principles which we have already explained.

Upon the principles which have been just stated, it is not difficult to see that an instrument might be constructed of a simple character by which all questions of harmonies and contrasts &c. of pure colors and of equal intensities, might be mechanically solved with perfect exactness and facility, and there can be no question but that such an instrument would prove of considerable practical value in the hands of any fine art painter or decorative painter, even in dealing with the comparatively impure, compound, and muddy coloring matters, such as are, even the very best that science and skill can produce for their use, as paints or coloring agents. But to be even of this limited use, the principles of the instrument, such as we have here sketched them, must be from the beginning thoroughly understood.

The limitations to the use of any such instrumental means of educating or of assisting the eye of the colorist require some remarks. No artificially-made colors, *i. e.* dyes, stains, or paints, are pure. The finest and clearest yellow, for example—such as chrome yellow, the most glorious scarlet lake, the blue of natural or of artificial ultramarine—each contains other colors than the dominant one; and this is equally true of the colors of all natural objects—that is to say, the yellow, or the red, or the blue objects respectively, reflect each more or less also of the other rays of color of the spectrum.

This may be proved to the eye of the artist by the use of the glass prism, an instrument that he will find of great value in giving him hints of service to his combination of paints, in order to match any given tint, or to imitate the color of any natural object. Let a surface painted over with the purest yellow chromate of lead, for example, be looked at when placed in good clear daylight or sunlight, through a prism, and it will be at once seen that the beam transmitted to the eye from it, is not all yellow light; a partial spectrum will be formed at the eye, as in Fig. 8, and it will be seen that the colored surface reflects back, not only yellow mainly, but also some red, and probably some green light.

In such experiments, if the prism be held as in the figure, with one edge uppermost or reverse to that in Fig. 2, the order of the spectral colors will appear when directly received by the eye, as in Fig. 7, the same as when viewed upon the screen in Fig. 2—namely, the violet end at top and the red at the lower end of the spectrum. Similar trials will prove to the artist that the



like conditions are true of all his other paints or colors, and should he require to match the color of a material object by the mixture of artificial ones, *i. e.* of paints, he may derive useful hints by examining with the prism both the object in nature and each of the separate paints that he proposes to mix in order to match its tint. Thus, should the precise tint be that exquisitely beautiful pale sulphur yellow of the flower of the common primrose which needs to be matched, on looking at it through the prism the yellow ray will be found mixed with a good deal of green, and perhaps with a very little red. The yellows to be employed as paints being examined in the same way, those can be at once found and chosen which give most nearly the similar partial spectrum.

While those purely theoretic laws, and those few deductive principles of a practical character, are worthy of careful consideration by the artist, whether he be an historical or fresco painter, or the humbler house or coach painter, it must be equally placed clearly before him, that optical theory and its most skilfully made applications can go but a short way, in actual practice, in ruling his work as an artist, as regards harmony in coloring, or the complex effects of coloring upon the eye, and through it upon the imagination and the mind at large. For this there are many reasons, into which to enter at the length they demand, would be to fill a large volume.

One or two points we may just glance at; and for a further and more exhaustive treatment of the subject we must refer the reader to many of the great works that have been written upon the principles and practice of coloring, such as Chevreul's works "*Le Contrast des Couleurs*" and "*Le Moyen de Définir et de Nommer les Couleurs, &c.*," as well as to others of a more purely artistic character.

Many other conditions, as well as mere complementarism, come into play in the cases of the colors of natural objects or of paints, &c., producing pleasure or pain to the eye, whether seen alone or together, in harmony or discord; and this, assuming the eye to be that of one educated somewhat in color. Into the vast question of how much mental culture and imagination have to do with these matters, we must not attempt to enter here. Helmholtz, the great German physicist, has recently discovered that there is a special reticulation of nerves in the ear by which the *timbre* in sounds is judged of, that is the *quality* of the sound, independently of acuteness or graveness of note; that which, for example, in running through the same notes of an octave, distinguishes the tones of a flute from those of a trumpet or an organ, or these from the tones of the human voice.

Now, there is a precise analogy to this in color, though the means provided in the eye, by which after it has become educated we are enabled to judge of it, are as yet but very imperfectly known; what *timbre* is to musical sounds, *pitch* or *key*, as it is sometimes called, is to colors. This has been called *norme*, or *type*, by Chevreul.

All artificial pigments or natural object colors are, as we have said, more or less mixed and more or less muddy or impure. But they also all require the presence, of necessity, of material substances. The molecular properties of these constantly differ, and with those their surfaces differ, and as a consequence we have in all paints, and in all objects, and in all colored surfaces, differences of *texture*, as it is called by artists.

The effect of these differences of texture, apart from their effects suggestively upon the mind in imitative painting, is materially and in endless variety to further alter the characters of colors in objects or surfaces as these address the eye. Some textures, such as those of flowers, silk, satin, wax, paper, certain minerals, and metal, mix the color with more or less of white or apparent white, *i. e.* colorless but dispersed light; others, such as all rough and villous surfaces, mix the color with more or less of black, *i. e.* with colorless but extinguished light. All terrestrial colors, therefore, are modified by mixture with others from which they cannot be separated, by intensity of tint, by the light by which they are seen, whether that be clear or sombre, and itself colorless as sunlight, or colored as gaslight and all artificial lights are; by texture and the sort of surface which exhibits the color, and by balance or proportion, in mere quantity, of two or more colors entering the eye at the same time; which last depends upon all the others, but mainly upon intensity and upon the relative surface of each of the colors exposed to the eye simultaneously.

With such varied conditions, all productive in skilled hands and to the cultivated eye of harmony or of discord, it should be obvious to the reader that years of careful observation, training, and culture of eye and mind together, can alone give him that power which at length, more or less with nearly all, but in a high degree with but a very few men gifted by nature, enables the artist intuitively to arrive at colors, tints, and their combinations, that shall be harmonious, beautiful, and suggestive.

The basis or pedestal, it is still true, of all the colorist's success in art, rests upon abstract science, upon chromatics, whose optical principles we have sketched, in determining chromo-harmonics and their opposites, and upon the observations of pitch or key in the same combination of color.

The purest and brightest colors, all other things being the same, must always be the most delightful to the eye, though they may not be the best to express a determinate conception on the mind (in design). But colors in themselves dull or impure, or even muddy, may not only most suitably affect the imagination for a given subject (in design), but are not necessarily unpleasing, provided they be *all* so, that there be no violation of rhythm, *i. e.* that the whole of the colored surface be painted with colors in the same key or pitch, or that if at some one point (in design) a brilliant departure be made, it should intentionally address the eye in expressing the design, by the brilliancy of pitch given to this part of the design.

The student of coloring who has got first principles clear in his head, will best further educate himself in the colorist's art by carefully studying the means by which some of the greater masters of color in fine art have produced their final effects.

Let him, for example, stand before such a picture as Mulready's well known one "Choosing the Wedding Dress," exhibited a few years ago, and observing the vast variety of colors introduced, and yet the perfect harmony of the whole, the pleasure that, as a colored surface (altogether irrespective of the subject of the picture), it conveys to the eye; then mentally take it to pieces, compare each patch of color with those next it, mark their differences in color, intensity, the relation of these to the actual and to the intended positions of the objects in the picture so colored, the effects upon the mind of the relations be-



tween the materials represented—the silk, the cloth, the wood, the glass, &c.—in texture, and the colors applied to represent them, the balance of the actual areas of surfaces bearing each color and tint to the whole surface of the picture, and to each part of it in relation to distance in the design.

Mulready was a master of harmony, but his pitch of color, though bright and clear, was not very high.

Let the student turn from him to some of Meissonier's charming pictures, or to some of the exquisite interiors of the *genre* class of the present Belgian school, he will find a brilliancy and pitch of color greatly higher, but he will find often equal harmony. Place the two, Mulready and Meissonier's, pictures side by side, and they will not spoil each other; each style is fitted and intended in pitch to affect the mind in its own special way, but both are natural; the difference seems to be as that between a bright grey day and a sunshiny one.

These principles are not alone applicable thus to fine art, properly so called. They are equally those for the sure guidance of the architect in the choice of color and of decoration, external and internal, whether due to his materials or to the paints to be laid upon them, and equally those by which the engineer must decide as to the harmonies of color in the materials of his structures, or determine the colors with which for mere protection he shall cover their more perishable materials.

(To be continued.)

## Trimming Room.

### TO MAKE A BUGGY TOP SMOOTH.

OUR correspondent at Cape May, N. Jersey, who writes us for "a rule for cutting buggy tops so that the seams will set perfectly smooth where the welt or chord is sewed in on each side of the roof," is informed that the best way is to draw a straight line across the leather, with chalk, and from this make another sweeping three-quarters of an inch in the center to cut out by, allowing an additional quarter-of-an-inch to be taken up in the sewing together, and when closed wet the seams, and in this condition rub them down flat and smooth, after which draw the whole on the bows, when the leather can be made smooth by stretching on, and tacking.

### MAKING PASTE FOR TRIMMERS.

AN enquiry comes to us from Lancaster, Pa., as to the best mode of making trimmer's paste. Our trimming adviser gives it as his opinion, that the "best way is to boil the water first, afterwards pouring it *upon* the flour, stirring the whole up well in a thick mass until the lumps all disappear. After this result is reached then add more of the boiling water until you reach the thickness required." Some workmen, without exercising any judgment, put the water and then the flour into the paste-kettle; the result is, the mass becomes so full of lumps that it is next to impossible to remove them by stirring afterwards. Always *stir* the water *into* the flour if you would avoid trouble, putting the flour in first.

INSIDE COUPÉ LINING.—In our February number we intend to give our subscribers a fine sectional engraving

of the inside lining of a coupé. It will be something more than a black-ground design, *on the cheap-plan*, and will be accompanied with the proper explanation to make it understood.

## Editor's Work-bench.

### NOTES OF A VISIT TO BOSTON.

HAVING some special business to transact at "the Hub" and intermediate cities, we, one bright morning in November, made our way to the New York and New Haven Railway station, bound for the latter city. On our arrival we found that business was extremely dull, if possible worse than at any time during the late war, none of the shops doing anything worthy of note. Our second call was in Hartford. Our friend Mansuy, who has just returned from a visit to the French Exhibition, entertained us while waiting for the next train very pleasantly. Passing on to Worcester, matters seemed somewhat improved. Our friend Tolman wore the same pleasant face as formerly; and it was with much regret that we parted with him to visit Messrs. Rice & Richmond, who we found had lately made some changes in their business arrangements. Near by we found our friend W. C. Whiting, industrious as usual. This gentleman has recently patented an improvement in attaching shafts to common sleighs, which, it strikes our mind, is far superior to the old mode, both in efficiency and simplicity. In the shop of Messrs. O. Blood & Son we saw in the course of building one of those curious vehicles the Hubites call a Booby-lut, a specimen of which our readers will find on Plate XIII, volume seven. These, as we have previously shown, are decidedly a "Boston notion;" and although, taken all in all, an odd-looking "institution" to the eye of a stranger, are doubtless the most comfortable contrivance ever invented for winter amusement. We see no reason why, with the introduction of a heater, these vehicles may not be made as comfortable as the fireside; and while December rages without the sunshine of June smile within, especially where rosy cheeks grace the circle. In this establishment we saw a number of buggies and other vehicles creditable to the builders, the sale of which is just now dull.

Boston kept us busy two days, and would have done so a week or more had we not restrained our Yankee curiosity for lack of time. There are numerous objects of deep interest to the mind of the visitor to that city, each successive visit increasing the desire to see them. Some of these serve as landmarks of our revolutionary struggle, and cannot be seen by the truly patriotic without feeling his blood boil within his veins, as he recounts over the deeds of valor performed by his sires for the benefit of posterity. In traversing the streets we came across an old sign lettered J—S—"Chaise Trimmer & Har-



ness Maker," reminding us of the times when both occupations, more than at present, were carried on by the same individual; and noticed that instead of harnessing two horses abreast, as in other cities, nearly all the business men place them tandem, the leader being guided by the movements of the shaft-horse, to which he has evidently been educated, and many other curiosities equally singular, but which our purpose to deal with persons rather than with things forbids our even mentioning.

Our first call was made upon our friend Wm. P. Sargent, who has one of the largest repositories in Boston for the sale of carriages, sleighs, harness, and stock. This gentleman received us in the kindest manner, and took us over his premises, after which we left for a visit to his neighbor, J. P. Whittier, who not only has a salesroom in town, but likewise a manufactory at Haverhill. Last winter, he says, he sold four hundred and thirty-seven sleighs of different kinds, and expects this year to do equally as well. Mr. W. thinks he can beat "the natives" in Portlands; and from what we saw in that line, we judge he has some reason for thinking so. A sleigh is made here as low as \$35, and as high as \$450. These are trimmed with velvet and other material, in a variety of colors, such as browns, blues, greens, yellows, purples, crimsons, garnets, magentas, and Bismarcks, so as to suit every taste or fancy in purchasers.

Our friends, Messrs. Sargent, Brewster & Ham, we found had a variety of light carriages in their factory, some of them very beautiful. At No. 5 Hawkins Street, near by, is located the manufactory of Messrs. James Hall & Son, which firm carried off one of the only two prizes awarded American carriage-builders at the late Paris Exhibition. These gentlemen have an enviable reputation for building good work; and, judging from what we saw on this visit, we conclude is justly due them. As in duty bound, we next paid our friend Thomas Goddard a visit, and a very pleasant one to us, indeed, it proved. Federal Street, in which he is located, has recently been widened, and this has taken off a portion of his frontage, and so altered appearances that, not remembering the number, we found some difficulty in finding him. An half hour spent in conversing upon various subjects connected with trade passed very agreeably, and, we hope, to mutual satisfaction. As all the world knows, Mr. G.'s reputation as a mechanic is of a high order, and therefore needs no further commendation from us. We visited likewise Messrs. Russ, Easland & Co., Mr. C. Thomas and his former partner, Mr. Nichols, who has recently started business in Brookline Street with a good prospect of success, being in a locality where, we should judge, a man of energy is needed. Mr. Thomas will be remembered as the gifted author of a poem published by us on page 143, Vol. II., entitled "Lines to my Jack-knife," and as the original inventor of the top-prop bearing his name. A

visit to Roxbury, to see our friend Mr. Brown, the patentee of the "Brown wagon," finished up our business at this point.

Our remaining business was done in New Bedford, by making calls upon all the firms of any note in the place, all of whom gave us a cordial welcome. We here, for the first time, saw a *wooden* washer for axles, recently patented. A large building, devoted exclusively to the manufacture, has lately been fitted up, which we hope soon to more fully notice in this Magazine. A pleasant journey home, *via* Bristol, ended our visit, which, although made in the most unfavorable season of the whole year, yet our mission was very successfully performed. To those who so cordially received us, among whom were many we have not had space to even allude to, we return thanks, trusting that when we next visit them business will be more thrifty.

#### LANDAU FROM BERLIN, PRUSSIA.

STEPPING into the repository of Messrs. Adams & Cone, on the corner of Broadway and Great Jones Street a few days since, our attention was attracted by seeing there a Landau, just imported from Berlin, by this house, for a gentleman residing in Brooklyn. Close inspection revealed several points in the construction, so widely different from what we are accustomed to find in the American made, that we are induced to notice them for the benefit of our readers, somewhat in detail.

Beginning with the "carriage-part," without a perch, we observe that upon the whole it is much simpler and plainer than is generally made in this country, and very light withal,—which we presume the builder, whose son has spent much time here, has copied from us,—the iron work being unique. It has a splinter-bar formed of two materials, wood and iron, the first of a yoke form running under the furchells, the second, straight, fitted on the top, the combined ends of which form one piece raised to a level with the jaws. The fifth-wheel traversing on a simple bed, is connected with the body by two bolsters, one of wood, the other of iron, in a very inexpensive manner. The pole itself is quite a curiosity, having secured to the underside a pin, so formed that when the pole is pushed into the jaws, it enters a socket, near the mouth of the furchells, preventing any possibility of its ever sagging. Instead of a stop-hook, or the horizontal pin, it has a vertical bolt and thumb nut to secure it in place. A stationary hook of malleable iron, the steel crab of which revolves around the end—both richly plated with silver—finishes this portion of the carriage. The iron pump-handles, resting upon platform springs, are very light and graceful. These have a side coupling plate, forged solid with them, one-quarter-of-an-inch thick and projecting outward. Through this, the hanging-bar and the spring passes, three bolts securing the whole together



with great efficiency. The nuts throughout the whole carriage are eight-sided.

The body has still greater peculiarities about it than the carriage-part. The swell, which is very large, is put about the doors, lessening as it approaches the ends much after the pattern of a ship's bow, known as the *lean* one. The rocker neatly concaved, makes the body look much lighter than usual. Through this body, longitudinally and centrally, runs a moulding of wood, and parallel with this—covering the heads of the tacks in nailing the top—extending across the doors, is another of silver, giving the entire side a beautiful effect. The short standing-pillars are not bevelled the entire length, but this begins at a point below the tops of the doors, forming the half of an arch, which while it widens the door, does not necessarily shorten the arms, in the quarters. The result is there is ample room for the fall of the head, and at the same time the mouldings of the doors are brought over the center of the short standing pillars, to great advantage.

The door locks are of themselves a curiosity. The catch operates between two slots, these last traversing diverging grooves, formed in a plate let into the pillar, so that in shutting the door they continually increase in firmness, and will continue to do so as long as the carriage is used. The carriage-builder will notice in the American-made Landau, that each half of the fallen roof projects above the line of the door pillar when thrown into a horizontal position—this is owing to the use of unsuitable hinges—while in this Berliner, the hinge being sunk, the whole rests on a line, and not a sagging. To shorten the boot, and at the same time allow the front half of the head to fall properly, the dickey-seat is turned forward during the operation on a hinged joint in front. The window glasses, of the choicest French plate, are one quarter of an inch thick, the edges being bevelled on both sides, the frames of which are raised in moveable and sliding grooves of iron, called "flopers," these being pushed into position for raising the top, and resting upon the rails, over the side windows when down. The front window, with glass after the same pattern, is the largest we have ever seen, and when down is so effectually held by the fallen head that it is immovable.

The ground-work of the carriage part is black, and this is set off with a broad stripe of wine-colored paint, edged with a narrow one of light brown. The body itself is of a wine-colored shade, broad striped black, and this is again edged with a narrow one to match that of the carriage part in size and color.

The body is lined with silk rep, golden-brown; the head-lining being broadcloth, of the same shade. The laces, much narrower than ours, are a shade darker brown than the linings, edged with fine line stripes, the central portion being filled in with alternate diamonds, of a small

size, in two different shades, both of a brown cast. The carpet, figured somewhat like a leopard's skin, in colors to match, finishes the whole in a very tasteful manner, the only conceivable defect being a lack of skill in the workmanship, which in manipulation is far behind us. We neglected to notice the axles in their proper place, and will do so here by mentioning that they are made after the Collinge patent, and are seldom used in this country, being considered quite too complex for our patience.

We have thus taken some pains to notice this importation, not because we think it greatly superior to the Landaus built in this country, but chiefly because there are some points in the construction that we might adopt with advantage to ourselves, and thereby improve upon the art as practised among us.

#### IMPEACHMENT OF AN INTERNATIONAL PRESIDENT.

In a harangue made before the society men of Cincinnati in August last, the president of the International Union, told his auditors that the "subordinate" Union in New York city prevented certain employers from making a reduction in the wages of its members during the winter of 1866-7, using this as an argument in favor of the potency of the Union, and as a reason why every journeyman in Cincinnati should join it for his own good. When giving an extract from the speech, printed on page 66 of this volume, we took occasion to deny the truthfulness of the statement, knowing it to be a falsehood. To our facts this "regulator of the carriage-makers' shops" gives the lie direct, although in the course of his article he virtually admits all we charged, for "the men accepted a reduction *under protest* [the protest availing them nothing], which lasted some six weeks, when," he continues, "the wages in New York were restored to the former rate, and there they remain to this day." This state of facts, he says, can be proved by the books of the local union to the satisfaction of any one who will examine them.

Now there is nothing more afflicting to us than to have our word called in question; and in order to prove our original statement true, we have gone to the pay record of the Messrs. Brewster & Co., and there find evidence that on the 12th of November, 1866, the journeymen were put on short time at a proportionate reduction of wages; and that on the 19th of January, 1867, the short time still continuing, the wages was reduced also, the average being about fifteen per cent., and so remained until the first day of April, 1867, at which time full time and wages were again restored, thus proving the truthfulness of our original statement, the men actually submitting to a reduction of both time and wages *for two months and thirteen days*, and of time alone *over three months*. In Messrs. Parker & Co.'s shop the reduction,



we believe, began still earlier, and consequently continued much longer. Thus much for the truthfulness of this man, which chance has elevated from a paint pot to a presidency.

Another story, of a piece with the one we have just "nailed," has been industriously retailed about the country by this foreign exotic, which is that the Messrs. Brewster & Co. had discharged him from their employ solely because he had joined the Union. How much dependence may be placed in his word where interest is concerned, may be seen in the following version of the affair, as told by Messrs. Brewster & Co. themselves: About the time referred to—in an early period of the late war—a few men in this city organized what was called "The National Coach-painters' Association," of which our disputant was then the comparatively obscure president. This association having fixed upon a list of prices *to suit themselves*, demanded, for what they called first-class hands, \$2 50 per day, and this was the price *the* president of the society demanded for himself. His employers told him that if he was able to varnish a *first-class* job they would allow his request. This offer our aspiring president accepted, and began his task, but, sad to relate, failed of accomplishing. When he had gone over one side of the job it proved so badly done—he himself acknowledging it—that the whole had to be taken off again. Afterwards this *first-class* painter was offered another trial, but refused, giving as a reason for such action, that "he had no sight, as there were too many Irishmen in the shop." This, to say the least of it, was a singular excuse to give with society men all around him, and certainly not very flattering to them. In this way, without further notice, our "knight of the brush" *discharged himself*, neither offering to pay for the damage he had done, nor asking a *reward* for so doing. The firm so frequently traduced by this "pink of veracity" will testify to these facts should it be deemed necessary. No wonder that *this* "first-class" painter quit painting, and has since gone to peddling his presidential "gas" about the country, not shrinking therefrom even when he has had a large sprinkling from the "old sod" among his auditors; and we can only account for this "change of base" on the supposition that one thousand dollars a year, incidental expenses thrown in, pays much better than working for nothing, besides incurring the liability of being called upon to pay for spoiled stock.

We have long since been requested to expose these *mechanical failings*, and refused, choosing rather to confine our attentions to his public acts. We should not have done so now, had he not furnished us with an excuse by telling his dupes that we had retired from business "from one of three causes—lack of money [which he knows is false, as Bradstreet's Reporter at the time, and

since, told the public that we were good for all the credit we might ask for], *lack of brains*, or because he (we) could get no good mechanic to work for him (us), *at his (our) price*"; and that we are now in a coal-shed, dealing out coals to poor working men at ten cents per pail, on which we realize a profit of one hundred per cent. This any man *with* brains, in "lack of money," surely would adopt instead of coach-making especially if he should be compelled by Union men to employ incompetent workmen, such as our accuser has proved himself to be. *Such* workmen would be enough to make a money-eyed man poor in a very short time.

But there is no more truth in these latter statements of his than in the other cases. When we retired from the business of carriage-making, we did so honorably, and from choice, with ample means, saved by long industry and creditable economy. About that time, a brother-in-law, who had been in the coal trade several years, offered to sell out to us. This offer we accepted, putting our son therein, lending him the benefit of our business credit and influence, but retaining sole interest in the Magazine, and devoting our whole time to its publication. If we do anything at selling coal, it is to gratuitously help another along; and instead of ridiculing, any decent citizen will commend us for it. We have not space to meet the charge of slander, which this hollow-hearted friend of the poor and libeller brings against us, and for the present must content ourselves with saying, that we have never said in these pages anything more damaging to him individually than he has told us of himself, and hope we shall never have occasion to again notice such a childish accusation from so reckless a falsifier.

#### SHOTWELL MISSES THE MARK.

LAST August we gave our readers the history of an attempt to break up the business of a coach-maker in Newark, because the prices he paid for work did not comport with the demands of a few men, who it appears, had banded together—among other things—to *regulate* such matters, after their own fashion, let the result be what it might to a second party. The man against whom this outrage was committed, bore up under it with commendable patience for several weeks, until patience was no longer a virtue, when he had a number of his alleged offenders arrested and placed under bonds for action by the Grand Jury. Among them was one E. M. Shotwell, then holding a petty office in the "subordinate" *International Union*, located there. This man who we distinctly stated in our former article, did not work for Mr. Marsh at the time his men struck and had no legitimate business there afterwards, has taken offence, because we said that in this action "*all the foreign element left*," and while taking needless trouble to tell us that he is "a native of New



Jersey," also adds that he "knows of no *real natives*, except the *Indians*,"—so, then, this degenerate son of New Jersey, according to his childish reasoning, must be the "picaniny" of some child of the forest, and this will account for the charge we made against the "mob hallooing and cursing through the streets, like a gang of heathens," as we were told they did by the citizens, who heard their "yells."

But, what will appear strange to American readers, is, this "native of New Jersey" goes on to say, "If I am correctly informed, and I think I am, although I do not make the assertion a fact, [just as true, notwithstanding, as many other assertions of yours, perhaps,] this same editor saw the light in old Ireland. If so, this is the reason he rails so much on nationality," &c. This is the strangest reasoning that ever came from a man "possessed of reasoning"—perfect foolishness,—for an Irishman was never known to deny either his country or countrymen before an American public, and is perfectly disgraceful, especially in a "native of New Jersey," where opportunities for studying human nature are supposed to exist. But we have a better reason for disliking *International unionism* than the one he gives, and shall try to dispel such "gross ignorance" as he exhibits by telling him, and any others interested, that we first "saw the light" in Connecticut, as our ancestors did four generations before us, and that the only *foreign* country we ever visited, is New Jersey, where we shall hesitate about going again, if grand juries—as he says they do, *over there*—give a workman "perfect liberty to combine with his fellow-workmen for their own protection and benefit." With such ideas running in the heads of the "natives," they might knock us down, under the *impression* that they were "protecting" themselves, and then steal our purse for their own "benefit"!

But let us see how this rule will work when applied to *your* Bull. Suppose Mr. Marsh, who is not friendless by any means, in Newark, should persuade his fellow-craftsmen in the same business as himself, to combine with him and others, and on some Monday evening when this "foreign" *imperium in imperio*, under which you act, is in session, should go there and forcibly break it up, because he does not like *your way of conducting business*? What then? For any man with any claim to justice will admit that what is "sauce for the goose is sauce for the gander." Why such reasoning as you have shown is truly unworthy of a man with an intellect above that of a "goose," and such "rights" as you lay claim to, on one side, like the handles of George Bogen & Son's jugs, in that Cincinnati "wine cellar," and just about as *sensible* as the resolutions passed there in August last, condemning us for telling the truth about your *International* naughtiness, and for which it seems we are never to be forgiven.

But seriously, these Unionists have taken great pains

to say we have misrepresented things, although their President confesses "he tried (for three weeks) to keep Marsh's shop empty of hands." All we have heretofore said, went to show *how* he did it, and if we are to judge from the "*sensibility*" Unionists manifest in the case, did it effectually. But go on, boys! as the girl said—when told the cherries she was eating were wormy,—*if you can stand it, we can*, as long as we are sustained by an intelligent and order-loving public.

#### BACK NUMBERS WANTED.

UNFORTUNATELY we are out of No. 8, vol. 7 (Jan. 1866) so that we are troubled to make complete volumes. If our friends who have that number to spare will mail it to us, postage pre-paid 2 cents, we will send them two numbers of some other volume in exchange.

#### LITERARY NOTICES.

AMONG our exchanges we have "The Atlantic Monthly," "Our Young Folks," and "Every Saturday," all published by Messrs. Ticknor & Fields, Boston, Mass., new volumes commencing with the new year. The publishers assure us that they intend to give yet greater variety and value to the *Atlantic* in future, and to make it the medium through which the foremost writers of the age shall communicate with the public. Among the articles promised in January will be "Geo. Silverman's Explanation," by Chas. Dickens; "Life in Greenland and the Arctic Regions," by Dr. J. J. Hayes; "Out-of-the-way Corners of the Old World," by Bayard Taylor; "A Week in Sybaris," by E. E. Hale; "An Historical Inquiry concerning Henry Hudson," by J. M. Read, Jr.; besides articles by numerous other writers, well known to the readers of this sterling monthly.

"Our Young Folks," which now enters upon its fourth year, will continue under the editorial management of J. T. Trowbridge, Gail Hamilton and Lucy Larcom, assisted by a corps of the most talented minds in that special department of literature to which this serial is devoted. Full page and colored picture illustrations, will be given monthly through the year, with occasional colored supplements, similar to the one presented with the December number—all for only \$2!

"Every Saturday," a weekly publication as its name indicates, is a republication of the cream of foreign current literature, which, did it deal a little more in the real, and less in the ideal, would suit our taste better—but we suppose its publishers understand what the public mind craves most and are determined to satisfy it; so we will let the matter pass, without further criticism.

### Patent Journal.

#### AMERICAN INVENTIONS.

October 1. (69,412) HOLD-BACK.—James C. Covert, Townsenville, N. Y.:

I claim the metallic hold-back, constructed as described, consisting of the V-shaped strap B, attached at its angle by a



ring, *c*, to the neck-yoke, and at its ends by the snap-hooks *b* to the rings *a* of the harness, as herein shown and described.

(69,446) KING-BOLT.—Enos A. Keasey, Ligonier, Ind. :

I claim a king-bolt made with a shoulder-piece, *b*, and a projection, *d*, at the lower end, forming a swivel-joint, with the clip B, constructed and operating as herein described.

(69,465) SHIFTING-STEP FOR VEHICLES.—Edward Miller, Milwaukee, Wis. :

I claim, *First*, An improved shifting-step, A, formed with a hook or flange, *a'*, upon its upper end, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the hinged handle or top-piece B with the step A, substantially as herein shown and described and for the purpose set forth.

(69,497) BOB SLEIGH.—L. F. Skinner, Springvale, Wis. :

I claim the hubs *a, a, a, a*, spokes *d, d, d, d*, forming the segment of a wheel when attached to runners A, A, A, A, in combination with axles B, B, constructed as described and operating as set forth.

(69,504) ODOMETER.—W. Stevens and E. H. Drake, Stoughton, Mass. :

We claim the application of the odometer with the hub B, and its journal D, in manner as specified, in connection with the formation of such journal with a notch *x*, and the application thereto and to the odometer train of a pitman *y*, and a spring *z*, to operate the said train, substantially in manner and by the revolution of the wheel-hub and axle-journal, as specified. We also claim the combination and arrangement of the cap or guard *v*, with the train, the dial-plate, and the case B, and its hollow shank C. We also claim the arrangement and combination of the spring *z*, and the cranked shaft *t*, and its pawl *r*, with the train of gears and screws for operating the index-arbor *g*, as specified.

(69,508) SLEIGH-RUNNER.—W. H. Stroup, Philadelphia, Pa. :

I claim the runners A, A', hinge C, and keeper B, arranged in the manner and for the purposes specified.

8. (69,553) WAGON BRAKE.—Corydon A. Fargo, Soquel, Cal. :

I claim, *First*, The brake constructed with the arm E, and link G, together with the connecting-rods D and I, having a variable connection with E and G, respectively, or their equivalents, operating substantially as and for the purpose herein described. *Second*, The vibrating suspending arms *e, e*, and the cross-bar *d*, attached to the bar K, for producing parallel motion, substantially as herein described.

(69,557) CARRIAGE WHEEL.—Walter K. Foster, Bangor, Maine :

I claim the arrangement of the ends of the felloe, substantially as above described, viz., so as to be supported by the ends of the male contracting screws or by plates of metal separate from the nuts and placed between the two, and sustained by such screws. I also claim the formation of the braces *h* of the nuts with recesses *i, i*, in their inner sides, such being as and for the purpose set forth. I also claim the tire as made with its inner surface concave transversely to fit to a corresponding convexity of the felloe, as set forth. I also claim the formation of the block E, with the peculiar recess *r*, or its equivalent, in combination with the formation of the nuts with the counterparts, to enter such recess, as set forth. I also claim the combination of the braces *h, h*, with the tire A, the nuts D, D, and the right and left screw thereof, arranged substantially in the manner and so as to operate as set forth.

(69,559) CARRIAGE.—J. Gale, M. B. Ames, and F. Blaisdale, Lawrence, Mass. :

We claim, *First*, The lock-braces *d, d'*, in combination with the standards B, B, having projections C, C', substantially in the manner and for the purposes set forth. *Second*, The con-

necting-rod P, in combination with the lock-braces *d, d'*, substantially in the manner described and for the purposes set forth.

(69,565) SPRING SEAT FOR VEHICLES.—William Hughes, Brandon, Wis. :

I claim, *First*, The combination, substantially as described, of a seat capable of moving freely vertically between its guides, with a series of supporting cylindrical rubber springs, arranged sidewise within their guides. *Second*, The combination, as described, of the rubber cylinders with the shelves sliding vertically in their guides. *Third*, Making the lower tier of springs of larger diameter than the upper, as described, for the purpose set forth.

(69,588) CARRIAGE SPRING.—Jacob G. Reiff, Farmersville, Pa. :

I claim the arrangement and construction of circular or elliptic springs, by decreasing the thickness of the leaves or plates, multiplying and increasing their number, and making the plates tapering gradually, substantially as and for the purpose set forth, the spring to be made of wood, iron, steel, or any other material, and for the purpose set forth in the specification.

(69,604) AUTOMATIC WAGON BRAKE.—Stephen Alley and Samuel D. Williamson, Clifty, Ind. :

We claim, *First*, The combination of the hind axle B, braces C, reach A, and links D, arranged to operate substantially in the manner and for the purpose set forth. *Second*, In combination with an automatic wagon brake, we claim the bed F, and bar I, with or without the rollers G, substantially as and for the purpose set forth.

(69,641) CARRIAGE-DOOR.—P. Devilliard and A. Postweiler, Paris, France :

We claim the application to the doors of landau and carriages similar thereto of a jointed frame-work connected to the door by means of bolts, as herein described and illustrated by the accompanying drawings.

(69,686) CARRIAGE TRUCK.—Albert Marshall, Methuen, Mass. :

I claim a carriage truck or bed, constructed substantially as described for the purpose set forth. I also claim, in combination with the above, connecting the rear axle to the perch L and springs K, by means of the plates *i, k, n, p*, and bolts *b, m*, constructed and arranged substantially as described.

(69,692) SLED BRAKE.—Thomas S. Minniss, Meadville, Pa. Ante-dated Sept. 26, 1867 :

I claim the scraper B, armed as described and operated by the lever C, as and for the purpose set forth.

(69,716) WAGON-HOUND AND POLE-BRACE.—Fridolin Smith, Tiffin, Ohio :

I claim the construction of the hounds and slider of two bent strips A, A', secured to the axle and bolster, and provided with filling pieces *b* and blocks *c*, substantially as described.

(69,717) SLEIGH BRAKE.—H. W. Smith, Rainsburg, Pa., and B. C. Smith, Tolleston, Ind. :

We claim, *First*, The combination of the brake-irons F, operating ropes H, roller S, or its equivalent, tongue-rope I, and sliding-rope K, with each other and with the tongue and frame of the sled, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the brake-irons F, operating ropes H, roller S, or its equivalent, frame L, and roller M, with each other and with the box E, and frame of the sled, substantially as herein shown and described and for the purpose set forth. *Third*, The combination of the brake-irons F, operating ropes H, roller S, or its equivalent, and roller P, with each other and with the frame of the sled, substantially as herein shown and described and for the purpose set forth. *Fourth*, The combination of the coiled springs G with the brake-irons F and operating ropes H, substantially as herein shown and described and for the purpose set forth.



(69,722) WAGON-BRACE AND FENDER.—James E. Strode, assignor to himself and Thomas H. Strode, Carrollton, Ill.:

I claim the plate A, having shoulders or flanges B formed upon or attached to its under side, and jaws C, formed upon or attached to its outer edge or side, substantially as herein shown and described and for the purpose set forth.

(69,724) SLEIGH BRAKE.—Frank Seelin and Jacob A. Swift, Blossvale, N. Y.:

We claim the direct motion of the tongue T upon the levers S, by means of rods A, A, arranged and applied as represented and described.

(69,735) THIMBLE-SKEIN FOR AXLES.—John A. Williams, Elizabeth, Ill.:

I claim, *First*, The elongated skeins B, B, furnished with a socket at the butt end thereof, in manner and for the purposes substantially as above set forth and described. *Second*, Adjusting the thimble-skein beneath the axle, by means and manner for the purposes substantially as above set forth and described. *Third*, Constructing the thimble-skeins B, B, in one piece, with open extremities *b*, *b*, through which the wooden axle-tree passes, in manner and for the purposes substantially as above set forth and described. *Fourth*, The connecting-rod D, furnished with a right and left hand thread, or any equivalent for the same, and setting into the sockets C, C, or their equivalents, on the thimble-skeins B, B, in manner as and for the purposes substantially as described. *Fifth*, Leaving the thimble-skeins to the axle-tree by means of the bolster-bolts E, working in the slots or mortises *e*, *e*, in manner and for the purposes substantially as above set forth and described.

15. (69,757) CARRIAGE WHEEL.—Reuben Brooks, Jun., Rockport, Mass.:

I claim, *First*, The metal clamp C, constructed as described, from a plate of metal provided with the central hole *a*, for the passage of the tenon of the spoke, the sides of said clamp bent around the joints of the felloes flush with the sides and tread, and secured to the end of the tenon of the spoke by means of the holes *b* fitting therein, as herein set forth for the purpose specified. *Second*, Joining the ends of the felloes of carriage-wheels at the end of a spoke by means of the clamp C, constructed as described, in such a manner that the tenon of the spoke shall pass through the hole *a*, in said clamp, and be firmly secured therein by the pressure of the ends of the felloes, as herein shown and described. *Third*, Supporting the felloes by means of the shoulder of the spoke bearing against the outside of the plate C, and firmly securing the ends of the felloes by means of rivet-bolts passing through the holes *c*, *c*, in said clamp, substantially as described for the purpose specified. *Fourth*, The insertion of rivet-bolts in the holes *c*, *c*, through a clamp securing the ends of the felloes of carriage-wheels, for the purpose of tightening said felloes, substantially as herein shown and described.

(69,760) HUB AND AXLE FOR VEHICLES.—D. M. Buckhout, Mount Kisco, N. Y.:

I claim the cast-metal hub provided with the circular chamber *b*, and the mortises *f*, to receive the tenons of the spokes, the projections *h*, and the plate G, to screw on the periphery of the chamber *b*, in combination with the boxes F, F', fitted within the chamber *b*, and the collar C, and V-shaped flange D, on the arm A, all arranged substantially as shown and described. I further claim the arm A, fitted on the axle B, and secured by set screws *a*, substantially as shown and described.

(69,789) WAGON-REACH.—Edward F. Flood, Chicago, Ill.:

I claim, *First*, A curved or bent reach when so constructed that the line of draught is the same as in the straight reach, and so that the reach rests on and is supported by the sway-bar, as in the ordinary reach, substantially as and for the purposes set forth. *Second*, The curved reach A, in combination with the iron *e* of the sway-bar, when such iron is ex-

tended and so constructed as to furnish a support for the reach in all positions, substantially as and for the purposes mentioned.

(69,805) CARRIAGE-TONGUE HOLDER.—Thompson Heaton, Farmington, Ill.:

I claim the following only, viz, the metallic staple and roller or lining in upper end of leather-holder with the form of the holder, all in the combination and for the uses herein substantially as set forth.

(69,818) MACHINE FOR COMPRESSING CARRIAGE-WHEELS.—Henry Killam, New Haven, Conn.:

I claim the combination and arrangement of the jaws *b*, and their guides or plats *a*, with the plate *c*, when constructed so as to operate substantially in the manner herein set forth.

(69,819) AXLE-TREE FOR WAGONS.—George P. Kimball, San Francisco, Cal.:

I claim the combination with a superposed wooden axle-bed of the steel plate or spring axle-tree A, constructed and arranged for operation substantially as herein shown and for the purposes set forth.

(69,827) MANUFACTURE OF CARRIAGE-CLIPS.—Edwin Meeker, Bridgeport, Conn.:

I claim dies C and D, having recesses *d* and *e*, and projecting punches *f*, substantially as and for the purpose herein shown and described.

(69,866) CLIP-CIRCLE.—Isaac N. Topliff, Adrian, Mich. Ante-dated Sept. 28, 1867:

I claim the construction of a clip-circle for carriages, etc., in the form and manner described, with the spur B, for the purpose substantially as set forth.

(69,885) CARRIAGE AND BUGGY TOP BOW-IRON.—G. and A. Woeber, Davenport, Iowa:

I claim, *First*, Providing sockets for receiving and fastening the ends of the bows of buggy and carriage tops, substantially in the manner and for the purposes as herein described. *Second*, The construction and arrangement of flanges on the cockets, substantially in the manner and for the purpose as herein described. *Third*, The hinges as constructed with plate A, having pivots *a*, *a*, *a*, *a*, with holes in the pivots for screws and plate B, attached by screws, substantially in the manner and for the purpose as herein described. *Fourth*, The sockets with flanges and the hinges with pivots, as constructed and arranged in combination with the bows and bow-irons, substantially in the manner and for the purposes as herein described.

(69,886) WAGON BRAKE.—L. E. Woodard, Owassa, Mich.:

I claim, *First*, The brake-bar B, connected by pins *b*, working in the slots *c*, in the ends of the cross-bar *a*, all constructed and arranged and described for the purpose specified. *Second*, The slotted metallic slide-piece D, upon the wagon-reach, connected at one end to the bar B, and in which the friction-roller *k* is pivoted, constructed as described, and operated by means of the eccentric piece E, as herein set forth for the purpose specified.

22 (69,959) CARRIAGE KNOB.—John Barclay, Attleborough, Mass., assignor to himself and Rufus D. Case, New York City:

I claim a carriage knob consisting of jaws B, B, secured to a ring *d*, which is fitted loosely over the shank of a pin A, provided with slots C, upon the sides of the reach, all made and operating substantially as herein shown and described.

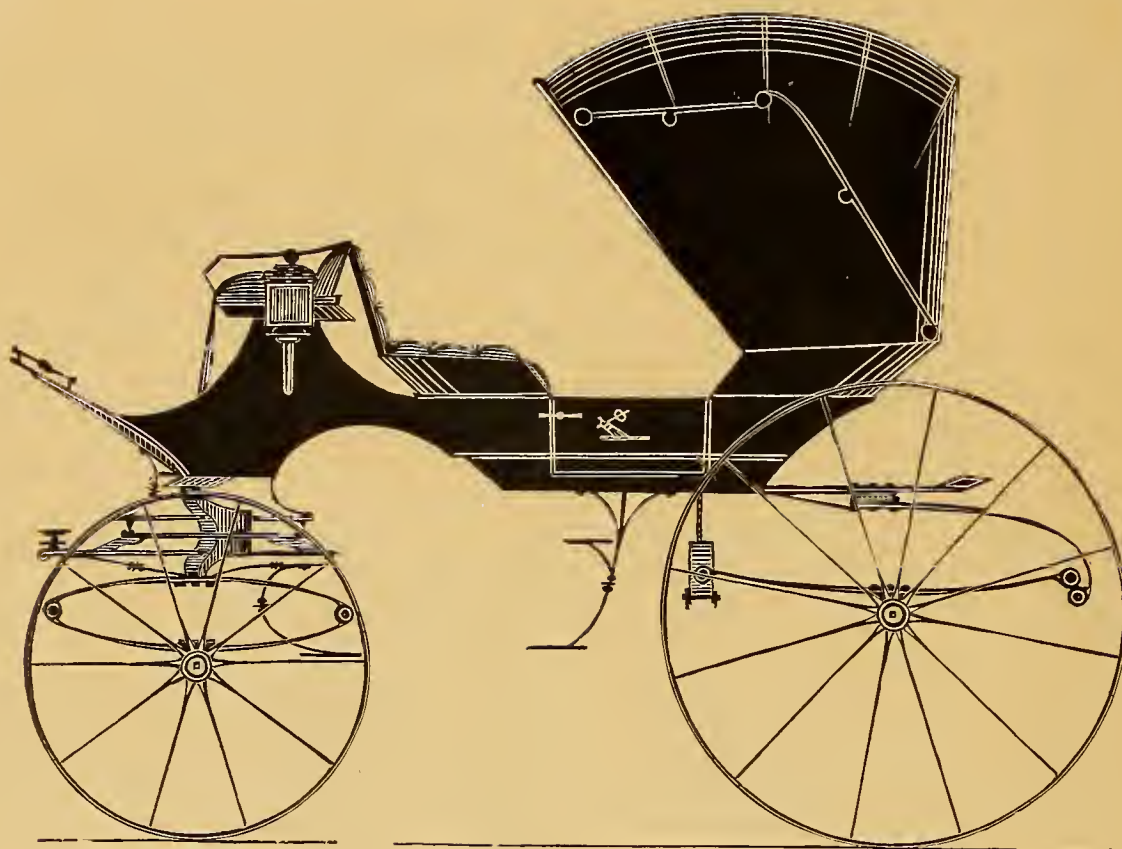
(69,965) CARRIAGE KNOB.—Rufus D. Case, New York City, and John Barclay, Attleborough Falls, Mass.:

We claim the spring jaws *c*, *c*, having square shoulders upon their outer sides, and secured in the wood-work to the inner end of the screw-pin A, forming part of the same, and adapted to be compressed in the groove *b*, in the head *a*, of said pin, as herein described for the purpose specified.







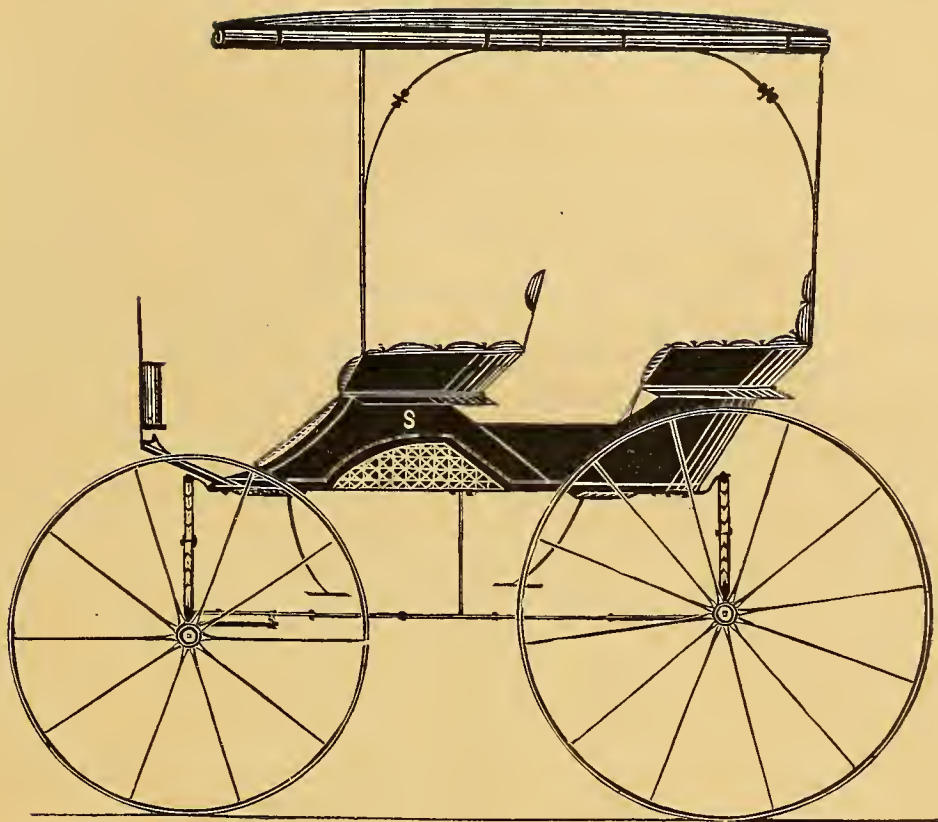


LIGHT DRAG.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 132.*





REMOVABLE-TOP PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

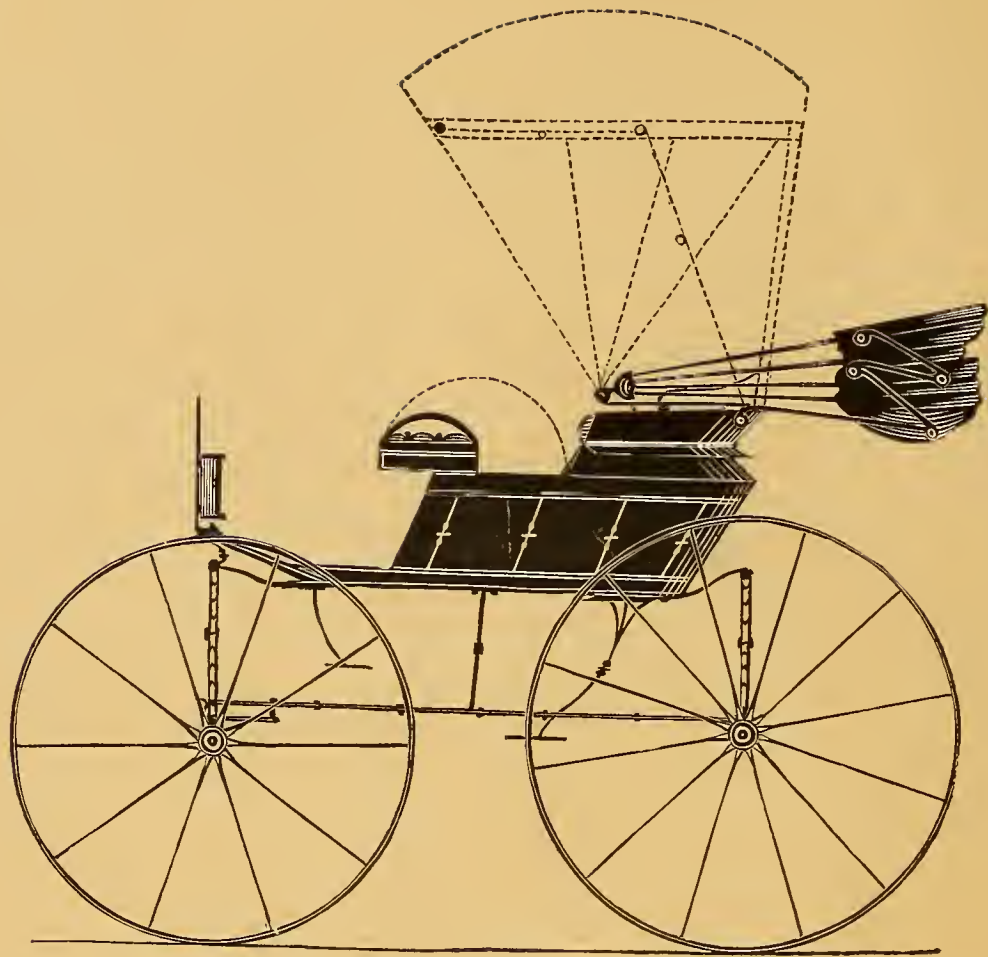
*Explained on page 132.*







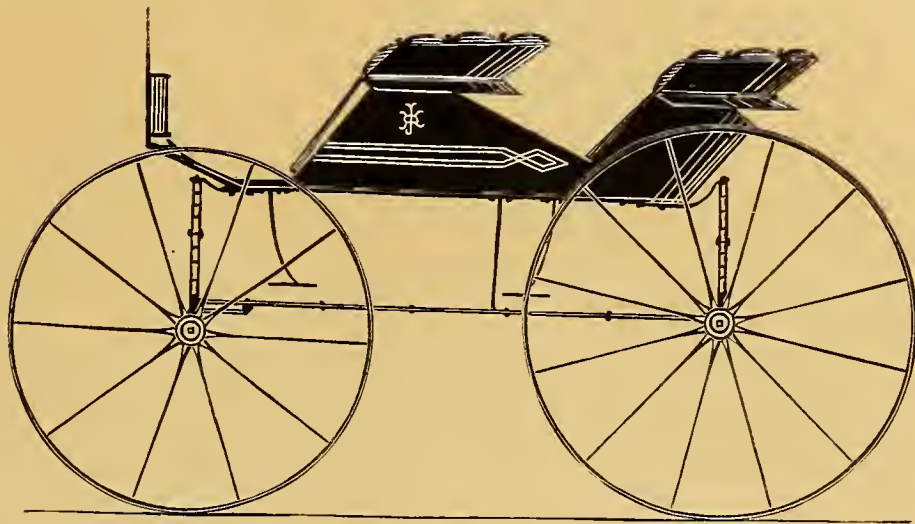




TURN-OVER AND SLIDE-SEAT BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 132.*



BUGGY-PHAETON.— $\frac{1}{2}$  IN. SCALE.  
*Designed expressly for the New York Coach-maker's Magazine.*  
*Explained on page 133.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

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No. 9.

## Mechanical Literature.

### THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

#### CHAPTER V.

"FAIR as the star, when only one  
Is shining in the sky."

AFTER his long vigil, Walter retired to his hotel, and after partaking of a cup of delicious coffee, he retired to his room to sleep. Awaking about ten o'clock, he entered the bar-room just in time to learn the result of the trial of Augustus Aurelius Barnes. That promising young limb of the law being duly arraigned before the magistrate, that worthy after examining the case in all its bearings, after listening very patiently and with martyr-like heroism to the evidence from half a dozen witnesses, and with the immutable principles of justice before his eyes, promptly fined the said A. A. B. Esq. twenty dollars and costs, which sum being duly paid over by the aforesaid, that genius retired immediately to his country plantation, and thus drops out of our little story.

Tired of "loafing" any longer, Walter determined to go to work. On proceeding to the shop he found the rockaway before alluded to still unfinished, but with only two days' work required to complete it; so he agreed to help his slow brother chip out. Therefore, the next morning he rolled up his sleeves, and, in the peculiar vernacular of the craft, "pitched in." The consequence was that at night the job was finished.

The next day, after putting his tools in good order, he commenced his first body. As the lumber was good, and as he did not have it measured out to him by the square inch, but was allowed to go in the lumber-room and help himself, he got along finely. In a couple of weeks the smith's wound being healed, he commenced work. As the boss had before said, he was not only a good workman but a capital fellow to boot; and as he did not touch, taste, nor smell even of the "Demon Incarnate," Walter and him soon became fast friends. In a word, all the rest of the jours were in the main clever and agreeable, and

since the shooting affray there seemed to be a marked degree of reformation in all of them. There were no more Saturday evening sprees, consequently all were benefited by the change, with the single exception of the proprietor of the "Sunny South."

In the meantime, Walter did not neglect to improve his acquaintance with little Nellie. He found her, as his knowledge of female character at first told him he would find her, the most innoeent, modest creature of her age he ever knew. So retiring and diffident was she that it took Walter some time to become on familiar terms with her, yet he accomplished it at last, as indeed who would not, for he passed more than half his evenings with her father. And thus situated the time passed away rapidly. He had plenty of work, good health, excellent company, and *extras* of pocket change. Once, and once only, had he called on Miss Bell since his fatal "first appearance on this stage," and that was merely to test her disposition, or rather character, more fully. While passing up the walk he saw a face at the window that looked very much like hers, and mounting the broad steps he rang the bell with easy indifference, and upon its being answered by the servant, he was politely informed that Miss Bell was not at home. After this cool reeption, he gradually settled down in his own social circle, and became not only contented but happy. Perhaps it was the evenings he passed with Nellie that caused his greater happiness; at all events it was soon observed that he took extra pains with his toilet, whenever he was to call there, not but what he always looked and dressed well whenever he was to pass an evening with the ladies, for with him it was a principle that every gentleman owed them that mark of respect.

And so the summer passed away, and when October came with its glorious wealth of colors and health-laden atmosphere, he summoned up courage to ask her to take an afternoon ride. Summoned up courage? Even so; for, as he frankly acknowledged afterward, she was the first girl in whose society he was ever thrown, to whom, when desirous of asking a favor, he hesitated, or put it off to a more favorable opportunity. Such an effect does innocence and true modesty have on every honorable mind.

She accepted the invitation after obtaining her father's consent, and so one lovely afternoon, he drove up to the door with one of Livery's best, and soon they were off over the broad plantations. In personal appearance she was much improved from what she was when we first saw

Entered, according to Act of Congress, in the year 1868, by E. M. STRATTON, in the Clerk's Office of the District Court of the United States for the Southern District of New York.



her. It was partly owing perhaps to the cool, bracing weather, and partly from the fact that her father, whom she loved so dearly, was no longer a drunkard. Can there be a more degrading position for a sensitive, warm-hearted girl to occupy, than that of being a drunkard's child? Oh the tears that are shed, the anguish, the misery, the dread, the endless, heart-crushing state of uncertainty in which their wretched lives drag on, the world can never know. But Nellie had escaped from all this, and she was happy in her deliverance. Her cheeks were no longer pale, but on either one she carried the delicate tints of the fresh-blown rose, and her eyes, so sad and dove-like in their expression before, now sparkled with life and vivacity. When Walter first became acquainted with her she scarcely ever smiled, but now one ever lingered at her lips, and then her laugh, so clear, so gay, it was one of those laughs that we hear but seldom, coming from the heart and cheering us with its music.

Out in the open country her delight could scarcely find vent in words. It was indeed a lovely scene. On every side immense fields containing from one up to five hundred acres, white with cotton, and in every field were scores of men and women gathering the fleecy "king" and depositing it in their bags and baskets, while their voices rung loud and clear to some favorite plantation melody, as their hands kept time to the music, and in the rear of these fields, forming the background as it were to the picture, were rows of gum, or broad acres of woodland, with their chameleon-hued foliage, the leaves slowly and one by one deserting their parent stem to mingle with their original dust below. In the woods and along the hedgerows were hundreds of birds of almost every species known in the annals of ornithology, darting hither and thither, gathering up seeds and singing snatches of songs between their lunches, and in every field were great wagons filled with the raw cotton, drawn by six mules and driven by negroes with huge whips, winding slowly towards the gin-house where the ceaseless clatter of the machinery told how busy all were there,—it is no wonder that Nellie, after being confined so long at home, felt her heart thrill with joy, and her senses become intoxicated with delight, as she saw and heard all this.

"How lovely!" she cried; "it does seem as though everything is more beautiful now than I ever saw it before; yet most persons love spring scenery best, and I saw it last spring from this same point."

"The reason of that," replied Walter, "is because you are happier now than you were then, and happiness presents everything in a more pleasing light."

"Yes, that may be the cause," she replied, "for that was before father reformed, and everything appears different since then. Oh, how can I ever repay you for your part in bringing about that happy event!"

"Nothing more easy," he answered. "Only remain the same good, innocent, cheerful Nellie you now are, and be a very good friend to me, that is all I ask."

"Oh I will always be your friend for that matter, but then the friendship of such a little creature as I am would never benefit you any; and besides, father is so much happier too. He told me only a few days ago that the past summer had been the happiest he had passed since mother's death, and only to think, I used to read the soliloquies of Hamlet, and speculate with him on death, and think of the *rest* after 'throwing off this mortal coil,' for I expected no *rest* here; but now I feel like Olivia

when"—she stopped suddenly, and drew back, so near was Walter's face to hers, and so intently were his eyes fixed on her.

"Go on," he said, with a faint smile, "go on, you never had a more attentive listener."

"Oh no," she replied, blushing slightly, "I quite forgot myself, to speak so boldly of Shakespeare's heroes and heroines to you who know so much more than I do."

"Perhaps," replied Walter gravely, "if that question were tested you would come off victorious. I might excel in knowledge of the world, in experience, and general information, but in book learning you would undoubtedly bear off the palm. In fact, speaking of Shakespeare, I could not recite half a dozen lines outside of those parts which I have been compelled to memorize during my experience on the amateur stage, and to make a still more definite confession, I have never read his complete works."

"Oh I have," she cried, overcoming her sudden reserve, "and some of them half a dozen times; and now that I begin to understand them I love them more than ever. But only see—what is that?"

The last remark was caused by a young fawn leaving the thick shelter of the Osage Orange hedge that lined the road, and approaching the buggy. Upon receiving the desired information, she insisted on taking it to the next residence, where it undoubtedly belonged, having recently escaped from its enclosure. Willing to gratify her, Walter proceeded to test the practicability of an old hunter's rule, that by petting a young fawn it would follow you under any and all circumstances. He found it worked well in his case, for after entering the buggy and proceeding on, it followed close behind with all the docility of a dog.

The plantation they were now entering belonged to an elderly widow lady named McRoy, whose residence was situated on a high knoll from which every acre of her large possessions could be seen. Upon stopping at the gate the truth of Nellie's supposition proved correct, for Mrs. McRoy herself met Walter half way down the broad walk, and declared herself overjoyed at receiving her little pet safe and sound, and nothing would do but he and his lady must come in and partake of some refreshments at least, if nothing more. Walter was not a man to refuse such marks of hospitality so generously offered, and prevailing on Nellie they soon found themselves seated on the piazza, enclosed with lattice-work, which was covered with vines through which the cool breeze passed in delicious drafts. Soon after the servant entered with wine and cake, to which they did ample justice.

Mrs. McRoy was one of your sociable, clever old ladies, possessed of enormous wealth, which she knew how to enjoy as she passed through life, yet plain and unassuming in her manners, intelligent and possessing fine conversational powers, so that both our friends were not only charmed and agreeably entertained, but ere they knew it were on the most friendly terms for so short an acquaintance. It was already twilight ere they parted, and then not until the old lady pressed Nellie to come out and pass a week with her. She was so lonely, she said, in that great house, for she had no children; and Nellie, warm-hearted little creature that she was, promised to do so, with the proviso that her father made no objection, and then, in the soft twilight of that lovely October day they returned home, both well pleased with

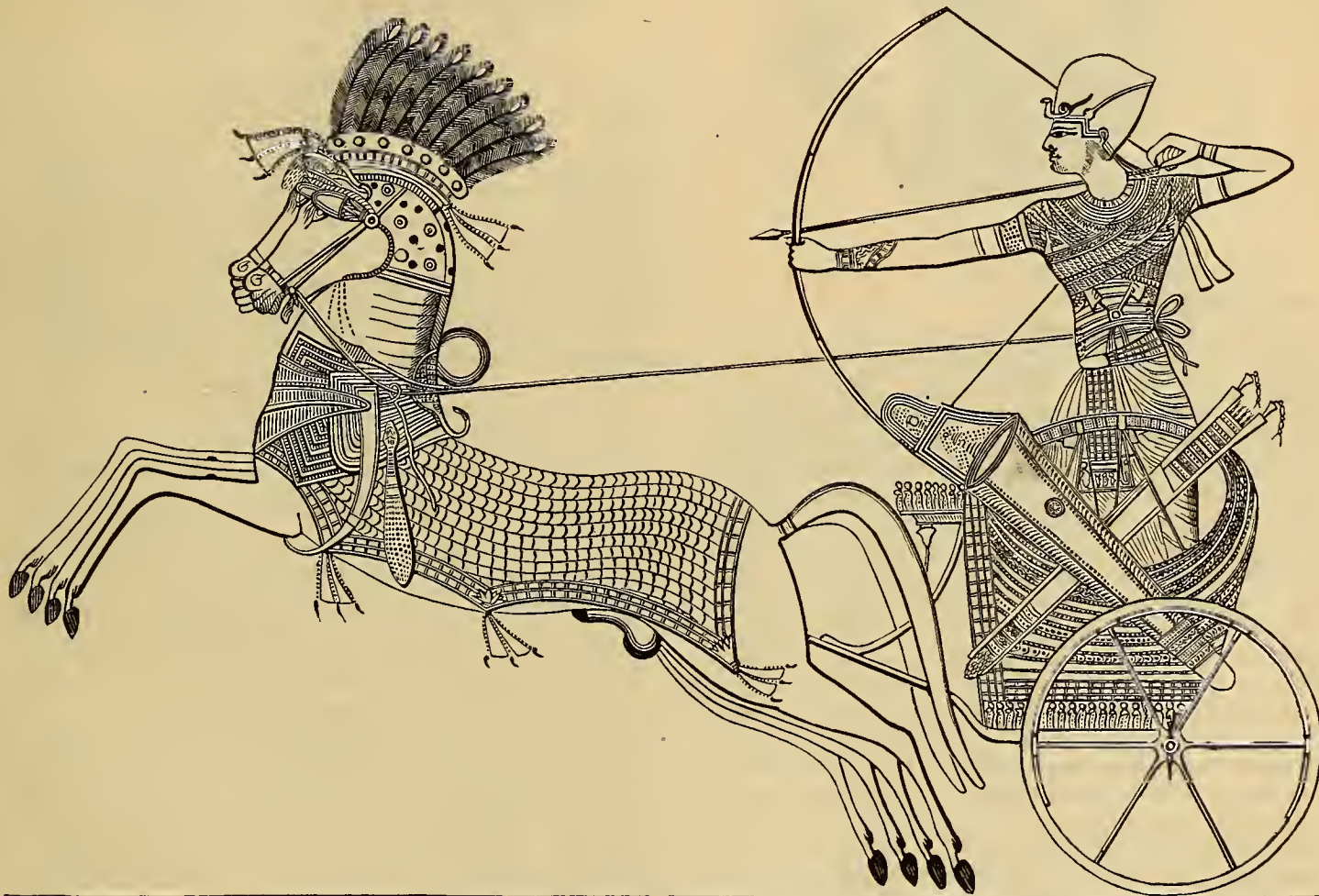


their ride and its unlooked for adventures, and both happy in each other's society.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—IX.

Among the series are two plates (Nos. lxx and lxxv) illustrating the continuation of the wars of the Egyptians, in Central Africa.\* Many of the chariots—especially those on plate lxx—are represented with extension fronts, to facilitate the egress of the warrior in case of danger, as previously noticed. The faces of the enemy are decidedly African as in our time, and to leave no room for doubt, the ancient artisan has presented us with palm trees, monkeys, &c.

During the reign of Ramses III, about 1565 years before the birth of Christ, the Egyptians extended their conquests into Asia and Africa,† enforcing tribute even from some portions of the Assyrian empire. Some of these victories are preserved in bas-relief at Seboah in Nubia. Such was the increase in the wealth and power of the Egyptians, at this period, that we find the horses represented as covered with trappings and blankets really beautiful, the bow of the warrior having taken a beautiful shape, when contrasted with those of an earlier date. The wheels of the chariots, likewise, differ widely from any other preceding them, having still the six spokes, but these were made gradually widening from the hub until they entered the felloes, thereby increasing their strength.



RAMSES III IN HIS CHARIOT.—BAS-RELIEF FROM A TOMB AT IBSAMBUL, IN NUBIA.

Our engraving—a costly one—the original of which is produced in colors in Rosellini's famous work, was taken from a bas-relief on the walls of a tomb at Ibsambul, in Nubia. It represents Ramses III as standing in a chariot richly painted and ornamented, the side-quarters being very high, and having six braces from the rave to the bottom, giving it great additional strength. In front of the body we find a fixture of a singular form, apparently designed as a rest for the bow-case. The wheel is beautifully drawn, and is held on the axle by a linch-pin

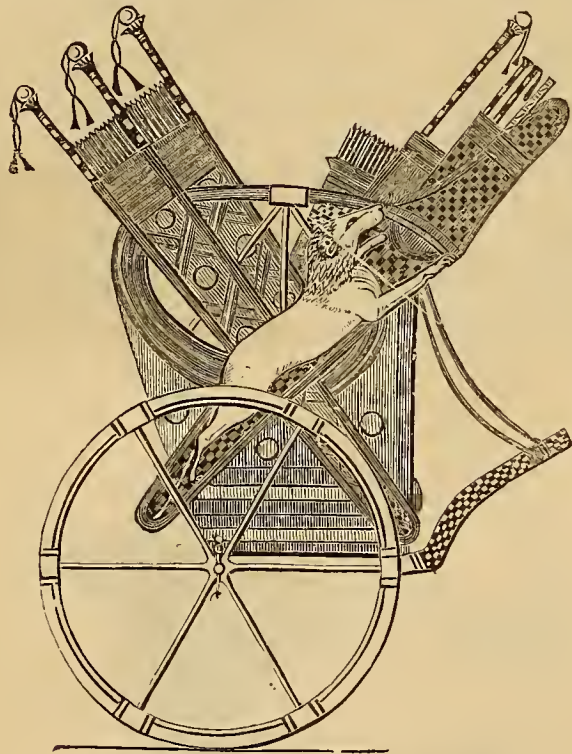
\* "Battaglia del medesimo re contro popoli d'Africa rappresentata nel monumento medesimo. Il re sul carro seguito da due figli, saetta e fuga un esercito di memici, che sparentati o feriti, si refugiam ai lon abituri."

of no ordinary design. The horses are richly supplied with trappings and handsomely covered with blankets. The greater defects are in the drawings of the horses' limbs and the position of the bowstring and arrow in relation to those of the chieftain. This plate is numbered xxxi in Rosellini, and three other chariots of a similar build are given on the plate which follows it. The entire series extend from No. lxxvi to No. cxvii, illustrating various events in the life of this remarkable king. On plate lxxx we have a grand battle display of chariots. Among these are seen the first, the sides of which are ornamented

† Ramses III lanciato col suo carro, e seguito da tre figli ugualmente sul carro, assale una fortezza piantata sopra una rupe, saettandone gli atteirte difensori; colorate.



with the figures of lions, the tails of some of which curve with the opening in the side, or, as in this instance, em-



WAR CHARIOT COMPLETELY EQUIPPED.

bellish the bow-case, setting off the whole to much advantage. Was the notion of its use superinduced by the lion hunts of the king, undertaken in his African expeditions? In this plate we also have a chariot furnished with an umbrella evidently intended as a shield to protect the occupant's head from the intense rays of the sun.

Undoubtedly these are the most elaborate, as well as the finest specimens of Egyptian chariots extant; and to do them justice, and give our readers some idea of art at this period—A. D. 1496—we have gone to considerable expense in drawing and engraving, more in this instance than it usually costs us, to get up the cuts of an entire number. Both artists deserve credit for the faithful manner in which they have fulfilled their duties. It is only in expectation of using these and the other designs we are publishing, in a work to be hereafter announced, devoted entirely to a popular history of coach-making in all ages, now in a forward state of preparation by the Editor of this Magazine, that we are encouraged to go to such extraordinary expense.

#### SCREW-DRIVERS AGAIN.

MR. EDITOR:—I have handled a screw-driver some in days past, and am well aware that a long one is far more efficient than a short one, but can hardly tell the reason. And although I have been much interested in the discussion in your columns, I am still in the dark as to whether it is the broader handle, the longer leverage, or the increased elasticity that gives the increased efficiency, as claimed by your differing correspondents.

To settle the point of handles or leverage, I would like Mr. Peck or some other one to try the experiment of driving a heavy screw into hard wood, with a short blade say four or six inches in length, and then follow with a long blade, say sixteen or eighteen inches, using the same

handle in each case. To insure the application of the power, in each case, directly in line with the line of the screw, pass the blade through a fixed collar or holder that shall fit loosely without friction around the ferule of the handle, and yet prevent any swing or leverage to the long blade, and then tell us how much more power he gets with the long blade than with the short one. Mr. Peck may add to the experiment his elastic blade also, and tell us his results under these conditions.

If, then, we get more power with the long than with the short blade, it cannot be either broader handle or longer leverage, but must be elasticity or some other unexplained reason.

J. A. H.

### Pen Illustrations of the Drafts.

#### LIGHT DRAG.

*Illustrated on Plate XXXIII.*

It would be difficult to find a more neat and tasteful design for a six-seated vehicle than the one we now give. For the Central Park, or a summer watering-place, it is just the thing. We would suggest that the side panel, below the horizontal line intersecting the door, be made concave, as this will add very much to the light-looking appearance of the body. Wheels 3 ft. and 4 ft. high.

#### REMOVABLE-TOP PHAETON.

*Illustrated on Plate XXXIV.*

This carriage is so contrived that it may be run, either with or without a top, suited to the weather. The top, as a fixed "institution" in this case, is, we admit, a very lame affair, as it will not stand hard driving over rough roads, but will answer very well in screening the heads of the passengers from the intense rays of a summer's sun, and last a reasonable time with proper usage. In the design the door is omitted, since to put one in a body of this kind weakens it very much, and would be almost unpardonable. The cutting under in this instance is done with paint alone, but may be done by the body-maker, and finished by the painter, after the pattern in the draft. We have mounted it on elliptic springs as the most economical mode of doing it. Wheels 3 ft. 2 in. and 3 ft. 10 in.

*Illustrated on Plate XXXV.*

#### TURN-OVER AND SLIDE-SEAT BUGGY.

A BUGGY after this pattern is liable to abuse, by asking more of it than is reasonable. Four full-grown passengers are too many for the springs unless they are made extra heavy, and even then its capabilities will be sorely tried, and very likely the vehicle break down. But there are some persons that persist in having this description of vehicle, and in these cases we always throw the responsibility on the customer, by warning him of the consequences in time. It is the only satisfactory way of getting over contingencies, and avoiding blame afterward.



## BUGGY-PHAETON.

Illustrated on Plate XXXVI.

WE call this a buggy-phaeton, because we do not know exactly what else to call it, without subjecting ourself to criticism. The front portion of the body is clearly "buggy," and the back—what? There is certainly novelty in the combination sufficient to recommend it to the public, and that, after all, is a good reason why we should give it an introduction.

## Sparks from the Anvil.

## INGENIOUS INVENTIONS.

ON the second page of our cover the reader will find a list of patents from the original inventor of the clip-king bolt, Mr. Uel Reynolds. The first in the list is a "Center Guide," or improved king-bolt for carriages, designed as a substitute for the clip-king bolt, invented and unpatented. We fear we shall fail to describe this so as to be understood without a drawing, and must content ourself with a repetition from the letters patent, that "said invention consists in a socket upon a plate attached either to the head-block, or to the axle, combined with a pivot projecting from a plate attached to the other of said parts, whereby the parts are connected and allowed to turn, but neither the head-block or the axle are perforated, and I combine therewith a brace passing under the axle, and receiving a bolt that projects from a plate, the ends of said brace being attached to the head-block at the front or top thereof and to the perch."

The next is a "Fifth-wheel and Stop Guard," consisting in an anti-friction fifth-wheel and stop-guard, by which the wheels are prevented from coming into contact with the body of the carriage, and the friction of said fifth-wheel is lessened, and the usual greasing can be dispensed with.

The third is an improvement in body-loops, and involves the same principle as the one which we gave on page 103 of this volume; but which at the time we erroneously, it seems, told our readers was *not* patented.

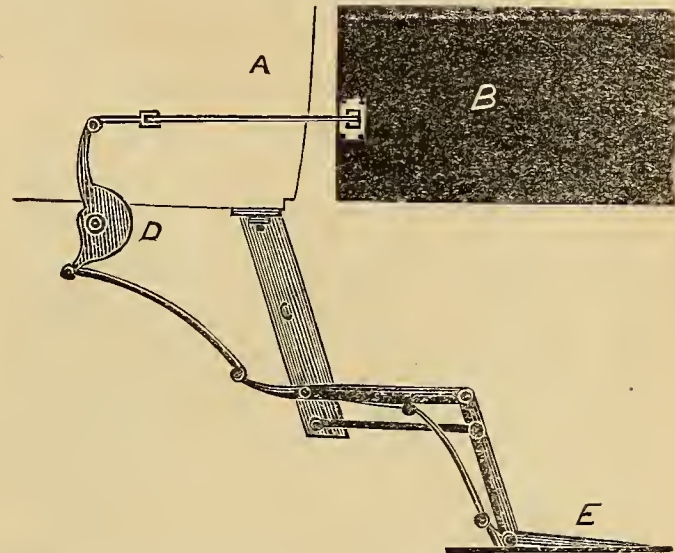
The fourth is a novelty—a *wooden* shifting-rail, bent to shape, and connected to the seat by bolts and stays on the seat. This we have not space to notice in detail. The fifth is designed to furnish a "cheap, neat, strong, and easily-operated attachment for the yoke to the pole in carriages." In this "pole-crab" there is a metal eye near the end of the pole, one side of which is notched. These notches are so combined with stop-horns on the yoke that the pole may very readily be attached or detached, by means of a horn passing through the notch. This arrangement does away with straps and eyes entirely.

We regard the clip-king bolt, which Mr. Reynolds invented—which we gave to the world long ago—as being second to none in importance, and therefore, as a voluntary tribute to an ingenious and worthy man, have noted above some of his later inventions in the hope that he may secure, in the sale thereof, that which he failed in doing by the original clip-king bolt. Mr. Reynolds—whose address is 182 Suffolk Street, New York—has for thirty-five years carried on business in this city, and

knows just what is required by the craft in the way of improvement.

## FOLDING DOUBLE STEP.

THE engraving which accompanies this article, gives a sectional view of a folding step for high hanging carriages, such as will be found on Plate XXXIII in this volume, and



others of like construction. A represents a longitudinal view of the body with the door (B) open; C support for the step; D the "walking joint," by means of which when the step E folds, the door is closed automatically. With these explanations the working principle of the step will be understood; but, the calculations and lengths vary so much with the shape of the body, and the size of the step, that it will require a clear-headed practical blacksmith, to adjust and make them work to perfection. This is not a patented invention, we believe.

## Paint Room.

## THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

(Continued from page 122.)

## ARTIFICIAL OR MATERIAL COLORS.

THE methods whereby colors are more commonly given to or changed in or upon the surfaces of solid bodies may be classed into *dyes*, or stains and *pigments*, or applied surface colors. A dye may be a mere surface stain or paint, as in the processes by which fine muslins are printed with the blue, in impalpable powder, of artificial ultramarine; but a dye, properly speaking, is a true chemical combination between the material of the dye and that of the cloth, wool, or other object dyed, whereby color in the latter becomes developed and fixed. Thus, woollen white cloth dipped into a *colorless* solution of deoxidised indigo and exposed then to the air, to reoxidise the latter, assumes a deep blue. So silk or other animal substance dipped in magenta solution is at once dyed a permanent and unchangeable crimson. These are examples of *substantive dyes*, *i. e.*, those in which there is a direct chemical affinity between the dye stuff and the material of the thing dyed. When there is not such, that affinity may



be produced by the intervention of a third substance which has an affinity for both the dye and the thing to be dyed. The dye in such case is called an *adjective dye*, and the third go-between is called a *mordant*. Thus, cotton cloth or linen, which could only receive a temporary stain from being dipped into an infusion of cochineal, becomes permanently dyed if first dipped into a solution containing peroxide of tin. The mordant, too, may be employed greatly to modify the color of the dye itself. Thus calico dyed with garancine, the bright red of madder, is red if the mordant be alum, but purple if that be a salt of iron.

*Stains*, such as are employed for coloring the surfaces of wood naturally white or light in color, are only surface dyes, transparent enough to show the wood grain through or not. Thus *oak stain* for deal may be but a salt of iron, ebony black stain a dye produced by pouring over the surface, alternately, infusion of logwood, or of gall-nuts, and a solution of a salt of iron, usually sulphate.

To this class of dyeing properly belong the coloration of glass for stained windows, the dyeing material here being usually some oxide or other haloid\* compound of a metal which combines with the colorless glass, when the latter has been liquefied by fusion. In this case the dyed or stained glass is called "pot-glass," as having been colored in the melting-pot, but glass in sheets, stained by coating one or both surfaces with the staining material and then heating the whole in an oven whose temperature is nearly equal to the melting point of the glass, is but the same thing in disguise. Enamelling and porcelain painting present examples both of the employment of surface pigments and of dyes or stains often in combination, and both being fixed by fusion or by baking only.

The colors themselves are in both these delicate arts derived from very much the same elements, and work upon the same principles as those employed by the glass stainer. They are either haloid or other compounds of metals chiefly, or they are *frits*, *i. e.*, opaque or transparent stained glasses ready made, which, when levigated, can be applied to the surface of the enamel base, or to the porcelain by the help of a suitable liquid vehicle.

With none of these processes for giving color, however, are we concerned here. We refer merely to pigments, or surface-applied colors, spread on as paint. Such colors or paints are mainly of mineral origin; that is to say they are either haloid compounds of the various metals, or they are certain insoluble (in water) salts of these. Most commonly oxides constitute paints—such are the whole tribe of ochres,† from yellow through red to deep purple—and many chemical combinations of oxides with oxides; with chlorides, as of lead; oxychlorides, as of copper, and in Pattinson's patent whitelead; iodides, as of mercury; and sulphides, as of arsenic, are employed.

Amongst the insoluble salts we find carbonates, as of lime (whiting); of copper (malachite); chromates, as of lead (chrome yellow); arsenites, as of copper (Scheele's green); acetates, as of copper (verdigris); phosphates, as in phosphate of iron (blue); ferro-cyanides, as in Prussian

\* Haloid from *ἅλς—εἶδος*—having the form from whence salts or saline combinations are produced.

† Ochre, *ωχροα*, in Greek, applied originally, no doubt, to *yellow* ochre only, as its composition indicates *ωος*, an egg (yolk), and *χροα*, color.

blue. In addition, we have some natural or artificial compounds of a highly complex character as to chemical constitution—as in ultramarine, verditer, &c. Besides these, many pigments are derived, not from inorganic compounds like the preceding, but from organic compounds procured from the vegetable or animal worlds. Thus the whole tribe of lakes consist of vegetable coloring matters, or of animal ones, combined with pure clay, hydrous oxide of aluminum by precipitation. The lakes most commonly known are pink and crimson in color, derived from the coloring matters chiefly of the cochineal or lac insects, or from that of madder; but lakes may be of any color. Thus Dutch pink, so-called, is a green lake; yellow lakes are made from Persian berries, and blue lakes may be made from the coloring matter of blue flowers. All lakes are more or less *fugitive*, *i. e.*, liable to lose color, or become bleached by even the mere action of light; but much remains yet to be done by the chemist to make them as permanent as the conditions of their production will admit—a point which has not been reached yet, nor even any sustained effort made, with competent knowledge, to reach it.

Some colors are derived direct from the vegetable world in the form of colored resins, such as gamboge, arnatto, dragon's blood, or as indigo; and several indirectly, *i. e.*, from vegetable matter which has undergone more or less chemical change, as in the many browns derived from peat, or ulmin (Vandyke brown), &c., and (bitumens) asphalte; and several yellows and reds. A few are derived from the animal kingdom direct, such as sepia, from the cuttle fish (sepia octopus), and the celebrated Murex purple, the color of which has been proved in modern days to be a real animal indigo, and from which there seems reason to believe a sort of lake was made anciently, and employed as a pigment; as well as the animal juices of the shell-fish as a dye, for woollen and silk. In addition to all these, many pigments result from the partial or complete decomposition by heat of animal or vegetable substances. These are chiefly brown or black pigments, such as bistre, Indian ink, lampblack, &c. Such is a brief and general view of the sources and classifications of the pigments usually employed.

Pigments *may* be employed in a dry state, and their powder caused to adhere to a vegetable surface by mere friction. Such is the nature of chalks, or *crayon drawing*; or colored drawing in Conté or in Italian crayons, upon *carton dur*, paper, or the like, which powder may be afterwards *fixed* to the surface by thin glue washes, or by varnishes; but, in general, pigments are applied, and are caused to adhere in a film of greater or less thickness to the surface to be colored by the help of some liquid more or less compound. These are called *vehicles* by painters, and from these come the distinctions of all modern painting into two great classes, *water-color* and *oil-color*.

Water-color comprises three distinct sub-classes, one of which may be said to be no longer practised. These are water-color proper, in which the pigments are ground with water, and some gluey body, soluble or miscible in water, by which they adhere to the surface colored. *Tempera* or *distemper* painting, being that by which theatrical scenery is produced, differs from the last chiefly in that the colors are all made opaque by being mixed with white, in the shape of whiting or white clay, and hence called *body colors*, and are still water color.

Fresco painting upon prepared mural surfaces, in which



the colors *may* be merely ground with water alone, though generally with some stiffening material added from the second sub-class. The colors here are *fixed* in various ways; the most modern, and probably the most perfect, being that of Kuhlmann, as employed largely by the celebrated Kaulbach, at Berlin and Munich, by means of soluble glass (silicate of soda).

Lastly, there is *encaustic painting*, as practised to some extent by the ancient Greek painters, in which water colors, applied upon a suitable mineral surface (often of *gesso*, or plaster of Paris, or of white marble), were fixed by subsequently diffusing over them a thin coating of melted wax, which was absorbed by the porous surface.

(To be continued.)

### MAKING GOLD-BEATERS' SKINS.

MR. EDITOR,—I send for insertion in THE NEW YORK COACH-MAKER'S MAGAZINE, the following description of the manner in which gold-beaters' skins are made. I do this because it has always been a question how gold is hammered so thin, and also because much of it is used in our business. Perhaps it may be of interest to your many readers. But before I proceed, I will state that it requires three hundred thousand such gold leaves as are commonly used in ornamenting or lettering, to make an inch in thickness. The tenuity of gold leaf is so great that it is, in some measure, transparent. When held between the eye and light it shows a greenish color.

The intestines of animals are made use of in several trades, and are prepared by different manufacturers; such as bladder-makers, who prepare the small intestines of oxen for the use of German and Bologna sausage makers; the catgut makers, who prepare the intestines of horses for the coarse catgut used by turners, and those of sheep, for the catgut used by violin makers; and also hat and clock-makers. The large intestines of oxen are also used by sausage makers. These intestines include that part called the blind-gut, the peritoneal membrane of which, being torn off, is made into gold-beaters' skins. As soon as the workman has cut just through that part of the membrane that surrounds the bottom part of the blind-gut, he gives it a pull when it comes off in lengths of from two to two feet and a half, turned inside out. This is afterwards exposed to the air, and when dry it appears like a mere cord. The gold-beater next soaks it in water to which a very small quantity of pearlsh is added, and when sufficiently moistened, the skins are placed upon a table, and the mucous membrane is peeled off with a knife. When the skins are well cleansed, and thoroughly soaked with water, they are stretched upon a wooden frame, three or four feet long and ten inches broad, formed of two uprights connected by two cross-pieces. These four pieces have, lengthways, a groove about a quarter of an inch broad.

To stretch the skins, the workman takes it in his hands and places one of the ends upon the upper end of the frame, taking care that the side of the skin which was the external side when in the animal, shall be that next the frame. He then pulls it every way, making it stick to the edges of the frame. This being done, the workman takes another skin and applies it to that which is already spread out, taking care that the two insides of the skin, or those

which adhered to the muscular membrane of the intestine, shall both come together, and form only a single body.

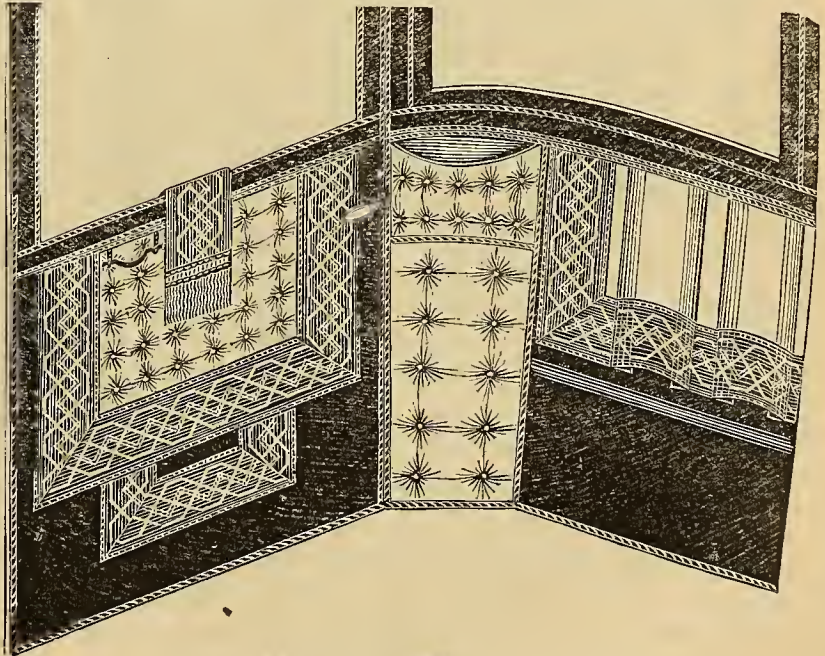
The double-skins dry quickly, except in that part which is fastened to the cross-piece of the frame. When the whole is dry, the workman cuts the skin with a sharp knife, the knife being guided by the groove already mentioned. The slips of skins are then transferred to another workman to be finished. For this purpose the finisher takes the slip, and stretches it once more upon a frame similar to the former, but without a groove. He next spreads the edge of the frame with glue, and places the skin upon it. When dry the skin is again washed with a solution of one ounce of alum in two pints of water, and again left to dry. After this the skin is covered, by means of a sponge, with a strong jelly of isinglass dissolved in white wine, in which several spices have been soaked, such as cloves, nutmegs, ginger, and camphor. These last ingredients are added to prevent insects from attacking the skins. Being thus finished a coat of the whites of eggs is given to them, when they are cut into square pieces of five inches each way, and put under the press to flatten them, after which they are made up in heaps or books, and sold to the gold-beaters. In some future number the method of beating gold may be given.

J. B. P.

### Trimming Room.

#### COUPÉ LINING.

LAST month we announced that we intended to present our readers with a sectional drawing of the inside lining of a coupé, with the necessary explanations. This we now



SECTIONAL COUPÉ LINING.

do from a design in the Repository of Messrs. Adams & Cone of this city; but the engraving so well explains itself, that to devote space for details would only be to occupy room we need for more important matter, and insult the practical mechanic by telling him that he already knows. We need therefore only say that the left hand section shows the door trimmings, the central and lighter



portion, the corner, with a pocket at the top; and a part of the front, the cross tinting below the lace, representing the children's seat. This is a very expensive engraving, and cost us four times as much as it would done on a black ground, in outline.

## Editor's Work-bench.

### ADVERTISING FOR A PARTNER.

ONE James Hacket, pretending to do a flourishing business in the carriage trimming line in this wicked city, some weeks ago, desirous of extending his business, so as to make himself a more useful member of society, advertised for a partner with some capital, in addition to a practical knowledge of the trade. This brought to his presence one John Sholtz, a German, with one hundred dollars ready cash. After a short conversation between the man in search of business and the one in search of a partner, the latter intimated—as is alleged—that if Sholtz would invest his one hundred dollars with him in the trimming business, they would each be able to make for themselves, from fifty to seventy-five dollars a week. Sholtz having faith in the representations of his new acquaintance, went with him before a notary and had the articles of agreement under which each was to act, properly drawn up, for one year's partnership. At the end of that period, should they be mutually satisfied, these relations were to be further extended.

After these necessary documents had been "duly signed, sealed, and delivered," the new partner handed over to his friend the one hundred dollars cash, and went himself to work in the shop at 171 Suffolk street, in earnest. Having worked an entire week, when Saturday night came round, Hacket handed Sholtz only six dollars, telling him at the same time, that, as business was very dull, he would not require his services any longer. This mode of dismissal opened the eyes of Sholtz, and in astonishment he began to enquire after his hundred dollars, when he received for answer "that it would be paid back when convenient, or from a new partner's capital." This was "a damper" for Sholtz, who set himself to work to get back his money to no purpose.

In the meantime Hacket, encouraged by previous success, set about finding another business partner, with a capital still larger, "from four to five hundred dollars"—and soon found one! Sholtz thinking that this was not altogether a fair business operation went before a police magistrate and made affidavit to the facts, who issued a warrant for arrest, and in default of five hundred dollars bond, committed Hacket to prison, to ponder over *his business transactions* in the "trimming line." We have not heard how the new partner flourishes; perhaps he too will have to take his pay in the same *description of goods*.

### FIFTH AVENUE CARRIAGE REPOSITORY.

LAST November, in our "city gossip," we stated that the Messrs. Brewster & Co. were fitting up the premises on the corner of the Fifth Avenue and Fourteenth Street, as a salesroom for their new carriages. This has now been completed at an expense of forty thousand dollars, and is decidedly the finest thing of the kind on this continent—probably the most costly in the world. Formal possession was taken of the premises on the ninth of December.

Without going over the details of our previous notice, we will state that from the Avenue the most striking view is the Doric columns, which with the accompanying architectural finish, makes the establishment—instead of a detriment—a real ornament to this aristocratic thoroughfare. On entering the building the visitor is struck with the peculiar neatness and adaptability of the finish to the business for which it is designed. At the foot of the stairs at the right on the principal newell post, stands an obeisant coachman—done in walnut—whip in hand, ready for service, while further on at the head of the stairway to the basement stands a groom, who raises his hand in recognition of the visitor, a fitting comrade for the coachman. The two flights of stairs, one at the side and the other at the farther end of the building, are decidedly unique, made of black walnut and whitewood, to match a ceiling of the same materials. The entire coloring, instead of paint, is done in stain with the Valentine wood-preserved, a new article, which shows off the grain of the natural wood to good advantage.

The building, including the basement, has five stories, and is warmed throughout by steam. At night two large reflectors on the inside of the front wall, throw a soft and mellow light over the splendid carriages shown through the large glass-doors opening on the Avenue, that is decidedly charming and magical. An elevator swung with a rope of telegraph wire, one man is able to manage, takes the heaviest carriage from the basement to the top-most floor with ease and safety.

While in this beautiful establishment, we will say a little about the carriages. The price this firm get for top buggies is \$475, and for some landaus as high as \$3,500. In trimming a portion of the coupés and landaus they have substituted French goat-skin leather for eotelines, with decided improvement. This not only looks, but wears well. We noticed a few importations among the stock: one coupé from Berlin, offered for \$1,500, and two vehicles from Paris. One of these—a barouche—cost in Paris \$3,500, and an importation duty of 33 per cent. additional. The other—a brougham—cost \$2,000, and is very cumbersome, weighing nearly three times as much as an American one standing by its side, and carrying the like number of passengers. It appears the owner is dis-



satisfied with them, as being far behind ours, both in design and lightness (as indeed they are), and now offers them for sale at about half the original cost, intending to supply his stable with the much better and handsomer American made vehicle. While we are sorry for his loss we cannot but admire his good taste in this instance, and think it would be a saving to our European friends who labor under the impression that we cannot compete with the old country, to wait until they visit us before they provide themselves with vehicles, as it can be done much more to their satisfaction here.

#### COACH-MAKING LITERATURE.

IN addition to the published works on carriages, heretofore given, we notice the following: "An Essay on the Construction of Roads and Carriages; by Richard Lowell Edgeworth, Esq., F.R.S., M.R.I.A., and Civil Engineer. London: printed for J. Johnson & Co., St. Paul's Churchyard, 1813."

That the reader may judge of the merits of Edgeworth's book, we subjoin a table of contents:—I. *Roads*—Their form, construction and repairs. II. *Wheels*—Their probable invention; their early use; their height; axletrees; line of draught. III. *Carriages*, Antiquity of; sledge and slide car; Irish car and its uses; carts, wagons, and breadth of wheels. IV. *Public Carriages*—Experiments. Mr. Edgeworth was an Irishman from Edgeworthstown, and this probably is the reason why he devotes so much space to the jaunting-car, as he has done, that being, in an Irishman's mind, the *ne plus ultra* of pleasure vehicles.

The next is in French: "Experiences sur le tirage des voitures et sur les effets destructeurs qu'elles exercent sur les routes, exécutées en 1837 et 1838 par ordre du ministre de la guerre, et en 1839 et 1841 par ordre du ministre des travaux publics, par Arthur Morin, chef d'escadron d'artillerie, ancien élève de l'École Polytechnique, Professor de Mécanique Industrielle au Conservatoire des Arts et Métiers, Membre de l'Académie Royale des Sciences de Berlin. Paris: Librairie Scientifique-Industrielle de L. Matthias (Augustin), Quai Malaquais 15, 1842." Thus translated into English: Experiences in the tirage of carriages, and the destructive effects which they exercise (have had) on the roads, built by order of the minister of war in 1837 and 1838, and by order of the minister of public works in 1839 and 1841. By Arthur Morin,—with a long list of titles, useless to translate,—Paris, 1842.

The title-page of a third volume reads thus: "Essai et expériences sur le tirage des voitures, et sur le fûttement de seconde espèce, suivis de considérations sur les diverses espèces de routes, la police du roulage et la construction des roues. Par M. J. Dupuit, ancien élève de l'École  
vol. ix—18.

Polytechnique ingénieur des ponts et chaussées, et des mines, Quai des Augustins, 41, 1847." In English: An essay and experiments on the tirage of carriages, &c.

#### REDUCTION OF WAGES.

NOTWITHSTANDING the promises of our "International" Union managers, that combination and a contribution of six dollars per capita would prevent the cutting down of wages, and bring about the workingman's millennium, when he should have "less work and more pay," the thing has again actually been done in this city. On the 4th of November last, many of the journeymen were put on three-quarter time, and on the 30th of December wages was reduced an average of fifteen and twenty per cent. We have been very particular to give dates, as certain parties interested will probably deny the truth of our statement, as they have done before. Those who doubt can very easily ascertain the truth by inquiring through their New York correspondents. Those "who love to be humbugged" will of course pin their faith to the sleeves of party leaders, and continue their contributions as heretofore. For such we have no pity.

#### ANSWERS TO CORRESPONDENTS.

"PAINT BRUSH" inquires if the English government permits its "ticket-of-leave" men to leave English soil. We cannot answer this question positively, but our impression is that some of them have arrived out here, and are busily engaged in righting the "wrongs" of the workingmen, on a salary (including traveling expenses) that pays pretty well; and we have no doubt that a good many more will come out and enjoy the good things to be picked up in this land of freedom, *providing they can get away*.

S. B. & S., Vt., writes us that they are far away from other shops, and therefore cannot get up a club; but if we will send them the Magazine, at club rates, for a year, they will remit for the same at once. Thank you, gentlemen! but we do not see any advantage in taking single subscriptions at first cost, and therefore respectfully decline.

#### BACK NUMBERS WANTED.

WE are very much in need of No. 8, Vol. 7, (January, 1866,) to complete full sets of this Magazine. If any of our subscribers have this number to spare, and will send it to us by mail, postage paid, we will send them in return any chart they may select from our published list, or if preferred 50 cents cash for each copy.

#### EDITORIAL CHIPS AND SHAVINGS.

NEW YORK ON WHEELS.—Between November 1st and December 15th, the Inspector of Public Vehicles licensed 502 hackney coaches; 541 special coaches, and



6,500 public carts and trucks; and notified 610 hack-drivers and 2,700 cartmen and stage-owners that they must renew their licenses, failing to do which the Corporation Attorney has orders to prosecute offenders.

**LABOR'S PRESENTATION TO CAPITAL.**—They do up things "out West" in quite a different manner from that we are accustomed to see among us. Instead of "striking" the bosses, they *persuade* them by presents to respect their interests, as appears by the following extracts from the *St. Paul Daily Press* of December 15th:

Quite an interesting little presentation affair came off on last evening at the Carriage Factory of Messrs. Quinby & Hollowell—the lucky recipients being members of the firm, and the donors employees at their works. Mr. Cavender was presented with a splendid pair of gloves; Mr. Quinby and Mr. Hollowell each receiving a beautiful zephyr scarf, fabricated with subtlest skill by Mrs. W. F. Osgood. Mr. Osgood, of the trimming department, made the presentation with an appropriate little speech, happily expressing the good feeling borne by all present towards their employers, with best of wishes for their future prosperity.

This "surprise" was so wholly unexpected that the recipients could only tender their thanks in broken accents, and on the next day come out with a card, in which they say "If the gloves keep Mr. Cavender's hands as warm as his heart is towards the kind givers, they will *do* even though the *mercury freezes* and Old Boreas blows his fiercest blast. The scarfs we esteem as emblems, showing how closely men in business relations may be entwined in each other's affections. May they bind us all together yet closer."

**HOW TO TEACH A HORSE TO BACK.**—A horse that will not or don't know how to back, should be harnessed by one that is kind and well broken, and hitched to a lumber-wagon, loaded (not too heavy) with wood, rails, or anything at hand, or that you may wish to move; and then find in the road or field a knoll where the surface is smooth and free from stones, and the descent from one to two rods. Drive the loaded wagon to the top, and after stopping a minute or so, command your horses to back, pulling steadily but firmly on the lines. The wagon being in a position to start very easy, and being loaded, will not easily stop after it is in motion, and your horses, if the harness be good, will be very likely to back down the hill. After getting to the bottom of the hill, speak kindly to them. Be sure to say "whoa" about the time the wagon is going to stop, patting the new horse and rubbing his face; and repeat the going up and backing down the hill until he knows what it means to back, and then commence backing the empty wagon on the level, gradually increasing the load, and you will soon be able to back all the load it would be reasonable to back; not forgetting to pat your horse, rubbing your hand over the face and head, and calling him a good fellow, and using him like one. He will soon make up his mind that he really is a good fellow, and of course he will act like one, and will become your friend and willing slave, and do what he is required to, even bordering on the impossibilities.

**A "SAILING CARRIAGE."**—The *St. Louis Democrat* describes a newly invented "sailing carriage," designed for use on the New Mexico route:

It has two upright jib sails, and a sail on each spoke of the two wheels on one side of the wagon, with steering

gear acting on the forward wheels, and provisions for transferring the wheel sails to the opposite wheels. The inventor is Charles P. Maczowitzky, a German, who has been a sailor, and has since spent several years in traversing the Plains. He relies upon the ascertained constancy of the prevalent winds on the great plains over the route named. The wheels are ten feet high, the wagon body shaped like a long boat, and hung low and with the jib sails the whole concern presents an odd and formidable appearance. The design is to take passengers and mail matter only—not freight—and it is expected that the carriage will suffice as a boat in crossing streams.

**HOW THEY RIDE IN CAIRO.**—The strange modes of riding at once attract the attention of the foreigner. Though the streets are so narrow as to prevent the use of carriages, no one goes on foot who can afford to ride. Occasionally a horse may be seen, and now and then a camel, bearing a bedawin or a fellah, almost blocking up the street, and pushing the crowd right and left; but these large animals are not adapted to these crowded thoroughfares. And now may be seen the great convenience of the little Egyptian donkey, so small that the mass of human beings have nothing to fear from him. He carries his burden of living freight or merchandise, picking his way through the crowd with all the gravity of a Turk and precision of a mathematician. Sometimes dashing along under a full canter, you see him driving square against a woman with a huge water-pot upon her head, and just as you look to see the burden rolling in the dust from the force of the collision, the cautious little animal is sure to miss the mark, and slip by without even jostling it.

When any of the officials wish to take an airing, or go out on business, dressed in robes of state, with chariot and steeds richly caparisoned, a liveried driver hold of the reins, and a footman, with a long white skirt and great turban, behind, they go rolling along with the dignity of a king. But what is most peculiar, a runner in Turkish costume, bearing a sword or staff of state, runs constantly two or three rods before the carriage, calling out for the way to be cleared, and thrusting any careless loungers right and left as unceremoniously as though they were so many swine. It is astonishing what speed and power of endurance these runners have, keeping their distance before the carriage, even when the horses are in a fleet canter. The ladies usually ride the donkey; the custom is to ride astride, and the ample folds of their long veils and loose robes almost hide the little animals from sight.

**WESTERN CARRIAGE MANUFACTURE.**—The *St. Louis Democrat* says:—We saw yesterday, at the manufactory of Messrs. Freeman & Green, northeast corner of Fifteenth and Chesnut Streets, a new cabriolet just completed for one of our well known citizens, Dr. William Todd Helmuth, which for beauty of outline, elegance of finish, and thorough workmanship, we believe to be unsurpassed by anything that has yet graced our streets. The carriage is light, open, and airy, is constructed with two seats for four persons, or two persons and a Jehu, and for one horse or a pair; and, all in all, is about as "*distingue*," without being flashy, as could well be conceived.

The body of the vehicle is systematically proportioned, and gracefully rounded in all parts into what is technically called the turtle-back style. The color of the body is a rich carmine gold-striped, and in pleasing contrast with the running gear, which is of a light, warm drab, striped



with crimson and gold. The trimming, though of a somewhat novel shade, is in harmony with the rest. Its most noticeable feature is a splendid flesh-colored broadcloth which lines the falling top, and is upholstered in ample folds and flutes in exquisite style over the fine spring back and cushions, making a most luxurious and inviting seat. In short, this carriage, in both its make and material—its wood-work, its iron-work, its trimming, painting, varnishing, and its gold mounting—is a model of its kind; and when its occupants add the finishing touch to the other decorations, as they soon will do, the turn-out will not fail to attract the attention of the public, and certainly should not fail to draw especial attention to the enterprising firm which has the credit of its manufacture.

## Patent Journal.

### AMERICAN INVENTIONS.

October 22. (69,962) BOLT-TRIMMER.—Jesse Blackinton, Roscoe, Ill. :

I claim, *First*, The combination and arrangement of the cutters A, A, with the connections B, B, and the levers L, M, as herein described for the purposes set forth. *Second*, The arrangement of the recess H, and the elevator-bearing H', in combination with the levers D, L, and M, for the the purposes set forth. *Third*, The slot F, and the pin E, in combination with the levers D, L and M, when arranged as and operating for the purposes set forth. *Fourth*, The flat-headed bolt P, in combination with the slot R, and the levers L and M, when arranged as and operating for the purposes set forth.

(69,979) SLED.—John Fisher, St. Joseph, Wis., and Jacob Meili, Stillwater City, Minn. :

We claim, *First*, The flexible knee A, constructed as described, fitted and turning loosely upon the end of the iron axle B, bolted to the bolster D, its lower end stepped in the gripe E, and held in position by means of the iron rave F, whose center passes over the top of said knee, and whose ends are secured to the top of the runner C, as herein described, for the purpose specified. *Second*, The side-coupling, constructed as described, consisting of the hoop-iron I, bolted to the coupling-tongue g, and sliding upon the slide-iron K, bolted to the under side of the reach H, the latter being rigidly secured to the front and rear bolsters D, by the braces L, all operating as described, whereby the hind runners are allowed a longitudinal play while the bolsters are inflexible, as herein shown and described. *Third*, The inflexible bolsters formed by the combination of the flexible knees A, raves F, slide fastenings I, K, coupling-tongue g, and immovable reach H, substantially as described for the purpose described.

(70,006) CARRIAGE-CORNER BODY-IRON.—S. Z. Leslie, Hartland, Maine, and T. W. Porter, Boston, Mass. :

We claim, *First*, The tube or socket d, in combination with the body corner-irons of carriages, substantially in manner as described and shown. *Second*, The spring f, or its equivalent, in combination with tube d, and pillar G, substantially as described and shown. *Third*, The flange b, formed upon the corner iron to connect with the sills, substantially in manner as and for the purposes specified.

(70,013) WAGON AXLE AND GEARING.—L. F. Palmer, Endfield, N. Y. :

I claim, *First*, The construction of a revolving axle for a wagon or carriage with the journals or boxes, the outer one in the hub of the wheel and the inner or other under the springs or bearings of the body of the wagon on the axles, and their arrangement in the manner substantially as described. *Second*, So constructing the lower part of the boxing under and connected with the springs that the plate H can be removed and

the revolving axles, without disturbing the straps J, J, or the springs or other parts connected therewith, as described. *Third*, The placing over the springs the broad plate L, and beneath the block A the upper part of the boxing of a revolving wagon-axle, and binding the same in one fixture, independent of the lower part of the boxing H, as described. *Fourth*, The perforated plate L, spring K, block A, and box O, of a wagon with revolving axles, all provided with a tube or passage P, for the purpose of oiling the boxing and journals, as described.

(70,027) WHEEL FOR VEHICLES.—W. T. Sawyer, Mobile, Ala. :

I claim a wheel provided with spokes D, and supplemental spokes C, having their inner ends confined upon the hub by means of a groove, or its equivalent, substantially as and for the purpose set forth.

(70,056) PORTABLE VEHICLE.—Samuel Wheelock, Conway, Mass. :

I claim, *First*, So constructing a vehicle for ordinary purposes of conveyance as to be enabled to dismember or fold or reduce in bulk such wheeled vehicle, for purposes of packing for transportation. *Second*, The mode, substantially as herein described and shown, of applying the wheels to the carriage, that is, by means of the arms l, l, pivoted at one end to the seat or body of the carriage, and supported at their free ends by the extremities of the spring n. *Third*, Applying the spring of a vehicle or carriage to its body in such manner as to serve the purposes both of a spring and as a means of confining the wheels to the carriage, and allow of their being readily removed therefrom. *Fourth*, Combining the dasher or foot-rest of a vehicle to its seat or body in such manner as to allow of its being turned inward upon or over such seat, essentially as before explained. *Fifth*, The construction and application of the top of a vehicle in such a manner as to permit of its being lowered and folded within or upon the seat of such vehicle. *Sixth*, The peculiar construction and arrangement, as well as application, of the top o, of the carriage, such consisting of the braces p, p, swinging feet or supportors t, t, bows u, u and v, v, and straps or bands w, w, substantially in manner and for the purpose as before set forth. *Seventh*, The peculiar construction and combination of the dasher or foot-rest b, of the pole e, as consisting of the foot f, and handle g, in manner and to operate as specified.

(70,082) WASHER FOR AXLE-BOXES.—Walter K. Foster, Cambridgeport, Mass. Reissued :

I claim the combination and arrangement of one or two metallic annuli, or guards or flanged rings, with a leather washer, or its equivalent, arranged within said rings, and used on an axle-journal, in manner as set forth. I also claim the flanged guards, as made with lips on their inner ends and outer circumferences to receive a washer, as specified.

(70,098) WHEEL AND AXLE FOR CARRIAGES.—Joseph H. Lewis, Duxbury, Mass. :

I claim, *First*, The radial flange H, in combination with the plate d, the lugs m, and the wheel-hub, substantially as described. *Second*, The arrangement of the spring f, in combination with the plate d, and the wheel-hub, substantially as described. *Third*, Forming the band n, together with and in one piece with the journal-box, substantially as described.

29. (70,183) SETTING TIRES ON WHEELS.—Anders Fagerström, Wyoming, Pa. :

I claim the notched bars F F, in combination with the hooked or bent ends a a of the tire B and the bar G, fitted between the bars F F, all being arranged and applied to the wheel substantially in the manner as and for the purpose set forth.

(70,197) WHIFFLETREE TRACE-CATCH OR COCK-EYE.—William W. Gordon, Delhi, N. Y. :

I claim, *First*, The stud, key, or pin a, Figs. 1, 2, 3, and 4, in combination with a whiffletree tip or trace-catch, substantially as set forth. *Second*, The slot e, in combination with the cock-eye c, Figs. 1 and 5, when constructed in the manner and for the purposes set forth. *Third*, The combination of the stud



*a* and slot *e*, Fig. 1, when constructed in the manner and for the purposes set forth in the above specifications.

(70,217) WAGON BRAKE.—Wesley Hull, Fort Wayne, Ind.:

I claim the brake A, bent lever *a*, connecting-rod C, in combination with slotted connecting-rods and lever, for the purpose of locking the wheels of wagons while ascending or descending hills, the whole being arranged and combined in the manner and for the purposes herein set forth and described.

(70,219) BUGGY SPRING.—William Hnmphreys, Brooklyn, N. Y.:

I claim the springs A, formed of either wood or metal, substantially as shown and described, and attached to the rear axle and to the D-circle, substantially as set forth and for the purposes specified.

(70,278) SLEIGH-BELL.—Henry K. Smith, Boston, Mass.:

I claim the improved construction of the tongue-hook and arrangement of it, the rivet, the bell, and the strap, as described.

(70,287) SLED BRAKE.—Samuel K. Sutton, Paterson, N. J.:

I claim the combination of the dog *c* with the toggle *a a'* and the shaft B, provided with the spring *e* and the lever E, all arranged and applied to the sled to operate in the manner substantially as and for the purpose set forth.

(70,289) CARRIAGE-SHAFT CONNECTION.—Charles Tholl, Boston, Mass.:

I claim my improved shaft connection, constructed substantially as described, viz., of the open box B, with its cover and catch, and the strip of rubber or its equivalent, arranged and applied together to the journal of the forked arm F, and to the axle, substantially in the manner described.

(70,348) DETACHABLE WHIFFLE-TREE.—John W. Melcher, assignor to himself and John J. Sprague, Oshkosh, Wis.:

I claim the intermediate connection *b*, the spring bolt *e*, detachable hook *d*, hinged attachment *i i*, and swivel bolt *k*, when arranged relatively to each other and to the whiffle-tree *a* and cross-bar *c*, substantially as described for the purposes set forth.

(70,357) WAGON-SHACKLE.—Thomas D. Powers, Rochester, Wis.:

I claim a draw-iron with a slot E, a cylinder with a slot F, notch L, or rubber spring G, metallic spring H, a shaft-iron, with T-head shoulders K K, when arranged to operate as shown and described and for the purpose set forth.

(70,358) CARRIAGE-SHACKLE.—J. E. Prudden, Birmingham, Conn.:

I claim the herein-described shackle as an improved article of manufacture, consisting of the shackle B and coupling C, constructed and arranged with the conical bolt D, made square at its larger end, and provided with nuts G and H, so as to be adjustable substantially in the manner herein described.

Nov. 5. (70,408) BENT KNEE AND BEAM FOR SLEIGHS.—Daniel O. Card, of Rawsonville, Ohio:

I claim the herein-described bent knee and beam, as a new article of manufacture.

(70,422) FASTENING FOR COACH-LAMPS.—Marcus De Voursney, of Newark, New Jersey:

I claim, *First*, A bracket A, provided with arms *a* and a socket *b*, in combination with the standard B and with a coach-lamp, substantially as and for the purpose described. *Second*, Fastening the socket to the back of the lamp by means of the arms *a*, substantially as and for the purpose set forth.

(70,438) SECURING THE ENDS OF FELLOES.—Hiram Inman and Horace Inman, of Amsterdam, N. Y.:

We claim the device for securing the ends of felloes, constructed substantially as described.

(70,446) ELASTIC SPRING FOR CARRIAGES.—Thomas Long, of Vandalia, Illinois:

I claim an india-rubber spring, constructed substantially as herein described. Also the combination of an india-rubber spring, constructed as described, with an elliptic spring, for the purpose set forth.

(70,475) CARRIAGE-SEAT SPRING.—William Scott, of Plymouth, Michigan:

I claim the arrangement and combination of the spiral spring A, the socket B, and the plate C, provided with the circular flange D, substantially as described for the purpose designed.

(70,517) CARRIAGE-SEAT BACKS.—John Burt, of Sturgis, Michigan:

I claim the within described vehicle seat, in which the back and ends, with round corners, are formed from a single piece of wood, of proper length and thickness, shaped and bent to the desired shape, as set forth and described.

(70,532) ATTACHING WHEELS TO VEHICLES.—L. Crouch, of Baraboo, Wis.:

I claim the nut D, provided with the screw-thread upon its outer circumference, and secured to the hub A by means of screws, in combination with the axle-box C, nut F, and cap E, substantially as described for the purpose specified.

(70,533) WAGON-BRAKE.—Ezra N. Curtice, of Spring Water, N. Y.:

I claim, *First*, The brake-shaft F, supported in the boxes *a a* on the wagon-reach and hounds, and the straps *c c* on the braces *b b* attached to the axle A', arranged and operating as and for the purpose described. *Second*, The eccentric arms *e e* on the ends of the brake-shaft F, in combination with the rubbers *d d*, arranged and operating as described. *Third*, The combination of the brake-shaft F, the rod *g*, and the draught-pole E, arranged and operating as and for the purposes described.

(70,535) SLEIGH-KNEE.—Isaac Dan, of Sanford, New York:

I claim the blocks B and C, as constructed and used, in combination with the knee and the bar E, as and for the purpose set forth.

(70,536) SLEIGH-KNEE.—Isaac Dan, of Deposit, New York:

I claim the knee, constructed of wood and metal in the manner herein set forth, and used with the runner for the purpose specified.

(70,594) MODE OF SECURING WHEELS ON AXLES.—J. Miller, Jr., of Baltimore, Md.:

I claim the combination of the box A, spring B, plate C, and the linchpin D, or their equivalents, operating in the manner described and for the purposes substantially as set forth.

(70,607) WAGON-REACHES.—Zenas Plumb, of De Witt, Iowa, assignor to himself and John C. Polley, of the same place:

I claim constructing a wagon-reach in two parts, connected by a swivel-joint, substantially as and for the purpose described.

(70,619) WAGON-SEAT.—R. N. Rockwell, of Glenwood, Iowa:

I claim the board or plank A, with the springs B B' attached, in combination with the pendant pins D attached to the bottom of the seat C, all arranged substantially in the manner as and for the purpose set forth.

(70,627) WHIP-SOCKETS.—E. W. Scott, of Wauregan, Conn.:

I claim a whip-socket provided with a fastening composed of a lever, arranged or applied substantially as shown and described, to hold the whip steady or firm in its socket, as set forth.

(70,628) ADJUSTABLE PROP-JOINT FOR CARRIAGES.—Anson Searles, of San Francisco, Cal.:

I claim, *First*, An adjustable or extension prop-joint. *Sec-*



ond, A socket, pivoted, or center-joint, all substantially as described, and for the purposes set forth.

(70,639) WAGON-BRAKE.—Thomas Smith, of California, Missouri:

I claim, *First*, The band C and bolt D, constructed and secured to the brake-bar A, substantially in the manner herein shown and described, and for the purpose set forth. *Second*, The clamps G, constructed as described, in combination with the rod or bolt D and band C, substantially as and for the purpose herein set forth.

(70,650) LUBRICATING CARRIAGE-AXLES.—Edrick Thomas, of Kickapoo, Ill.:

I claim the Babbit-metal tube F, with the bolt or screw-plug E, and the hole *a* in the metallic box C, all arranged in the manner substantially as and for the purpose set forth.

(70,664) SHRINKING TIRE.—Levi Wilkinson, of New Haven, Conn.:

I claim the combination of the block A and brackets B and C with the screws *c* and *d* and *g* and *h*, when the whole is constructed and fitted to produce the result, substantially as herein described and set forth.

(70,670) WHEEL HUB-BOXES.—Elbridge G. Woodside, of San Francisco, Cal.:

I claim, *First*, Surrounding the box A with an elastic packing B, substantially as described for the purpose set forth. *Second*, Also, in combination with the packing B, the end packings *c* and *d*, substantially as described for the purposes set forth.

12. (70,681) CARRIAGE-WHEEL.—Charles C. Ayres, of Chelsea, assignor to himself and Henry A. Breed, of Lynn, Massachusetts:

I claim the combination as well as the arrangement of the metallic annulus or inner tire D with the wooden felloe and the spokes and hub, as explained. I also claim the combination as well as the arrangement of the metallic annulus or inner tire D with the wooden felloe, the hub, spokes, and outer tire, as described. I also claim the combination as well as the arrangement of the metallic annulus D, the wooden felloe, the springs and chambers therein, the spokes, and the hub, as described, the hub, under such a combination of the spokes with it and the felloe, being suspended from the upper half of the felloe and on springs, while the wheel may be in revolution and use.

(70,797) CARRIAGE-TOP BUTTON-HOLES.—S. A. Budd, of Cleveland, Ohio:

I claim the combination of the spring *a*, washers A D, and disk or cap C, with the curtain, substantially as and for the purpose set forth.

(70,827) SLEIGH-BRAKE.—C. Gardiner, of Esperance, New York:

I claim, *First*, The pawls G, their upper ends wedge-shaped, and pivoted in the corresponding wedge-shaped mortise in the bent lever E, whereby the pawl is permitted to yield to the backward movement of the sleigh, all arranged and constructed as herein set forth for the purpose specified. *Second*, The connecting rod *e*, embracing the bar A' and the tongue A'', connected by the pin working in the slot in the tongue, its lower part extending to the neck-yoke, all constructed and arranged as described, in such a manner that the length of the stroke of the pawl G shall be governed by the length of the slot in the tongue, as herein set forth for the purpose specified.

(70,848) SELF-ADJUSTING THILLS.—Arah H. Howe, of Brookfield, Vermont:

I claim, *First*, The independent shafts B B, connected together by the strap C, and to axle A by means of the rod *a*, whereby one of said shafts may be used independent of the other, as specified. *Second*, The arrangement of the shafts B B, low-draught whiffle D, rods *a a*, and connecting straps, in the manner substantially as and for the purposes set forth.

(70,854) SHRINKING TIRE.—J. B. Jackson and M. R. Jackson, of Rochester, Iowa:

We claim the stationary jaw C, and movable jaw D, in combination with the screw F, gripes G, and keys H, constructed and arranged to operate substantially as and for the purpose set forth.

(70,869) SHAFT-COUPLING.—William E. London, of Cincinnati, Ohio, assignor to J. A. Fay & Co., of same place:

I claim a shaft-coupling, constructed as herein specified, to-wit: one half keyed on firmly in the usual manner, the other half provided with an adjustable clamping device, as herein specified, and for the purposes described.

(70,897) DISCONNECTING HORSES FROM VEHICLES.—John Rancevan, of Carthage, Ohio:

I claim, *First*, The socket C, provided with the spring backing *e* in combination with the bolt *c*, stay-strap eye *d*, and cords *l* and G, arranged and constructed substantially as described and for the purpose specified. *Second*, The pivoted hammer *f*, guard *f*', revolving lever F, spring double-tree strap E, and double-tree D, arranged as described, upon the tongue or other desirable part of the vehicle, and operating substantially as described and for the purpose set forth.

(70,928) AXLES AND AXLE-BOXES.—David Wigger, of New York, N. Y.:

I claim, *First*, The rings *c d*, fitted within the journal box, in combination with the collars *e f*, on the journal Ax, substantially as and for the purpose specified. *Second*, The arrangement of the packing-ring *n*, within the annular nut C, and in relation with the journal Ax, packing-rings *h*, and flanch *g*, substantially as and for the purpose specified.

19. (70,957) TIP-WAGON.—Stephen Chamberlin, of Boston, Massachusetts:

I claim the combination and arrangement of the body *a*, rocker-springs *n*, journals *r*, and socket-bearings *s*, together and relatively to the spring *l* and front and rear axles, substantially as described.

70,980) RUNNING-GEAR FOR VEHICLES.—Solomon J. Edwards, of New Berlin, N. Y.:

I claim in combination with sleeve C, and set-screws *d d*, arms B B, boxes *g g*, and rollers *e e*, when all are constructed and arranged as and for the purpose set forth.

(71,008) SHAFT-COUPLING.—George P. Hodson and James L. Hodson, of Philadelphia, Pennsylvania:

We claim the within described coupling, composed of the outer portion A, with its internal inclined ribs *h*, and the inner severed portion B, with its inclined ribs *f f*'; the two portions being adapted to each other and to the shaft, and secured together, all substantially as and for the purpose herein set forth.

(70,025) SLEIGH-KNEE.—Gunder Larson, Lake Mills, Wis.:

I claim a cast-iron sled-knee, having separate supports, in one casting, as shown and described, as and for the purposes specified.

(71,054) BRAKE FOR VEHICLES.—Cyrus Phelon, West Granville, Mass.:

I claim a brake for vehicles in which the brake-bar B, having the shoes H arranged behind the wheels upon the body of the vehicle, is connected with the lower end of a lever, A, pivoted through the pole, the other end of said lever being operated by the holding back of the animals, the whole being arranged substantially as shown.

(71,066) THILL-COUPLING.—Silas Rogers, Standfordville, N. Y.:

I claim the thill-coupling, constructed as described, consisting of the upward-projecting hook C, formed upon the clip, and the eye E upon the thill-iron D, fitting over said hook,



when the outer side of said eye is provided with the packing F working against the outer side of the hook, as herein described, for the purpose specified.

(71,078) ATTACHING THILLS TO CARRIAGES.—William Starkey, Bridgeport, assignor to himself and E. L. Reeves, Paulsboro, N. J. :

I claim the block B, with its projections  $d$   $d$ , their openings  $e$   $e$ , and recess  $c$ , in combination with the bar A and its pins  $b$ , the whole being constructed, arranged, and operating as described.

(71,100) MACHINE FOR BENDING TIRES.—Dennis Wetzel, Springfield, Mo. :

I claim, *First*, The double-rimmed wheel B and double-rimmed roller E, disposed in frame A, substantially as above set forth and described. *Second*, The wheel B and roller E, in combination with the spring F, arranged and operating as and for the purpose substantially as above set forth and described.

(71,101) LUBRICATOR FOR CARRIAGE-WHEEL BEARINGS.—Willard P. White, Orland, Me. :

I claim the wheel-greasing or lubricating apparatus as described, that is, as composed of the cylindrical cup A, the cover B, and the plunger C, with their connection screws  $c$   $d$ , and discharge-passage  $b$ , or the same and the screw  $a$ , the whole being arranged substantially as explained.

(71,118) CARRIAGE SPRING.—Joshua B. Ashley, New Bedford, Mass., assignor to himself and J. Augustus Brownell, of same place :

I claim the spring C2, and linking-plate E2, and clip-iron D2, in combination with the packing A1 A2, and bolts B2 B2, all arranged and applied substantially as and for the purpose described.

(71,123) LATCHES FOR CARRIAGE-DOOR. — Norbert Belvallette, Paris, France :

I claim a pendant handle or tassel, of any material, acting upon a carriage-lock with a lever or other apparatus, in place of the fixed handles at present in use inside of carriages.

(71,125) AXLE-BOX.—William A. Boyden, Altoona, Pa. :

I claim the two semi-circular packing plates C, constructed with rebated ends, and furnished with springs  $g$ , in combination with the annular washer D, the journal  $a$ , and the bearing  $b$  of the axle-box, substantially as and for the purpose herein set forth.

(71,151) CARRIAGE-TOP.—Sidney Emmones and Elnathan S. Simpson, Geneva, N. Y. :

We claim one or more auxiliary bows hinged to the main bows, and arranged to operate substantially as described for the purpose set forth. And, in combination with the auxiliary bows, we claim the T-plates to which they are hinged.

(71,193) CARRIAGE-WHEEL.—William H. Marshall, Sutton, assignor to himself and Hosea B. Spaulding, Merrimack, N. H. :

I claim the double round tenons  $c$   $c$ , in combination with the mortises  $f$   $f$ , for the purposes as described and set forth.

(71,194) ATTACHING THILLS TO VEHICLES. — O. L. Mather, Wellsville, N. Y. :

I claim the portion B, provided with the concave bed  $a$ , to the sides  $c$   $c$  of which the central pin  $b$  is attached, and part D, with the concavo-convex end fitting into the said concave bed  $a$ , when all are constructed and arranged as herein set forth for the purpose specified.

(71,228) CARRIAGE-TOP PROP. — Anson Searls, San Francisco, Cal. :

I claim, *First*, The tubular joint-bar standard B. *Second*, The clamp or claw, or equivalent. *Third*, The screw-bolt C that passes through the joint-bar standard B, and a part of the

clamp, holding them firmly together and in position. *Fourth*, The combination of the joint-bar standard B with the clamp A, in combination with the screw C, for the purposes substantially as described.

(71,240) VEHICLES.—Stephen J. Spencer, Yorkshire, N. Y. :

I claim plates D D, secured to the bottom of the box or body, and the rods E E, connected to the upper portion of the springs, when used substantially as and for the purpose set forth.

26. (71,262) CARRIAGE-EVENER.—Charles L. Ames, Bangor, Me. :

I claim, *First*, The central adjusting-plate  $a$ , when constructed and combined with the evener in manner substantially as and for the purposes specified. *Second*, The whiffle-tree adjusters  $e$   $e$ , when constructed and combined with the evener and whiffle-trees, substantially as described and shown.

(71,264) THIMBLE-SKEIN FOR AXLES.—William D. Baughn, Milford, Mich., assignor to himself, George P. Booth, S. D. Honowell, and F. A. S. Burnham :

I claim the construction of a skein, whether of cast or wrought iron or steel, as hereinbefore described, provided with the well or drop C, the opening D to receive the oil, and the holes or openings E E, &c., or their equivalents, for the purpose specified.

(71,285) TRACE-ATTACHMENT FOR WHIFFLE-TREES.—John W. Currier, Holyoke, assignor to himself and J. B. Gardiner, Springfield, Mass. :

I claim the arrangement herein described for connecting the trace to the whiffle-tree, consisting of the combination of the parts A and B and spring C, substantially in the manner and for the purpose herein set forth.

(71,304) FASTENING TOPS TO BUGGIES.—Henry F. Holt, Fredonia, N. Y., assignor to himself, T. C. Abbott, and F. B. Parker :

I claim the described arrangement of the horizontal and vertical shanks and sockets at the sides of the top and seat, in combination with the shank-hook and socket and spring key at the back of the seat, in the manner and for the purpose set forth.

(71,404) CARRIAGE-SHAFT AND POLE-COUPLING.—Earl C. Newton, Batavia, Ill. :

I claim, *First*, The application of the lever B to the shaft-iron D, through the hole C and F, as herein described. *Second*, The application of the spring G to the slide-iron or lever B, in the manner and for the purpose set forth.

(71,415) DRAUGHT-ATTACHMENT FOR HORSES.—Elias Sanford, Meriden, Conn. :

I claim, *First*, The whiffle-trees D, connected by a swivel-joint to the curved bar A, when such whiffle-trees are removably pivoted to the side of the hames  $e$ , as herein described, for the purpose specified. *Second*, In combination with the curved bar A, whiffle-trees D, and hames  $e$ , the tongue B, when provided with the elastic block  $b$ , substantially as described for the purpose specified.

(71,563) SPRING-SEAT FOR CARRIAGES.—John Werntz, Bourbon, Ind. :

I claim, *First*, the springs B C, in combination with the blocks D, cross-bars E E, and bolt  $e$ , as and for the purpose explained. *Second*, The springs B C, blocks D, cross-bars E E, and bolt  $e$ , in combination with seat A and sockets  $a$ , in the manner and for the purpose described. *Third*, The springs C, with piece  $c$ , in combination with cross-piece F, with socket  $f$ , step  $f'$ , and bar  $f''$ , substantially as described. *Fourth*, The springs B C, blocks D, cross-bars E E, bolt  $e$ , seat A, sockets  $a$ , cross-pieces F F, and hooks G, when combined and arranged substantially as set forth.



Dec. 3. (71,574) CARRIAGE SPRING. — Priseus E. Bomboy, Espy, Pa. :

I claim, in the construction of springs for carriages and other like purposes, the combination of the spiral springs B with the flat springs C, one end of the latter being connected to the axle-tree, the other to the shaft, substantially as and for the purpose described.

(71,576) RUNNER FOR WHEELED VEHICLES. — Ferdinand T. L. Boyle, New York, N. Y. :

I claim, *First*, Connecting a runner to the wheel of any vehicle by means of a central clamp or fastening, embracing the bottom of the wheel, and perpendicular under the centre of the wheel or its axle, and of a front and rear brace located substantially as described, extending from the runner to the wheel, and inclined downwards toward the axle, substantially as and for the purposes set forth. *Second*, In combination with such a runner so constructed, the arrangement of the flexible chain *d* and tightening screw *f*, and of the movable braces *g g* and brace-rod *o*, either separately or in combination, for binding and holding the wheel securely to the runner, for the purposes set forth. *Third*, In combination with such runner, the construction and arrangement of the hinged brace *g*, and brace-rod *j*, and chain clamps, as shown in figs. 18 and 19, substantially as and for the purposes set forth. *Fourth*, In combination with such a runner, the arrangement of the fixed clamps and braces B B1 B2, Plate II, and the cross-pieces E, for securing the wheel and runner together. *Fifth*, In combination with such runner, the arrangement of the adjustable bed-plate or bolster D, or its equivalent, to adapt the length of the front and rear braces to wheels of different diameters for the purposes set forth. *Sixth*, The construction of the bed-plate K for taking the wheel, having a surface formed of a single concave, or by the intersection of two concaves, as described, so as to secure two or more distinct and independent points of bearing or contact for the wheels, for the purposes set forth. *Seventh*, In combination with such a runner, the use and arrangement of the braces *l m m'*, for connecting the runner and axle, to protect the runner against side thrust or strain. *Eighth*, Forming the side braces *m m'* or H' H', with a hook or shoulder at either or both ends, substantially as shown in figs. 4, 6, 7, Plate II, for the purposes set forth.

(71,613) ELASTIC CARRIAGE-CURTAIN KNOB. — William H. Hawkins, Cleveland, Ohio :

I claim the adjustable plates A B, and rubber springs C, or their equivalents, as arranged in combination with the curtain G, for the purpose and in the manner set forth.

(71,676) WHEELS. — Julius M. Bailey, Indianapolis, Ind. :

I claim, *First*, The socket *b*, when provided with grooves upon one side, in which the tenons of the felloes fit, and with grooves upon their inner sides to receive the tenons formed upon the wedge C, said wedge adjusted by means of the bolt *d*, whose head is counter-sunk in the tire A, and the nut D, all constructed as described, for the purpose specified. *Second*, Having the spoke E stepped into the slotted bed or socket F, in combination with the wedge G, all substantially as set forth and described.

(71,705) THILL-COUPLING. — James P. Collins, Troy, N. Y. :

I claim, *First*, The connecting of the thills of a vehicle to the axle thereof by means of any suitable flexible material, substantially as and for the purpose specified. *Second*, The socket A, provided with the two internal parts or compartments *a b*, in connection with the key or wedge F and the looped end of the flexible material Cx, provided with the metal plate E, and secured to the under side of the thill C, all arranged substantially as and for the purpose set forth.

(71,741) SHAFT-ATTACHMENT TO CARRIAGES. — Jackson Gorham, Bairdstown, Ga., assignor to himself and John Armstrong, of same place :

I claim the attachment to carriage-shafts, consisting of rods

having hooks, and hung to the whiffle-tree and sliding-hooks, substantially as and for the purpose described.

(71,774) WAGON-WHEEL. — Jared Maris, Athens, Ohio :

I claim, *First*, The groove in the hub into which the spokes are fitted. *Second*, The manner of fitting the spokes together in a solid ring by tongue and groove.

(71,785) LOG-WAGON. — I. S. Pigott, Central Station, West Va. :

I claim the log-wagon, constructed as described, having the frame B upon the axle A, and provided with the dogs grasping the timber, all operating as described, whereby the depression of the tongue D raises the timber and places it upon the axle A, and within the frame B, as herein described for the purpose specified.

(71,797) WOODEN WAGON-SPRING. — Anson Searls, San Francisco, Cal. :

I claim an endless wood spring and perch in combination, substantially as set forth and described.

(71,801) WAGON-HUB. — Samuel W. Slocumb, Albany, Ill. :

I claim, *First*, In combination with the hub A, formed with an internal annular projection A', two spindles C C', and the axle B, when the latter is attached to the spindle in front of their centres, substantially as and for the purpose set forth. *Second*, The spindles C and C', when attached to the axle as set forth, and formed with a bearing D, or friction-roller E, substantially as set forth. *Third*, The spindles C and C', when their sides are constructed with curves of different radius, and they are arranged to operate substantially as and for the purpose set forth.

(71,802) WAGON-BRAKE. — George P. Smith and John Desso, Lake City, Minn. :

We claim the bar G, pivoted to the underside of the front axle, and provided with a slot for the bolt J, and a series of holes through which the bars or rods H and F connect with it, for operating the brake-blocks through their bar D, as and for the purpose set forth.

(71,805) CARRIAGE. — Ephraim Soper, New York, N. Y. :

I claim, *First*, The front perch K, secured or swivelled to the top bed and back bar, or either, and pivoted with its rear end or ends to ears *g g*, which project from the underside of the carriage-body, substantially as herein shown and described. *Second*, The combination of the front perch K, when the same is made and operating substantially as herein shown and described, with the ears *g*, back-bar J, top-bed F, and C-springs M, all made and operating substantially as set forth. *Third*, The king-bolt I, when formed on and suspended from the under side of the upper transom-plate, substantially as herein shown and described. *Fourth*, The oil hole *c* in the upper transom-plate, when arranged as described, to convey oil to the king-bolt, which is suspended from and formed on the upper transom-plate, substantially as herein shown and described.

10. (71,992) WAGON-LOCK. — James A. Counts, Indianapolis, Iowa :

I claim the catch *g*, the bands *h h*, the spring *f*, the bar *e*, lever *k*, for the purposes set forth and described.

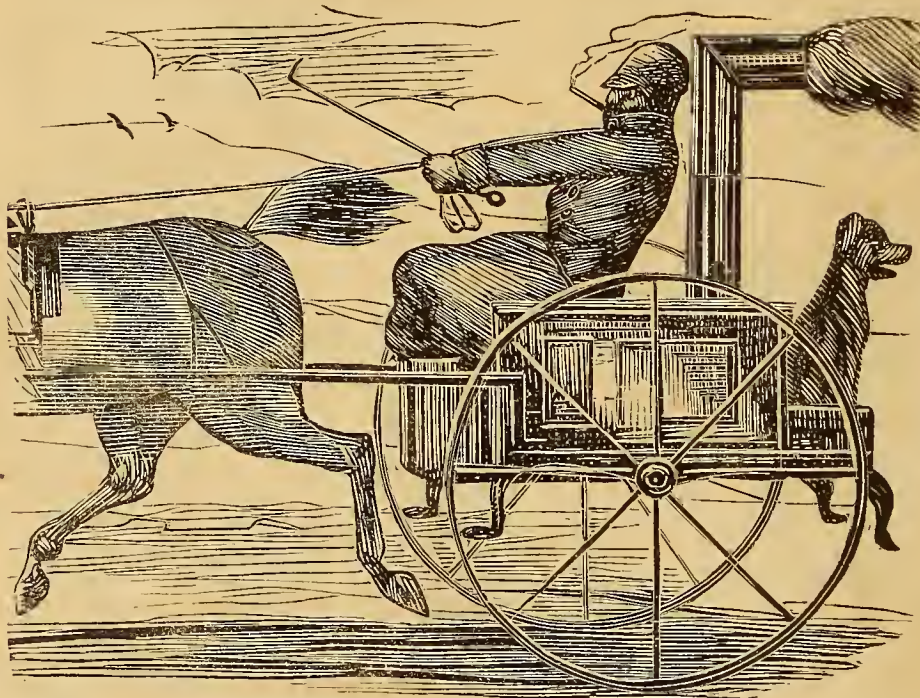
(72,035) ELLIPTIC CARRIAGE-SPRING. — Horace R. Hawkins, Akron, Ohio :

I claim an elliptical carriage-spring, composed of a single piece F, or two separate pieces E, E, of steel, united by means of blocks and bolts, substantially as herein shown and specified.

(72,051) FIFTH-WHEEL FOR CARRIAGES. — Joshua Lawrence, Palmyra, N. Y. :

I claim the combination of the housings *a, a*, enclosing the rollers *b, b*, with the bows G, H, the whole constructed and arranged as described, and operating in the manner and for the purposes set forth.





NEW COAL-BOX DOG-CART. [Patent not applied for.]

## CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, Jan. 20, 1868.

Apron hooks and rings, per gross, \$1.75 a \$2.00.  
 Axle-clips, according to length, per dozen, 75c. a \$1.25.  
 Axles, common (long stock), per lb, 8 1-2c.  
 Axles, plain taper, 1 in. and under, \$6.50; 1 1/8, \$7.50; 1 1/4, \$8.50; 1 3/8, \$9.50; 1 1/2, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1 1/8, \$8.25; 1 1/4, \$8.75; 1 3/8, \$10.75; 1 1/2, \$13.00.  
 Do. Half pat., 1 in. \$10; 1 1/8, \$11; 1 1/4, \$13; 1 3/8, \$15.50; 1 1/2, \$18.50.  
 Do. do. Homogeneous steel, 5/8 in., \$12.00; 3/4, \$12; 7/8, \$12.50; long drafts, \$4 extra.  
 ☞ These are prices for first-class axles. Inferior class sold from \$1 to \$3 less.  
 Bands, plated rim, 3 in., \$2; 3 in., \$2.25, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3 1/2 in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.50 to \$2.00.  
 Do. rims, extra hickory, \$3.25 a \$4.00.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$7.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 20 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. 1/2 in., \$1.25; 3/4, \$1.50; 7/8, \$1.70; 1, \$2.10; 1 1/8, \$2.80.  
 Buckram, per yard, 25 a 30c. Burlap, per yard, 20 a 25c.  
 Buttons, japanned, per paper, 20c.; per large gross, \$2.25.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$2 a \$3; velvet, \$3 a \$4.50; oil-cloth, 50c. a 80c.  
 Castings, malleable iron, per lb, 18c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$3.50 a \$5; lining, \$2.50 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$2.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.  
 Enameled cloth, muslin, 5-4, 50c.; 6-4, 90c.  
 Do. Drills, 48 in., 55c.; 5-4, 50c.  
 Do. Ducks, 50 in., 75c.; 3-4, 70c.; 6-4, 80c.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb., all sizes, 22c.  
 Fifth-wheels, wrought, \$1.75 a \$2.50.

Fringes, festoon, per piece, \$2; narrow, yard, 18c.

☞ For a buggy top two pieces are required, sometimes three.

Do. silk bullion, per yard, 50c. a \$1.

Fringes, worsted bullion, 4 in. 28c. a 35c.

Do. worsted carpet, per yard, 8c. a 15c.

Frogs, 50c. a \$1 per pair. Glue, per lb, 25c. a 50c.

Hair, picked, per lb, 50c.

Hubs, light, mortised, \$1.20; unmortised, \$1.50.

coach, mortised \$2. Japan, per gal. \$1.50.

Knobs, English, \$1.40 a \$1.50 per gross.

Laces, broad, silk, per yard, 90c. a \$1.50; row, 10c. to 16c.

Do. broad, worsted, per yard, 50c. a 75c.

Lamps, coach, \$18 a \$30 per pair.

Lazy-backs, \$9 per doz.

Leather, collar, dash, 28c.; split do., 16c. a 20c.

No. 1, top, 28c.; No. 2, enameled top, 20c.

enameled Trimming, 27c.; harness, per 1

50c.; flap, per foot, 25c.

Moquet, 1 1/2 yards wide, per yard, \$8.50.

Moss, per bale, 10c. a 18c.

Mouldings, plated, per foot, 1/4 in., 14c.; 3/8, 16c. a

20c.; 1/2, lead, door, per piece, 40c.

Nails, lining, silver, per paper, 7c.; ivory, per

gross, 50c. Name-plates.

Oils, boiled, per gal., \$1.70.

Paints. White lead, ext. \$14.50, pure \$15.50

per 100 lbs.; Eng. pat. bl'k, 40c.

Pole-crabs, silver, \$5 a \$12; tips, \$1.25 a \$1.50.

Pole-eyes, (S) No. 1, \$2.25; No. 2, \$2.40; No. 3, \$2.65; No. 4,

\$4.50 per pr.

Sand paper, per ream, under Nos. 2 1/2 and under, \$5.50.

Screws, gimlet, manufacturer's 20 per cent. off printed lists.

Do. ivory headed, per dozen, 50c. per gross, \$5.50.

Scrims (for canvassing), 16c. a 25c.

Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.

Shaft-jacks (M. S. & S.'s), No. 1, \$2.40; 2, \$2.60; 3, \$3.00.

Shaft-jacks, common, \$1.10 a \$1.35 per pair.

Do. tips, extra plated, per pair, 25c. a 50c.

Silk, curtain, per yard, \$2 a \$3.50.

Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.

Slides, ivory, white and black, per doz., \$12; bone, per doz., \$1.50

a \$2.25; No. 18, \$2.75 per doz.

Speaking tubes, each, \$10. Spindles, seat, per 100, \$1.50 a \$2.50.

Spring-bars, carved, per pair, \$1.75.

Springs, black, 17c.; bright, 18c.; English (tempered), 22c.;

Swedes (tempered), 26c.; 1 1/4 in., 1c. per lb. extra.

If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, 7/8, 1 and 1 1/8 in. 9 1/2c. each; 1 1/2

and 1 1/4 in. 9c. each; 1 1/2 in. 10c. each.

☞ For extra hickory the charges are 10c. a 12 1/2c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16,

and 1 x 1-4, 20 cts; 7-8 x 1-8 and 7-8 x 3-16, 23 cts; 3-4 x 1-8,

25 cts; 3-4 x 1-16, 28 cts.

Do. Littlejohn's compound tire, 3-16, 10 1/2c.; 1-4, 10 1/2; 3-4 x,

5-32 a 11 c; heavier sizes, 9 1/2c. currency.

☞ Under no circumstances will bundles be broken to furnish a single set—

bundles weigh from 110 to 120 lbs. each.

Stump-joints, per dozen, \$1.40 a \$2. Tacks, 7c. and upwards.

Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12;

acorn trigger, per dozen, \$2.25.

Terry, per yard, worsted, \$3.50; silk, \$8.

Top-props, Thos. Pat, wrought, per set 80c.; capped complete, \$1.50.

Do. common, per set, 40c. Do. close-plated nuts and rivets, \$1.

Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.

Do. stitching, No. 10, \$1.00; 8, \$1.20; 12, \$1.35, gold.

Do. Marshall's Machine, 432, \$2; 532, \$2.25; 632, \$2.60, gold.

Tufts, common flat, worsted, per gross, 20c.

Do. heavy black corded, worsted, per gross, \$1.

Do. do. do. silk, per gross, \$2. Do. ball, \$1.

Turpentine, pr gl., 70c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.

Varnishes (Amer.), crown coach-body, \$5.00; nonpareil, \$5.50.

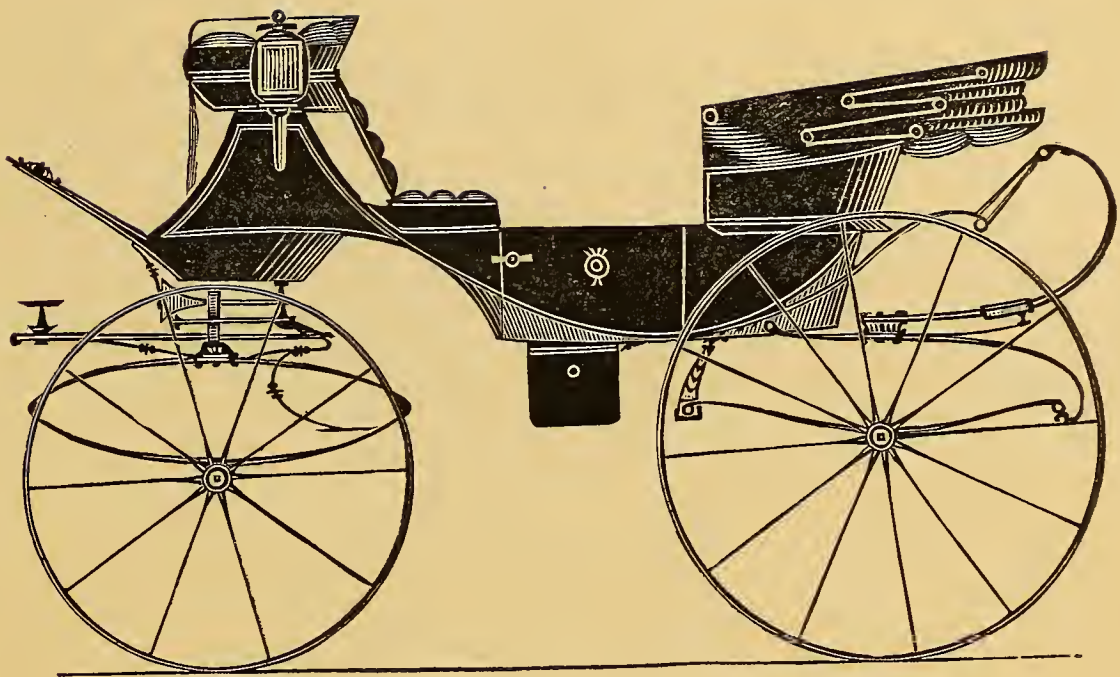
Do. English, \$6.25 in gold, or equivalent in currency.

Whip-sockets, flexible rubber, \$4.50 a \$6 per dozen; hard rubber,

\$9 to \$10 per doz.; leather imitation English, \$5 per doz.

common American, \$3.50 a \$4 per doz.





THE BISMARCK.— $\frac{1}{2}$  IN. SCALE.  
*Designed expressly for the New York Coach-maker's Magazine.*  
*Explained on page 150.*

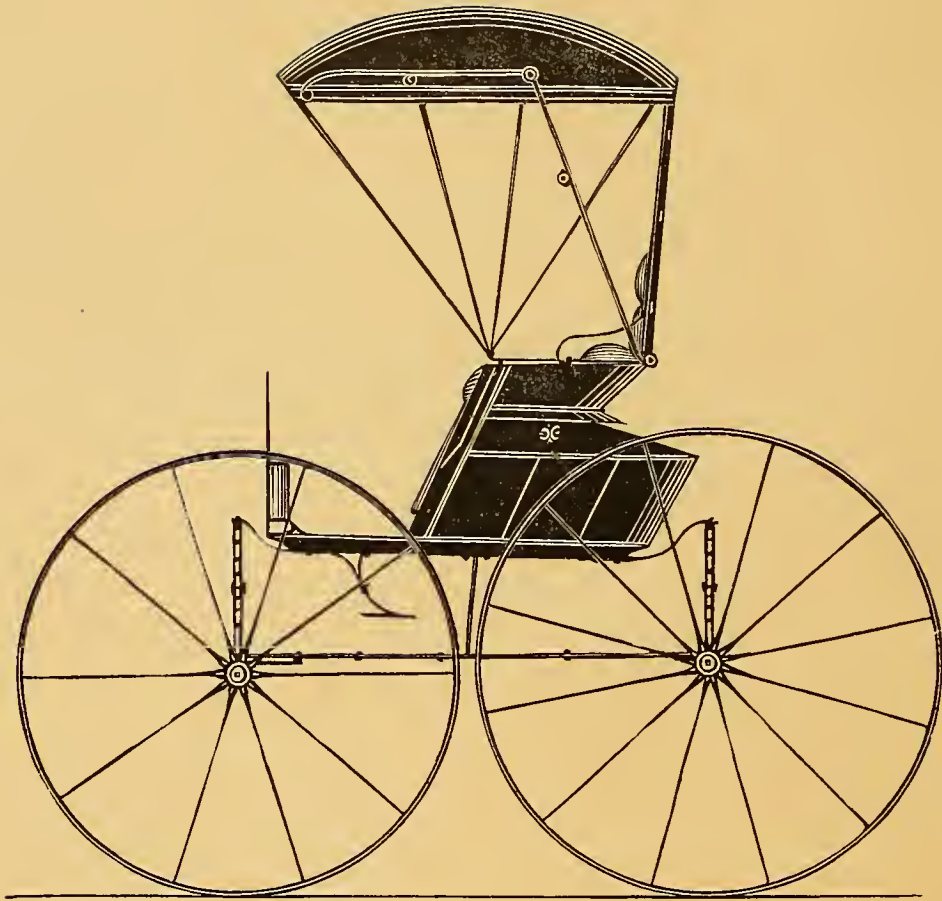








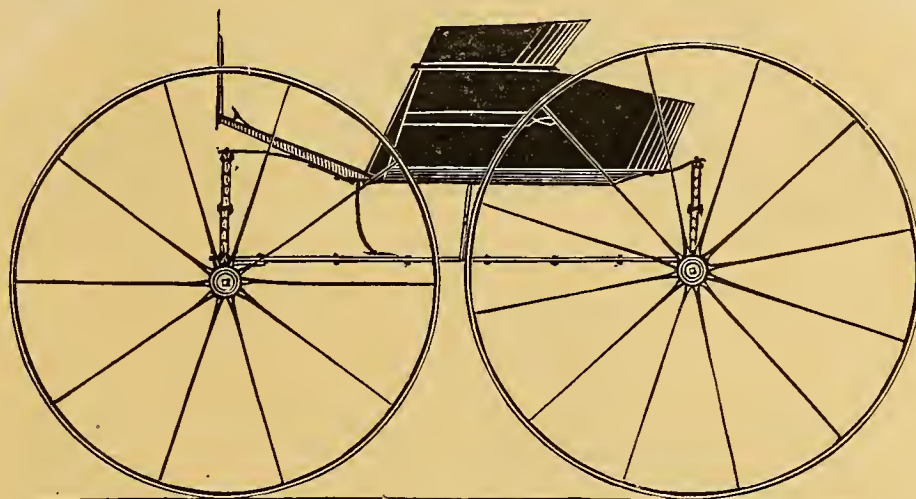




THE YACHT COAL-BOX.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

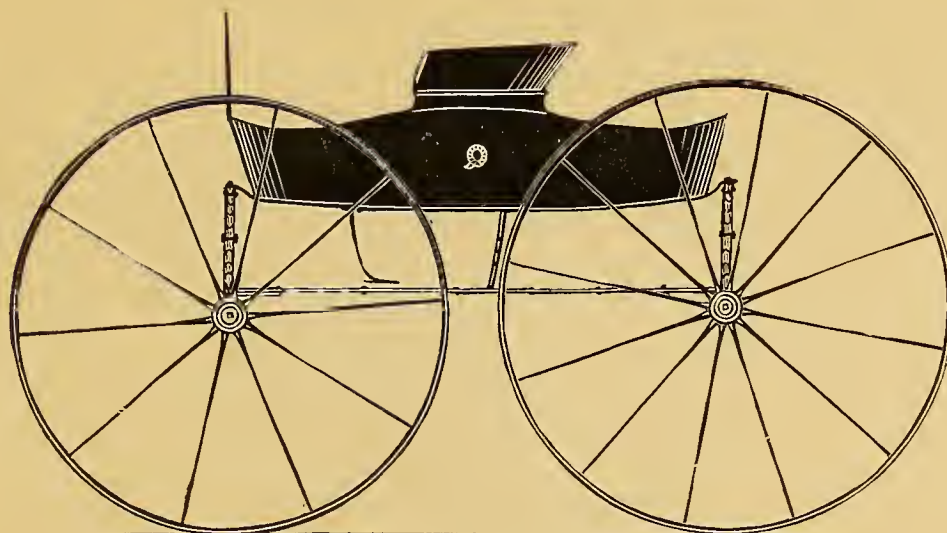
*Explained on page 150.*



THE NONPARIEL BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 150.*



THE STIVERS' BUGGY.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 150.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, MARCH, 1868.

No. 10.

## The Coach-maker's Portrait Gallery.

### BIOGRAPHY OF GEORGE L. BROWNELL, ESQ., (WITH PORTRAIT.)

THERE are many enterprising men throughout the length and breadth of this great Republic we take pride in calling our friends, and who have shown that they were such on many occasions since the establishment of this Magazine as the exponent of the Coach-making business, and to whom we feel under many obligations. Among these we number—

GEORGE L. BROWNELL, Esq., of New Bedford, one of the most thriving cities of the noble old Bay State. The subject of our sketch was born in Westport, a town adjacent to New Bedford, the 15th of July, 1823. His father, Daniel Brownell, was a farmer, who, like most other parents in that calling, early initiated his son into industrious habits, by setting him to cultivating the soil during the summer, and sending him to the district school during the winter, until he was seventeen years of age, when he was apprenticed to Mr. Ayres R. Marsh, in New Bedford, "to learn the arts and mysteries of the carriage-making business." This arrangement continued for the space of three years, when George imagined he had obtained sufficient knowledge of the woodwork in particular and of the other branches generally, to set up business "on his own hook." With this end in view, he purchased "all right and title" to the stock and tools of his "boss," determined to "row his own boat" along the stream of life.

Such was his integrity and perseverance, that business so rapidly increased that in 1846 he was forced to make extensive additions to his premises to carry on with convenience increasing trade. In 1853 this had still further multiplied, so that he built a new shop on Third street, where he located for the next ten years. Here, however, business outgrew his new premises, so that in 1863, in order to provide for the emergency, he purchased a magnificent stone building, in the southern portion of the city, on Third street, formerly occupied as an oil manufactory, by Messrs. S. Leonard & Sons. This building, which covers more than an acre of ground, was formally opened

and occupied by Mr. Brownell, on the 12th of November, 1863, when from twelve to fifteen hundred persons assembled to do him honor. The *Boston Herald*, the next day, said:

"Mr. Brownell has been for many years a resident of New Bedford, and has long been identified with the manufacturing interests of that city. His avocation has been chiefly that of a carriage manufacturer, and his reputation is not by any means confined to the city wherein he dwells. His industry, energy, and business integrity, and his social characteristics, besides making for him legions of friends, have been rewarded with encouraging pecuniary success. This has also been the result of an increased business, and it became apparent that in order to prosecute the latter successfully, greater facilities and more spacious apartments than those he then occupied, would be requisite. Therefore Mr. Brownell purchased the large stone building formerly occupied by Messrs. Samuel Leonard & Sons, as an oil refinery, and has refitted and enlarged the same in a manner suited to the convenient conduct of his business of carriage-making, and the building is now ready for occupation.

"A large number of his fellow-citizens having witnessed with a growing satisfaction the prosperity which had attended the efforts of Mr. Brownell, in establishing in their midst a branch of industry not directly dependent upon the chief commercial interests of the city, dissembled the propriety of taking notice of the opening of his new manufactory in a manner which should show their appreciation of the energy and industry which had characterized the introduction and, they hope, permanent establishment of a branch of mechanic arts which furnishes profitable employment to many citizens.

"The manner first proposed of paying this tribute to Mr. Brownell, was to make all necessary preparations and to take him by surprise. But privacy could not be observed, and the matter becoming whispered about, the public generally took an interest in the affair, and a committee of arrangements, representing various professions and occupations, and including Horace Scott, Esq., as Chairman, Wm. G. Taber, President of the Common Council, Cyrus W. Chapman, Postmaster, C. B. H. Fessenden, Esq., of the Mercury, Lawrence Grinnell, Esq., Collector of the port of New Bedford, Maj. A. S. Cushman, formerly of the 47th regiment, Captains J. A. P. Allen and B. Ewer, Jr., besides many members of the Board of

Entered, according to Act of Congress, in the year 1868, by E. M. STRATTON, in the Clerk's Office of the District Court of the United States for the Southern District of New York.



Aldermen and Common Council, and other prominent citizens, to the number of fifty, was appointed to superintend all details.

"It was decided by them that the most appropriate testimonial which they could extend to the friend whom they desired to honor, would be a public dedication of his new structure, in which all his friends might join in an unostentatious and informal manner. Mr. Brownell's consent to the use of the building was obtained and the

details of last night's demonstrations were forthwith perfected.

"The building was originally a two and a half story structure, of stone masonry, and is located on the corner of Third and Cannon streets, in a business portion of the city. The main building is one hundred by fifty feet in area. To this has been made an addition, which extends from the main structure a distance of one hundred and thirty feet on Cannon street, is thirty feet in width and two



GEO. L. BROWNELL'S CARRIAGE-MANUFACTORY, NEW BEDFORD, MASS.

stories, besides the attic, in height. There is also a second wing about half the size of that first mentioned. The whole building covers an area of eleven thousand, one hundred and sixty feet, and in architecture it is of a not displeasing and eminently substantial nature.

"The interior is finished in a neat manner and is divided into a dozen or more rooms, to which the various departments and subdivisions of carriage manufacture will be properly assigned. The building is lighted in the day time through numerous windows, and by night by innumerable gas jets. Convenience was evidently consulted in all the appointments, and the numerous alterations of the interior will have effected that object. \* \* \* \* \*

"The friends of Mr. Brownell are not confined to the city of New Bedford. They are residents of all the neighboring country and are numerous in Boston. From both places, and particularly the latter, there were large representations,—gentlemen bringing their wives, daughters and immediate lady friends, and participating joyously in the evening's festivities. The assembly was re-

markably brilliant and extraordinarily large, seven hundred couple being, we think, no exaggerated statement of the number present. In respectability it could not well be excelled, as it was composed largely of the first families of New Bedford. In beauty it has rarely been surpassed, and in this respect the city of New Bedford has well sustained her ancient and wide reputation. Her ladies of course comprised the majority of those in attendance, and it is no indulgence in flattery to state that, for personal beauty, affability and courtesy, they were distinguished and praiseworthy."

Mr. Brownell's removal to his present quarters has given impetus to business, and greatly enhanced the value of property in that part of the city. Mr. B. in an eminent degree is an intelligent and skilful mechanic, which, added to his social qualifications, cause him to be held in high esteem, in the community where he resides. If industry, perseverance and strict integrity in business, leads to success, we may safely predict this for the subject of our brief sketch. S.



## Mechanical Literature.

### OUR EGYPTIAN CARRIAGE MUSEUM.—X.

From plates cxviii to cxxi inclusive, we have several illustrated events in the history of Meneptha II, the son and successor of Ramses III,—whose history we noticed in our last article—where the chariot figures in several processions, one of which is to the temple of Amun to offer sacrifice and prayer for victory over his foes.\* The next series—from cxxii to cxxxi—we find some interesting details in the life of Meneptha III who flourished about 1496 years before the advent of Christ, in the eighteenth dynasty of Theban kings. We have selected for illustration a portion of the bas-relief, showing the king with a portion of his army on the march, also to the temple of Amun, as found on a bas-relief at Medeenet Haboo, Thebes. On plate cxxii, the king is seen with a single lotus flower in hand, offering it to Amun.

The drawing we here give is numbered cxxiv, and shows the chariots after a model quite different from any previously given in this series. Some of these assume the shape of two sides of a square, others having a circular form, with the upper back corners rounded off, the circular rave being strengthened with straps extending up and down from the bottom-side. The king's horses are carefully and tastefully furnished with blankets and other trappings as before noted. The reins are seen running through a sort of turret in the most graceful manner, held in the king's own hands. In the procession a dog is seen, trotting along at an easy pace, which would seem to indicate that this picture represented a hunting party on the march, did we not find such a supposition upset by the appearance of shields on the shoulders of the front squad of soldiers. Wilkinson says:

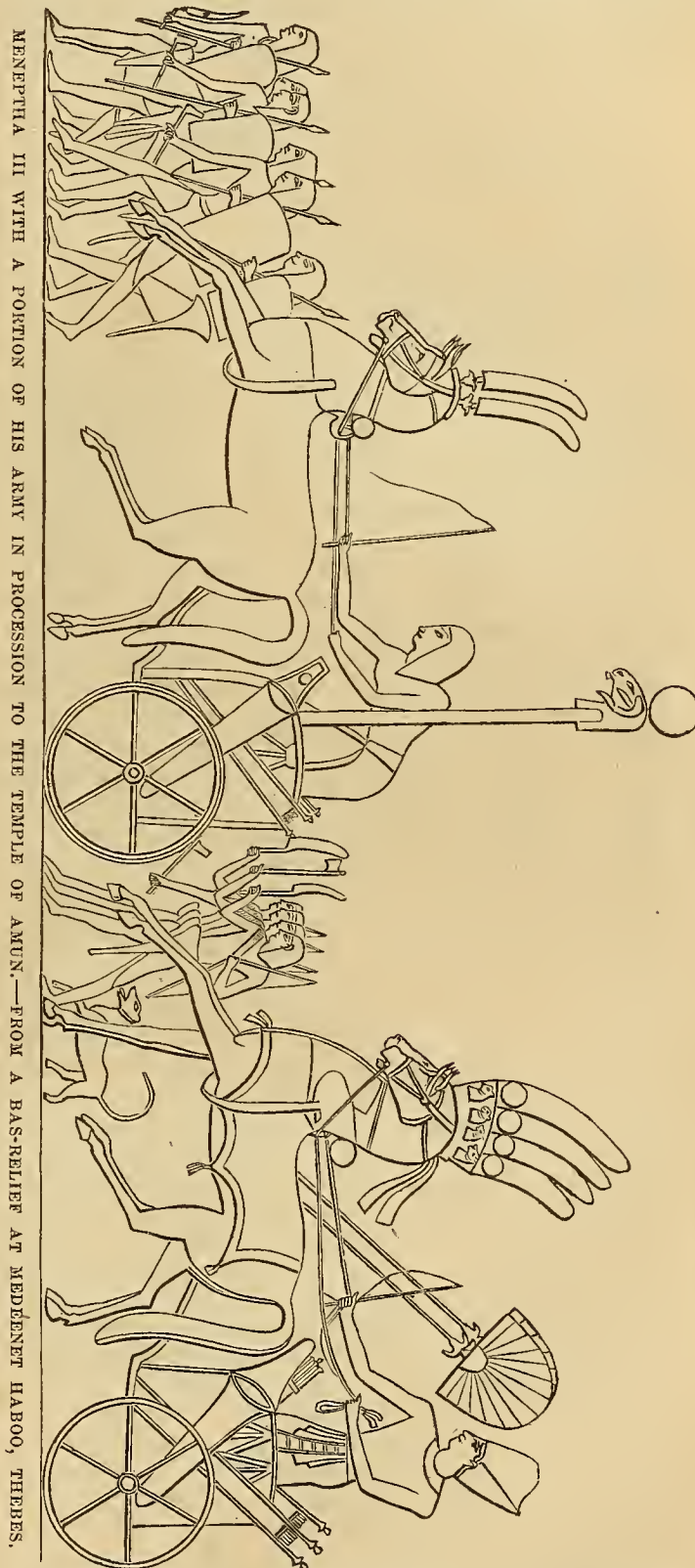
"The Egyptians frequently coursed with dogs in the open plains, the chasseur following in his chariot, and the huntsman on foot. Sometimes he only drove to cover in his car, and having alighted, shared in the toil of searching for the game, his attendants keeping the dogs in slips, ready to start them as soon as it appeared. The more usual custom, when the dogs threw off in a level plain of great extent, was for him to remain in his chariot, and, urging his horses to their full speed, endeavor to turn or intercept them as they doubled, discharging a well directed arrow whenever they came within its range.

"The dogs were taken to the ground by persons expressly employed for that purpose, and for all the duties connected with the kennel; and were either started one by one, or in pairs, in the narrow valleys or open plains, and when coursing on foot, the chasseur and his attendant huntsmen, acquainted with the direction and sinuosities of the torrent beds, shortened the road, as they followed across the intervening hills, and sought a favorable opportunity for using the bow; or enjoyed the course of the level space before them.

"Having pursued on foot and arrived at the spot where the dogs had caught their prey, the huntsman, if alone, took up the game, tied its legs together, and hanging it over his shoulders, once more led by the hand the coupled dogs, precisely in the same manner as the Arabs do at the

\* For a detailed account of the sacrificial ceremony, see page 100, of this volume.

present day. But this was generally the office of persons who carried the cages and baskets on the usual wooden yoke, and who took charge of the game, as soon as it was caught; the supply of these substitutes for our game-cart being in proportion to the proposed range of the chase,



and the number of head they expected to kill. Sometimes an ibex, onyx, or wild ox, being closely pressed by the hounds, faced round and kept them at bay, with its formidable horns, and the spear of the huntsman, as he came up, was required to decide the success of the chase. It



frequently happened, when the chasseur had many attendants, and the district to be hunted was extensive, that they divided into parties, each taking one or more dogs, and starting them on whatever animal broke cover; sometimes they went without hounds, merely having a small dog for searching the bushes, or laid in wait for the larger and more formidable animals, and attacked them with the lance."\*

## THE BLACKSMITH'S DAUGHTER.

BY H. S. WILLIAMS.

### CHAPTER VI.

ING. Thou Parthenia, wilt?

PAR. Ay, I will follow thee wherever thou goest;  
Thy way shall be my way, thy fate be mine.

—Ingomar.

How often have we all been led to remark the seeming injustice that rules the destiny of the different actors in this little drama that we call life. We have known men—hard-working, honest, sensible men—who have toiled and labored faithfully for year after year, and when they come to strike the balance-sheet, would find that they were just about as well off as when they first began life, so far as their world's goods are concerned. Again we have seen worthless vagabonds, who apparently never done much of anything, yet, what little they did do, always prospered; like the philosopher's stone, it seemed as though they had that marvelous gift of turning everything to gold that they touched. In this latter class you might class Markall. We do not say he was dishonest, but he was close and penurious—almost mean in his actions—and he had a shrewd way of making a bargain, so that nearly all his speculations realized him a handsome profit. The year of which we write had been particularly good for the carriage business, and, after laying in a good large stock of material, he found several thousand dollars still lying idle, so he invested that in a plantation and slaves, a few miles from town. Concluding that it was a more gentlemanly business to raise cotton than to build carriages, he advertised his factory for sale, on the easiest terms imaginable. Christmas, however, arrived, and as yet he found no buyers. Christmas is the great holiday of the South, or rather was at the time of which I write; or perhaps it would be more correct to say it was the beginning of the great southern holiday, extending until the morning of the second of January. Of course all the hands—journs, apprentices and helpers—quit on the evening of the 24th, were paid off, and now, on the morning of the 25th, Mr. Markall was seated in his office settling up accounts, making out bills for collection, and retrospectively his year's work. While thus engaged, Mr. Seymour, the blacksmith, entered.

"If you are not too busy," he said, "I should like to speak with you for a few minutes."

"Certainly, go ahead. I am all attention," he answered, throwing down his pen.

The smith removed his hat, took a seat by the side of the boss, and thus commenced:

"What I have to say will detain us but a few minutes. You have advertised to sell your carriage factory, and, if I am informed correctly, as yet no one has made you an

offer. Now I will make you this proposition: I, together with Mr. Cummings, will pay you ten per cent. on cost for all material on hand that we may use, and pay you a fair rentage for your property, or buy it of you, if you will make the price reasonable and the terms easy; and to prove our sincerity we will pay you one thousand dollars cash as soon as the papers are signed. You know us both, and know our prospects of success."

"I want to sell, not rent," answered Mr. Markall, after musing a moment; "and as I am very anxious to get clear of this property, so as to devote my whole time to my plantation, I will give you a good bargain. Let me think of it until evening, and, by the way, do not fail to bring your daughter Nellie, and take dinner with me today. All the hands are invited, you know, as well as some of my neighbors."

"We will be there," returned the smith, "and this evening we will learn your terms."

"Yes, say soon after dinner, we will retire to my library and settle the business."

"Very well; good morning," and the smith made his exit.

That dinner—shall we attempt to describe it! We tremble and fear a failure if we do. Despite the penurious habits of Markhall in business matters, he had a certain degree of pride about him that would admit of no such a spirit to manifest itself about his dinner table. Since early morning, the cook—a real "Virginy cook," of sixteen stone weight—with two sable assistants, had been busy preparing that feast, and when the bell rang, and the numerous guests, vacating the parlor, sat down at the festive board, the sight that met the eye would have made the daintiest epicure in the land smack his lips in greedy anticipation. First, there was six different kinds of soup, commencing with "oyster" and ending with "calves head." Then there was a twenty-four pound wild turkey stuffed with oysters and roasted so deliciously, and there was roast beef-heart, and roast pork, and half a dozen chickens nicely fricasseed, and a huge possum baked to a dark brown and "fenced in" with huge golden *yams*, the whitest biscuit and the yellowest egg bread, and so on down to *corn dodgers*; and then vegetables of all kinds, beginning with *greens* and *cabbage*, and ending with "black-eyed peas." And when justice had been done all these things, and they had been removed, together with the plates, by a dozen attentive waiters, then came in the dessert. Now dessert is my hobby. No dinner is complete without it, and it forms the most sociable part of the meal. First came a huge plum-pudding that would have done honor to the palmiest days of "merrie old England," together with a "peach cobbler" and apple-dumplings, and custards and pies, the pastry of which would melt in one's mouth; and then they had charlotte russe and sillabub, and ice-cream (do not take a chill, ye northern reader, for there was no snow without, and it took ice from Maine or Boston to freeze it), and then the wines. Port, madeira, sherry, and, best of all, native catawba and scuppermony, besides a basket of champagne, and justice full and complete were done to all—particularly the last—after the ladies had retired to the parlor to gossip and drum on the piano. It was a gay dinner party. There were no *upper tens* to check the spirit of hilarity; all felt free and comfortable in each other's society. The ladies were complimented to their heart's content, and the single gentlemen of the party were smiled upon until that delicate part of

\* Wilkinson's *Ancient Egyptians*, vol. i, p. 219.



our anatomy called the heart beat a few pulsations more to the minute than was common.

When the dessert was ended and the wine brought in, our friend Mr. Seymour lingered for a moment on his seat, but looking up Nellie was by his side looking at him with her great soul-lit eyes: and, excusing himself from remaining longer, he arose, and taking his daughter's hand, passed with her into the parlor. And when he sat down she put her arms around his neck and kissed him so tenderly, so lovingly, for he had gained his first great victory over temptation.

It was four o'clock ere the table was deserted, and, after lighting their cigars, Mr. Markall invited Seymour and Walter into his library, as he called the room where he kept his papers and spare cash. After half an hour's discussion they came to terms, which seemed satisfactory to all concerned, and after agreeing to have the papers prepared and signed on the morrow, with full possession on the 1st of January, they returned to the parlor. Soon after, the old folks departed for their respective homes, and then began a series of flirtations among the young ones that showed they were no novices in the art, for your Christmas-dinner parties here do not end with the last-named portion of the company until about "the witching hour of night," of which Hamlet speaks so passionately. So, as the sun was setting, they wandered through the gardens, for our host's grounds were extensive, and not until the chilling night air rendered it disagreeable without, did they seek the cheerful warmth of the sitting-room, where a bright fire blazed on the hearth. A cup of coffee, with cakes of different kinds, were now handed round; and, after partaking, the festive sports commenced. The services of a couple of ebony specimens of humanity were called into requisition, one "wid de ole banjo" and the other with his "fiddle," and to their music the company—now augmented by several fresh arrivals of those who could not be present at the dinner—went through the "giddy mazes of the dance" in a manner that made old bones feel young again. Walter was an excellent dancer, and securing Nellie for a partner, he went through with the first dance—a quadrille—after which, the polkas, mazourkas, reels, &c., kept them all in a feverish state of excitement until it was declared to be breaking-up time. Of course Walter accompanied Nellie home. It was not far, but somehow they managed to be a long time on the journey. Nor was it a tedious one to either party, for they were busy talking all the way, and when they parted at her door it was a lingering one, such as we have seen before now in our northern experience late of a Sunday evening.

New Year's came, and on that day the new sign—

SEYMOUR & CUMMINGS,  
*Greendale Carriage Factory.*

—in the place of the A. MARKALL, showed that the place had changed hands. But that was not the only change. Under the new *regime* they done better work and more of it. And so liberal were they in their dealings, that when spring came they not only had all Mr. Markall's former customers, but many more beside, and so at the end of three months they had sold nearly all their new work, and had the shop full of repairing, with the prospect of doing the best business in the carriage line that had ever been done in Greendale.

It was just one year from the memorable night when Walter appeared before the *élite* of Greendale as Claude Melnotte, and he was standing by the side of Nellie turning the leaves as she sang and played on the piano. They were alone and she had just finished a little ballad of exquisite pathos and beauty. "How do you like that," she asked, in her innocent way, and not as your fashionable belle would, for a compliment.

"So well," said Walter, leaning down by her, and in a voice of surprising sweetness and earnestness, "So well that I should love to hear it very often. Will you sing it to me every night?"

"How can I?" she asked, "I do not see you every night." "But you can," he answered, "every night and every day too. Your father and myself are partners, make us nearer to each other. Let him be my father also. I love you deeply, devotedly; my whole object shall be to make you happy. Upon this heart that is full of youth, and energy, and hope, you can rest your weary head through life. Will you come?"

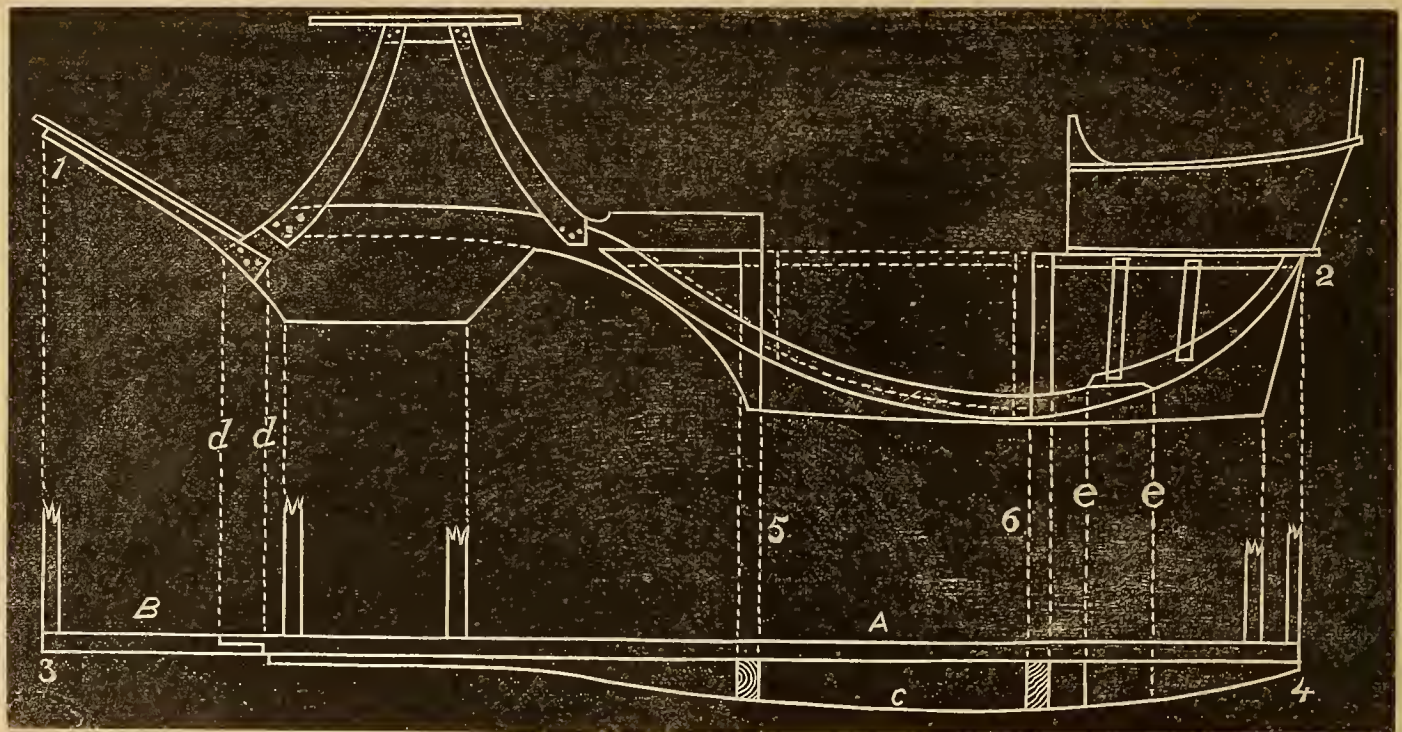
She spoke not, but her eyes answered for her, and bending still lower, she felt his warm lips pressed to her forehead, the first since childhood, save her father's; and they were happy.

On the first day of May they were married. It was a quiet, happy wedding. There was no more popular couple in the village than they, for Walter's gentlemanly deportment had made him hosts of friends among all classes, while none could come under the influence of Nellie's winning ways without loving her. And on the day in question it was a treat to see the bridal presents that flowed in upon the fair young bride; even Miss Bell sent her a valuable diamond pin, while good, warm-hearted, generous Mrs. McRoy sent her a check on the Mobile bank for \$2,500, with a note that not only brought tears to her eyes, but caused her to accept the gift.

And so they married on that lovely May-day, and they glided down the stream of life as happy and contented as poor, frail humanity can be in this dreary world.

ASIATIC CARTS.—Sir Robert Ker Porter in his travels gives us a picture of Asiatic carts and some changes in its shape as he travelled westward of Sabanjah. "I have remarked its unwieldy construction, where used in the vale country of the frontiers of Persia; from thence it gradually assumes a more manageable form; but first it takes a lighter fabric only, wearing still the clumsy shape and solid wheels seen in the plains of Salmos. When we reached Tosia, that part of the vehicle was rendered less cumbersome by hollowing the wheel, and attaching to it a rude kind of spoke. Travelling further we found two more wheels added; and by the time we reached Boli, we saw the strong, yet light, regularly built wagon. In our way thence we overtook trains of the most powerful of these machines; they belonged to government, and were transporting large timber trees, many so weighty as to require a draught of sixteen buffaloes. From our late menzil, we saw the lighter sort of wagons proceed, laden with apples, onions, and other vegetables for the Ottomen. "Two miles around [from Koombat] we found the village of Tamboora, and a little to our right that of Mucha. During our travel we met several of the wedge-shaped carts before described at Jigath and Salmos.





THE BISMARCK ON PLATE XXXVII, WITH CANT.—THREE-QUARTER INCH SCALE.

## GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

### BODY CONSTRUCTION.—PART TWENTY-FOURTH.

THE diagram accompanying this article furnishes the workman with the necessary information for building, scientifically, the body found on plate xxxvii, of this volume. In putting it on the "Blackboard," in the first place, draw the dotted lines 1 and 2, showing the extreme length of the body, and also of the cant below, from 3 to 4. As this body contracts three-quarters of an inch in front, on each side, the line A is raised a little in front above a horizontal line, according to scale.

The lines 5 and 6 determine the width of the door, which next draw. B is the toe-board, the intersection of which is indicated by dotted lines at the proper points *d d*. The lap of the back-pillar with the bottom-side is indicated by the letters *e e*. The bars with ruff ends show so many bars used in various portions of the body. The most important of all is the cant line C, on which hinges the "swell" and consequent beauty of the contemplated body.

We have purposely said very little in explanation of this diagram, confident that figures and lettering in profusion only tend to distract and confuse the young beginner. The drawing itself is after all the best instructor, which if properly studied will enable any practical body-maker to proceed with accuracy.

## Pen Illustrations of the Drafts.

### THE BISMARCK.

*Illustrated on Plate XXXVII.*

THE contributor of this design calls it "the Bismarck," and, for want of some better name, we have confirmed it. It will be observed that the carriage is double-suspension,

that is, there is a C as well as the platform-spring employed at the back, which, assisted by the elliptic in front, makes the vehicle very easy riding. The sinking beneath the body proper and boot lightens the appearance of this job very much. The "book-step" should be made to fold automatically. This job may be trimmed with imported French goat-skin—an article coming into use among the best builders in New York—to advantage.

### THE YACHT COAL-BOX.

*Illustrated on Plate XXXVIII.*

SUCH are the freaks of fashion, at the present day, that almost anything, novel in combination, finds admirers. Here we have the coal-box, the yacht buggy, and the tilbury united, making altogether a very pretty buggy. The wheels, with a 7-8in. spoke, are 3ft. 10in. and 4ft. 1in. high.

### THE NONPARIEL BUGGY.

*Illustrated on Plate XXXIX.*

ALTHOUGH we have given our readers a great variety of buggies in this Magazine, still invention has not been exhausted. There are some "points" in this design from "our own artist," which recommends it to the public, for a road buggy,—among these, not the least in importance is the novel mode of constructing the sham pillar. Wheels 3ft. 10in. and 4ft. high.

### THE STIVERS' BUGGY.

*Illustrated on Plate XXXIX.*

OUR friend, Mr. R. L. Stivers, of Thirty-first Street, New York, whose portrait and biography was presented in our last volume, is making a very light road-buggy, of

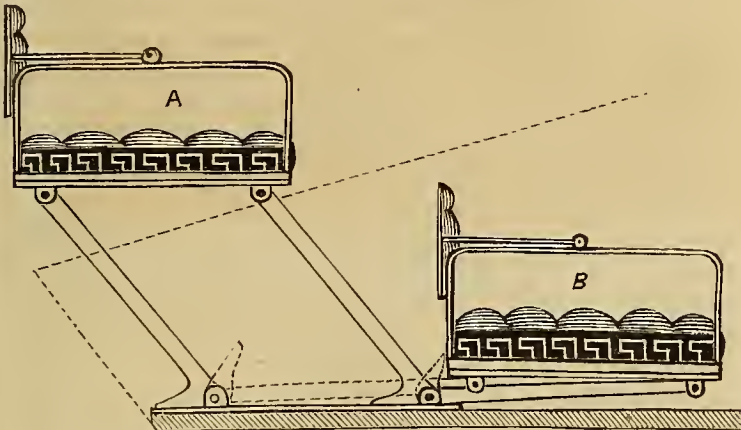


the pattern here engraved. It not only is a novelty, but when properly finished makes a very neat vehicle, and very likely will prove itself "a taking institution" the coming season. In connection with this subject we would state that Mr. S. is the inventor of the Stivers & Smith shifting rail, advertised in this Magazine. Its merits are fully set forth in his advertisement.

## Sparks from the Anvil.

### SELF-SUSTAINING JUMP-SEAT.

In the accompanying diagram, we show a self-sustaining jump-seat, which will be found very useful in con-



structing dog-carts, or other light vehicles. A shows the seat in a standing position ready for service; B the same seat in a recumbent position. We know of no patent on this invention, and believe there is none; at least we do not publish it in the interest of any patentee.

### CARRIAGE BOLTS.

WE recollect the time when no carriage bolts could be found ready made, but then every carriage-maker had to manufacture them for his own use. That was forty years ago. Now they can be had in abundance from the shelves of all hardware stores, some of them good, others bad, and many very "indifferent." The best, however, are not any too good, and when a carriage-maker wants a *safe* article for some point of extra strain, he finds it best to forge his own bolts, however expensive.

Some time ago the *American Artisan* had an article on this subject, a portion of which we subjoin: "By whom or when the carriage-bolt was first employed, or by whom it was fabricated, history or tradition tells us not; but when we look at its form and fashion and consider the ingenuity and efficacy of the screw and nut, we must admit that the mind which first suggested it was of no mediocre stamp and of no common order. But as old as the bolt must be, and its birth must have been far away in the youth of civilization, the manufacture of them as an article of general merchandise is of a comparatively recent date, scarcely a quarter of a century old. The men of scarce middle-age can recall to mind the time when first the beveled or frustum-shaped and turned head were introduced. Before that time each blacksmith forged and made his own bolts as he needed them with the hammer and anvil, and

formed the heads clumsily with the heading-tool, then punching the nut on his anvil and rudely shaping it, he cut the thread inside it in as rude a manner, and fitted it to receive the bolt which, by means of a jam-plate, now nearly obsolete, he had laboriously formed with a thread.

"In an obscure New England town, a little more than a score of years ago, a poor but ingenious mechanic turned his attention to the manufacture of carriage-bolts, with the idea of supplying the market with a better article than could be made by the rude blacksmith. His first operation was to cut up bars of square iron into suitable lengths to form the intended bolts, then heating one end of these pieces, he rounded them with die and swage which were inserted in the mortise of his anvil. The next operation was to head these pieces, and disdaining the old method of the heading-tool, he employed for that purpose an improved drop-die, which he secured by a patent. The surplus metal which formed around the head of the bolt by the drop he trimmed off with a die in a hand-press. Then with a winch, which carried the necessary fixtures upon one end of a shaft to which it gave motion, the bolt being held in this fixture, the threads were cut between dies, which were hinged at one end and had a weight attached to the other to hold them together with sufficient power to enable the die to cut the thread. It was several years before power was applied to perform this operation, and when that was done a boy could accomplish more and with greater ease than half-a-dozen men could previously with the old fixtures. It was about this time that the turned head was introduced, and, if we are not mistaken, it was to circumvent the patented process of the drop. The bolt-heads were headed with an appropriate tool, and the edges or sides beveled, about fifteen blows of the hammer generally performing the operation, and then they were inserted in the end of a revolving mandrel, held there by a screw, and a tool similar to a quadrangular deck-scraper employed to fashion this head like the one as formed with the drop, water flowing in a succession of drops upon the head during the process to prevent the friction destroying the turning-tool. These bolts were then packed in paper envelopes and sent to market.

"This same process of turning the heads is still employed, but the rounding of the portion where the thread is cut is generally performed under a die and with a vertical hammer, the force of which is given by a crank and fly-wheel. The cutting of the threads in the nuts and in the bolts is accomplished by boys, and the process is similar in all using appliances so arranged as to be operated by power."

## Paint Room.

### THEORY OF COLORS.

AN INTRODUCTION TO OIL PAINTING AS A PROTECTIVE AND DECORATIVE ART.

(Continued from page 135.)

#### ARTIFICIAL OR MATERIAL COLORS.

OIL colour, commonly reputed, though on very debatable ground, to have been invented by Van Eyk, a Flemish artist, about 1410-20, comprises properly, every application of paint by any liquid vehicle not miscible



with or soluble in water. There are many such, besides fat oils, of which we shall speak further on.

Colours in whatever vehicle, are most commonly applied to the surface or *ground* to be painted, with some form or other of brush. Though for some coarse protective purposes merely, the engineer has devised more rough and ready methods of application in certain cases. As these papers are not intended, however, to teach the manipulation of the painter, we shall not refer further here to the methods of applying pigment.

The same physical qualities that cause a pigment generally to *work well* in the operation of applying with the brush are those which determine the goodness of its *body*.

These are, the molecular form of the particles of the pigment, however prepared, and the perfection of its subsequent levigation. Almost all pigments, not found in nature, are produced either by fusion, torrefaction, sublimation, or by precipitation. In any case, but more especially in the last, it is essential to good *body* that the pigments should be precipitated in what is called, and appears to the naked eye, the amorphous state. It is probable that *all* precipitates are in form crystalline, but when the crystals are extremely minute, to the eye their form is indiscernible, and it is said to be an amorphous precipitate. Such is the case when sulphuretted hydrogen is passed through a solution of arsenious acid in water to form orpiment.

In this state of minute division, crystals although of compounds which in larger size produce translucent crystals, are *opaque*, and this opacity due to minute subdivision must be produced either by the conditions of production of the pigment, or subsequently by fine and careful levigation.

Cinnabar, the sulphide of mercury, as it exists in nature as an ore of quicksilver or as obtained artificially, is in crystals, which, when perfect and large, are translucent, and in this state its color is not nearly as bright as a good red brick; in fact, it is a dirty red purple brown, but by fine grinding it assumes its well-known magnificent scarlet color, in vermilion.

In former times the Dutch had almost a monopoly of vermilion, and theirs was deemed the best in Europe. Since that Chinese vermilion has had a high but more problematical reputation. Inquiries instituted in the last century by Frenchmen of science, to ascertain upon what the superiority of the Dutch vermilion rested, resulted in the conclusion, that it was merely the perfection with which it was levigated or ground.

Natural opacity in the chemical compound, or acquired opacity by subdivision, are the conditions of good *body*. The effect of subdivision in producing opacity may be illustrated by remarking that if a pure transparent piece of plate-glass be ground into fine powder, even of that fineness producible in a common mortar, the powder is an opaque white, and even green glass thus treated becomes nearly a white powder.

Durability in pigments depends mainly upon two conditions:—1st, that the pigment itself shall be of such a nature as not to originate molecular or chemical changes within the range of its own constituents, after it has once been formed.

2nd. That its nature shall be such as, to the least possible extent, to be acted upon by the chief agents—molecular or chemical—that are constantly at work everywhere to produce decomposition, &c.

Besides the power which the chemical rays of light have, as already explained in the first part, to originate or exalt chemical action, and, therefore, change, the main natural agents of chemical change to which pigments are exposed, are the combined action of air and water or moisture. These tend to produce oxidation even when both are pure, but in most places, and especially in our crowded and coal-burning cities, foreign matters are always present in the air, and in much of the moisture it contains or precipitates as rain, which possess energetic chemical actions destructive to many pigments.

Thus, in our cities, nitric acid, sulphuric acid, and carbonic acid, are present in the air, as well as various other products of the combustion of coal, or of gas-making; and soot, grit, &c., as mechanical agents, are constantly falling or being blown about.

Besides these, one of the most destructive of all agents to some of our most important pigments is sulphuretted hydrogen, ever present in the air where putrid matter, drainage, &c., is near.

Natural waters may contain this gas dissolved along with carbonic acid, and with a large number of saline compounds, containing bases combined with chlorine and with phosphoric acid.

These and other like agencies, to go into which fully cannot be attempted here, and the understanding of which must presuppose a large acquaintance with chemistry and physics on the part of the reader, are those most inimical to the durability of any given pigment.

Under these conditions, colors derived from inorganic sources are always the most durable, such as the iron ochres, &c., and the most fleeting are those obtained from vegetable or animal compounds, such as the red lakes. Amongst the former class of colors those derived from the metals which have highly positive bases (those of the mercuric series) of lead, mercury, copper, &c., are much more readily acted upon *generally*, than are those of less positive bases—iron, zinc, antimony, tin, &c.

Peroxides are always more durable than oxides lower in the scale of saturation with oxygen. Hydrates, or hydrated carbonates, as orange ochres, are more liable to change than anhydrous ones.

Some colors, iodide of mercury for example, will not bear to touch other metals, as iron, zinc, &c., without decomposition. Some react upon the canvas, or the wood, or paper, or even on ivory, or parchment, upon which they may be laid, as verdigris, used in coloring maps, &c.

The special chemical relations of each pigment, however, must be studied distinctly, and for the production of a sound decision as to the durability of any given color an exact and full chemical knowledge is indispensable.

The nature of the vehicles affects the durability of the color. All pigments are more durable in oil than in water color. The old chemical maxim *corpora non agunt nisi soluta* comes into play; the color ground in oil and coated with varnish is to a certain extent sealed up from the effects of external chemical agency by air and water. But, here again, the case tends to destroy the instrument left within it; not only the canvas, the board, the paper, but also and much more, the fat and volatile oils of the oil color, tend slowly to oxidate and decay by



*eremacausis*\*, but in their decay thus, they occasionally transfer oxidation and decay to the colors themselves.

It would only be possible fully to deal with this by describing the respective pigments seriatim.

(To be continued.)

### PAINTS AND DRYING OILS.

THE celebrated chemist Mulder has recently published a very valuable work on paint. The starting point of his investigations was an inquiry as to the best material to protect iron from rust. The result has been his rejection of all oil-paints as unlikely to answer the purpose, and his conclusion that coal-tar contains the best materials for a protecting coat. The author very completely investigated the nature of paint, and the chemical changes involved in the drying of oils. As regards linseed oil, we are told that the essential constituents is "linolein," a compound of glycerine and linoleic acid. The latter body the author could not obtain quite pure, but he decides that its formula is  $\text{HO}, \text{C}_{32} \text{H}_{27} \text{O}_3$ . When exposed to air, linoleic acid rapidly oxydizes, first to "linoxic acid," a sticky body resembling turpentine. On longer exposure, "linoxyn" is produced. This is a tough, leathery substance, sharing, we may say, many of the properties of caoutchouc. It is soluble in the same menstrua, and it can be vulcanized like india-rubber.

It is manufactured in considerable quantities in this country, and is the binding material used to consolidate emery wheels. It forms also the surface of linoleum cloth. According to Mulder, there are two linoxyns, the white and red; the white modifications become red on exposure to  $80^\circ$  centigrade, and the red again turns white on exposure to sunlight. The browning of white paint in dark places the author ascribes to the gradual change of white linoxyn into red. Oxydation does not end in the production of linoxyn. It still proceeds to the complete decay of the material, as is seen in very old paint.

One useful result of Mulder's labor is a simple process for preparing a good colorless drying-oil. For this purpose it is only necessary to boil linseed oil for two hours with 3 per cent. of red lead, filter it, and then expose it to sunlight in large, shallow vessels, frequently renewing the air above. Another result is a denial of the existence of albuminous and gummy matter in linseed oil, to which are ascribed the slowness of drying of unboiled oils. For these matters Mulder searched in vain, and at last came to the conclusion that they had no existence. Oxyds and acetates of lead, he tells us, act as driers, not by precipitating albuminous matters, but by forming a little linoleate of lead, which rapidly oxydizes and communicates its activity to the oil. We shall return to this subject with fuller information on the chemistry of paint when we have Mulder's book before us.—*Mechanics' Magazine*.

IMPERMEABLE VARNISH FOR LEATHER.—For the purpose of coating leather, and conferring upon it waterproof qualities, the patentee (C. Stevens, London, England) employs a varnish composed of india-rubber dissolved in

\* *Ερημος* and *καίω*, to slowly burn when left to time, which is the nature of all decay, a very slow oxidation, of which actual combustion is a very quick one. "Time is as a lambent flame."—*Bacon*.

bisulphide of carbon, and he professes to use this in conjunction with another varnish, made with gutta-percha instead of india-rubber, and applied as a second coating. In the preparation of these varnishes, one part of either of the natural gums is dissolved in a closed vessel, in four parts of bisulphide of carbon.

### Trimming Room.

#### LEATHER SPLITTING.

IN the commerce of leather in France, we apply the word crust to that part of the leather which is nearest the flesh, and which is separated from the other portion of the skin bearing the hair. The strength for resistance in a tightly stretched skin is entirely in the portion nearest the flesh, the fibre, as we approach the upper or grain side, gradually becoming looser, and the force to resist stretching, gradually diminishing in such a manner that it is always here that the breaks or cracks in leather begin to manifest themselves, with the slightest increase of the usual strain.

If, then, the grain of such leather be removed, the force of resistance and the expansion of the balance will be much more even, and the whole will be better balanced, as it were; the grain will no longer be present to mark by cracks and fissures where the excess of strain began to operate.

Before the genius of inventors was directed to the invention and perfection of leather-splitting machines, leathers were used in their entire thickness, and if only a moderate thickness was required, they obtained it by shaving off as much as they found necessary from the flesh side of the hide; now, for the purpose of preserving its strength and making its capacity for extension even and regular, this was the very contrary of what should have been done.

Since the employment of machines for splitting, the manufacturer is able to employ the grain for the purposes to which it is best adapted, and to make the crust, or flesh side, serviceable to the best advantage, notwithstanding that the latter was in discredit for some time. We well recollect the repugnance with which the general public beheld anything made of the crust of shaved or split leather. People then thought that all parts would crumble into pieces in the hand when the grain was taken off. Since it has entered into consumption it has come to be a great necessity, and is largely used to manufacture saddlery and trim carriages, in trunk making, in forming the tops of sabots and galoshes, and when waxed and varnished, &c., in inferior grades of shoes, shoe tips, &c.

The hose and the leather piping we exhibit, are made of the split crust of the leather, as above mentioned; their quality is no less a recommendation than their reasonable price. Tubing and hose made of the entire leather with the grain on, become slacker and tighter by the influence of water, or the weather. With those made of split leather the case is different; the effect of shrinking and expanding is produced in the first wetting they get, and they never again change their form, but remain rigid, notwithstanding all the changes that may take place in the temperature. The grained leather then is easily altered by atmospheric and other influences; the



crust, on the contrary, remains firm and not liable to moisture.—*Picot & Co., in La Halle aux Cuirs.*

## Editor's Work-bench.

### NEW ENGLAND CARRIAGE MANUFACTURERS' CONVENTION.

ALTHOUGH much of the manufacturing industry of the country has petitioned Congress and found relief from excessive and burdensome taxation, up to the present time carriage-manufacturers have—without any exertion on their part—remained quiet, until they find themselves nearly ruined; or at least the business is as we long ago predicted. We trust, however, that this supineness is now ended, and that a better day is very near. Our New England friends—to the shame of other sections of the country be it said—have now taken hold of this matter with characteristic earnestness, and will no doubt succeed, if success is possible, in having some of the most odious features of an odious law either repealed altogether or greatly modified.

Pursuant to a call from the delegates of the New England Manufacturers' Convention, held in Worcester, Mass., on the 22d of January, the carriage manufacturers and dealers of New England met on the 31st of January at the Parker House in Boston. The meeting was called to order by D. H. Bailey, Esq., C. B. Kimball, of Portland, being afterwards appointed temporary Chairman, and F. F. French, of Boston, temporary Secretary. Mr. Kimball having taken the chair, Thomas Goddard and John P. Whittier, of Boston, George Adams of Amesbury, Mr. Armstrong of New Haven, and Enoch Martin of Portland, were appointed a Committee on Permanent Organization. A long list of Vice-Presidents and Secretaries having been elected, on motion of Edward Riddle, the following Committee on Memorial and Resolutions were appointed:

Edward Riddle, of Boston, Mass.; J. C. Kimball, of New Haven, Ct.; Francis Sargent, of Amesbury, Mass.; Geo. C. Elliott, of Providence, R. I.; Joseph Russell, of Portland, Me.; Albert Brown, of E. Kingston, N. H.; J. P. Whittier, of Boston, Mass.

The President then appointed, as Committee on Finance:

Wm. P. Sargent, of Boston, Mass.; J. M. Kimball, of Portland, Me.; B. Manville, of New Haven, Ct.; Alvah Whittier, of Haverhill, Mass.; A. Tolman, of Worcester, Mass.; Geo. G. Larkin, of West Amesbury, Mass.; J. R. Huntington, of Amesbury, Mass.

The Committee on Memorial and Resolutions having reported, the meeting afterwards adopted the following Memorial to Congress:—

TO THE HONORABLE THE U. S. SENATE AND HOUSE OF REPRESENTATIVES:

The New England Carriage Manufacturers respectfully ask your attention to the following expression of their views on a subject that not only deeply affects their welfare, as manufacturers, but the welfare of the many thousand skilled mechanics employed in the construction of carriages.

The manufacture of carriages in this country has become one of the most important branches of our great industrial interest, and we feel safe in saying, that no single branch of American manufactures has reached a higher point of perfection or given us more celebrity abroad as skilled manufacturers, or can be looked upon with more pride by all true Americans; and yet under the present burden of taxation a large portion of the material used in their construction, being subject to one or more taxes before its use in the carriages, and again taxed in the carriage completed, making the tax about 7½ per cent. on the gross receipt.

We are pained to see for the first time in many years foreign carriages for sale in the American market, although not equal to our own, either in style or finish. Yet Prussia, France, and England can manufacture and transport their carriages to this continent, and pay the large cost of transportation and custom duties, and still very much undersell us. We look upon this new advent of foreign carriages in our midst as a serious blow to our manufacturers and mechanics, and see no hope of successfully competing with it, and sustaining our business, but by the entire removal of the internal revenue taxation.

During the years 1865 and 1866 it is possible we received sufficient prices for our carriages to permit us to pay the revenue from our profits; but we do most positively assert, that the amount of revenue paid the past year has in almost every case been paid from the capital invested,—a condition that cannot long exist without entirely destroying our business, and a fact that has already reduced the number of men employed in this branch of industry at least 40 per cent., and unless the tax is speedily removed must still farther reduce the numbers employed to an alarming extent; and even then we can only compete with the foreign-made carriages, and meet the demands of buyers for lower rates, by a deduction from the amount paid the men we employ sufficient to pay the tax, that will amount to not less than 15 per cent. on their entire earnings; thus unavoidably placing this onerous burden of taxation on the already overburdened shoulders of the skilled mechanics and laboring men.

Under these circumstances, and with a single view to the general prosperity of manufacturers, and the welfare of the large and respectable class of skilled mechanics, we do most earnestly beseech your honorable bodies to carefully consider this most important subject, and, if in your wisdom it is not inconsistent with the necessities of our Government, we pray you will speedily remove this blighting burden of taxation from all the mechanical industry of our common country.

*Resolved,* That we, the Carriage Manufacturers and Dealers of New England assembled, heartily sympathize with the object and approve of the doings of the Manufacturers' Convention, recently holden in Cleveland and Worcester, and pledge ourselves to co-operate with the Committees appointed by such Conventions, in their efforts to relieve the manufacturing industry of the



country from the present burdens of Internal Revenue taxation.

*Resolved*, That as manufacturers, we recognize our great duty as American citizens, to do our full share in sustaining the integrity of our national credit, and will shrink from no burden that the actual necessities of our Government may impose; and that during the war we cheerfully met any demand of the Government, and paid our taxes without regard to the reduced profits of our business,—and continued to do so, as long as our country was in peril, or such sacrifices were believed to be necessary for the safety and integrity of the Republic!

*Resolved*, That, as during the war we confidently relied upon our brave soldiers to save the nation, and bring peace to our distracted country, we now look to our honored Senators and Representatives in Congress to save the great manufacturing industry of the country, and bring peace and happiness to the hearts and homes of the many thousands of mechanics now burthened with excessive taxation.

*Resolved*, That, in our opinion, there is no question now before Congress of more vital importance to the material well-being of the nation, than the present depressed condition of the manufacturing and mechanical industry of the country, consequent upon the great burden of taxation now imposed; and that it is clearly the duty of Congress to come to our relief and speedily abrogate this excessive tax.

The Convention then unanimously selected the following gentlemen as delegates to present the views of the Convention to Congress:

C. P. Kimball, of Portland, Me.; W. H. Bradley, of New Haven, Conn.; Wm. P. Sargent, of Boston, Mass.; J. S. Abbott, of Concord, N. H.; J. P. Whittier, of Boston, Mass.; J. M. Kimball, of Portland, Me.; G. G. Larkin, of W. Amesbury, Mass.; M. G. Clement, of W. Amesbury, Mass.; Henry Halc, of New Haven, Conn.; Geo. L. Brownell, of New Bedford, Mass.; E. S. Felch, of Salisbury, Mass.; A. Tolman, of Worcester, Mass.; Chas. Wood, of Bridgeport, Conn.; Geo. C. Elliott, of Providence, R. I.

As an evidence of the earnestness and enterprise of our New England friends, in this business, we will state, that some of the delegates to Washington arrived in this city on the 1st of February—the very next day after the Convention broke up—returning again on the following Thursday. We understand that the delegates had a talk with the Chairman of the Committee on Ways and Means, who, after declaring carriages to be luxuries and therefore fit objects of taxation, inquired of the delegates if it would satisfy them to exempt all unvarnished work and carriages exceeding five hundred dollars in value, and promised to see what could be done. With this encouragement the matter was left in the hands of Mr. Blaine, one of the members of Congress from Vermont. Unless the craft from other sections of the country move in this matter, not much relief will, we are convinced, reach them.

#### INTERNATIONAL UNIONISM IN MAINE.

For more than two years, the advocates of International Unionism have been “hammering away” to the tunes of “less work and more pay,” “when we can say to our employers, *we* have rights, and you must respect them,” and “we will not take just what the bosses choose to give us,” and other equally delightful anticipations—providing they could find realization—while business was plenty and labor at a premium. This kind of bravado had so long been indulged in, that many individuals had really become persuaded in their own minds that labor had already trampled capital under foot, and could dictate its own terms. With sixty Unions—on paper—some employers even began to tremble at the consequences, and fear that *they were done for*.

Such was the state of affairs when, one day in January last, the news flashed over the wires from Maine to Georgia that “about two hundred men employed in the carriage works in Portland, Maine, had struck [on Monday, the 27th], in consequence of a proposed reduction of twenty per cent. on their wages, to take place on Saturday. An attempt to arrange the difficulty had failed, as the employers said it was better to suspend operations than carry them on at a loss, but said they were willing to pay all they could afford.”

Just so! And how long, dear reader, do you think this “strike” on the part of a “subordinate” Union, in a town where nearly every journeyman is a member, lasted? O tell it not in Philadelphia, nor yet let it be known in Europe, that it was *finished* in three days, when the men were glad to go to work again on any terms, so says the head of one of the largest firms in Portland.

There is a lesson attached to this strike, which ought to profit those engaged therein. It is this. When labor undertakes to say to employers, in dull times, You must pay us the wages of good times, it is a useless task, and sure to fail. Were it otherwise, labor would soon drive capital out of the market into a secure retreat, where it would still continue to live until it had seen labor buried so deep that it would take years to resurrect it from its grave.

We do not wish in our remarks to have it understood that we exult at the result of this strike, or as writing in the interest of employers, but to impress upon the minds of the “thinking classes” the fact that labor is powerless in a crusade against capital, always has been, and ever will be, notwithstanding all that may be said to the contrary, under the stimulus of a good salary wrung from the masses of Trades Unionists at the rate of six dollars a head. Such men harangue the multitude simply because it is their interest to do so; but let dull times overshadow the land, and their salary be stopped, and where are they? Either selling Jew-varnish about the country, or else busy in



some other reputable occupation—anything but talking to Unionists. Why? Because “gas” in these times is at a discount.

#### DEATH OF CHARLES BEARDSLEY.

Another of the older carriage-makers of this city, Charles Beardsley, Esq., died on the 20th of January, aged 62. Mr. Beardsley was a native of Sharon, Connecticut, but in early life removed to the western section of the State of New York. He began his mechanical career with Mr. Lee, in North Norwich, Chenango Co., N. Y. On the expiration of his apprenticeship he started business on his own account at Auburn, Susquehanna Co., Pennsylvania, remaining there two years. After this he removed to Montrose, in the same State, where he carried on carriage-making from 1832 until 1839, when he came to this city, and began business at No. 105 Walker street. There he continued one year. He next leased the premises 32 Canal street, a locality in former days noted as the coach-making “Long-acre” of this Metropolis, to which he then removed.

Mr. Beardsley was what among coach-makers may be rated a successful mechanic, as he seems not only to have had sufficient means to begin with advantageously, but also early succeeded in establishing an enviable reputation for building good and substantial carriages. His work was always finished in the nicest manner—some think a little too nice—generally making the underside as smooth by filing as the most exposed surface. We remember the days when “the cab fever” raged in this city, and a great demand for them sprung up, that Mr. Beardsley’s cabs were the best then made, even surpassing those built by Mr. Ayres, of Mercer street, who was the first in this city that extensively turned his attention to their manufacture.

After some years’ occupancy of the premises in Canal street, property in that neighborhood having increased in value very much, our deceased friend sold out his lease to advantage, and went up-town and purchased several lots on the south-east corner of Thirty-seventh street and Broadway, where he built a fine shop, and continued to carry on the carriage-making business until he died. Our late friend removed to Broadway, somewhere about sixteen years ago. When he left Canal street, he went so far up-town that his fellow-craftsmen thought he had made a mistake; but time has shown the wisdom of his course, for he not only found sufficient business in his new quarters, but his real estate has more than doubled in value. Several carriage shops have since been erected in his vicinity, and these are to-day more plentifully sprinkled around, perhaps, than anywhere else in the city.

Mr. Beardsley’s illness—of short duration—was of such a nature as to defy the skill of the physicians, but a

*post mortem* examination led them to pronounce it Bright’s disease of the kidneys, the same it will be remembered that carried off Mr. John C. Parker in April last. The funeral of Mr. Beardsley took place on the 22d of January, from the Church of the Transfiguration, on East Twenty-ninth street, and was numerously attended by relatives and friends, from whence the body was taken to the family plot, in Greenwood.

#### STEAM-MAN FOR CARRIAGES.

INSTEAD of horse-power, Z. Deddrick, a New Jersey mechanic, has invented and applied a one-man locomotive, moved by steam, to a light wagon, which it is expected will make horse-flesh much cheaper hereafter. This “man-horse” stands seven feet nine inches high, and weighs about five hundred pounds. Although made of iron, like some of flesh, this “individual” is moved by steam generated within his own body. The legs, moved automatically, are thrown alternately forward with the trunk, something after the manner of its prototype, so as to move a mile each minute. Pretty *fast* man that!

When hitched to a light carriage, the shafts of which help to keep him erect, he is moved so as to go in any desirable direction at the will of the conductor. This is done by turning two pilot wheels placed within convenient reach. The fuel with which our man is fed is stowed under the back, and the water he *drinks* under the front seat, sufficient for a half-day’s exercise. That the animals our iron man intends to supplant may not be frightened out of their hides, he is clothed in woolen garments “like the rest of mankind.” The entire “institution” has cost about \$2,000, but the second generation, it is expected, will be sold for \$300 each, and run a whole year *as good as new!*

#### PATENTED INVENTIONS.

NEVER since the independence of this country was established, has there been so many inventions patented in a single year as during 1867. Indeed, we have found it extremely difficult to find room for even a brief record of them. Some of these have doubtless, when applied to carriages, been of little value, or trivial; but others again would be worth something, both to the owners and others, were they properly advertised. Persons will go to great expense to secure a patent, and when this is achieved, settle down in contentment without going any further, just because it will cost them a little more to place it before the public.

This is not the way to make inventions profitable. If you have a good thing, so much the better. (We have known even a poor patent, under some circumstances, a paying investment.) Then advertise judiciously in such journals as make a specialty of carriage-making. One



insertion there is better *for you* than twenty in one of general science. Here every copy tells—there very few individuals would see your advertisement, simply because carriage-makers do not read, and have no expectation of seeing anything in their line there. Again we say, advertise your patents, if you wish to make money, and do it extensively.

#### EDITORIAL CHIPS AND SHAVINGS.

**IRVING'S FIFTH-WHEEL CLIP.**—The reader's attention is directed to the advertisement under this head in the advertising columns of this Magazine. The inventor claims there is a saving of twelve shillings, at least, on every carriage ironed, dispensing entirely with the bottom stay and thimble, and making a firmer and better job.

**NOTORIOUS NOTORIETY.**—A waxwork exhibition is now open in Bradford, England, in which Broadhead, Linley, Hallam, and Crookes, the notorious Sheffield trades-unionists, whose vile deeds have excited so much indignation throughout the length and breadth of the land, figure as the most prominent subjects. Such is fame.

**SCREW UP THE NUTS.**—Those who would keep their wagons and carriages in good order should place a wrench on every nut at least once a month. This will save nuts, save bolts, and prevent rattling and wear and tear. There is a great deal depending upon looking after the running gear of vehicles, as well as the harness. For want of a little attention, accidents have happened and damage been sustained; therefore take a hint.

**CARRIAGE SLEEPING.**—A rich old lady, ninety years of age, has just died at Clifton, England, who for a long time believed that she never could sleep except in her carriage. She used, therefore, to ride out in her carriage every afternoon, with the blinds drawn, to take her daily rest. The carriage was seen daily traveling at a snail's pace over Clifton Downs.

**COACH-MAKERS IN THE BALLROOM.**—A card of the following import, has been extensively circulated throughout this city:—The — Annual Invitation Ball of the Coach-makers' Guard to be held at the New York Assembly Rooms, cor. Broadway and 28th street, on Monday 18th —. Signed by several floor managers and the secretary. Now, a looker-on in Gotham, like ourself, naturally inquires, how it is, that men who are dependent upon their daily earnings at the bench for a living can afford to spend it in attendance on three or four "shin-digs" during a season, and at the same time keep up a continual *whine* against employers because they do not see fit to comply with their importunate demands—pleading that their wages will not buy food for their families. Is "dancing all night, 'til broad daylight," a *portion* of some men's food? Or is it, simply, the mode a certain class of workmen resort to, to *elevate* and "dignify labor?" We pause for an answer.

**LEAFLETS FOR THE TRADE.**—We have recently printed to order, what is in printers' language called "leaflets,"—a strip of paper long enough to place thereon eleven designs of carriages, buggies, &c., besides a page devoted to a card-title, which when folded has very much the appearance of a small pamphlet. When printed in pink, or some other tasty color, this makes a beautiful and

comparatively cheap business advertising medium, handy to send a customer who is looking for a carriage. To those desirous of ordering, we shall be happy to send a specimen for inspection, to be again returned by mail, reserving to ourself a discretionary right in so doing.

#### LITERARY NOTICES.

*Oratory—Sacred and Secular*; or, The Extemporaneous Speaker. Including a Chairman's Guide. By Wm. Pit-tenger. Introduction by Hon. John A. Bingham. Rules and Methods of Practice, by which Readiness in the Expression of Thought may be acquired, and an acceptable style, both in composition and gesture obtained. One handsome 12mo. vol. of 220 pages, tinted paper, beveled boards. Price, \$1.50. Just published, and may be ordered by post of S. R. Wells, Publisher, 389 Broadway, New York. This is believed to be one of the most instructive and practical works yet published.

*The Atlantic Monthly, Our Young Folks, and Every Saturday*, are three serials, published in Boston, by Messrs. Ticknor & Fields. The two first are entirely original, the last a reprint from the foreign monthlies, the articles of which are selected with great care.

The leading article in the Atlantic for February asks, "Does it Pay to smoke?" Mr. Parton, the writer, (who by the way lives in the same block with us,) argues that it does not. He ought to know, for he was seen *experimenting* on his own stoop, pretty often during the past summer, and it gives us pleasure—we never smoke—to find, occasionally, a reform and a reformer combined, in the same person.

### Patent Journal.

#### AMERICAN INVENTIONS.

December 10. (72,055) MACHINE FOR FORMING AND TEMPERING ELLIPTIC SPRINGS.—George S. Long, Bridgeport, Conn.:

I claim, *First*, A steel-spring former, substantially as shown and described, and for the purposes set forth. *Second*, The vibrating rod B and shoe *f'* and any former F, in combination with the slotted wheel W and roller W, substantially as shown and described, and for the purpose set forth. *Third*, The hollow shaft *s'* and roller W', in combination with the binder or presser D, substantially as shown and described, and for the purposes set forth. *Fourth*, The sliding crank-pin *p*, in combination with the slotted wheel W and slotted vibrating rod B, substantially as shown and described, and for the purposes set forth.

(72,079) AXLE-BOX.—Henry B. Pitner, La Porte, Ind.:

I claim, *First*, An axle-box, substantially as shown and described, and for the purposes set forth. *Second*, The sleeve or thimble A, in combination with the end pieces B, substantially as shown and described, and for the purposes set forth. *Third*, The shoulder *a1* and the shoulder *a2*, in combination with the sleeve A and end pieces B, substantially as shown and described and for the purposes set forth.

(72,090) POLE-COUPLING FOR VEHICLES.—Anson Searls, New York, N. Y.:

I claim the circular joints B B, and the arrangements of the ratchet-teeth K K, springs D D, and bolts E E, in combination with the arm A, substantially as described and for the purposes set forth.



(72,091) CARRIAGE.—Anson Searls, San Francisco, Cal.:

I claim, *First*, The axle composed of the steel bars *d* and *g*, attached as herein described. *Second*, The clip *b*, passing around under the axle, with its ends fastened to the plate *a* on the rocker, both before and behind the axle, substantially as described.

17. (72,167) MECHANISM FOR CONNECTING A HORSE WITH A CARRIAGE.—Alvin Colburn, Lynn, and Elbridge G. Stanley, Fitchburg, assignors to Alvin Colburn and John Raddin, Lynn, Mass.:

We claim the arrangement of the connecting-bar case B with its bar C, and spring against the side instead of on the end of the shaft, the same rendering no reduction of the shaft necessary in the application of the invention thereto. Also, the combination and arrangement of the spring-bolt with the socket-piece and the bar C, its case and spring, arranged with the shaft as set forth. Also, the combination of the double eye-piece *F'*, having a tooth, as described, with the spring-bolt, its case and socket-piece, to be used with the slide-bar C, made and applied, or to be applied, to a shaft, substantially as described.

(72,233) WHEEL FOR WAGONS AND CARRIAGES.—Frederick G. Simmons, Lansingburg, N. Y.:

I claim, *First*, The employment of the socket-cylinders C and D, one cast on the hub A, the other disconnected therefrom and working freely thereon, and in combination with the said hub A, substantially as herein described and set forth. *Second*, Also, in a wagon-hub, the socket-cylinders C and D, the hub A, and the nut or cap B, constructed and arranged in the manner and for the purposes substantially as herein fully described and set forth.

(72,248) WHIFFLE-TREES.—George Watt, Richmond, Va.:

I claim, *First*, The whiffle-tree A A', formed of bent metal, with three straight sides, one of which is enlarged in the centre, to sustain endwise pressure, as described. *Second*, In bent-metal whiffle-trees, the replaceable rings or thimbles B, substantially as and for the purposes set forth.

(72,303) SLED.—George F. Krollpfeiffer, New York, N. Y.:

I claim the attachment to sleds, sleighs, and other land conveyances, consisting of a pivoted frame B, rod E, and handles F, substantially as and for the purpose described.

(72,307) SEAT FOR VEHICLES.—John R. D. V. Linton, New Bedford, Mass.:

I claim, as a new article of manufacture, a cast-metal seat-riser, made substantially as herein shown and described.

(72,337) TIRE-HEATER.—Harry Stroud, Jr., Clinton, Ill., assignor to himself and R. W. Robinson:

I claim the flues E E and damper D, in combination with the lid B and chamber A, the whole combined and operated substantially as and for the purpose set forth.

(72,370) WAGON-BRAKE.—Beverly R. Codwise, Montrose, Md.:

I claim the combination and arrangement of the lever K with the tongue of a wagon, a ratchet or catch-plate thereon, a sliding brake-bar and brakes, operating against the front wheels of the wagon, and an intermediate crank, having suitable connecting-rods, all substantially as and for the purpose herein set forth.

(72,424) WAGON-SEAT.—Jacob Sebastian, New York, N. Y.:

I claim the spring-arms B, links *a*, and spring-slides D, in combination with the seat A and uprights C, substantially as and for the purpose described. Also, the loops *b* and screws *c*, in combination with the uprights C, spring-slides D, arms B, and seat A, constructed and operating substantially as and for the purpose set forth.

(72,425) WAGON-SPRING.—Jacob Sebastian, New York, N. Y., assignor to himself and Lewis Saal, same place:

I claim, *First*, A clamp, A, composed of cross-bars *a b*, keys *c*, and wedges *d*, to act in combination with the clips D, substantially as and for the purpose described. *Second*, Providing the edges of the leaves of the spring with grooves or notches, to admit the edges of the keys *c*, substantially as and for the purpose described. *Third*, Providing the spring, at one or both ends, with an oblong eye, substantially as and for the purpose described.

(72,427) GAUGE FOR SETTING WAGON-AXLES.—David F. Stratton, Christiansburg, Ohio:

I claim a reversible gauge, for the purpose set forth, having on one side the adjustable standard B, fixed standard C, and adjustable swing D, and on the other the longitudinally-adjustable standard B', fixed standard G, and vertically-adjustable standard H, when constructed to operate substantially as described.

24. (72,476) TIRE-BENDING AND SHRINKING MACHINE.—Jacob Gettemy, Donegal, Pa.:

I claim, *First*, The device for operating the rollers E E, so that they may be moved in the desired direction, said device consisting of the crank-shaft C, in combination with the connecting-rods *e e*, sliding frames D D, and grooves or guides *f*, in frame A, all made and operating substantially as herein shown and described. *Second*, The device set forth in the foregoing claim, in combination with the indicator *i* on shaft C, the same being made as set forth. *Third*, The indicating device *i*, in combination with the roller B, arranged as set forth. *Fourth*, The roller B, when corrugated as set forth, in combination with the rollers E E, the latter travelling on inclined planes, substantially as and for the purpose herein shown and described.

(72,522) COMPOSITION FOR TEMPERING STEEL SPRINGS.—William A. Meyer, Indianapolis, Ind.:

I claim a compound of prussiate of potassa, muriate of ammonia, borax, rosin, and crude lubricating coal-oil, mixed in proportions as before stated, for the purpose of tempering steel springs.

(72,538) CARRIAGE-WHEEL.—John Raddin, Lynn, Mass.:

I claim, in the construction of carriage-wheels, making the felloe or rim thereof of wrought-metal tube, the outer surface of which is flattened and surfaced by a tire, substantially as and for the purposes set forth. Also, in combination with such tubular felloe, the elastic cushions, arranged to operate substantially as described.

(72,555) AXLE FOR WAGONS.—Alfred E. Smith, Bronxville, N. Y.:

I claim the D-shaped washer J, in combination with the screw-cap H and diaphragm F, made and operating substantially as hereinbefore set forth.

(72,602) CARRIAGE-SEAT.—Edwin Chamberlin, Lansingburg, N. Y.:

I claim securing an extra bottom, C, with all the top-irons attached thereto, to the seat-bottom B, by means of the double or single bars *e e'*, furnished with the keys *k k*, or their equivalents, and operated either from the upper or lower side of the seat, and working into the hook-catches *a a*, or their equivalents, which hook-catches are permanently attached to either the extra bottom C or the bottom B, and the whole in combination, substantially as and for the purpose set forth and described.

(72,666) FASTENING FOR CARRIAGE-CURTAINS.—Thos. A. Mitchell, Washington, D. C.:

I claim the elastic strap A, in combination with the metal tip B, when the latter is provided with a button-hole, substantially as described.

31. (72,719) METHOD OF MAKING HUB-BANDS.—Edwin B. Butler, New Britain, Conn.:

I claim the method herein described of making hub-bands;



that is to say, take a strip of metal of width equal to that required for the band, and of proper length, welding the two ends of said strip together, and afterwards swaging the same in dies, constructed substantially as set forth.

(72,737) FOUR-WHEELED VEHICLES.—Dean W. Hutchinson, Big Spring, Kansas :

I claim the attachment to four-wheeled vehicles of the cog-plates A A A A, the cog-wheels B B, the fifth-wheels G G, the arms E E E E, the king-bolts D D, the strap H, the lock-bolts K K, the braces L L L L, combined, constructed, and operated as above described.

(72,779) CARRIAGE-CLIP.—L. J. M. Baker, Enon, Ohio :

I claim the combination of the shaft-iron F, plate C, bolt E, and hooks B', substantially as and for the purpose set forth. Also, the combination of the plate C and spring D, substantially as and for the purpose set forth.

(72,821) AXLE-BOX.—Louis A. Dochcz, New York, N. Y. :

I claim, *First*, The arrangement in the axle-box A of the concave false bottom F, having central opening, vessel H, oil-chamber G, pads J, and wicks I, as herein described for the purpose specified. *Second*, The vessel H, fitted through a hole in the false bottom F into the oil-chamber G, and provided with holes near the upper edge, made and arranged as described, for the purpose of collecting the drippings from the axle, and of separating the dust and impurities from the oil. *Third*, The lubricating pads J, secured to concave blocks K, which are provided with stems or ribs *c* guided in inclined grooves, substantially as and for the purpose herein shown and described. *Fourth*, An auxiliary oil or grease reservoir, M, arranged above an axle in a journal-box, and provided with a fusible plug which will melt by the heat of the axle, when the same is no more supplied with lubricating substance, as set forth. *Fifth*, The oil-chamber G, vessel H, wicks I, pads J, and blocks K, when arranged, as described, in combination with the perforated block L, hollow-cover C of an axle-box, and with the plug *e*, which is soluble by the heat of the axle, when the same is no more supplied with oil, all made and operating substantially as herein shown and described. *Sixth*, The plate E E', when arranged as described, and when combined with the spring *a*, grooved axle-box A, and axle B, all made and operating substantially as herein shown and described.

(72,881) MOTOR FOR CARRIAGES.—Duncan Morrison, Portland, Maine, assignor to himself and William Hammond, same place :

I claim the arrangement of the levers A B, pulleys *a b*, cords *c c'*, trucks *e e'* and *f f'*, weights *g g'*, toothed belt *h*, drum *i i'*, and the releasing device, composed of the lever *n*, cord *o*, pulleys *p r*, and spring-catches *m*, all as and for the purposes set forth.

(72,888) COUPLING FOR WHIFFLE-TREES.—Milton J. Palmer, Syracuse, N. Y. :

I claim the sections A and B, with their respective flanges *b b'*, ears E E, arm F, segments *c c*, and projections *e e*, when constructed and used in the manner and for the purposes specified.

Jan. 7, 1868. (73,025) SLEIGH-RUNNER.—John G. Mieler, Plymouth, Mich. :

I claim, *First*, The construction of metal runners, of the shape set forth, provided with clips B, and provided with means of connection, substantially as described, and for the purposes set forth. *Second*, The attachment constructed from iron straps H and I, provided with the adjusting-bolt K and the slot J, operating substantially as and for the purpose described. *Third*, The combination of the above-described runners and attachments, when constructed substantially in the manner described.

(73,047) HOOK FOR WHIFFLE-TREES.—D. D. Robinson, Niles, Mich. :

I claim the hook C, pivoted in the groove at the outer end

of the socket A, connecting closely to the projection B, forming a perfect loop, and held in place by the spring *a*, when all are constructed and arranged as herein set forth.

(73,076) CONSTRUCTION OF LUMBER WAGONS.—Stephen D. Carpenter, Madison, Wis. :

I claim, *First*, The rocker-block and the coupling-block attached to the pole, for the purposes and substantially as herein described. *Second*, Also, the manner of fastening the stakes to the bolster, for the purposes and substantially as herein described. *Third*, Also, the manner of fastening the reach together and operating the same, the cast-iron socket C, the sleeves and wedges, the shank E, and the wrought-iron fillet for strengthening the same, for the purposes and substantially as herein set forth.

(73,132) WAGON PROTECTOR.—George R. K. Smith, Brooklyn, N. Y. :

I claim the construction, application, and arrangement of a protecting-guard, substantially as and for the purposes described.

(73,170) TIRE-SHRINKER.—Edward B. Decker, Bedford, Ill. :

I claim the combination of the operating lever or handle D, pivoting straps C and E, pivoted levers or bars A and B, having clamps with stationary jaws F G, and pivoted eccentric jaws H I attached to them, with each other, substantially as herein shown and described, and for the purpose set forth.

(73,175) TIRE-SHRINKING MACHINE.—James Elliott, Milford, Wis. :

I claim, *First*, The combination of the connecting-rod or chain G for opening the carriages, with the carriage E and cam-levers F, substantially as described. *Second*, The slot *b* in the bed-piece B, and the groove *a* in the platform A, making together a T-shaped groove, in combination with a T-shaped lug upon the carriages, all as substantially specified and described.

(73,198) ICE SLEIGH.—John Rancevau, Carthage, Ohio :

I claim, *First*, The wheel D, having its bearings in the hinged frame, in combination with the elastic strip I, whereby the wheel is held upon the ice and permitted to conform to its irregularities, as herein set forth, for the purpose specified. *Second*, The construction and arrangement of the pivoted brakes K L, connecting rods O, foot-levers M and N, and springs P, substantially as described, for the purpose specified. *Third*, The combination and arrangement of the spur-wheel D, hung in the hinged frame, gear-wheels E F G, elastic strip I, brace J, springs P, foot-levers M N, connecting-rods O, pivoted brakes K L, block U, and thumb-nut V, substantially as described, for the purpose specified.

(73,205) BOLT-CUTTER.—E. A. Sloat, Theresa, N. Y. :

I claim the stationary cutter A, the movable cutter C, the lever E, and the plates B, constructed and arranged substantially as herein shown and described for the purposes set forth.

14. (73,265) WAGON BRAKE.—James Harvey Smiley, Caroline, N. Y. :

I claim, *First*, The extension of the rear-axle braces M and N behind the rear-axle, and suspension on the extremities thereof of the brake-bar and brake, as described. *Second*, The construction of the metallic braces S, from beneath the rear-axle braces, in front of the hind axle, to the under side of the axle, and thence to the end of the braces M and N, where they support these braces, and give bearings for the brakes and bar, as set forth. *Third*, Constructing the joint between the tongue and reach by the loop on the end of the tongue-rod, and playing in the slot D *a* of the plate D, when arranged substantially as described. *Fourth*, Constructing the tongue-rod or bar by the long part under the tongue, held by the loop near the yoke-pin, and extending thence to the rear end of the tongue, where it makes the loop C *a*, and thence is continued, over the top of the tongue, to the evener of the whiffle-trees, and thus binding the lower part of the bar to the upper and the tongue, by the



evener-bolt in its slot in the tongue, for the purpose of actuating the brake by the yoke-pin, and releasing the brake by the whistle-trees, in the manner substantially as set forth. *Fifth*, The combination of the forward and broad end of the plate D with the slot D *a*, for the tongue and reach-joint, and the slot for the king-bolt, and connecting with the reach-rod in the rear of the plate, as described. *Sixth*, The combination of the bolt E, in the holes E E *a* E *b*, with the bolt and holes F, for the purpose of lengthening the reach, as described. *Seventh*, The combined whole, made substantially as described, for the purposes set forth.

(73,293) SHAFT-COUPLING.—James Brayley, Buffalo, N. Y. :

I claim providing the guard-ring A with concealed recesses, *g h*, on its interior surface, for receiving the ends of the loose pins *e e*, in combination with the holes *f* and openings *i i*, of the forked heads B, constructed and arranged substantially as and for the purposes set forth.

(73,317) THILL-COUPLING.—W. W. Goff, Avoca, N. Y. :

I claim the bolt A, sliding hook B, and India-rubber ring or spring, when combined, substantially as and for the purpose set forth.

(73,340) AXLE FOR WAGONS.—Daniel Jones, San Francisco, Cal. :

I claim the countersunk collar C, either in combination with the strap D, or where used alone, constructed and arranged substantially as and for the purpose described.

(73,342) EXPANDING WHEEL-HUB.—Arthur I. Judge, Baltimore, Md. :

I claim, *First*, An adjustable base, with an inclined face, against which the ends of the several spokes of the wheel bear, so arranged that the spokes may be simultaneously more or less extended through the hub, by changing the position of the inclined base, substantially as and for the purpose set forth. *Second*, Also, in combination with a chambered hub, the conical base B and adjusting screws A, substantially as and for the purpose set forth.

21. (73,438) CARRIAGE PERCH.—William H. Cooper and George Gregory, New Haven, Conn., assignors to Lawrence, Bradley and Pardee, same place :

We claim the attachment of the perch D to the body forward of the wheel-house, in the manner substantially as herein set forth.

(73,444) RUNNING-GEAR FOR VEHICLES.—Daniel D. Gitt, Arendtsville, Pa. :

I claim, *First*, Interposing a joint between the spring and the body or axle of a vehicle, either at the front or rear end thereof, said joint being so constructed as will allow one of the axles to vibrate vertically and independently of the body or bed of the vehicle, substantially as described. *Second*, Connecting the coupling-bar or reach of a vehicle at one end, by means of a swivel-joint, so as to prevent said reach from being twisted or strained by the motions of the axles, substantially as described. *Third*, The combination of a joint-pin, *f*, placed between one of the axles and the body of a vehicle, with a reach, which is connected at one end by a swivel-joint, substantially as described. *Fourth*, The application of anti-friction rollers, *c c*, to the sliders *b b'*, substantially as described. *Fifth*, The sectional head-block E, constructed with a recess in it for receiving a head and neck, which is formed on one end of the reach, substantially as described. *Sixth*, The construction of plates F and G, substantially as described, so as to form with pin *f* a loose pivotal connection between the axle and body of a vehicle. *Seventh*, The bearing *h*, rising from slider *b'*, and adapted to serve the purpose described.

(73,471) WAGON BOLSTER.—Charles Stebbins, Owego, N. Y. :

I claim the application of two or more rubber springs to the bolsters of a buggy, lumber wagon, cart, or any vehicle drawn

or moved by cattle or horses, in the manner and for the purpose above described.

(73,476) EXPANDING FELLOES AND TIGHTENING SPOKES. Alban N. Towne, Chicago, Ill. :

I claim the combination of the revolving socket, having a recess to receive the spoke, and a screw chased on its external surface, and the nut, with lugs for retaining it in place, inserted into the inner face of the felloe, and having an internal screw to receive the screw in the socket, the parts being arranged to operate substantially as and for the purpose set forth.

(73,492) MODE OF HANGING CARRIAGE BODIES.—Geo. A. Blair and A. L. Gladding, Johnsonburg, N. Y. :

We claim suspending the circular lever-frames G G' on the two pulley-bearings *n n*, arranged with relation to the seat B and body A of the carriage by means of the elastic strap I, substantially as and for the purposes set forth.

(73,497) SPRING-ATTACHMENT FOR VEHICLES.—Eliphabet C. Brooks, San Francisco, Cal. :

I claim the combination of the shield A, bolts F and G, with the perch D, axle E, in combination with the spring C and thorough-brace B, substantially as shown for the purposes specified.

(73,575) AXLE-TREE.—Charles E. Buck, Racine, Wis. :

I claim the rod C applied to the straight axle A, its ends passing through the under sides of the thimble-skeins B, securing them in place, and its centre held in position by means of the brackets *a*, the rod C being tightened by means of the nuts D, as herein shown and described.

(73,632) TOP-PROP FOR CARRIAGE.—John F. Mullen, New York, N. Y. :

I claim the screw *f*, constructed and applied substantially as and for the purpose described.

28. (73,763) CARRIAGE TOP.—William Smith and Emery M. Pike, McDonough, N. Y. :

We claim, *First*, The construction of the sleeve *c*, the brace-stay *d* and *o*, when made and used as and in the manner described. *Second*, The sway-piece *g*, when made and used as and for the purpose described. *Third*, The arrangement of the sway-piece *g*, and the brace-stay and segment *o* and *d*, in combination with the sleeve *c* and spring *b*, for tilting and holding the top in any desired position.

(73,778) BUTTON FOR CARRIAGE CURTAINS.—Stillman P. Campbell, Quincy, Mass. :

I claim the button B, provided with a stem, part of which is rectangular, in combination with a pressure-spring, S, the whole constructed and operating substantially as and for the purpose set forth.

(73,821) MODE OF SUSPENDING CARRIAGE-BODIES.—H. W. Libbey, M.D., Cleveland, Ohio :

I claim the special arrangement of the bars D D, with their springs *d d* and the rods E E, in combination with the running part of the carriage, provided with sliding extension-bar I, substantially in the manner shown, as and for the purpose set forth.

(73,849) VEHICLE.—George Stricker, Catawissa, Pa. :

I claim the arrangement of the supplemental spring D and the side springs C, the spring D having its ends attached underneath the axles, and the springs C having their rear ends attached at or above the upper side of the rear axle, and their forward extremities to the cross-bar *b*, substantially as and for the purpose specified.

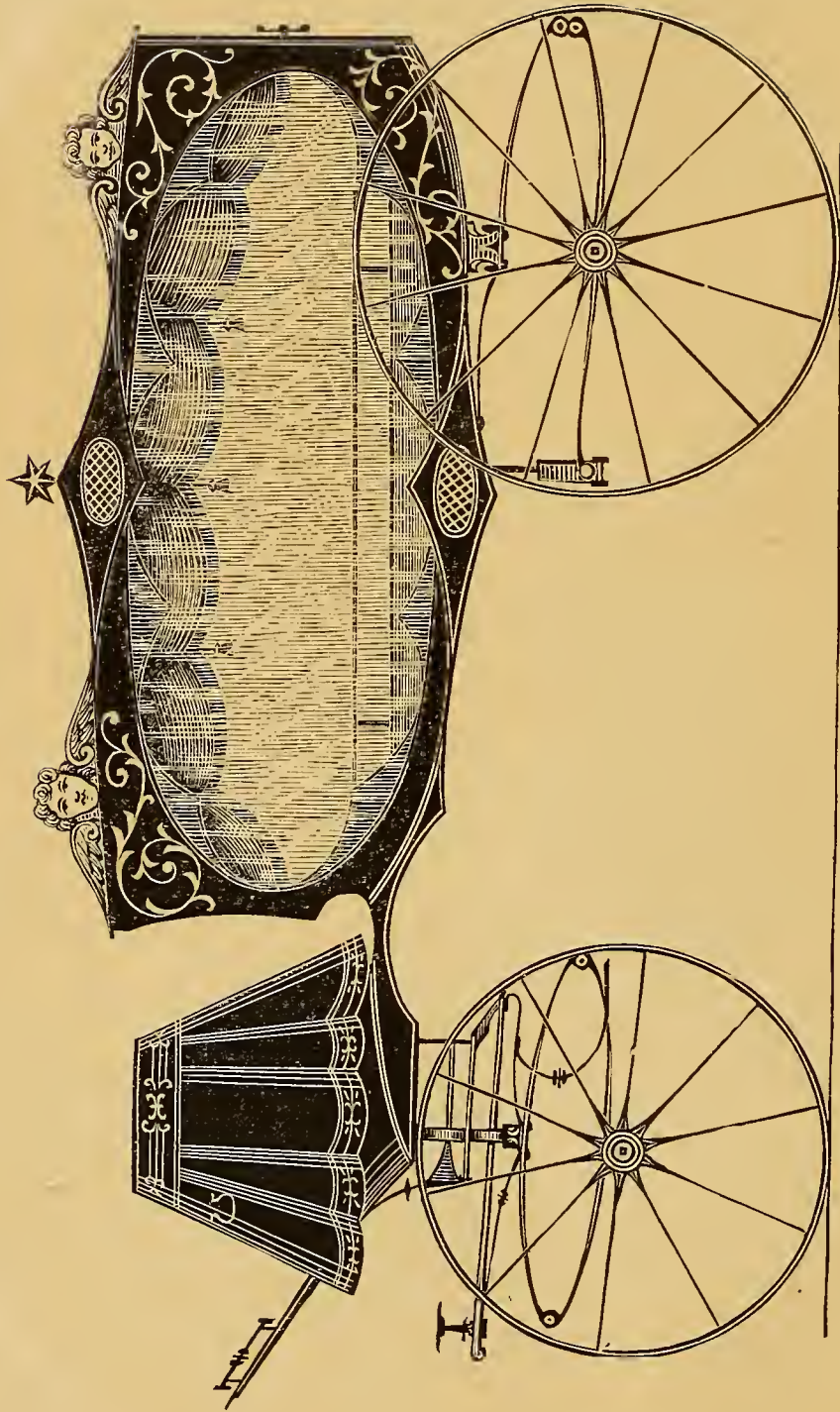
(73,867) AXLE-GAUGE.—Allen J. Beach and Alexander H. Beach, Linden, Mich. :

We claim the horizontal bar A, in combination with the sliding gauge B, the angle-bar C, provided with knuckle-joints D D, the adjustable bars E E, provided with other joints F F, the gauge-bars G G, working in the slots H H, and the set-screws I I, when constructed and arranged substantially as and for the purpose described.







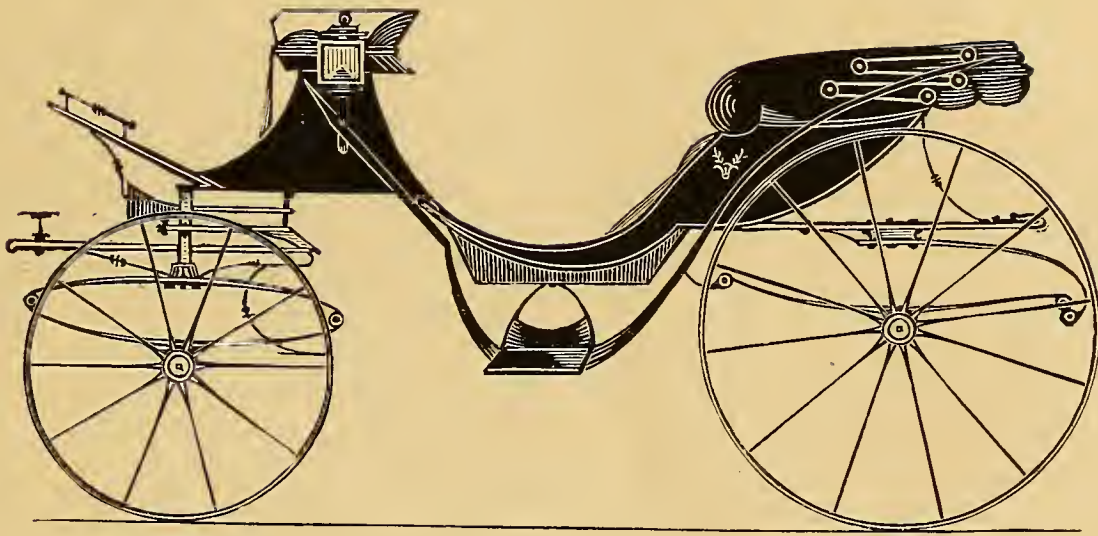


OVAL HEARSE WITH HAMMER-CLOTH SEAT.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 167.*





AMERICANIZED VICTORIA.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 167.*

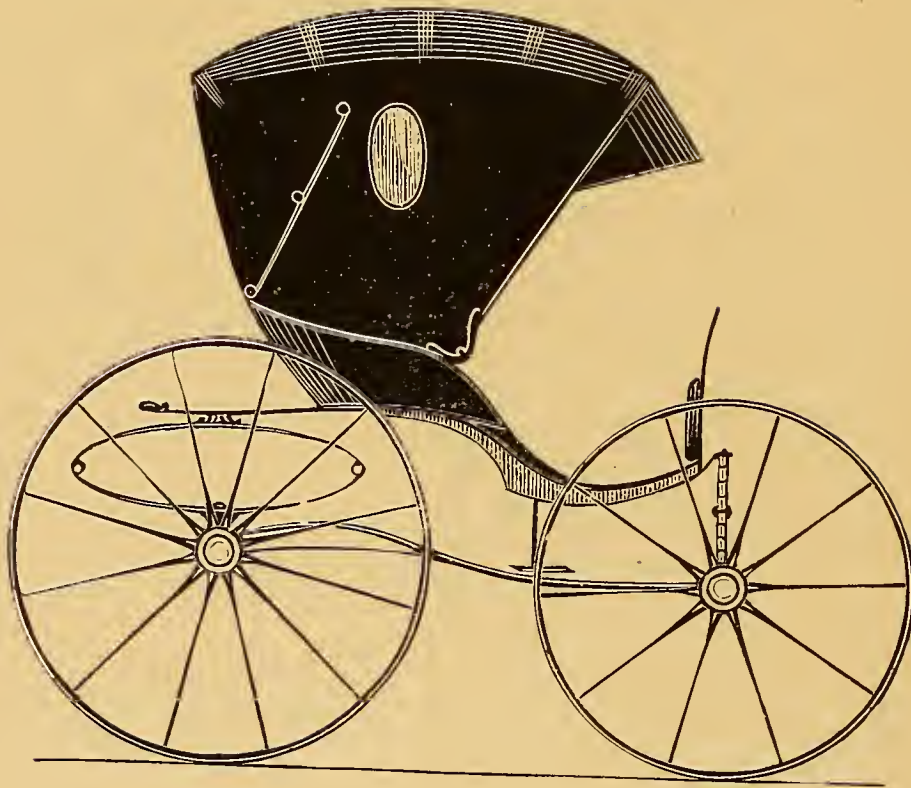










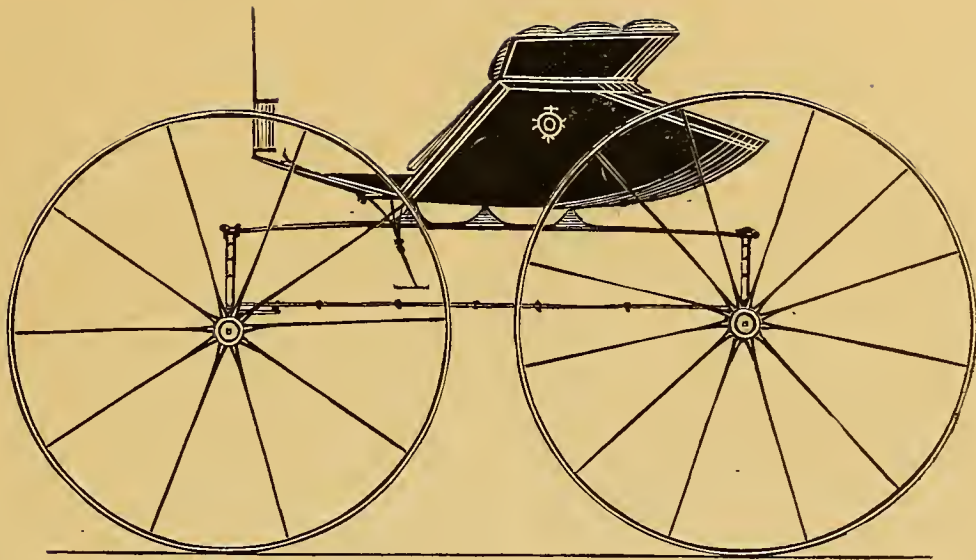


PHYSICIANS' THREE-SPRING PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 167.*





THE NOVELTY.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 167.*







DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

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No. 11.

### Mechanical Literature.

#### DIFFERENCE IN THE TRACK OF CARRIAGES.

THERE are few things practised by the carriage-maker more annoying, or injurious to the best interests of customers, than the diversity of track given to carriages, making an intentional difference for different localities of from six inches to a foot, governed by the latitude in which the manufacturer lives. Neither width claims to possess any advantage; they are only illustrations of the saying, that "when you are among Romans you must act as Romans do." It is acting upon this rule that brings the great inconvenience. In our migratory habits, we are compelled to take our wagons and carriages into a section of country where the track differs, or sell them at a forced sale. People often choose what they consider the least of two evils—that is, take the vehicle along. The owner may intend to show the people among whom he settles, that carriages with different tracks may be used to advantage; but practice shows him that a great amount of power is saved by having the wheels run in the track of others, so that the little inequalities obstructing its course may be levelled, leaving a smooth path for those coming after. The skill of a driver is shown in guiding his horses so as to run in a beaten path, but to his confusion he frequently finds his ingenuity baffled, and what is an additional aggravation, the cause is apparent to every one.

It is bad enough to sacrifice money to necessity, without being compelled to suffer through the carelessness or inefficiency of mechanics. In the southern portion of Illinois, where I am stopping, the inquiry has often been made by me of different manufacturers as to what the track is. I am told that it is sixty-two inches from outside to outside. The measure should be from center to center of the tread, then, if the axles are made right, they will necessarily be the same length in the track from center to center of the axle-arms. Then, should the wheels stand at correct angles, according with the dish, the tread will always accord with the uniform track without a possibility of variation.

This country, which is probably unsurpassed in rich-

ness and fertility, by reason of these qualifications, has confined its business to agriculture, the carriage and wagon-making being mostly done in the large cities, and neighboring States, north and east, all being represented in this market. The variation in track is not much unlike that I have been accustomed seeing in other countries, as any one may see for themselves by measuring. Tracks vary from fifty-eight to sixty-two inches, from center to center. There does not appear to be much uniformity. At first thought, the only inconvenience arising would be that the ruts the wagon run in would be too wide, to admit the wheels in a well trodden path; but such is not the case. All the advantage gained by running in the same rut, is obtained by following exactly in the track, and a variation of one half of an inch forces the wheel on to a ridge raised by the preceding wagon which will require extra and an unnecessary amount of power to crush down to the level of the track. If there are three-fourths of the wagons running on one road of precisely the same track, they will stand a chance equal to their numbers of having the road worn to their particular track; but the one fourth will disarrange the track on an average equal to one third of the greater number.

These are defects in which one wagon works against the other that can in no way be avoided, and are entirely unnecessary. If the difference is six inches the defect is readily observed and remedied, but if the difference is two inches it passes unnoticed, and the owner of the carriage suffers himself to be taxed with an amount of draught that would pay for repairs a hundred times over. If the axle-arms are made from center to center corresponding with the established track, and the boxes set in the hub so that respective ends extend out equal distances from the track, all that is necessary to obtain the right track is to place the wheel on a plumb spoke. The result is a geometrical axiom.

Now let us examine where the defect that produces such variation of results is most likely to originate. *First*, Suppose the wagon tracks sixty inches wide, would it be a difficult job to weld an axle so that the middle of the arm would be sixty inches apart? Certainly not! *Secondly*, Is it difficult to set a box in the hub so that the middle will be exactly over the tread of the wheel when it is on a plumb spoke? If it is, let a mechanic in another branch of business tell you so as to remove the difficulty. Find what the width of the spoke is where it enters the felly.



Suppose it is one inch—then take one half of its width, which is one half of an inch, and measure from the face of the spoke back on the hub one half of an inch. (If the spokes are dodging, use the one farthest front.) This point on the hub is its center or middle, and the middle of the box must be placed into the hub just so far. Now it is self-evident, that when the middle of the box is so set, and the wheel is standing on a "plumb spoke," the middle of the axle-arm will be on a vertical line over the tread of the wheel. When the two wheels are held in that position, the face of the plumb spokes form parallel lines, that will never approach nearer or depart farther from each other. It is equally evident that if the tread of the wheel sustains any *other* position in relation to the axle-arm, the tread will either be expanded or contracted. It will run in, or out, from a straight line.

So far we have found two arbitrary rules that must be observed to make a wagon track right. They are simple, but they are no less arbitrary. *Thirdly*, comes a rule that is of the same simple, arbitrary nature, that is essential to complete the other two, and place the most ordinary workman in a position that he will never fail to get the right track. Find the angle of the dish and the angle to the taper of the box, and compare them; if they are equal, the bearing of the axle-arm should be horizontal; if the dish exceeds that of the box, the bearing should pitch down at the point just as much as the excess is; and if the box has the excess, it must pitch up just to that amount.

A practical experiment may be worth relating. It is a theory as old as mechanical science, and relied upon as a great fundamental principle, that increase of power can not be created. That is to say, where power is gained it is not created—it is done at the expense of motion that is *exactly equal to the gain*. Those who read this journal five years ago saw a statement that I made in considering mechanical power, that "a wagon was an exception to this rule." It was read and probably passed over by scientific individuals as the effusion of a person unacquainted with the primary elements of mechanical power and consequently not worthy of contradiction. Other scientific papers have been so guarded that they refuse to publish such an absurd statement, as a general thing, but if it was admitted it was for indulging a sneer at my expense.

Notwithstanding all this, I had a theory for calculating power that told me as plain as anything could be, that the formulas of theories relied upon by science for calculating power were incorrect, and it has never been any failing of mine to give up my opinion because it was not popular. By the old theory, a wagon ascending an inclined plane rising ten inches in thirty, will require a power equal to one-third of the weight raised, because the power would have to move up the plane three times as far as the weight would raise vertically. This is only their theoretical estimate; in practice, the friction of the machinery would have to be allowed for, which is not an inconsiderable amount, especially in wagons and carriages as generally constructed.

Years have gone by since I first announced the new theory, yet I doggedly held on to it with the expectation that I should be able to demonstrate its truth. Wagon and carriage manufacturers were induced to make inclined-planes to try the draught of their wagons in various places. It was found that wagons of the most perfect draught could be drawn up those inclined-planes with less power than old dogmatic philosophy said it was possible to do.

The announcement of this discovery was treated with derision by the calico-gowned philosophers whose minds aspire to know what is popularly believed, and condemn what is popularly disbelieved, yet they did have enough respect to ask for a practical demonstration.

I constructed a small inclined-plane that rises vertically ten inches to every thirty inches of the plane. I made a cart that weighed one hundred and fifty ounces. Then I arranged a weight of fifty ounces that draws by a string parallel with the plane over a pulley. Now it is evident, that this weight of fifty ounces will fall vertically three times as far as the weight of one hundred and fifty ounces will rise vertically. If there was no friction they would exactly balance each other without either being able to make a motion. Motion could not be induced without sufficient power added to one or the other to overcome all the friction. No one who believes in the popular theory of mechanical power will deny this statement, and if it does not practically prove so, the theory is demonstrated to be a false one, no matter how old.

The result shows that there is no equilibrium between fifty ounces and one hundred and fifty. The less moves the greater up the inclined plane with perfect ease when four ounces is added to the greater.

Every carriage or wagon maker, if he does his duty, a duty that this age of improvement demands, will make the draught of his carriages easier than has previously been thought possible to do by the most profound philosophers. Five years has gone by since the announcement of a fact that would, in the event, completely destroy the old and false theory that has led us into all manner of delusions. At last the demonstration has come that will not admit of a doubt.

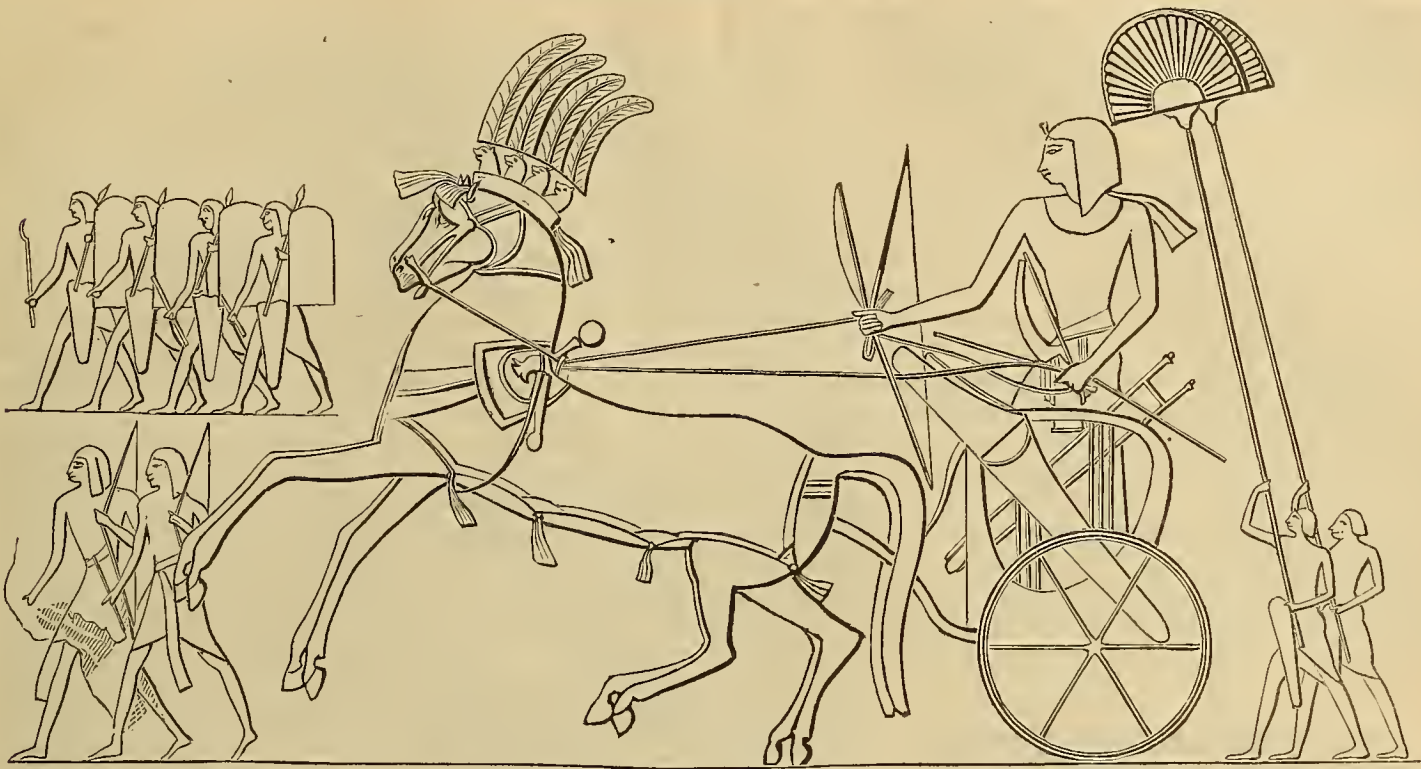
H. H.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—XI.

WE have selected for our present purpose a portion of plate cxxvi taken from a tomb at Medeenet-Haboo, Thebes, in continuation of the History of Meneptha III. The king is represented as standing up in his chariot fully armed and equipped for war, to which his army is apparently on the march, the soldiers being provided with spears and shields. Behind the chariot follow two attendants of the king, bearing flabellas, composed of feathers, answering either as umbrellas or fans, which belonged exclusively to royalty among the Egyptians. This king and his immediate successors, who were Thebans, carried their conquests as far as Nigritia in Africa, into Asia Minor, to Cholchis on the Euxine and through Central Asia into Hindostan. It is supposed that during his reign the exodus of the Israelites from Egypt took place.

Leaving our readers to study for themselves the progress of art, we may very appropriately introduce here, some brief observations on the military customs of this ancient nation. The military ranked next to the priests, as these last did next to the king, the king only being a little inferior to the gods themselves. To the soldiers, by an edict of Sesostris, was assigned certain portions of land amounting to about eight acres, which they selected for themselves, according to Herodotus. Diodorus says this was done "that those who exposed themselves to danger in the field might be more ready to undergo the hazards of war, from the interest they felt in the country as occupiers of the soil; for it would be absurd to commit the safety of the community to those who





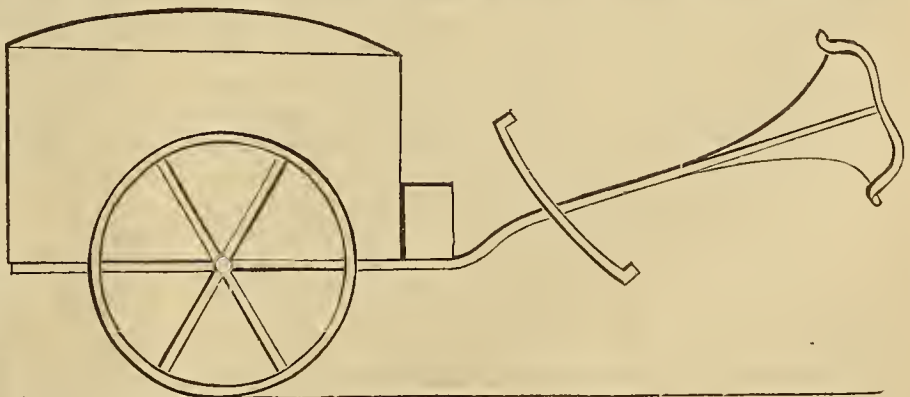
MENEPHTHA III ON THE MARCH AGAINST AN ENEMY.—FROM A BAS-RELIEF AT MEDEENET HABOO, THEBES.

possessed nothing which they were interested in preserving." The soldiers paid no taxes, nor could they be imprisoned for debt, in which case the state might lose their services. From youth they were educated in the art of war, each man being obliged to provide himself with the necessary arms, both offensive and defensive, and all the other requisites for an active campaign, at a moment's call, or to suppress a rebellion should such arise.

The military force of 410,000 men was divided into two corps termed *Calasiries* and *Hermotybies*, 1000 of these being annually selected for guard duty to the king. Each soldier had a daily ration of "five *mine* of bread, with two of beef, and four *arusters* of wine," during active service. The *Calasiries* in the most prosperous days of the kingdom amounted to 250,000 men, settled in Thebes, Bubastis, Aphtis, Tanis, Mendes, Sebennyitis, Athribis, Pharboethus, Thmuis, Onuphis, Anycis, and the island of Mycephoris. The *Hermotybies* amounted to 160,000, living when at home in Busiris, Saïs, Chemmis, Pampremis, the Isle of Prosopitis, and the half of Natho. In time of peace these soldiers cultivated their lands, which gave them active employment and cultivated habits of industry. In addition to these, mercenary troops were frequently employed, but were never placed on the same footing with the regular Egyptian soldiers.

The Egyptian army was made up of archers of undoubted skill. These fought either dismounted or from a chariot, in both wings of the army, the heavy infantry being in the center, these last being divided into regiments. Wilkinson observes that "though Egyptian horsemen are rarely found on any monuments, they are too frequently and positively noticed in sacred and profane history to allow us to question their employment; and an ancient battle-ax represents a mounted soldier on its blade. The infantry was made up

of bowmen, spearmen, swordsmen, clubmen and slingers, under regular discipline, divided into battalions and companies under appropriate officers. When in battle array the heavy infantry formed an impregnable phalanx, armed with spears, falchions and shields, the bowmen as well as the light infantry acting either in line or broken columns, according to the nature of the field. To each battalion or company was assigned a particular standard borne aloft with suitable device thereon, to which a superstitious respect was shown. The standard-bearers were selected from men of known valor, and distinguished by a peculiar badge, hung from the neck, in some cases showing two lions, emblematical of courage. The royal standards as well as the "flabella" before mentioned, were carried either by the princes, or the sons of the nobility holding the rank of generals, acting likewise as aids-de-camp on the field, and prominent officers in other processions civil and religious. Some bore the state fans, behind the king, when he visited the temple and on other



AN EGYPTIAN BAGGAGE-CART.

public occasions; others, according to rank, carried his scepter or waved the flabella before him either on his right or left hand.

The offensive weapons were bows, spears, two kinds of



javelins, slings, and short sword, dagger, knife, falchion, battle-ax, hatchet pole-ax, clubs and curved sticks. The defensive armor consisted of a metal helmet, a cuirass, or coat of armor made of metal plates, or quilted with metal bands, and large shield. These shields were about half the length of the man and double its own breadth, generally covered with bull's hide, the hair side outwards. The frame was wood strengthened by metal rims, which were studded by metal pins, of the form shown in the engraving. These were suspended on the shoulders by means of thongs, or held in the hand by a handle, either horizontally or vertically.

The Egyptians appear to have had baggage-wagons for the transmission of war materials. The engraving on the preceding page is a copy of a bas-relief found on an Egyptian monument, having a very high six-spoked wheel, and a slightly arched body. In front of the body is a low seat, from under which protrudes a curved pole. This cart—or baggage-wagon—seems to be very well adapted for the purpose designed, and differs but little, except in the pole, from the corporation hand-carts of New-York, seen almost any day in use by the laborer on the streets.

#### THE LABOR QUESTION.

THE London *Times*, in an article reviewing the question of strikes and labor in America, says:

It is wonderful that a body of intelligent men, educated, as we are taught to suppose, to a degree which places them far above the English workman, should imagine that an eight hours' law will shorten their day's work and produce them the same profit. In the cities where the measure was in operation some time ago, the masters quietly adopted the expedient of paying by the hour instead of the day, and the laborers or artizans were soon very glad to have the old system revived. No one could assert that any injustice was done in paying a man exactly what he earned, and in giving him the opportunity to earn more if he was so disposed. So alarmed are the American workmen at the prospect of competitors entering into the field with them, that they are trying to put an end to convict labor. Above all, they are anxious to turn back the tide of emigration from Europe. In that, indeed, lies the greatest object to the accomplishment of all their purposes. So long as fresh workmen can be rapidly procured from England and Germany, it is almost useless for local trades to indulge in the costly luxury of "strikes." But at this point the interests of the English and American Trades' Unions hopelessly clash. The favorite scheme here, when a disagreement breaks out between employer and employed, is to thin the trade by exporting skilled workers in it to America. Those who remain behind can then, if the strike be continued long enough, ask any terms they please, and there is comparatively little immigration to disturb the calculation. But there is a third party affected by this satisfactory plan, which the other two have forgotten to consult. The American workman, while objecting to the negro and the convict, cannot be expected to welcome with French "effusion" his English associate. We are not surprised, therefore, to learn that it was decided at the Labor Congress at Chicago to send a trusty delegate to Europe "to make arrangements, by treaty or otherwise, to prevent the importation of laborers to impoverish alike the workingmen of America and of Europe, and

effect a more perfect understanding between the Reform Labor Associations of both countries."

One is almost tired of hearing America pointed out to us as the place where the workman enjoys all the rights belonging to him, and lives in amity with his employer.

The American workman is no better satisfied than the English, and, indeed, he is apt to be even more discontented because he finds it impossible to realize the vision of perfect equality of conditions. No matter where men live, or under what circumstances they start in life, some must get rich faster than others, and they will be able to pay persons to work for them. The truth is as old as the world, but it is one which is never learnt. The Americans begin to discover that as society grows riper the wealthy class becomes more firmly established, and that its just rights have to be recognized no less than the rights of the poorer orders. Justice and fair dealing between employers and employed is an end which all classes ought to strive to attain, but is it to be reached by the shallow devices of the Congress recently assembled in America? To compel the employer to choose from a few men will not assist the mass, which can only be really benefited by the widest opportunities of competition.

The working classes across the Atlantic are no wiser than their brothers elsewhere, and the time will come when their misfortunes will cause them to be even more dissatisfied, unless they accommodate themselves to the only usage which has never varied in the human family, and which is certain to endure while the world lasts.

[Our contemporary over the water appears to have been misled in his observations very much, by supposing that the class he refers to, are "intelligent men, educated to a degree which places them far above the English workman." The facts are the Trades-Unions of America are made up chiefly of foreigners, who are more solicitous about promoting their own personal ends, than advancing the interests of the land of their adoption. If occasionally an American of character is drawn into a Union, a short time suffices to disgust him with all pertaining thereto, and he then leaves it. We know several persons who have been surfeited by a month's trial, and have so expressed themselves to us, within the past year. The "promises" of speakers at a public meeting "tickle" the ears of the masses, and has great influence over the mind, inducing them to become members of associations from which they hope to derive pecuniary benefit, but which is never realized. Thinking minds soon discover this and consequently withdraw.

There is one very forcible truth in the preceding extract that ought to be borne in mind by the laboring man, at all times, and this is, "No matter where men live, or under what circumstances they start in life, some must get rich faster than others." And why? Because some are more industrious and persevering than their fellows. Was the entire wealth of the world equally apportioned to each individual living, to day, this equal division would not continue a week. A would probably quit work entirely until he had squandered his "pile" foolishly with B, who is more temperate and industrious. The utopian idea that Trades-Unionism is calculated to benefit an industrious and economical man, is mere nonsense. If men ever rise in the scale of respectability and wealth, it must and will be obtained only through individual effort.—ED.]





### BREWSTER & CO'S REPOSITORY.

ON pages 89 and 136 we have already given some account of the Repository of Messrs. Brewster and Company on the Fifth-Avenue, in this city. We now have the pleasure of presenting our readers with an engraving of this edifice, which has created some curiosity as an innovation on one of the most beautiful thoroughfares of this metropolis, referring them for details to the pages named above.

## Home Circle.

### FAREWELL TO CONNECTICUT.

BY FITZ-GREEN HALLECK.

I TURNED a last look to my dear native mountain,  
As the dim blush of sunset grew pale in the sky;  
All was still, save the music that leapt from the fountain,  
And the wave of the woods to the summer wind's sigh.

Far around the gray mist of the twilight was stealing,  
And the tints of the landscape had faded in blue,  
Ere my pale lip could murmur the accents of feeling,  
As it bade the fond scenes of my childhood adieu.

O mock not that pang! for my heart was retracing  
Past visions of happiness sparkling and clear;  
My heart was still warm with a mother's embracing,  
My cheek was still wet with a fond sister's tear.

Like an infant's first sleep on the lap of its mother  
Were the days of my childhood—those days are no more;  
And my sorrow's deep throb I had struggled to smother  
Was that infant's wild cry when its first sleep was o'er.

Years have gone by, and remembrance now covers  
With the tinge of the moonbeam the thoughts of that hour;  
Yet still in his day-dream the wanderer hovers  
Round the cottage he left, and its green woven bower.

And hope lingers near him, her wildest song breathing,  
And points to a future day, distant and dim,  
When the finger of sunset its eglantine weaving,  
Shall brighten the home of his childhood for him.  
—Putnam's Magazine.

### WHAT BECAME OF A NOVEL READER. A TRUE STORY FOR SOMEBODY TO PROFIT BY.

BY MARY A. E. WAGER.

IT was a horrible night without. The wind and sleet beat and dashed against the house as if angered because of the cosiness within. Laura Day and I sat before the cheery fire and talked of the hundreds suffering, houseless and hungry, upon such a night.

There were pauses in our speech, which the elements without filled with weird terror.

"Poor little Fanny!" said Laura shiveringly, "I hope she has food and warmth this dreadful night."

"What Fanny?" I asked.

"Fanny Mills."

She paused a little and then went on.

"When I was a teacher at Avon, she was then fifteen years old, and was the kindest and most affectionate scholar I had. She was very small but perfectly symmetrical, with blue eyes, light brown, abundant hair, and a pleasing, intelligent expression. She endeared herself to me in many kindly ways, and won my sympathies for her limited means of acquiring an education, and which she was so anxious to obtain.

"But with all her love for study, she had an unbounded passion for novel reading, which was fostered by her mother by example. Fanny would walk long distances to procure files of story papers, sensational novels, and light magazine articles, to devour. They formed her mental and moral stimulus; and the highly wrought tales so infused themselves in her being, that her humble lot in life grew irksome, and she longed above all other things for some rich relative to appear and give her education, accomplishments, and fine living. When she had read all the stories in her reach, she would sit for hours and build air-castles of the possible future.

"Her parents were poor, but not distressed for the needs of life. Mrs. Mills had seen far better days, and was a woman much above ordinary intelligence and appearance. She had a rare gift of conversational powers, and would express her love or hate in genuine eloquence. There were two children younger than Fanny—Lucy, a disagreeable, selfish girl (who eventually improved greatly in amiable qualities) and Leon, a beautiful little boy, but 'desperately wicked.' Mr. Mills was a pretty fellow, and like most pretty men, amounted to but little, any way he might be turned.

"Two years after I left Avon, a brother of Mrs. Mills paid her a visit. He was a bachelor, and she had not seen him since her marriage. He was to every external appearance a gentleman of wealth and considerable refinement. He distributed presents so lavishly to the various members of the family, as to render his presence rather to be desired than otherwise.

"But Lucy hated from the first. If he laid his hand on her head, or offered her the slightest caress, she would



spring away like an angry cat. But to Fanny, with her affectionate and yearning impulses for something better than she had known, his coming was like the crimson dawning of morning to tired watchers. He bought her books, read with her, shared her enthusiasm, and after winning her entire confidence, offered to educate her and provide for her as if she were his own child.

"Mrs. Mills gave but a tardy consent. Why, she could not tell. Was not Hoyt Morrow her own brother, and ought she not to feel grateful indeed to him, that he should be willing to give to Fanny what the child had so longed for? There *ought* to be no wrong in it, she reasoned, and finally consented. It was a promise to be verified of Fanny's highest, brightest, goldenest dreams.

"His first step was to take her to a neighboring city, to procure a suitable outfit for her new station. She returned the most elegantly arrayed woman for miles around. But many of the good people at Avon shook their heads dolefully, and didn't believe in trusting too much to outside show; but they were undoubtedly envious of Fanny's good fortune.

"As her uncle's pecuniary interests lay in the west, he returned thither, taking Fanny with him, and placing her in a fashionable school at St. Paul. She wrote me a letter from there all aglow with her brilliant future, adding that it all seemed like a dream—too good to be true.

"A year later she visited Avon, accompanied by her uncle. She was pale and delicate as a lily, and had been very sick, she said. She dressed elegantly and had acquired much of that peculiar air that mingling in fashionable society gives.

"Mr. Morrow told his sister of his beautiful home in Minnesota, and with many flattering promises induced her husband to sell their humble home and furniture and share his; so that at the close of an autumn day following, the family found themselves enconed in the new home in the west. His munificence in regard to Fanny, having more than fulfilled his promise, gave him increased influence in all other matters.

"For a time the new home seemed in all respects a desirable one. The avails of their little property in Avon was applied in making repairs about the farm, in which Mr. Mills supposed he had some interest.

"Hoyt brought delicacies from the city, which he visited daily, usually taking Fanny with him, as she was receiving musical instruction, and then she needed the open air for her pale cheeks.

"Mrs. Mills sometimes wondered at the unusual care and tenderness he bestowed upon Fanny, and could not help observing that a lover could have shown no more affection. To harbor such a thought as a reality, was against all human ties and repugnant to every sense of virtue. Moreover, the man was her brother and the girl his sister's child—that would certainly shield both from harm.

"But velvety paws, as well as serge ones, conceal claws.

"Mr. Hoyt Morrow *was a roué and a gambler!* Mrs. Mills came to the knowledge of this fact from overhearing a conversation between two strangers in the drawing room at a hotel in the city that Hoyt so often visited. This fact only made room for another—that her child was ruined, and that too by a man in whose veins flowed kindred blood! When this horrible truth shot through her brain, she was as one stunned. But gradually she gath-

ered up every hate and avenging passion of her outraged motherhood against the perpetrator of so awful and unnatural a crime. Her first impulse was to murder him; and for days she carried arsenic about her to put in his food. But it was not a satisfactory punishment; it seemed to her too easy an escape from life for the villain. As for Lucy, her hate was intensified, if that were possible. She endeavored to give vent to her vengeance in destroying articles of furniture, and would toss pieces of china from the windows and with malicious joy behold them dashed into pieces. But Mr. Hoyt Morrow did not fancy this turn of affairs. So one day he strode in with the announcement that his brief lease of the house and appurtenances thereto was expired, and the money his brother-in-law had invested would no more than compensate for his share of the expense. As for himself, he should leave the next morning and take Fanny, *his wife*, with him.

"This last intelligence seemed to his outraged sister the crowning shame and crime of all. She flung it in his face as a bare lie, alleging that with all his meanness, he would not *dare* to wed her child. He coolly produced a marriage certificate, signed by a minister's name that was too well known in Chicago, and dated nearly two years previously.

"The poor mother, helpless in her poverty, and stung with shame and indignation at her husband's indifference, could not prevent the vulture from carrying the bird away.

"Fanny soon wrote to her mother from Chicago, but was forbidden to give the locality of her abode. She was surrounded with luxury, and would send her mother money if she would accept it. But she scorned it as too vile to touch, and leaving her family, sought for many weary days to find her daughter's home, determined at last to rid the world of such a monster as her brother.

"Failing to find him, discouraged and heart-broken, she returned to her family, and converting articles of clothing and other necessaries into money, the family returned to Avon utterly destitute.

"They struggled on in great poverty for a year or two, when, overcome with sickness and distress, the mother wrote to Fanny that the gambler's money would keep her family from starvation and the almshouse. A reply was worded thus:

"Mother—I keep myself from starvation by coloring prints. I can get no better employment. The gambler's money goes for drink and kindred dissipation. He made me lie to you; he bought my soul with his ill-won gold, and taught me to love him that first bright year! A thousand times better had I remained in my humble home at Avon.

"Mother, keep novels from Lucy. Novel reading was the glare that blinded me, and put me on the highway to ruin.

"Men and women write *fiction*,—I have *lived* the *truth*. Your wretched and lost FANNY."

"That was the last I heard of her. Her mother showed me the letter, and every word burnt itself in my memory. This dreadful night makes me shudder anew, since I know the bright and gentle Fanny I once knew and loved so well, is numbered with the wretched and poor of a pitiless city. God! what living this life gives us! Are men human?"

She looked up for an answer, but I could give none. I think of Fanny every night that the wind and storm



beat so against the house, and to night the moan went on and on until it seemed to say write—write—*write!* And so I have written thus as I remember she told it, and pray its unvarnished truthfulness may turn some wandering feet into a truer and healthier path of literature, if not of aspiration.

## Pen Illustrations of the Drafts.

### OVAL HEARSE WITH HAMMER-CLOTH SEAT.

*Illustrated on Plate XL.*

DECENT burial is the last act of respect we can pay to the memory of a deceased friend, which to do satisfactorily in our day, requires that we engage a suitable vehicle to carry his remains to a final resting place. To further these ends we have at different times, in these pages, presented our patrons with original designs of hearses, the latest of which we here give. The side shows an oval French-plate glass designed so as to show the coffin or casket, which the love of friends has provided, to the best advantage. The inside trimmings consist of black broad-cloth tied in festoons with cord and tassels of the same colors. The edges of the cloth are bound with heavy gimp. The scrolls and mouldings on the body, as well as the star and cherubs on the top, all tell a tale to the eye, more potent than anything we may convey to the mind by language. As previously intimated in these pages, we think the hammer-cloth to a hearse is more appropriately used there than for any other kind of vehicle. The wheels, which require a spoke  $1\frac{1}{2}$  in., are 3ft. 5in., and 4ft. 4in. high.

### AMERICANIZED VICTORIA.

*Illustrated on Plate XLI.*

THE Victoria phaeton first attracted the notice of the public at the Exhibition in London, in 1851. Since that time, it has undergone modifications which have greatly improved upon the original pattern, rendering it in many respects quite a different sort of a carriage. The body may be constructed either with a panel or else "solid," this last at much less expense than in the former way. For a summer carriage of light draught this excels most others. Wheels, 2ft. 10in. and 3ft. 6in.; spokes  $1\frac{1}{2}$  ins.; hubs  $4\frac{1}{2}$  in.; rims 1 in.

### PHYSICIANS' THREE-SPRING PHAETON.

*Illustrated on Plate XLII.*

THIS drawing is from a design sent us by a correspondent, and furnishes a good example of the most fashionable style of a phaeton for physicians' use. The body, which is rounded at the back corners, is worked-out from the solid plank. The "hood"—made to turn under the front bow—is a necessary appendage, in protecting the

"Doctor" against inelement weather. The wheels for carriages of this kind—generally exposed to rough usage—ought to be made extra strong, with selected timber and of first-class workmanship, or else they will fail. Light-colored linings should never be used in vehicles so much exposed to the elements as these are, as such very soon become soiled, beyond recovery.

### THE NOVELTY.

*Illustrated on Plate XLIII.*

As the name we have given it implies, this buggy is a decided "novelty," and yet not such an impracticable thing to build as a first view of it would seem to indicate. If set to work upon it, we should use a bottom-side of ash sufficiently thick and of a peculiar form at the back—say something in the shape of that portion tinted by the engraver—so that when the side deal was glued on and dried, the two might be rounded off, so as to form a round corner. The end of the back panel underneath might rest in rabbets made on the *inner* edges of the bottom-sides, which, well glued thereto, might afterwards be planed off flush and smoothed for the painter. The "wash-board" in front, from the sham-pillar to the bracket, ought to be made from some hard wood, in order to stand the rough usage it will be subjected to in wear.

## Sparks from the Anvil.

### CHARACTERISTIC DIFFERENCE IN IRON AND STEEL.

ALL iron that, when made red hot, becomes harder by being hastily quenched in cold water, is called steel. This single characteristic suffices for distinguishing steel from the softest iron, which, on being made red hot, and quenched in like manner, does not become sensibly harder, but after this may be bent and likewise hammered and filed, either hot or cold, almost as easily as before. As soon as iron—in consequence of being made red hot and afterwards cooled quickly—becomes in a sensible degree more inflexible, brittle and hard, it then partakes of the nature of steel. It is true cold shot iron likewise becomes brittle after being hardened, but does not acquire a greater degree of hardness than it had before, when it was equally brittle.

Steel, on the contrary, both cold and hot, should be almost as malleable, before it is hardened, as iron, and after being hardened recover this malleability in consequence of fresh ignition; still, however, it is more or less tough in proportion to its toughness. That steel which, in quenching, acquires the greatest hardness in the lowest degree of heat, and retains the greatest strength in and after induration, may be fairly considered as the best. The other characteristics by which steel is distinguished from iron are as follows:

1. After being burnished, steel appears of a white light gray hue, without the blue cast exhibited by iron, and it also takes a higher polish. 2. The hardest steel,



when not annealed, appears granulated, but dull, and without shining fibres. 3. When steeped in acids, the harder the steel is made, the greater is the deep gray hue on its surface. 4. Steel is not so much inclined to rust, as iron. 5. In general, steel has a greater specific gravity. 6. By being hardened and worked, it may be rendered much more elastic than iron. 7. When indurated it becomes more sonorous than iron; and, 8. When burnished it appears more close and dense. 9. It is not attracted so strongly by the magnet as soft iron is. It likewise acquires magnetic properties more slowly but retains them longer, for which reason steel is used in making needles for compasses and artificial magnets. 10. By hammering and friction it acquires a greater magnetic power than iron does. 11. In heat, steel expands more than iron. 12. By induration, or quenching in water, it retains nearly the same bulk as it had acquired in heat, or, at least, contracts very little; while on the other hand, iron contracts to the same space as it took up before it was ignited. 13. Steel is ignited sooner, and fuses with a less degree of heat than malleable iron, which can scarcely be made to fuse without the addition of powdered charcoal, by which it is converted into steel, and afterwards into crude iron. 14. By a particular management it may be fused and cast, and yet continue to be malleable, which is scarcely the case with soft iron. 15. Polished steel is sooner tinged by heat, and is of higher color than iron. 16. In a calcinating heat it suffers less loss by burning, than soft iron does in the same heat and the same time. In calcination, a light blue flame hovers over steel, either with or without a sulphurous color. 17. The scales of steel are harder and sharper than those of iron, and consequently better for polishing with. 18. In a white heat, when exposed to the blast of the bellows, among the coals, it begins to sweat, weld or melt, partly with light-colored and bright, and partly with red sparkles, but less crackling than those of iron. In a melting heat, too, it consumes faster. 19. By much welding, annealing, and hammering, in a slow but strong heat, steel is converted into iron—cement steel sooner, and cast steel later. 20. Covered with powdered charcoal pressed down close upon it, and exposed to a strong heat, it acquires a slight coat, resembling black lead. By being frequently burned, it becomes as brittle as crude iron. 21. Digested with water in close vessels, it appears to yield a smaller quantity of inflammable air, or hydrogen gas, than iron. 22. Dissolved in sulphuric acid, it yields less inflammable air than soft iron does. 23. In the sulphuric, nitric, and other acids, steel, it is true, is violently attacked, but is longer in dissolving than iron, after maceration; accordingly as it is softer or harder, it appears of a lighter or darker gray color, while iron, on the other hand, is white. 24. In the solution of steel in acids a smaller degree of heat is produced than with tough, and still weaker than with cold shot-iron. 25. It requires more nitric acid for its complete solution. 26. In the cold it is proportionably harder, and more brittle, or less malleable than pure iron; and, 27. In detonating with saltpetre, it yields more fixed air, or carbonic acid gas, than malleable iron does.

Steel differs from crude iron chiefly in its malleability, a quality which is entirely wanting in the latter, both cold and hot; still, however, they both agree in many particulars, as, for instance:

1. Crude iron, after being melted over again and pol-

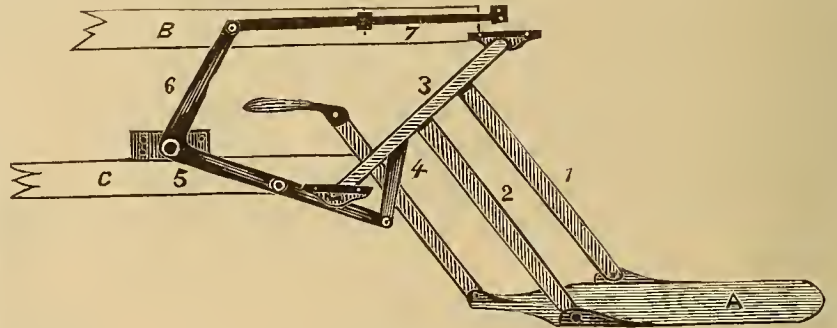
ished, acquires as light and white a hue as steel. 2. They both acquire a variegated vitreous coat in the fire. 3. Crude iron also becomes magnetic, though more slowly than steel. 4. After being subjected to a red-hot heat it becomes harder by being cooled in water, and particularly when melted, and immediately thrown into it. 5. It melts easier than steel, and much easier than forged iron. 6. When indurated it strikes fire with flint, though the sparks produced by it are somewhat weaker than those generated by steel. 7. Crude iron appears to yield as much inflammable air or hydrogen gas as steel, by digestion in water. 8. It likewise deposits a black sediment, when macerated in acids. 9. It rusts in the air as slowly as steel. 10. When cast, it rings like steel.

J. B. P.

### AUTOMATOUS COACH-STEP.

FROM A CORRESPONDENT.

THIS step is constructed thus: The step made of sheet-iron is shown at A, with flanges securely riveted thereon to take the arms 1 and 2. These are wrought solid in the shaft 3. From this shaft there is a projecting branch, 4, made solid with it, acting as a lever in working the step. 5 and 6 show the crank which works on a pivot secured to the heelboard of the body. At 7 is the connecting



rod which is attached to the door. When the door is closed the step is invisible, making it the best kind of a step for close coaches. B and C are the two bottom bars forming the case for the step to repose in when the same is folded up.

### Paint Room.

#### THEORY OF COLORS.

(Continued from page 153.)

GENERAL PROPERTIES OF OILS, DRYERS, VARNISHES, ETC. ETC.

THE oils employed as vehicles by the painter may be divided into fixed or fat oils, and volatile or essential oils. Linseed oil and olive oil are types of the former, spirits of turpentine of the latter class. Fat oils, again, are divisible into two classes; those which are naturally, or may be by proper treatment rendered *siccative*, or made into *drying oils*, and those which naturally are not so, and can with difficulty be rendered so. There is no oil, however, which may not by chemical treatment be rendered more or less *siccative*, so that the distinction is not absolute.

Fat oils exist in nature chiefly in the seeds and fruits



of plants, and are obtained by expression, aided sometimes by heat, or by boiling water. They have a specific gravity of from 0.90 to 0.97, and thus float upon water. They boil at 500 deg. Fah. and upwards. Chemically they consist of carbon, hydrogen, and oxygen, in the state of oleic acid ( $C_{36}H_{34}O_4$ ), and stearic acid ( $C_{36}H_{36}O_4$ ) combined with glycerine ( $C_8H_8O_6$ ), which has a sweet taste, hence its name.\* They are eminently combustible bodies, though requiring a much higher temperature to inflame them than essential oils. They are all slowly oxidable by exposure to air (especially in sunshine), or air and water vapor, and are also oxidised by various chemical agents, amongst which are found all those bodies which are employed as *dryers*.

The effect of all such oxidation, whether by air and time, or by dryers or other oxidating agents, is to so alter the chemical constitution of the oil that it approaches more or less to the nature and physical properties of a resin or varnish.

Fat oils as first expressed, are mixed with much vegetable albumen and other impurities, from which they are purified by repose and subsidence, by washing with water, by filtration, and by washing with solution of caustic soda, alternately with sulphuric acid, &c. When perfectly pure, fat oils are nearly devoid of smell, and their odor is never nauseous, but in the earliest stages of atmospheric oxidation they become more or less *rancid*, and then contain many complex organic compounds, such as butyric, caproic, valerianic, and other acids. Castor oil, when freshly expressed cold from recent beans of the *Ricinus communis*, is devoid of any smell and almost of taste, and in that state alone is employed in Italian and Eastern pharmacy; but after it has been expressed only a few hours, unless kept secured from *air* and *light*, it acquires the too well-known nauseous smell and taste of even "the best cold drawn castor oil" of our apothecaries.

The principal naturally drying oils, or those rendered so, and more commonly in use, are linseed oil, poppy seed oil, walnut, hemp seed, cotton seed, grape seed; to which may be added sperm and cod liver oils, which although drying, are not employed by painters. The chief naturally non-drying fat oils are almond, colza, olive, rape, beech-nut, gingally, or oil of sessamum, sunflower seeds, and castor oil. None of these are commonly employed by the American painter, though all, after a length of time longer or shorter, become more or less siccative. It seems probable that olive oil was, after some unknown preparation, employed by the ancient painters of Greece, in combination with wax and bitumen, or gum resins, as a vehicle. A non-drying oil may be distinguished at once from a drying oil, by the fact that the former is solidified when treated with a strong solution of the protonitrate of mercury, the latter is not.

Oxygen is absorbed so rapidly by fat oils, especially siccative oils, when exposing a large surface, that cotton waste, rags, fibres, &c., soaked in such liquids, have repeatedly taken fire spontaneously by the exaltation of temperature due to the inceptive combustion of the hydrogen out of the oil. Painters should therefore guard against spilling oils on cloths, &c., for fear of accidents by fire.

Linseed oil, which is the most common American vehicle for oil paints, is usually mixed with the pigment

in two forms, viz., as *raw linseed oil*, and as *drying oil*, or *boiled oil*. Boiling alone is sufficient to render linseed or other like oils perfectly drying, but the process is much expedited, and probably the result bettered, by adding to the oil previously, some suitable oxidising agent, *i. e.*, an oxide that readily yields up some of its oxygen. The most usual bodies employed for this purpose are litharge, or protoxide of lead, peroxide of lead, peroxide of manganese, sulphate of zinc, acetate of copper, and chromic acid, developed by sulphuric acid from bichromate of potass.

Chevreul, whose researches upon the subject of oil colors are of the highest importance, has shown, amongst other facts, that three hours boiling with litharge one-tenth in weight of the oil, renders the oil *more* perfectly drying than when the boiling is continued, as is the common practice, a much longer time, and that the oil acquires a darker color, and so becomes injured in transparency, the longer it is thus uselessly boiled. He has further shown that merely *heating* linseed oil to 170 deg. Fah. along with a small quantity of peroxide of manganese, as completely renders it siccative as any amount of boiling, and without any deterioration to its color or transparency. It appears probable that litharge acts more by its mere presence, or as chemists say *catalytically*, in inducing the oxidation of the oil than by actually giving up oxygen to it; and those engaged in boiling oils, have remarked that the old litharge upon which linseed oil has been already boiled, acts more energetically in producing the siccative property in fresh oil than new litharge. Sulphate of zinc and acetate of copper are decomposed by the oil when boiled with it as dryers, oxides of zinc or of copper subsiding. When linseed oil is boiled for a great length of time at a high temperature, which is commonly insured by setting fire to the oil and soon stifling it out, it becomes converted into a thick ropy and somewhat elastic viscid resin, which possesses some little of the physical qualities of partially dissolved india-rubber, and approaches to that in chemical constitution. This constitutes the basis of the gilders' fat, varnish, or "gold size." It dries rapidly and becomes hard and vitreous.

Chevreul has remarked the singular fact that some metallic oxides, notably the oxide of antimony, possess what he has called *anti-siccative* properties, *i. e.*, they actually retard the drying of the oil upon surfaces when mixed with it as pigments. He has also remarked the curious and not unimportant fact that the same oil paint dries much more rapidly upon surfaces of certain bodies than of others, though equally or even less absorptive of the oil. Thus white-lead paint dries on the first coat, much faster upon a surface of sheet lead than upon one of porcelain, or of oak timber, and the second coat over the same dries on all of those faster than the first. These facts admit of scientific explanation, but we cannot produce it within the limits of a paper such as this. Fat oils, when heated with alkalis, alkaline earths, or some metallic oxides in large quantities, produce soaps or metallic soaps, such as diachylon plaster, which is a soap of lead made with oil and litharge. Hence some few pigments tend to make fat oils miscible or partially soluble in water, and as a covering-in paint liable, when exposed to the weather, to wash off. Common whitelead paint that has been long exposed to air, light, and moisture, is always thus more or less loosened, and may be rubbed partially off from woodwork by the finger.

\* From *γλυκός*, sweetness.



The atmospheric oxidation of siccative oils tends to induce its own state of oxidation upon organic bodies that it may be in contact with. Hence the canvas of old paintings, even when encased in oil paint at both sides, tends to become brown, brittle, and rotten in fibre.

The mixture of raw linseed oil with drying oil is merely done in order to temper or delay the rate at which the oil paint shall dry. When drying takes place too fast, the paint is liable to crack or crumple, or on wood to blister.

The *drying* of oil paint is merely a conventional term, nothing like actual drying, *i. e.* evaporation of the oil, (like water from a wetted surface,) takes place, as Chevreul has proved. Drying of paint in reality means its *solidification* after being spread, without loss of weight, but, on the contrary, with a *gain* of weight, due to the oxygen absorbed, by which the oils, both fat and volatile, are converted into *resins* more or less completely. At the same time there is no doubt that some of the volatile oil (turpentine) is lost by evaporation or diffusion of its vapor in the air.

(To be concluded next month.)

## Trimming Room.

### NOVELTIES IN TRIMMING.

EVERY carriage-maker of experience has found out long ago that cross-straps for the back ends of coupés, caleches, &c., when made of simple harness leather, soon become slack when subjected to use, so as to look bad. This may be remedied by using india-rubber tubing instead, covered with leather. These, when put on the carriage, should be stretching, and then the natural elasticity will always keep them tidy and tight. They are now generally used in New York by the best builders.

A new pattern of lace, woven without other figures than stripes in colors, costing two dollars and ten cents a yard, has recently been introduced into fine carriages here, which look rich and neat. The predominant colors should be chosen to match with the linings, whether such be blue, brown, or any other shade.

In trimming caleches, instead of making the back curtain to roll up, the whole quarter is secured to the body, the same as on the side, and in this back a small window is contrived to slide in a frame made for the purpose, of wood. When the top is up, there is no unsightly or wrinkled back-curtain to spoil appearances, as formerly. To preserve a proper line with the back-pillar, the corner seaming is cut with a sweep, and stiffened a little with buckram or other suitable material, but not so much as to hinder its falling when required. This at the center projects somewhat beyond the back quarter, but not enough to look bad in the job. Carpets, too, are now prepared expressly for carriages, of a peculiar pattern, in stripes—of say one and a half inches—in the manner of caning, these stripes being laid the same distance apart that *they* are in width. Those running the same way are of the same color, those crossing of a deeper shade, although of like tint.

Dark colors prevail for all linings, in light or heavy work, and there is almost a total abandonment of everything deemed gaudy this season. In a word, the best

makers study richness instead of gaiety, and chasteness in place of nimby-paudyism.

## Editor's Work-bench.

### REVIEW OF TRADE.

SOME of our readers may, with a degree of reason, imagine that after such a severe winter as we have encountered, there will be very little trade found for review. Such, to a certain extent, is true; and yet there has been a little in carriages, and something likewise done in selling sleighs. The series of snow-storms—more than twenty—with which we have been visited, have supplied us with continued sleighing for nine or ten weeks, to the manifest advantage of trade, and the amusement of the public. This has served to ward off the "blues" in a measure, and multiply the hopes of the craft for better times in the spring.

Prices have fallen somewhat—say ten per cent.—from last summer's rates, caused by the scarcity of money and dull sales. One or two houses, with peculiar eccentricity, offer as a bait for gudgeons, to take off from former prices twenty-five per cent. As, however, in the sale of carriages, twenty-five per cent. is vaguely applied, such offers don't mean much with the knowing ones. When goods are offered at a heavy reduction, it is well to consider the old Roman caution, *caveat emptor*. It is true a merchant may be so "hard-up" that, to save himself from bankruptcy, he may resort to such measures as selling thirty-five per cent. below costs, but nine cases in ten it amounts to nothing more than a bait for the *foolish* to bite at. Goods sold for cheapness generally prove to be *very* cheap articles.

We are informed by a gentleman from the Dominion of Canada, that the carriage business there has latterly very much improved. We are glad to hear this, as for some years back, in consequence of our national troubles, it has been in an extremely depressed state, although overflowed with coin, which they have deemed nothing more nor less than a nuisance. So in this case, at least, the politician's Utopian idea, that specie currency tends to the advantage of trade, has not been realized.

The dealers in carriage material are doing something, from which we conclude that a little manufacturing is still going on, although we have not for a long time found labor seeking employment so unsuccessfully. Some of the trade societies, with characteristic imprudence, are talking about demanding higher prices for their services, but all such measures—in view of the present state of trade—must inevitably terminate in the entire destruction of all business. It is very strange that those who are the most seriously damaged in dull times have not yet discovered



this, and submitted with wisdom to the fluctuations of value caused by the laws of supply and demand.

#### PREPARE FOR SPRING BUSINESS.

If you would increase your business, and render it profitable, now is the time to take measures with that end in view. The time has passed when business will come to you; you must now look for it outside of your office, by circulars, cards, leaflets, charts, &c., or you will not find it. In furtherance of this object, at the rates given below, we will supply anything the trade may require, cheaper than can be done by any other individual, having already on hand a variety of carriage designs suitable for the purpose. From these our customers can select—say twenty-five designs—and have a chart made up to suit their fancy, 22 × 28 inches; fifty copies for \$30, 100 copies for \$35, 150 copies for \$48, or 200 copies for \$50, card in. The same on pasteboard, which saves cost of framing, will cost \$20 per hundred extra.

A smaller chart, 19 × 24 inches, to contain about fourteen designs, with business card, will be furnished, one hundred copies for \$25, or two hundred for \$35. The same on pasteboard will cost at the same rate extra as the larger sheet. This is due to the fact that the same board is cut to the proper size at a waste.

A very convenient and popular mode of advertising now is by leaflets, of about twelve pages, one of which when folded is devoted to a title-page, the others to carriages in variety, eleven in number. When folded, the strip looks like an uncut pamphlet, and may be conveniently sent by mail to correspondents or customers. For 100 copies in this form, we charge \$15; for two hundred, \$20. Now is the time to send us your orders, and secure for yourselves a good business year, if possible. Orders not accompanied with the money will have express costs for returning it to this office added to the above items.

#### STEAM-MAN FOR CARRIAGES.

UNDER the above heading last month, we noticed a new invention, which it is claimed by those immediately interested, is "the greatest invention of the age." Since that announcement, the invention has been placed on exhibition "in motion" at number 538 Broadway, where it may be seen for fifty cents, children half price.

Our former notice was written from information given second-hand, and in a few particulars needs correction. The inventor is a very young man, a native of this State, born in the vicinity of the Catskill Mountains, but instead of being a mechanic, claims to be simply an engineer and draughtsman. His name is Dedrick. Experimenting with the steam-man extends through the last six years, some built having been rejected as not answering the inventor's purpose. Whether the one on exhibition will do

all that the patentee promises for it, or not, is a question time will solve, although we have our doubts on the subject. When we saw the man, he was *sans culottes*, fixed on a frame before a phaeton, the only "motion" being an automatic movement of the legs by machinery, the feet dancing in the air. The inventor promises to give the public an exhibition of the man's capabilities in a race on Broadway in a few days, and says that in the spring the "critter" will run on the race courses in this vicinity, "when, should any of our sporting men be so imprudent as to bet that, hitched to a wagon, he cannot make his mile in a minute, *they will be sure to lose their money*"—not an unusual result of gambling.

The body of *this* man is iron, inclosing one hundred and five brass tubes, in which steam is generated by either coal or wood applied at a door in the lower portion. How this is done when *the thing* is on a journey, we cannot divine; and perhaps we shall never find out, as a gentleman who works next door to the machine shop where it was constructed says *it never did walk*. The engine is oscillating, with an upright boiler, fed by an india-rubber hose, leading from a tank under the seat of the carriage, three drops of water at a stroke. Connected with this machine is a steam gauge, safety valve, and whistle. It is of two-horse power, regulated in turning and speed by proper appliances. Our inspection leads us to conclude that dealers in horse-flesh need have no fears about losing their trade yet awhile, and that carriage-makers may not expect a rush of customers this spring caused by this "greatest invention of the age."

#### ENGLISH VIEWS OF TRADES-UNIONISM.

THERE has recently been published in England by the Longmans, a book which, among other things, devotes some space to the effects of strikes, combinations, and trades-unions, which it would be well for intelligent mechanics to read. The author, Mr. J. Ward, says that trades-unions—and we agree with him—"instead of being a benefit to the working class, are an injury, for they can only be carried on by means fatal to every right that a free people respects. They are destructive also to the legitimate ambition of industry and merit, and in their practical operation they are simply a premium on incapacity. These unions vary considerably in character, conduct and spirit, but they all contain within them the germs and elements of injustice, if not of crime, inasmuch as they are founded upon the right of the *many* to coerce the *few*, and the employment of such means as may be deemed necessary to give effect to these dangerous and delusive principles."

In relation to strikes, the author tells us that "the working man who feels conscious of his superior skill, or manual dexterity, ought to depend upon his own worth as a laborer, and act upon his own judgment, and not permit



himself to swerve from the straight line of his own interest, by the suggestions of the cunning, the clever, and the unscrupulous who belong to the same body. Let him abandon strikes and combinations; *they are the premium upon incapacity*. Examine minutely their various workings, and mark their inevitable and uniform results: the able hand, who could always obtain work at good wages, is sacrificed to his comparatively feeble and inefficient colleague. All strikes, therefore, with scarcely a single exception, are the sacrifice of the skilled *few* to the presumed advantage of the indolent, ignorant, and indifferent *many*. Labor, then, if it wish to elevate its condition, must eschew combinations and strikes; it must endeavor to establish itself upon the same conditions as capital, and submit to the healthy and invigorating influence of competition, by which alone it can realize its best and most permanent interests."

The above sensible extracts, which we have taken from a most excellent and timely publication, ought to be printed in golden letters, and placed in every workshop throughout the land, for the study of the laboring classes, and to serve as a check to the insane teachings of a certain class of mercenary demagogues, which teachings can only end in disappointment to the employee and the injury of the employer. They contain truths which commend themselves to the best judgment of every right balanced mind, and are unanswerable by the advocates of modern trades-unionism, whose principles, if carried out, would ruin trade, and be the means of *flooding* this country with the products of foreign artisans. Of this we have already seen proof in the New York sales-rooms, where carriages of foreign manufacture have been sold much under our prices. Shall this be continued, and further encouraged? We shall see.

#### SPLITTING OF PANELS.

Much complaint has been made during the past winter, on account of the splitting of panels, while the carriage has stood in the repository awaiting sale. One gentleman informs us he never experienced such trouble before, and requests us to explain the cause—a task somewhat difficult to discharge, unless it be owing to the extreme low temperature of the atmosphere with which we have been visited. It is well known that our driest white-wood panels have in them more or less moisture—some estimate it as high as ten per cent.—after we have done our best to season them, for it is impossible to fit a panel to a sweeping line without saturating one side with hot water to soften it and make it bend. This process makes one side at least about as soft as when the material left the log, and although it may have had time to dry somewhat, is still affected the more easily by frost. Some persons, in these pages, have proposed as a remedy against splitting that the inside of the panel, as well as the out-

side, be painted. Perhaps, instead of one, three or four coats would prove effective. We should be gratified to have the views of our readers on this subject for publication.

We are inclined to think that more trouble with splitting panels results from carelessness on the part of the workman than from any other cause. Often, when he finds a board a little harder than usual, to economize, he does not take pains to get it properly fitted, but trusts to brads or nails *to do a portion of the warping*, in which process the panel is checked on the inside. Although this may not appear at first, yet in time it is sure to show on the outside, causing the employer trouble and expense afterward; for repainting a portion, and varnishing the whole job anew, is a costly affair.

#### ONE NUMBER MORE.

WITH the issuing of the next number, volume nine will close. With that number, as we have always heretofore done, we intend to furnish a copious index, and a handsome title page—a thing no coteremporaneous work of a similar nature has yet furnished. To publish a serial without even a title-page, is too mean a piece of business for anybody to engage in. Such volumes bound must be very *interesting* to patrons, especially when looking for a particular article.

We have in preparation for the next volume a series of articles, which we shall announce hereafter, calculated to promote the interests of such as renew their subscriptions in time.

We have been very much encouraged by the success of our labors the past year, and although others have prophesied to the contrary, we take this opportunity to say to our friends that at no time since we undertook this enterprise have we been better satisfied with it. The insane claims of certain factions have stirred up the community to renewed exertion in adding to our subscription lists. This has resulted in our pecuniary benefit, for which we try to be duly grateful. But more of this next month.

#### CORRESPONDENCE.

A GENTLEMAN writes us to find out where he can purchase the Sarven wheel, ready made. We suppose he thinks we are bound to tell him because he is one of our subscribers. Perhaps we ought, *for his interest*, but it is questionable with us whether it would not be better to decline in a case where the manufacturer is too penurious to advertise his wares to our loss.

Another gentleman says he is engaged in carriage-making in a certain city, and "wants to take the best coach-maker's magazine published," and so asks us to send him a specimen copy, "as we are in the habit of doing." To him, and others like him, we have to say that we are not



in "the habit" of sending anything of the kind until they are paid for. That business has been discontinued for the past six years. Beggars will please remember this, and likewise, that the price of a specimen number now is fifty cents.

Another correspondent says that on a certain day he sent us, by mail, *unregistered*, a certain sum of money, which he enclosed in a letter in presence of the postmaster—just the thing he ought not to have done. If persons *will risk* money by mail, *unregistered*, they ought to keep the matter secret and not tempt the cupidity of *weak-minded* state officials, proverbially so in these days—unless they have money to lose.

Again, one says, "I want information in regard to a new style of ornamental painting designed for carriage and buggy work. The painting is first done on paper, and then transferred to the work. The drawings are used by one establishment in this country, but they will not give any information as to where they may be obtained, though they are for sale by parties in New York." If this Georgian friend had been a regular subscriber of ours he would have been posted long ago, and known that it is "Decalcomanie" he needed, and that we supply it by mail for \$2.25 cents the sheet.

A firm in the carriage business wants to know "what is the best kind of wood for corner blocks in round cornered seats and bodies, or what is generally used. We are now making a body with round back about three and a half inches in width of seat, and six inches under with panel, which is a very difficult job!" Will some of our readers tell them through our Magazine?

We are in receipt of a letter from Rockford, Ill., containing \$5, to which no name is signed. Will correspondents be a little careful, and give us their names in full, with the town, county, and State? *We find the State often omitted.* In such cases, how are we to know what to do when there are towns in almost every State of the same name? Please be more careful in this particular.

#### PROPOSED ABOLISHMENT OF TAXES.

MR. SCHENCK, from the Committee on Ways and Means, having presented to the House of Representatives a bill to exempt certain manufactures from the effects of internal revenue taxation, it has been passed in that body by an almost unanimous vote, which indicates that it will readily pass the Senate in due time, and become a law, to go into effect on the 1st of April next. The articles relieved, appertaining to carriage-making, are the repairs of carriages when the value is increased ten per cent. on increased valuation. Glue solid, per pound, 1 per cent.; band and hoop iron, \$5 per ton; leather, 5 per cent.; linseed oil, 5 cents per gallon; paints, 5 per cent.; wood screws, 10 per cent.; turpentine, 20 cents per gallon;

varnish and japan, 5 per cent. *ad valorem*; whitelead, 35 cents per hundred pounds.

## Patent Journal.

### AMERICAN INVENTIONS.

January 28. (73,885) SLEIGH AND SLED.—David C. Frazier, Sidonsburg, Pa.:

I claim, *First*, The combination and arrangement of the wheels D D and runners C C, substantially as and for the purposes specified. *Second*, The combination of the lever G, shaft F, pitmen H H, and cross-bars E E, with the pivoted runners C C, bearing the wheels D D, substantially in the manner and for the purposes set forth.

(73,903) CLIP AND FERRULE FOR JOINTS ON FELLOES.—Phineas Jones, Newark, N. J.:

I claim the combined clip *a* and ferrule *b*, with the rib *c*, made substantially as specified and shown.

(73,918) DUMPING-CART.—George E. Newell, Pawtucket, R. I.:

I claim, *First*, The combination and arrangement of the hinged rack C, the train of gear-wheels *k l m n o*, and the pressure-roller *f*, with the body of a dumping-cart, substantially as described, for the purposes specified. *Second*, Combining with the hinged rack C a pressure-roller, for the purpose of keeping the teeth of the rack in engagement with the teeth of its operating pinion at all positions of the cart-body, substantially as described.

(73,941) RUNNING-GEAR FOR CARRIAGES.—Jerome B. Withey, Lexington, Mich.:

I claim the combination and arrangement of a running-gear for carriages, as hereinbefore described, when constructed with the wrought spindle or journal-shaft A, the hub B, a collar and nut C, boxes D, bars E, F, G, H, I and K, reach J, plate L, dog M, and draught-rods N, when put together and operating substantially as and for the purposes set forth.

Feb. 4. (74,009) CARRIAGE SPRING.—James D. Sarven, Columbia, Tenn.:

I claim the combination of the steel springs D, rubber springs E, and curved plates C, (having flanges or ears formed upon their side edges,) with each other, and with the springs and body of the vehicle, substantially as herein shown and described, and for the purpose set forth.

(74,010) CARRIAGE SPRING.—James D. Sarven, Columbia, Tenn.:

I claim the combination of the metallic plate or cap B, having flanges *b'* upon its sides and outer end, and the rubber spring or annular block C, with the end of the wooden spring A, substantially as herein shown and described and for the purpose set forth.

(74,012) ELASTIC BEARING FOR THE BODY-SUPPORTING IRONS FOR CARRIAGES.—James D. Sarven, Columbia, Tenn.:

I claim, *First*, The supporting-iron D, having the neck *d* and the head *D'*, as and for the purpose specified. *Second*, The combination of the springs A A, one or both, cushions I F, and cross-bars B, substantially as and for the purpose described. *Third*, The combination and arrangement of the box E with the enclosed cushions I F, substantially as and for the purpose specified.

(74,029) MODE OF SECURING BOX-METAL IN CARRIAGE HUBS.—Augustus H. Ahlborn, Lawrenceville, Pa.:

I claim tinning the interior of carriage-boxes prior to lining them with a metallic alloy, so that said metallic alloy will adhere to the box and become part of the same, substantially as herein described and for the purpose set forth.



(74,053) **THREE-HORSE EQUALIZER.**—Giles Cramton, Marshall, Mich. :

I claim the arrangement and combination of the pulley D, coupling-tongue B, pin P, hollow-disk casing A, and hitching-chain or chains G, with the whiffle-tree E, and double-tree F, of a three-horse team, substantially as and for the purpose herein described.

(74,062) **MACHINE FOR BORING WAGON HUBS.**—J. W. Emerson, Rochester, Minn. :

I claim the small shaft L, in combination with the shaft J, handle j, gear-wheel S, circular plate K, stop T, gear-wheels N O, and cutter R, substantially as described for the purpose specified.

(74,071) **BOOT-ATTACHMENT TO CARRIAGES.**—Marvil M. Follett, Upton, Westboro' Post Office, Mass. :

I claim, *First*, A boot-attachment to carriages, composed of the rollers C, E, and D, and the spring S and strap a, whereby a boot for carriages is wound up by the force of a spring, S, substantially as shown and described, and for the purposes set forth. *Second*, The check a2, or its equivalent, in combination with the boot B and spring a1 and pin a3, substantially as shown and described, and for the purposes set forth.

(74,087) **BOLT AND RIVET-CUTTER.**—John S. Henry and Abraham H. Reist, Manheim, Pa. :

We claim the combination and arrangement of the jaws D E, unobstructed on one side, when said jaw D is connected with piece C, with its fixed loop L, and pivot connection to H, and the jaw or cutter E, with its shoulder e, is on the end of the prolonged handle or lever B, combined and operating in the manner and for the purpose specified.

(74,117) **CARRIAGE WHEEL.**—William F. Morton, New Haven, Conn. :

I claim the hub, cast in one piece with the collars A A and connecting-bars a a, when constructed in the shape and proportions as described.

(74,126) **PATTERN FOR DRAUGHTING SLEIGH BODIES.**—Dennis Pierce, Waverley, Iowa :

I claim a pattern-board, A, with elevation B, constructed and adapted for laying off work for sleighs, substantially as described.

(74,130) **CARRIAGE BRACE.**—Moses Powe, Belvidere, N. J. :

I claim the sheath E, covering three sides of the joint of a brace for vehicle hoods or tops, and attached to one of the braces, all substantially as shown and described and for the purposes specified.

(74,131) **DUMPING WAGON.**—Joram Priest, Detroit, Mich. :

I claim, *First*, Hanging the box J upon the longitudinal bars E, by a proper fulcrum between the front and hind wheels, so that the box will tilt or dump between the hind wheels. *Second*, The crank-axle F, when operating for the purposes herein described. *Third*, The semi-rotating bar I and bearings H, when constructed and operating substantially as and for the purposes set forth. *Fourth*, The combination of the above parts with the axle A, the wheels B and G, the circle C, the bolster D, the wagon-box J, the transverse bar K, the rings L, and the catch M, or their equivalents, when constructed and operating as and for the purposes herein set forth.

(74,134) **SELF-LUBRICATING AXLE FOR CARRIAGES.**—Silas S. Putnam, Dorchester, Mass. :

I claim a chamber, b, within the end of the axle, packed with fibrous or porous material, for receiving and retaining a supply of lubricating substance, which passes through openings to the bearing-surface of the axle, substantially as described. Also, providing the collar H with a chamber, e, for containing packing saturated with lubricating substance, substantially as and for the purpose set forth.

(74,178) **METALLIC SCROLL-ENDS FOR SPRING-BARS FOR**

**CARRIAGES.**—Anson L. Warburton and Henry Bendir, Fort Wayne, Ind. :

We claim the metallic scroll-ends for spring-bars and head-blocks for carriages, &c., as an article of manufacture, the same being constructed and used in the manner and for the purpose substantially as specified.

(74,184) **SUSTAINING-DEVICE FOR DRAUGHT-POLES FOR CARRIAGES.**—Samuel B. Whitney, Coxsackie, N. Y. :

I claim the loop or hook i, hanging from the bolt e, and sustaining the spring F, in combination with the tongue d and jaws c, as and for the purposes set forth.

(74,189) **CARRIAGE-SHAFT AND POLE-COUPLING.**—Edmund A. Harvey, Wilmington, Del. :

I claim, *First*, The clevis A, with pin or bolt C, with or without either permanent or detachable safety-lips G, in combination with hook-box B, substantially as described. *Second*, The hook-box B, in combination with key-bolt D, with spring or elastic washer E, for the purposes named.

11. (74,198) **WAGON BRAKE.**—E. M. Chumard, Pittston, Pa. :

I claim, *First*, The arrangement of the roller R with the arms n and h, and the brake-bar F, when constructed in the manner substantially as and for the purposes herein specified. *Second*, The slide m, constructed as described, and used with the brake-bar F, in the manner substantially as and for the purposes set forth.

(74,222) **WHIFFLE-TREE HOOK.**—William H. Hawley, Utica, N. Y. :

I claim the whiffle-tree hook, composed of the thimble A, hook B, and latch or stop C, constructed and operating in combination substantially as described, and for the uses and purposes mentioned.

(74,223) **WHIFFLE-TREE HOOK.**—William H. Hawley, Utica, N. Y. :

I claim the whiffle-tree hook, constructed of the thimble A, with the curved end D and E in combination of the ring B and hook C, all constructed and arranged substantially as described, and for the uses and purposes mentioned.

(74,251) **TILTING WAGON.**—George R. Sneath and Charles H. Sneath, Wilmington, Del. :

We claim, *First*, The pivots a a, in combination with the sills B B and bent axle D D D, constructed as described for the purpose set forth. *Second*, Also the lever L, arranged and constructed as described for the object already specified.

(74,253) **WAGON FOR LOADING LOGS, STONE, AND HAY.**—James Sutherland, Morris, Ill. :

I claim the construction and arrangement of the stationary grooved upright B, sliding elongated ratchet C, lever E, and pawls b and D, swinging-lever G, and grappling-iron H, in combination with a wagon, substantially in the manner and for the purpose as herein set forth.

(74,273) **WHIFFLE-TREE.**—Dinsmore Austin, Underhill, Vt., assignor to himself and Homer Rawson :

I claim, *First*, The movable pin a, in combination with the spiral spring e, when used as and for the purpose specified. *Second*, The spring C, provided with a flange, i, and shoulder x, in combination with the spiral spring e, when used as and for the purpose set forth.

(74,274) **WHIFFLE-TREE TUG.**—Dinsmore Austin, Underhill, Vt., assignor to himself and Homer Rawson, Jericho, Vt. :

I claim, *First*, The lever B, pivoted to an arm, D, attached to the end of a swingle-tree, and provided with two prongs or hooks, b b, constructed substantially as and for the purposes specified. *Second*, The combination of the two-pronged lever B with the hollow arm D, the spring f, and swingle-tree A, when used as and for the purpose set forth.

(74,275) **SHAFT COUPLING.**—Dinsmore Austin, Under-



hill, assignor to himself and Homer Rawson, Chittenden, Vt.:

I claim the forked bar C, in combination with the spiral spring *f* and clip B, constructed substantially as and used for the purpose specified.

(74,287) WHIFFLE-TREE.—L. G. Binkly, Fairview, Ohio:

I claim a whiffle-tree, constructed of a single bar, A, sliding forward and backward in a socket or coupling, G, and operating against a spring, B, arranged in front of it, substantially as and for the purpose set forth.

(74,347) EQUALIZING DOUBLE-TREE.—Edwin Griswold, Joel B. Cramer, and William Blay, Helena, Montana Territory:

We claim, *First*, An improved double-tree, the end parts, *a1*, of which are hinged or jointed to the central part, *a2*, substantially as herein shown and described and for the purpose set forth. *Second*, The combination of the strap or straps E and pulleys C with the draught-bar or double-tree, substantially as herein shown and described and for the purpose set forth. *Third*, The combination of the rigid or flexible straps H with the end parts of a jointed double-tree, and with the straps E, substantially as herein shown and described and for the purpose set forth.

(74,363) WAGON SPRING.—Elijah Horton, Okeech, Wis.:

I claim, *First*, The stirrup C, constructed and applied substantially as shown and described, for the purposes set forth. *Second*, In combination with the stirrup C, the rubber spring D, the cross-bars E, the ties *a*, and the cups *b*, arranged substantially as shown and described, for the purposes specified.

(74,380) CROSS-STRAP FOR CARRIAGE.—Henry Killam, New Haven, Conn.:

I claim constructing the cross-straps for carriages wholly or in part of rubber or other elastic material, substantially as and for the purpose described.

(74,382) AXLE FOR VEHICLES.—William Knoch, Allegheny City, Pa.:

I claim the tapering spindle B, constructed as described, fitting eccentrically upon the square shank of the axle, the hole in the front end of said spindle being in its centre, and the hole in the inner end placed near the lower edge, in such a manner that the under side of the axle lies parallel with the lower perforated side of the spindle, and an inclined lubricating-chamber formed above the axle, as herein described for the purpose specified.

(74,414) BUGGY-TOP ROLLER.—John Palmer, Mechanicsburg, Pa.:

I claim the combination of a gum-elastic cylinder A, and its strap and buckle B and C, with the screw-bolt F and top bows D of a falling-top buggy, as herein described and for the purposes set forth.

(74,422) FIFTH-WHEEL FOR CARRIAGES.—Hiram W. Ransom, Lawrenceburg, Ind.:

I claim the block H, which forms a bearing for the fifth-wheel F, and which is provided with a wing on each side, whereby the rubber D is held in the safety-guard G, as and for the purposes set forth.

(74,424) SPRING FOR VEHICLES.—Charles L. Rice, Dunmore, Pa.:

I claim the combination of the side springs E, whose lower ends are hinged at *a* to each side of the reach, and whose upper curved ends are hinged to the sides of the wagon-body, and the spring F, whose inner end is secured to reach between the springs E, and whose forward end passes through the springs D, and is bent over and hinged to the forward edge of the upper part of said spring, all arranged and operating as described, to prevent the longitudinal and lateral movements of the body, as herein set forth.

(74,450) SLEIGH.—Bjarne Thompson, Chicago, Ill.:

I claim connecting the body of the sleigh with the front or runners, by means of the slots *a* and irons *d*, constructed and operating substantially as specified.

(74,462) WAGON-BRAKE.—Benjamin F. Wheeler, Calais, Vt.:

I claim, *First*, The movable handle of the brake, in combination with the slotted central reach metal loop and strap B *b*, forward slotted rocker and the king-bolt, and slotted rocker-plate, substantially as described, for the purpose specified. *Second*, In combination with the above, the sliding key C *c* C, substantially as described, for the purpose specified. *Third*, In combination with a wagon-brake, the rag-wheel D, dog E, and coiled spring F, substantially as described, for the purpose specified.

(74,468) SELF-ACTING WAGON-BRAKE.—J. A. Williams and W. W. Williams, Mattoon, Ill.:

We claim the combination of the brake-bar *b*, the spring *g*, the connecting-rod, and chains, and the single-trees *p p*, constructed, arranged, and operating as a self-acting wagon-brake, substantially as herein described.

(74,470) DRAUGHT-EQUALIZER FOR DOUBLE-TREES.—M. V. B. Williamson, Jamesport, N. Y.:

I claim, *First*, Hanging the pulley B forward of the double-tree, substantially as and for the purpose set forth. *Second*, So constructing and attaching the arms or clevis *b* as to allow them and the pulley B to have free lateral vibratory motion from the bolt *a* as a centre, substantially as hereinabove specified.

(74,471) DOUBLE-TREE.—M. V. B. Williamson, Jamesport, N. Y.:

I claim the combination with a double-tree A, of a short single-tree or centre-bar B, capable of swinging on its centre, and attached to the double-tree by means of a clevis, or its equivalent, substantially as and for the purpose set forth. Also, the combination of the double-tree A with the single-tree B, substantially as set forth.

18. (74,476) LUBRICATORS FOR AXLES, AND MODE OF ATTACHING THEM TO AXLES.—Levi Adams, Amherst, Mass.:

I claim, *First*, The two jaws E E, fitted or secured to the axle, as shown, in combination with the collar C, at the inner end of the arm B, and the flange *a*, at the inner end of the box D, all being constructed and arranged substantially in the manner as and for the purpose set forth. *Second*, The packing *i* and the oil-cup F, in combination with the jaws E E, the collar C on the axle, and the flange *a* on the box D, all arranged substantially as and for the purpose specified. *Third*, The button, consisting of metal plate *d*, rod *e*, pivoted in lug *f*, and the nut *g*, when used in combination with the jaws E E, and all arranged substantially in the manner as and for the purpose set forth.

(74,499) CARRIAGE-SPRING BRACE.—Joseph H. Chadwick, Wheaton, Ill.:

I claim the combination and arrangement of the spring A, the sill C, or its equivalent, the braces *c d*, and jointed arm *f*, in the manner and for the purposes set forth and shown.

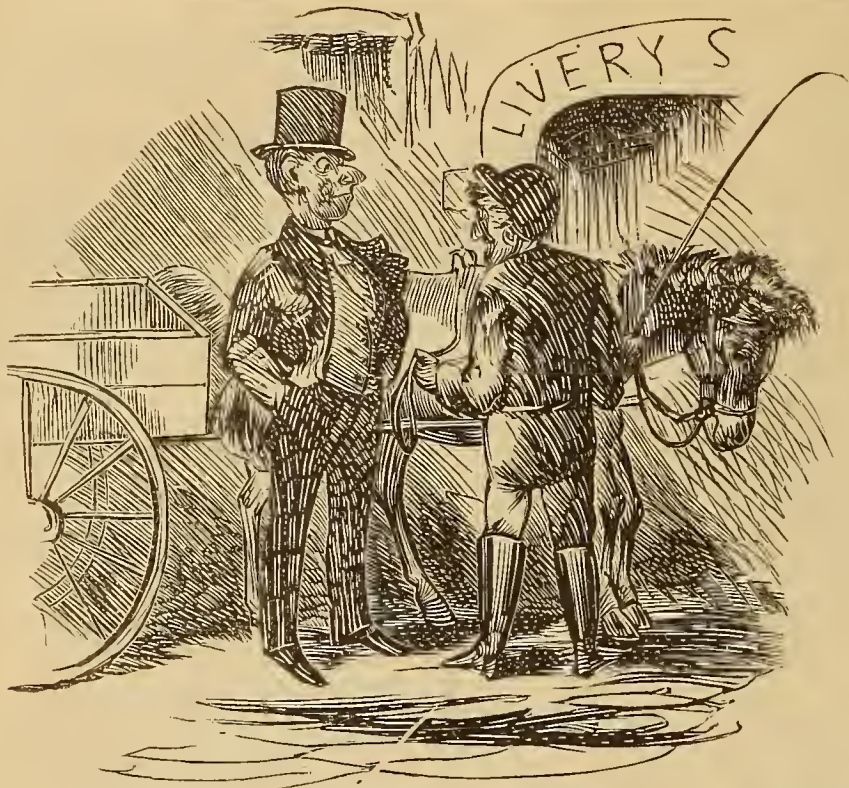
(74,511) THREE-WHEELED FARM-WAGON.—E. T. Crockett, Guilford, Me.:

I claim the hinged draught-plate G, with side arms J, hound E, and coupling C, when constructed, combined, and operating with the third wheel L, as herein described, and for the purposes set forth.

(74,575) BOLT-CUTTER.—Thomas W. Moore, Richmond, Ind.:

I claim the combination of lever A (provided with cutting-edge, as set forth) and lever B, (provided with aperture *b*,) when operating substantially as and for the purpose described.





SPORTING GENT.—Johnny, how's this? That wagon you're getting out for me has no springs to it.

JOHNNY.—Why bless yer innocent heart, the spring is in the horse. Don't yer see! she's got the springs in her fore legs!

### CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, BY MESSRS. C. VAN HORN & CO.

NEW YORK, March 17, 1868.

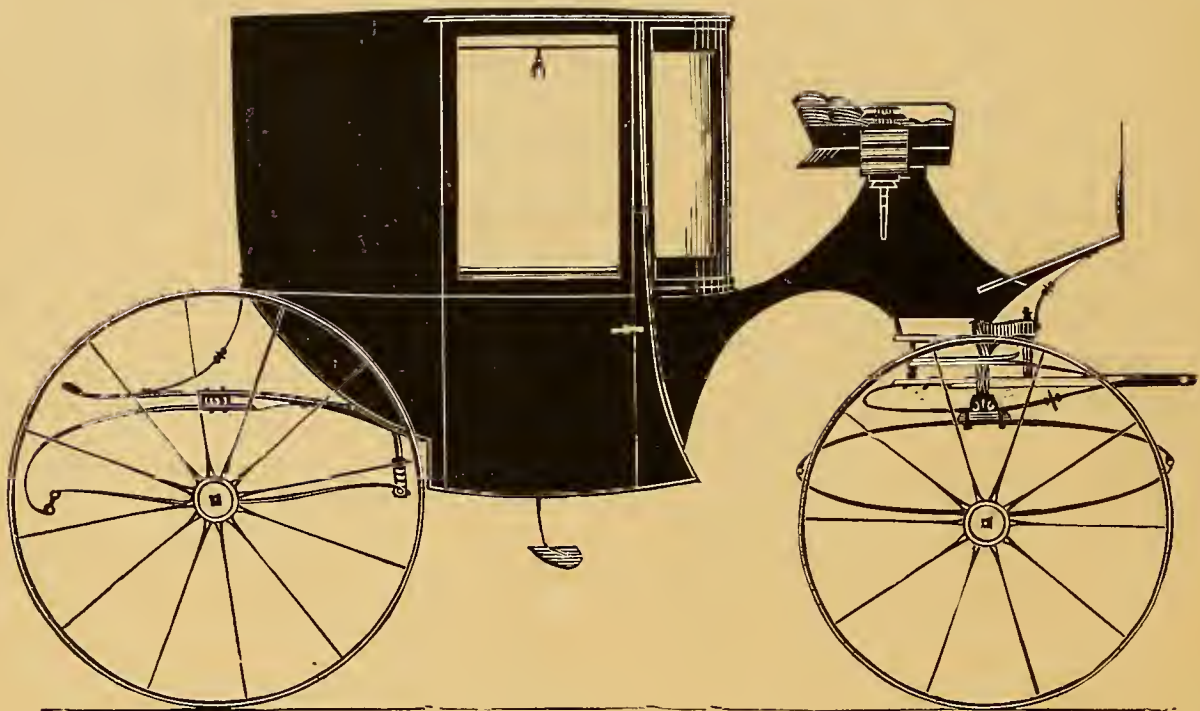
Apron hooks and rings, per gross, \$1.25 a \$1.75.  
 Axle-clips, according to length, per dozen, 50c. to 80c.  
 Axles, common (long stock), per lb, 7 1-2c.  
 Axles, plain taper, 1 in. and under, \$5.50; 1 1/2, \$6.50; 1 3/4, \$7.50; 1 7/8, \$9.50; 1 7/8, \$10.50.  
 Do. Swelled taper, 1 in. and under, \$7.00; 1 1/2, \$7.50; 1 3/4, \$8.75; 1 7/8, \$10.75; 1 7/8, \$13.00.  
 Do. Half pat., 1 in. \$10; 1 1/2, \$11; 1 3/4, \$13; 1 7/8, \$15.50; 1 7/8, \$18.50.  
 Do. do. Homogeneous steel, 3/4 in., \$11.00; 1/2, \$11; 3/8, \$12.00; long drafts, \$2.50 extra.  
 ☞ These are prices for first-class axles. Inferior class sold from \$1 to \$3 less.  
 Bands, plated rim, 3 in., \$1.75; 3 in., \$2, larger sizes proportionate.  
 Do. Mail patent, \$3.00 a \$5.00.  
 Do. galvanized, 3 1/2 in. and under, \$1; larger, \$1 a \$2.  
 Basket wood imitations, per foot, \$1.25.  
 ☞ When sent by express, \$2 extra for a lining board to a panel of 12 ft.  
 Bent poles, each \$1.00 to \$1.50.  
 Do. rims, extra hickory, \$2.75 to \$3.50.  
 Do. seat rails, 50c. each, or \$5.50 per doz.  
 Do. shafts, \$6.50 to \$9. per bundle of 6 pairs.  
 Bolts, Philadelphia, list. 30 off. Do. T, per 100, \$3 a \$3.50.  
 Bows, per set, light, \$1.50; heavy, \$2.00.  
 Buckles, per grs. 1/2 in., \$1.25; 3/4, \$1.50; 1, \$1.70; 1 1/4, \$2 10; 1, \$2.80.  
 Buckram, per yard, 20 a 25c. Burlap, per yard, 16 a 20c.  
 Buttons, japanned, per paper, 20c.; per large gross, \$2.25.  
 Carriage-parts, buggy, carved, \$4.50 a \$6.  
 Carpets, Brussels, \$1.75 a \$2.25; velvet, \$3 a \$4.50; oil-cloth, 50a80c.  
 Castings, malleable iron, per lb, 16c.  
 Clip-kingbolts, each, 40c., or \$4.50 per dozen.  
 Cloths, body, \$3.50 a \$5; lining, \$2.50 a \$3.50. (See *Enameled*.)  
 ☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for \$2.50 per yard.  
 Cord, seaming, per lb, 45c.; netting, per yard, 8c.  
 Cotelines, per yard, \$4 a \$8.  
 Curtain frames, per dozen, \$1.25 a \$2.50. Do. rollers, each, \$1.50.  
 Dashes, buggy, \$1.75. Door-handles, stiff, \$1 a \$3; coach drop, per pair, \$3 a \$4. Drugget, felt, \$2.  
 Enameled cloth, musliu, 5-4, 40c.; 6-4, 75c.

Enameled Drills, 48 in., 55c.; 5-4, 50c.  
 Do. Ducks, 50 in., 75c.; 5-1, 70c.; 6-4, 80c.  
 ☞ No quotations for other enameled goods.  
 Felloe plates, wrought, per lb., all sizes, 20c.  
 Fifth-wheels, wrought, \$1.50 a \$2.00.  
 Fringes, festoon, per piece, \$2; narrow, per yard, 18c.  
 ☞ For a buggy top two pieces are required, and sometimes three.  
 Do. silk bullion, per yard, 50c. a \$1.  
 Fringes, worsted bullion, 4 in. 28c. a 35c.  
 Do. worsted carpet, per yard, 8c. a 15c.  
 Frogs, 50c. a \$1 per pair. Glue, per lb, 25c. a 30c.  
 Hair, picked, per lb, 50c.  
 Hubs, light, mortised, \$1.20; unmortised, \$1.— coach, mortised \$2. Japan, per gal. \$2.75.  
 Knobs, English, \$1.40 a \$1.50 per gross.  
 Laees, broad, silk, per yard, 90c. a \$1.25; narrow, 10c. to 16c.  
 Do. broad, worsted, per yard, 40c. a 50c.  
 Lamps, coach, \$18 a \$30 per pair.  
 Lazy-backs, \$9 per doz.  
 Leather, collar, dash, 28c.; split do., 14c. a 16c.; No. 1, top, 27c.; No. 2, enameled top, 25c.; enameled Trimming, 26c.; harness, per lb, 50c.; flap, per foot, 25c.  
 Moquet, 1 1/2 yards wide, per yard, \$8.50.  
 Moss, per bale, 10c. a 18c.  
 Mouldings, plated, per foot, 1/4 in., 14c.; 3/8, 16c. a 20c.; 1/2, lead, door, per piece, 40c.  
 Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c. Name-plates.  
 Oils, boiled, per gal., \$1.50.  
 Paints. White lead, ext. \$14.00, pure \$15.00 per 100 lbs.; Eng. pat. blk, 40c.  
 Pole-crabs, silver, \$5 a \$12; tips, \$1.25 a \$1.50.  
 Pole-eyes, (S) No. 1, \$2.25; No. 2, \$2.40; No. 3, \$2.65; No. 4, \$4.50 per pr.  
 Sand paper, per ream, under Nos. 2 1/2 and under, \$5.00.  
 Screws, gimlet, manufacturer's 30 per cent. off printed lists.  
 Do. ivory headed, per dozen, 50c. per gross, \$5.50.  
 Serims (for canvassing), 16c. a 22c.  
 Seats, buggy, pieced rails, \$1.75; solid rails, \$2.12.  
 Shaft-jacks (M. S. & S.'s), No. 1, \$2.40; 2, \$2.60; 3, \$3.00.  
 Shaft-jacks, common, \$1.10 a \$1.35 per pair.  
 Do. tips, extra plated, per pair, 25c. a 50c.  
 Silk, curtain, per yard, \$2 a \$3.50.  
 Slat-irons, wrought, 4 bow, 75c. a 90c.; 5 bow, \$1.00 per set.  
 Slides, ivory, white and black, per doz., \$12; bone, per doz., \$1.50 a \$2.25; No. 18, \$2.75 per doz.  
 Speaking tubes, each, \$10. Spindles, scat, per 100, \$1.50 a \$2.50.  
 Spring-bars, carved, per pair, \$1.75.  
 Springs, black, 16c.; bright, 18c.; English (tempered), 22c.; Swedes (tempered), 26c.; 1 1/4 in., 1c. per lb. extra.  
 If under 34 in., 2c. per lb. additional.  
 ☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.  
 Spokes (Best Elizabethport), buggy, 7/8, 1 and 1 1/8 in. 9 1/2c. each; 1 1/2 and 1 1/4 in. 9c. each; 1 1/2 in. 10c. each.  
 ☞ For extra hickory the charges are 10c. a 12 1/2c. each.  
 Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3-16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.  
 Do. Littlejohn's compound tire, 3-16, 10 1/2c.; 1-4, 10 1/2; 3-4 x, 5-32 a 11 c; heavier sizes, 9 1/2c. currency.  
 ☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.  
 Stump-joints, per dozen, \$1.40 a \$2. Tacks, 7c. and upwards.  
 Tassels, holder, per pair, \$1 a \$2; inside, per dozen, \$5 a \$12; acorn trigger, per dozen, \$2.25.  
 Terry, per yard, worsted, \$3.50; silk, \$8.  
 Top-props, Thos. Pat, wrought, per set 80c.; capped complete, \$1.50.  
 Do. common, per set, 40c. Do. close-plated nuts and rivets, 75a80c.  
 Thread, linen, No. 25, \$1.75; 30, \$1.85; 35, \$1.80.  
 Do. stitching, No. 10, \$1.00; 3, \$1.20; 12, \$1.35, gold.  
 Do. Marshall's Machine, 432, \$2; 532, \$2.25; 632, \$2.60, gold.  
 Tufts, common flat, worsted, per gross, 20c.  
 Do. heavy black corded, worsted, per gross, \$1.  
 Do. do. silk, per gross, \$2. Do. ball, \$1.  
 Turpentine, pr gl., 70c. Twine, tufting, pr ball, 50c.; per lb, 85c. a \$1.







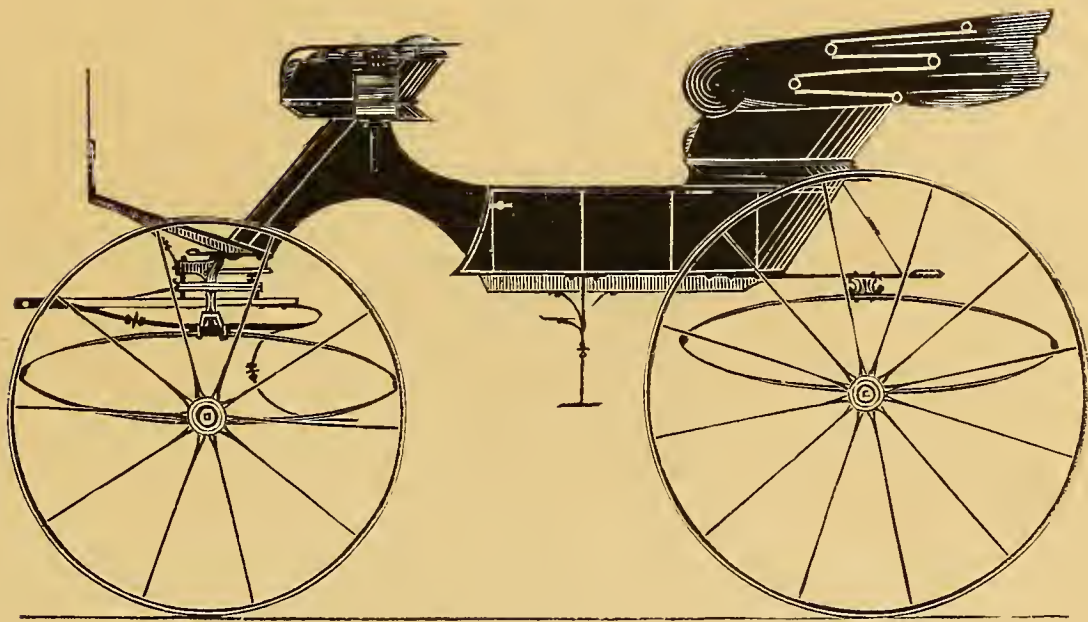


LIGHT COUPÉ.— $\frac{1}{2}$  IN. SCALE.

*Engraved expressly for the New York Coach-maker's Magazine.*

*Explained on page 180.*





FANCY PHAETON.— $\frac{1}{2}$  IN. SCALE.

*Designed expressly for the New York Coach-maker's Magazine.*

*Explained on page 180.*

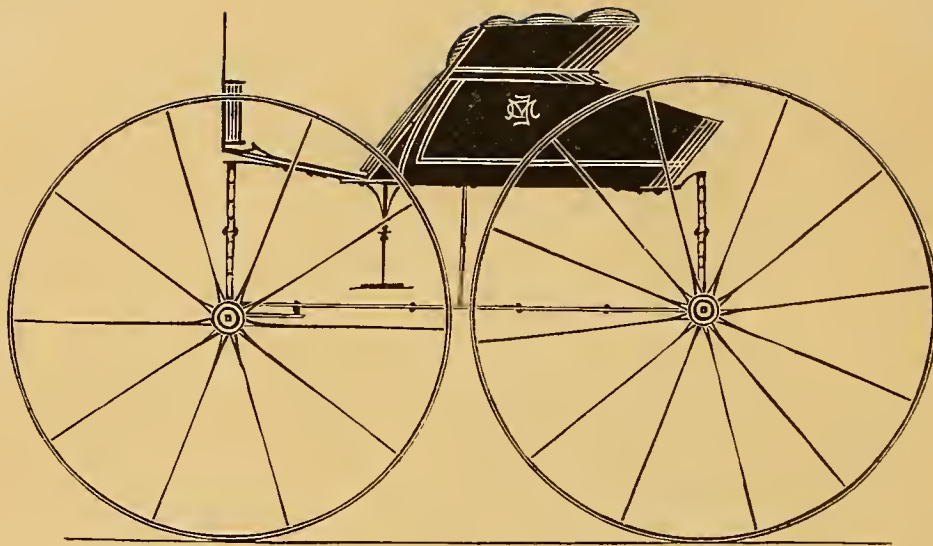




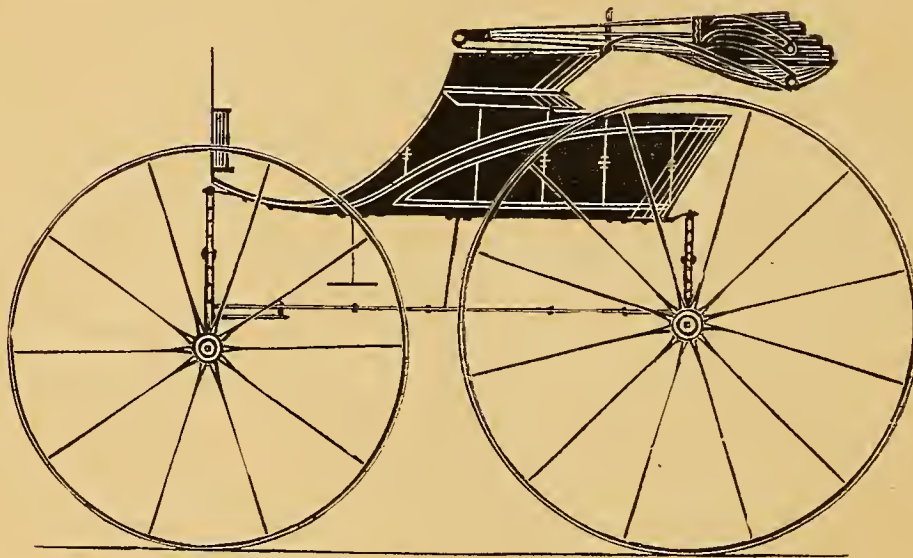








GENTLEMAN'S BUGGY.— $\frac{1}{2}$  IN. SCALE.  
*Designed expressly for the New York Coach-maker's Magazine.*  
*Explained on page 180.*



ROAD BUGGY.— $\frac{1}{2}$  IN. SCALE.  
*Designed expressly for the New York Coach-maker's Magazine.*  
*Explained on page 180.*





DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. IX.

NEW YORK, MAY, 1868.

No. 12.

## Mechanical Literature.

### DECLINE IN APPRENTICESHIPS.

YEARS ago when discontented apprentices took it into their heads to "run away," irate masters would seek satisfaction by inserting in the "Village Screamer" some such notice as this: "Walked away—too lazy to run—an indentured apprentice to the carriage-making business, named Adam Sykes. Said runaway is eighteen years old, four feet ten inches high, stoutly built, has a waddling gait and a downcast sheepish look. Whoever returns said boy to his master, shall receive one cent reward, but nothing for charges." Those times have since very much changed. Now there are scarcely any apprentices to either *walk* or *run* away, and unless they improve there will soon be none at all, and then what will become of art? This is a serious question, worthy of consideration.

The greatest difficulty in the way of taking apprentices is the deep prejudice American parents entertain against putting their sons to any mechanical business. They imagine—unlike our forefathers—that all mechanical occupations are degrading to character, and consequently, as soon as they are old enough, they put their children in a store, where they will stand a chance of advancing in the scale of respectability. The consequences are that at the present time the greater proportion of our artisans are of foreign nativity. Some of these, perhaps, have learned trades in this country, but by far the larger proportion have been educated in Europe. No one who reads the names of members, as given in the organs of Trades-Unions, can fail to see the predominance of the Celtic element. This feature in trade societies was remarked upon by the *London Times*, more than a year ago, and is believed to be an indisputable fact. If proof is needed, the prefix "International," to some of these Unions, is sufficient to indicate the truth of our statement.

But the question arises: How are we to remedy this state of affairs? Trades-Unionists, with their accustomed officiousness, propose to regulate it in various ways. They say we must let the employers and employees "come to-

gether and talk over the matter, and make regulations that will be alike beneficial to all, and each pledge themselves to exert their influence in carrying them out," and that on their part "they will use all honorable means to compel all apprentices to remain with their bosses the full term for which they contract." We have heard some very silly propositions in our time, but this, on the part of employees, to meddle with the affairs of manufacturers—at their expense too—caps the climax, and is ahead of everything "out." We pronounce the man foolish enough to fall in with such an offer, too deficient in brain to long carry on coach-building, and only fitted to sweep the streets—scarcely that. The employees further promise to "use all *honorable* means to *compel* all apprentices to remain with their bosses," etc., as before stated. But how can they do this? Will they use physical force to do it? Oh, no! say they, that would not be *honorable*. How then will they redeem their promise? Will they refuse to work in a shop for the man who is so unprincipled as to advertise: "Wanted—an apprentice, who has some knowledge of coach-making," etc., and will employ any "runaway" who offers. We guess not.

If, then, employers should league themselves in this unnatural partnership, to accomplish an end in which their single wisdom has thus far failed to perfect anything, they lean on a *broken stick*. Indeed, it has come to this: a man is not allowed to put his own son to a trade, unless he first obtains the consent of these Unionists. A case in point occurred the other day in this vicinity, and we will give a history of it for the benefit of all concerned. It appears that a son of Henry B. Dawson, the historian, undertook to learn the bricklaying business with a Mr. Dunham, of Morrisania, when three of his journeymen—Frank P. Garvie, Jacob Van Nostrand, and Archibald B. Campbell—struck, because the boss would not send him away on their solicitation. To procure their return to fulfil a contract, Mr. Dunham was necessitated to accede to their demands. The father, incensed at such conduct on the part of Unionists, brought a suit for \$100 damages in the courts, but only was awarded the paltry sum of \$5 and costs. Even this judgment was appealed from to the Supreme Court, under the influence of Trades-Unionists. With such examples crowding upon employers, how can they expect any favor or help from employees who are "fixtures" in any Trades-Union? So very hostile is Trades-Unionism to an increase of labor



in this country, that at the Labor Congress held in Chicago last year, measures were taken to send delegates to Europe—if possible—to stop emigration on the part of skilled artisans.

With such facts as these staring employers in the face, they have very little encouragement for expecting relief in the apprenticeship business from Trades-Unionists, or indeed from any quarter, at present.

#### OUR EGYPTIAN CARRIAGE MUSEUM.—XII.

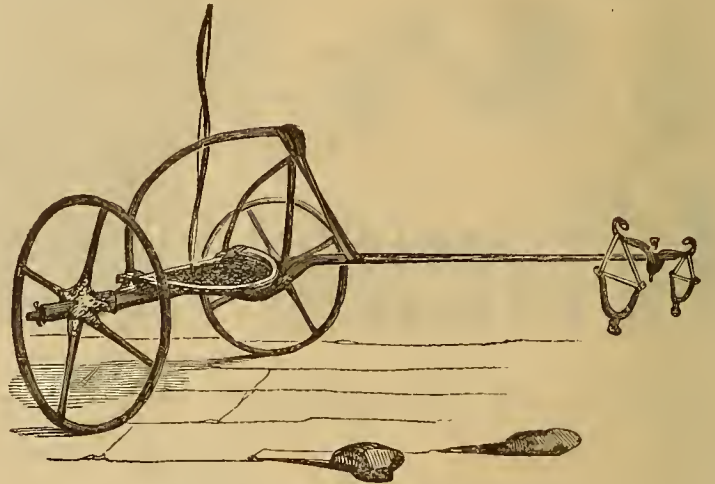
RAMSES IV ruled Egypt about 20 years after Meneptha III (B.C. 1474), alluded to in our last chapter, in the nineteenth dynasty of six Theban kings. The copies from the bas-reliefs at Medeenet Haboo, given by Rosellini, illustrative of events in the life of Ramses IV, extend from cxxix to cxl. The first represents the king in his chariot on a lion hunt, one animal being represented on his back, and another escaping into the forest, both with darts fastened in their bodies. In this later example of the chariot, the front portion of the body stands nearly perpendicular and straight, but rounding at the top back corners, the sides having but a small opening. On plate cxxii the king sits in his chariot, with his back to the horses, while the scribes number the slain in a late victory, by counting the severed hands, now brought together for this purpose. The two following plates represent the king as offering to Amun his fettered victims, in accordance with Egyptian custom, in acknowledgment of favors in battle.



RAMSES IV IN PROCESSION TO THE TEMPLE OF AMUN, ACCOMPANIED BY CAPTIVES.

To describe all the plates in this series would tire the reader, besides take more space than we can well spare; we therefore introduce a copy of plate cxxxvii, in which Ramses IV is shown in a procession to the temple of Amun, the victims manacled, a portion being slung

under the body of the chariot; whether alive or dead is unknown.



CHARIOT FROM THE FLORENTINE COLLECTION.

Of the humane character of the ancient Egyptians, history presents ample proof; but if we may trust the authority of Diodorus Siculus (lib. 1, v. 58), and Pliny (lib. xxxiii, v. 15), who says: "*Sesostri Ægypti rege, tam superbo, ut prodator annis quibusque sorte reges singulos e subjectis pungere currum solitus atque ita triumphare.*" Sesostis tarnished his glory by an act of great oppression, compelling captive monarchs to draw his chariot as he proceeded to celebrate his triumphs, and the Theban artists (as we see in the illustration) have not been ashamed to introduce a similar instance of cruelty in the sculptures of Medeenet Haboo.

Rosellini gives us a beautiful colored drawing of a chariot on plate cxxii, copied from the Florentine collection, having an open-sided body, as seen in our engraving; the floor or bottom of which appears to be seated with rushes, something in the manner our ancestors had their chairs bottomed. An ingeniously applied piece of wood on the end of each rave at the back, serves to bind the bottom-side and the cross-bar firmly together, while it bestows additional solidity to the tenons of the rave. The pole bends like our crooked

pole, so as to raise the front end higher and still leave the body level. A strap extends from the rave or rail to the pole, which is ingeniously and ornamentally braided around it. The wheels, with only four spokes in each, are curious pieces of art. The spokes and felloes are all of a



round form, somewhat disproportioned in size. The hub, very much mutilated by apparent wear, is so made that it seems to branch off and constitute the bottom foundation for the spokes, in fact to make a part of them. Outside of all is a rose-headed linch-pin. The yoke is not the least curious of the two, but singularly made. This, brought from Egypt, is supposed to have been captured from an enemy.



CHARIOT OF THE ROT-U-N.

Another four-wheeled chariot, of solid construction, captured from some cotemporary nation, with whom the Egyptians carried on war (probably the Rot-u-n), was similar in form, and in the mode of harnessing the horses (even if they differed in the number of persons they contained, having usually three instead of the two in Egyptian and Greek cars), as may be seen in an example where two unyoked horses are brought as a present to an Egyptian monarch by the conquered people. This car in Rosellini is beautifully colored; the side with red and blue. The pole near its intersection with the body is ornamented. The felloes, of which there are seven, are in sections of unequal lengths, differing from those in the engraving.

In the days of Solomon chariots and horses were exported from Egypt into Judea and Syria. The Hittites were also supplied from the same source.\* As we have seen in the course of these articles, no mention is made, nor has any drawing of a chariot been discovered on any Egyptian monument previous to the eighteenth dynasty, which dates from B. C. 1822. "Though the Egyptian name of the horse was *hthor*, the *mare* was called, as in Hebrew, '*sus*' (pl.

'*susim*'), which argues its Semitic origin; *furas*, 'the mare,' being still the generic name of the Arab horse, and if its introduction was really owing to the invasion of the Shepherds, they thereby benefited Egypt as much as by causing the union of the whole country under one king."\*

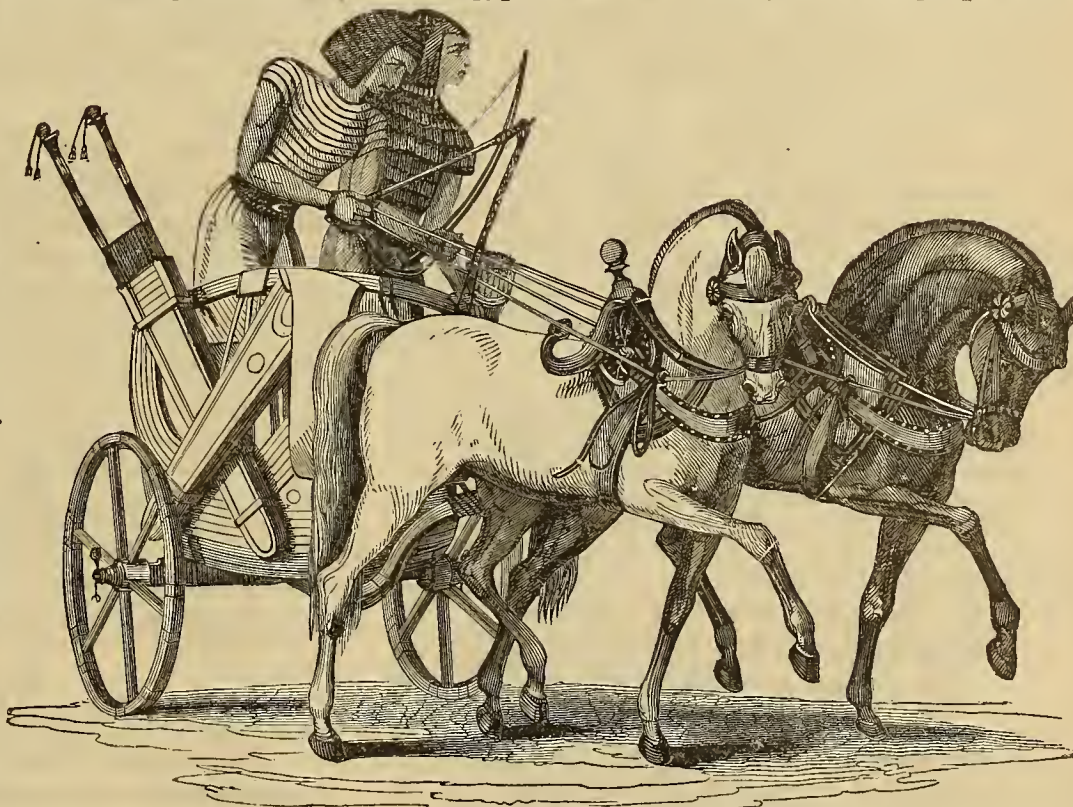
Not satisfied with the designs left us by the Egyptians themselves, Wilkinson has furnished us with "a pair of horses yoked to a chariot, according to the rules of European drawing, omitting only their housings and head-dress, which may be readily understood in an Egyptian picture." This author tells us [on what authority?] that the Egyptians matched a chesnut and a gray together, as is done in England at the present day.

These coverings, as may be seen in some of the examples found in this series, were of different designs, some of them very handsome. The one here shown on an enlarged scale, is taken from an original drawing in bas-relief, on an Egyptian monument.

With this design we complete "Our Egyptian Carriage Museum," intending in the next volume to open "Our Assyrian Carriage Museum," with some of the most interesting objects we can glean from various sources, and which, we confidently believe, will prove equal if not superior in interest to those presented in this.

Having already fully described an Egyptian triumphal procession and religious ceremonies connected therewith, we may very appropriately conclude this series with some remarks on their horses.

Probably no horses in ancient times excelled those of the Egyptians. Their beauty and strength attracted



EGYPTIAN CHARIOT AFTER AN EUROPEAN DESIGN.

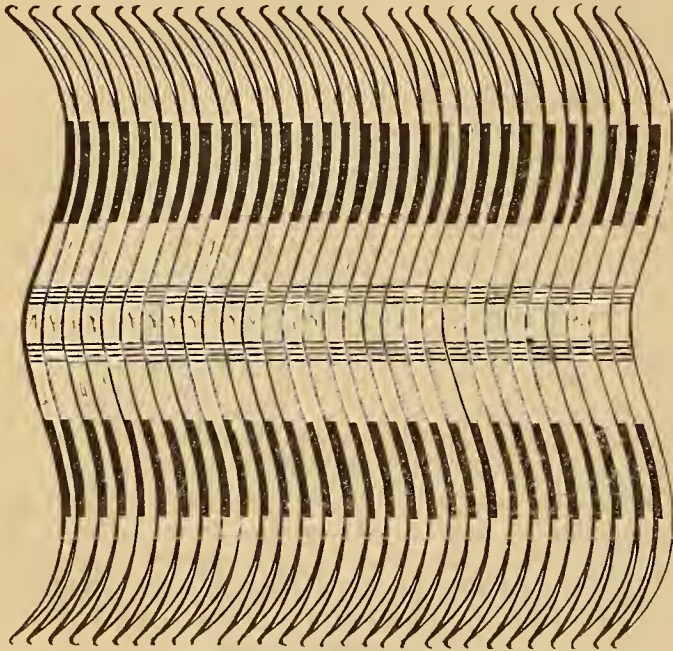
the notice of other nations. Solomon compares his love to a company of horses in Pharaoh's chariots (Cant. 1, 9).

\* 1 Kings x. 29.

\* Wilkinson, vol. i, chap. 5.



Clarke, in commenting upon the passage, translates it more literally, and says: "I have compared thee *Lesusathi*, "to my mare, in the chariots or courses of Pharaoh."



EGYPTIAN HORSE-BLANKET.

This writer says that the Eastern nations preferred *mares* to horses, as being much swifter, more hardy, and able to go longer than either stallions or geldings. Where he finds authority for such assertion we cannot see, for the bas-reliefs from Egypt are mostly represented with *horses* "bound to the chariots." The horse has been praised for his beauty in all ages, and the most beautiful woman of antiquity, Helen, has been compared to a horse in a Thesalian chariot, by Theocritus: "The golden Helen, tall and graceful, appears as distinguished among us as the furrow in the field, the cypress in the garden, or the Thesalian horse in the chariot" (*Idyl. xviii, v. 28*). Among the ancients, horses were kept almost exclusively for war purposes; mules and asses being used as beasts of burden, or for riding. Every reader of the Bible is acquainted with Job's description of the horse. Homer has sung his praise, in which he likewise has been imitated by Virgil:

Tum, si qua sonum procul arma dedere,  
Stare loco nescit: micat auribus, et tremit artus,  
Collectumque premens volvit sub narrabus ignem;  
Densa juba, ex dextro jactata recumbit in armo.  
At duplex agitur per lumbos spina, cavatque  
Tellurem, et solido graviter sonat unguis cornu.  
VIRGIL'S *Georg. l. iii, v. 83.*

Thus beautifully rendered:

The fiery courser when he hears from far  
The sprightly trumpets and the shouts of war,  
Pricks up his ears; and, trembling with delight,  
Shifts pace, and paws, and hopes the promised fight.  
On his right shoulder his thick mane reclined,  
Ruffles at speed, and dances in the wind.  
His horny hoofs are jetty black and round;  
His chin is double; starting with a bound,  
He turns the turf, and shakes the solid ground.  
Fire from his eyes, clouds from his nostrils flow;  
He bears his rider headlong on the foe.

POWDER-POST IN HICKORY.—We have in hand from a correspondent a capital article on the subject heading this notice. It will be found in our number for June.

## Pen Illustrations of the Drafts.

### LIGHT COUPÉ.

*Illustrated on Plate XLIV.*

THROUGH the courtesy of Mr. J. B. Cone (late firm of Adams & Cone), we are able to give our readers a new design for a coupé, made about as light as it is possible to construct one, and still give sufficient room to render it comfortable to the passengers. Two points worthy of note in this job are, the shape of the hind-quarter and boot—both of French origin. The pump-handle is wholly of iron, which, while it is much stronger than when wood and iron are combined, can be made to look much lighter—a point of great importance in American carriages. The bent glass, with nine inches swell, furnishes plenty of room, without necessitating so large side-quarters as have heretofore been shown (to disadvantage) in the coupé. The wheels, 3ft. 4 in. and 3 ft. 9 in. high; hubs, 5 and 7½ in.; spokes, 1½ in.; rims, 1½ in.; tire, 1 in. wide; springs, front, 3 ft. 6 ins.; back, 3 ft. 4 ins.

### FANCY PHAETON.

*Illustrated on Plate XLV.*

IN some respects this drawing differs from anything of the kind we have before given. For the Central Park or other summer drives, it makes a very pleasant carriage, much preferable to a standing-top vehicle, as when the top is turned down it affords an unobstructed view of the country around.

The front pillar should be made to project beyond the rocker a little—say ½ inch—the back side having a bead stuck thereon, as shown in the design. In the general arrangement of the parts we have adopted the latest features of the European fashions, which, combined with our American ideas of what constitutes good taste, makes this not only a novelty, but likewise quite fanciful.

### GENTLEMAN'S BUGGY.

*Illustrated on Plate XLVI.*

To those who favor oddity in a buggy we recommend this design. The mouldings which appear on the side are all done in paint, and, of course, can easily be varied at a very little outlay of ingenuity.

### ROAD BUGGY.

*Illustrated on Plate XLVI.*

BUGGIES after this design make very pretty things for summer exercise on good roads, and are more fashionable and popular with "the fancy" than almost any other description now made. It will be understood that the sham-pillar—as well as the mouldings—are all put on with paint. To do otherwise would make difficult work for the painter in getting a smooth surface.

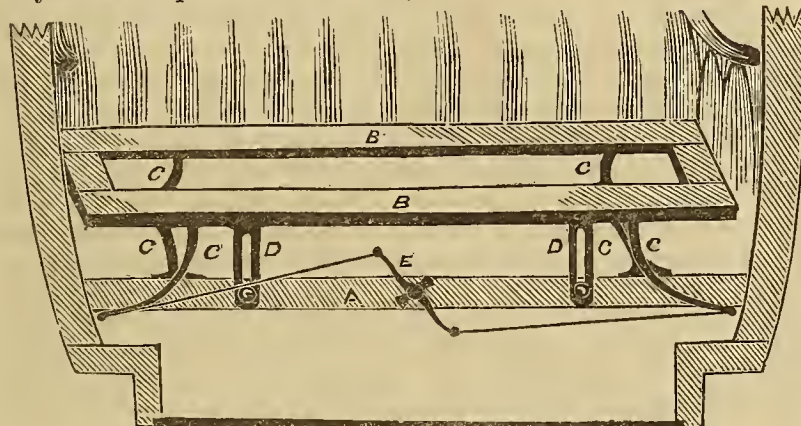


## Sparks from the Anvil.

### ELEVATING THE SEAT IN A LANDAU.

FROM A CORRESPONDENT.

WHEN the hood of a landau has been thrown open, it is often found desirable to raise the back seat as well for comfort as to obtain a better view of surrounding objects. The diagram (with the top of the back cut off) accompanying this article, shows the plan on which this may be accomplished with facility.



At A is seen the seat-rail of the body; B B is an *elevated* seat-frame; c c c c are the shafts of so many levers, resting on the seat-rails in journals; D D are steadying irons, and E is the key by which the whole machinery is operated. This is done by means of rods, connected with the different lever shafts c; the whole of which, although very simple, is efficient and secure. What is better still, we believe it is free from patents.

### FILE HANDLES.

THE iron workman, and particularly the machinist, gives, probably, as little attention to the handles in which he inserts the shanks of files and similar tools, as to any tool or portion of a tool he is called upon to use. Mechanics who work in wood have some standard by which to form the various kind of handles for their tools, and we seldom see them appropriate handles to any other than the particular use for which they were intended. We observe, too, that wood-workers take a pride in good and perfect handles, and select the material for such with great care; but the iron-worker acts upon the reverse of this, and disdains to exhibit any peculiar taste as to the style of his file and similar tool handles.

We have seen on a workman's bench two dozen or more files of different sizes, and used for different kinds of work, and with each kind or size of file there was a handle wholly differing from its fellows. We might enumerate that we observed in this lot of files one or two passable handles, one or two chisel handles, two or three which were designed for the awls of shoemakers, some made from pieces of a broom-stick, as many taken from a rough limb, denuded of its bark, one or two whittled from a pine stick, the product of the pocket-knife of the apprentice, and thrown away by him as useless, and—not a new application—some of the handles were actually formed of eorn-cobs. It might be that a workman would produce as good work with file handles of this character

as with well turned and good-ferruled ones, but where the latter are employed it gives a neater look to the bench, and certainly the workman will operate as expeditiously and as well with *good* tool appliances as with poor ones. If a man would cultivate a disposition for neatness and exactness in his work, he must commence with his tools and appliances, and his file and other handles are very good things to commence with.

If file handles become broken, we would say throw them away; and if they become split, as is often the case, throw them aside also. It is true they might be repaired, as is often done, and they would last for a season, by wrapping a cord or wire around them, or inserting a nail or screw; but at the best they present a "botched" and sorry appearance, which is certainly not befitting a neat workman. Seasoned maple makes the best handles, [we think dog-wood preferable.—ED.] and a stout ferrule of brass or iron ought to inclose the end in which the tool is inserted. Where the handles are not bored, and the mechanic would do it himself, let him make the hole straight with axial line of the handle, and disdain to employ any other means except a narrow chisel to fit them to the tapering shanks of the instruments on which they are used. Driving is sure to split handles, and burning with an old file-shank is unworthy of a workman. Use handles appropriate and proportioned to the tools for which they are intended, take time and care to fit them properly, and experience will testify that they will give better results and last longer, proving that "haste makes waste" even in the small matter of fitting a file handle.—*Amer. Artisan.*

## Paint Room.

### THEORY OF COLORS.

GENERAL PROPERTIES OF OILS, DRYERS, VARNISHES, ETC. ETC.

(Concluded from page 170.)

OIL paints, both as employed for protective coatings and for decorative or fine art purposes, are usually mixed, *i. e.*, the ground pigments united, not only with fat oil but with more or less of volatile oil, and in Europe spirits of turpentine is almost universally employed for this. The uses of the admixture of this with the fat oil appear to be the following:—1. To promote oxidation, or drying, by the powerful affinity all volatile oils have for oxygen. 2. To increase the liquidity of the paint and make it spread under the brush more thinly and evenly. 3. To vary the degree of final gloss. Thus decorative paints intended to have *no* gloss, and called technically "flatted colors," are mixed almost with turpentine alone. 4. To prevent cracking upon solidification, which results mainly from the thinner spreading of the paint.

The *volatile* or *essential* oils exist in nature principally in the cells of the rind or bark of the stems, leaves, and flowers of plants, and occasionally in the seeds or pericarps of these, and are obtained almost wholly by distillation along with water, from which the oils are, after condensation, separated. Their boiling points vary much, as do their specific gravities; most have specific gravities between 0.8 and 0.9, but a few are heavier than water. These oils may be divided, as regards chemical constitution, into three great classes, viz.:—1, pure hydrocarbons;



2, oxidized hydrocarbons; and 3, sulphur oils, *i. e.*, hydrocarbons, containing also sulphur, and frequently nitrogen. Of the first, spirits of turpentine may be taken as a type as to most of the chemical and physical properties of the class, in which, however, are contained many of the most remarkable compounds with which organic chemistry presents us. The finest perfumes—neroli, attar of roses—as well as some of the most valuable medicinal drugs, as the oil of assafoetida, cajiput, garlic, juniper, mustard—and some of our most delicious spices, as cloves, cinnamon, etc., are here found. The investigator of physical optics, too, has here found some of the most remarkable relations to light amongst material substances.

The pure hydrocarbon volatile oils have the general constitution ( $C_{20} H_{16}$ ); though the vapour of all is diffusible at all temperatures in air (especially *moist* air, as the perfume-laden air of a dewy morning or evening in a garden proves); their boiling point is high, generally about 320 deg. Fah. They all greedily absorb oxygen, and it has been thought that their varied and remarkable odours only exist or address the sense of smell in virtue of the oxidation going on in the air-diffused vapour.

Turpentine is obtained from the cells of every part of many coniferous trees, and is of many varieties. The common turpentine of commerce is obtained from the *pinus abies*; when the crude turpentine is distilled with water, rectified *spirits of turpentine* passes over, and *colophony*, or common resin, remains in the retort. The latter is a highly complex compound, and has been separated into at least nine distinct chemical compounds of carbon and hydrogen, or carbon, hydrogen, and oxygen.

When pure volatile oil of turpentine ( $C_{20} H_{16}$ ) is exposed to air and moisture, *i. e.* ordinary air, it rapidly absorbs oxygen and gives off hydrogen, so that it soon, if the surface exposed be large, as when it is spread in a paint, becomes ( $C_{20} H_{16} O_2 + 2HO$ ), and tends ultimately to assume the same composition as common resin, which, as a whole, has the composition ( $C_{40} H_{29} O_3 + HO$ ). It results from this that when mixed with a fat drying oil it exalts the tendency of the latter to oxidise, and the final product of the oxidation of the whole, or of "the drying of the paint," is the production of a tough unctuous solid resin, in which the pigments are involved, and by which they adhere and cohere. The "paint skin" or pellicle which forms after some time upon the surface of a pot of common oil paint affords an example of the toughness and elasticity which are characteristic physical qualities of the latter stages of oxidation of the drying oils.

So great is this toughness and elasticity when fully and purposely developed, that "gold size" has been employed to make by blowing permanent bubbles of extreme tenuity like "soap bubbles," small seamless balloons in fact. Turpentine dissolves fat oils and resins so that a liquid paint is not a mere mixture of fat and volatile oils, but a true solution (if the proportion of volatile oil be sufficient) of fat oil in volatile oil, with a pulverulent pigment—or a dissolved one if such be present—held in suspension in the thick fluid, from which it slowly deposits, unless occasionally stirred up. Oxidated turpentine, or resin, contains several organic acids; silvic, pinic, pimaric acids, etc.; some of these act with great energy upon certain metals, especially upon copper, brass, and bronze, and produce green soluble salts, which deeply tinge the solvent, and produce a green transparent paint, of which the pigment is in actual solution. Both fat and

volatile oils appear to dissolve in small quantity, some metallic oxides, notably litharge, and are capable of robbing several metallic oxides and salts of part of their oxygen. They may, therefore, react upon some metallic pigments injuriously in this way.

*Varnishes* are produced by the solution of resins, either natural or artificial—such as common resin—in volatile oils, or partly in fat oils aided by heat; or in other volatile liquids, such as wood spirit or methylic alcohol, ordinary alcohol, or in benzole, or coal naphtha, etc.

The drying of a varnish consists simply in the volatilisation of the solvent, leaving the resinous matter in a solid adherent state; it is accordingly essentially different from the so-called drying of oil paint. Further oxidation of the resin—especially if a natural one—however, always occurs by time, after the varnish has set hard; hence the varnish of old pictures, etc., becomes brittle, brown and semi-opaque. The resin has then passed more or less into the state of bitumen or asphaltum. The natural resins that are most used for varnishes are Dammar gum—the resin of the *Demmaris Australis*. Turpentine resins of several varieties, such as Burgundy pitch, anime, mastic (from *Pistachia lentiscus*) amber, copal (from *Rhus copallina* and *Hymenaea verucosa*), sandarac (from the *Juniperus communis*) shellac (the resin of the crude lac), produced by a crocus insect upon many tropical trees, *Ficus Indica* chiefly, and Venice, or Chian turpentine, the true source of which seems still uncertain.

In accordance with the nature of the solvent, varnishes are called spirit varnishes, turpentine or volatile oil varnishes, or fat oil varnishes. The first of these, whose solvent is ether, chloroform, etc., rarely, but more commonly spirits of wine or wood spirit, dry off rapidly. These are very thin in coat when dry, and are best suited for paper, fans, or any very fine work, requiring perfect transparency in the varnishes.

Volatile oil varnishes, in which the solvents are spirits of turpentine, or coal naphtha, or the like, are those mostly employed by the oil painter. What is called "French varnishing," now so much employed upon the wood of furniture, etc., consists in the application of alternate films of lac varnish and of linseed oil, with constant and sufficient friction to polish the compound film of spirit-fat oil varnish as soon as it has become thick enough to afford a glossy surface, the total thickness being exceedingly small. The method of varnishing employed by the carriage-builder for his finest work is the very opposite of this. Over his last coat of paint he lays on coat after coat of copal or dammar varnish, until he has got a considerable thickness, often nearly one-tenth of an inch. When this to its full depth has got hard and perfectly vitreous in the warmth of the "varnishing room," the whole surface is literally *ground* off with pumice stone and water until a perfect *form*, as to contour, and a perfect *superficies*, have been procured, when the glossy face of the varnish is then polished by putty, chamois skins, the hand, etc., just as a plate of looking glass is polished.

Fat oil varnishes are made by the additions of highly oxidized fat oils, in small proportion, to the latter class, by which the drying is retarded, and made to depend partly on oxidation as regards the fat oil, and by which greater body and thickness of coat is secured, and greater durability. Such varnishes are most suitable to oil paints, etc., exposed to the weather out of doors. Into the manufacture of varnishes, upon which very much may be said, we cannot



enter here. We may just draw the attention of those interested to the fact which has been recently ascertained abroad, that all the varieties of Copal and of Dammara can be rendered readily and perfectly soluble in fat oils alone, by heating the gum resins along with some of the oil, or alone, to a temperature of between 300 deg. and 400 deg. Fah., under the pressure due to their own vapours, which is then about twenty atmospheres. The gum resins dry hard and well after this treatment.

Besides these artificial varnishes, several *natural varnishes* of great beauty and value exist, none of which have as yet been brought into use among us, though long employed with great advantage by eastern nations, especially the Burmese, Chinese, and Japanese people. These consist of natural resins, or gum resins, found in the juices of the plants whence they are obtained, ready dissolved in natural volatile oils. The, in India, well known Silhet varnish—the juice of the *Hologarna longifolia*, according to Dr. Royle, the Japanese varnish from the *Rhus Vernix*, it is said, and the varnish of the Malayan Islands from the *Stagmaria Verniciflua*, are examples of these. Many others exist, and are worthy of the attention of studious technologists.

Varnishes may be variously colored by transparent coloured gum resins, such as gamboge, dragon's blood, etc., which are soluble in the same solvents as those of the varnishes themselves; and, of course, varnishes may be employed as quick drying vehicles, for insoluble or slowly suspended pigments as well as oils.

For further information as to the chemical, physical, and technical properties of the oils, varnishes, etc., "Muspratt's Chemistry Applied to the Arts," "Knapp's Chemical Technology," "Gmelin's System of Chemistry," "Cooley's Encyclopædia of Practical Receipts," "Dictionnaire Technologique," and the valuable papers and memoirs of Chevreul, Berthelot, etc., may be consulted; and for experimental and theoretic results as to the preservative powers of paints and varnishes, as protective coverings against air and moisture, see Mr. Mallett's "Reports on the Action of Air and Water upon Iron," in the Transactions of the British Association for the Advancement of Science, where references are given to the very few other experiments that have been conducted on the subject.

## Trimming Room.

### SLIP LININGS.

COVERINGS, usually called slip linings, are much older than many now-a-days suppose. Felton, seventy-five years ago, in alluding to them said: "False linings are linen linings, used to cover and preserve the others if good, or to hide them if bad; they are made of linen, usually called yard-wide, and are about 2s. 3d. per yard in value. The roofs are seldom covered, and as much of the trimming as possible should be shown. To bind the edges of the linen lining with a border, in imitation of lace, is an additional ornament to it, and is now frequently done."

"To preserve the others, *if good*, or to hide them *if bad*," is a happy conceit of the old craftsman, and may have meant a great deal in his day, when light cloths of a coarse texture—called second cloths—were in general use, and also very costly. In modern times, machinery supplies us with material, at a comparatively nominal price,

so that the finest produced is most in request. To *preserve* these, by covering them over with "false linings," would—from an aristocratic stand-point—be, to defeat ambitious pride, and give others reason to suppose that the linings were either "second best," or else, much in need of—soap. For these reasons, slip linings are seldom used now, except in dirty hacks, or in the equipages of faded gentility. Indeed, such is the improved taste in this direction, that such a thing as a slip lining is seldom employed in our metropolitan carriages. To use them, would be to cover-up *gentility* entirely.

### HARNESS BLACKING.

A correspondent of the *Field* gives the following recipe for harness blacking, which he has used for several years, and is perfectly convinced of its excellence. "Beeswax (shred fine), eight ounces; turpentine, sufficient to cover it; let them stand till the wax is dissolved (three or four days); ivory black, four ounces; olive oil (I use neats-foot oil), two ounces; Prussian blue, two ounces. Rub the ivory black and the Prussian blue well together to a fine powder, in a mortar; then add the oil, and gradually, the other ingredients, and thoroughly mix them. If it gets hard by keeping, soften with turpentine. I have only one brush used—one end for blacking—the other for polishing."

## Editor's Work-bench.

### SPECIAL NOTICE.

By a special arrangement with Messrs. Brewster & Co., Brewster & Baldwin, and one or two other leading carriage-builders in New York City, we shall regularly, every month, be furnished with one or more original designs, from their own draftsmen—representing in many instances the fashions in advance—for publication in THE NEW YORK COACH-MAKER'S MAGAZINE. With this assistance, and such other as will be supplied in our own office, we shall be able, beyond question, to maintain our long acknowledged claim to being not only the best of the kind, but likewise the leading Magazine of this or any other country. Two original designs under our new arrangement, will be given in the June number, with which Volume Ten begins. Hereafter we intend to give from five to six designs in our fashion plates each month, printed in tints, not on colored paper like some others, which is cheaper. The number for June, as elsewhere stated, will be published about the tenth of May. Those who approve of our course, and intend to renew their subscriptions for another year will save us the trouble of taking their names from our mail-book, and be certain of securing the numbers for a perfect volume, as they are issued. In remitting, where practicable send a post-office order, and



when this cannot be done, send a draft on New York, to our order.

#### OUR NEXT VOLUME.

WITH the present number we furnish a handsome title-page on tinted paper, and a complete index to the contents, making the volume complete when bound up, and handy for reference. We are not accustomed to promise much beforehand, choosing rather to show by deeds, than by promises, what we intend to do in the future. This much, however, we will say, we do not intend to be behind hand in any respect, either in the literary or artistic department of our Magazine, nor do we intend to move under false colors and pretend to be on one side of a question to secure patronage, while the whole tenor of action gives the proof contrary. We shall continue our usual independent cause, censuring where censure is required, determined to battle with combination and wrong in every form. When the public shall find any individual more faithful to its *true* interests, we shall feel that our mission has ended; not until then, shall we retire from the field.

In the forthcoming volume we intend to publish a series of articles under the head of "Our Assyrian Carriage Museum," illustrated by costly engravings from the ruins of Nineveh and Babylon. Those readers who have derived so much satisfaction from our antiquarian researches published in this volume, will therefore find their wishes still further studied and gratified in the next. To perfect this new series we have given a great deal of time the past year, in the hope—as they have never been published in this country—of presenting them in an attractive form. We intend to give increased attention to the practical departments and present our patrons with the newest and most original features this age of progress develops. Our illustrations will consist of something more than cheap blocks, and be not only useful, but ornamental in the bound volume. One half the expense in printing might be saved were we to use *colored* instead of *printed* tint paper in our plates, but colored paper when bound up with white, gives a bad look to the volume, and meets with little favor from the lovers of handsome and tastily finished books.

Since our retirement from the manufacturing of carriages, we have met with a cordiality from the craft we never experienced before. Having had over thirty years' acquaintance with the most of its members in this city, we now find a welcome where jealousy previously prohibited us from calling, which enables us to give all the novelties that originate in the trade, in advance of any other publication. This advantage we hope to avail ourselves of to the fullest extent the coming year, for the benefit of our patrons. Years of study and experience

will enable us, we humbly trust, to still furnish the trade with an organ which the public, including our enemies, have hitherto conceded to be the best Coach-maker's Magazine ever published.

The number for June—which will be the first of Volume Ten—we mean to have ready on the tenth of May, and although we do not intend to change the general arrangement of the several departments, which have so long received the commendation of the craft and the press, yet we shall aim to make them still more useful and interesting to the great body of practical workmen who have for many years patronized us. The great expense we are at in composition, press-work and paper, will not permit a reduction in price at present. Those, however, who feel that they cannot well afford to pay five dollars a year, by making up a club, will be able to secure a copy at nominal expense. Our club rates are: two copies for \$9; three copies for \$13; and six copies for \$21. This last club rate brings our price of a subscription down to \$3.50, which, taking into consideration the cost of production, makes "THE NEW YORK COACH-MAKER'S MAGAZINE" the cheapest in price of all others in the world.

That we may induce our friends—especially the bosses—to do something in the way of getting up clubs in their shops, we offer as a premium, where three or more subscribers are obtained, a copy of any chart they find in the list published by us. This can readily be earned by a little effort, and when received be one of the most effectual instruments you can have in the office, for securing customers. Besides, when framed it will make a handsome ornament. We hope this offer will meet with a hearty response, particularly from all who are opposed to dictation and intermeddling from demagogues and their abettors.

#### NOW IS THE TIME TO ADVERTISE.

THERE are several modes in which a little money expended, will bring in a large income. The coach-maker's best way of securing so desirable a result, is to circulate business charts, such as we are in the habit of printing for the trade. A gentleman of our acquaintance, in a western village, called upon us only the other day, confessing that the few dollars he paid us in that line, a year ago, had been the best investment he had ever made, leaving us his order for another stock this spring. As we told you last month, "the time has passed when business will come to you; you must now look for it outside of your office." That we may give you all the aid in our power, on the cheapest terms—having on hand the choicest selection of carriage designs from which our customers may make their own selections according to fancy—we offer to get up a chart 22 by 28 inches; fifty copies for \$30, one hundred copies for \$35, one hundred and fifty copies for \$48, or two hundred copies for \$50. The same printed on



pasteboard, saving the cost of framing, will cost \$20 per hundred extra.

A much smaller chart—19 by 24 inches—containing sixteen designs as well as a business card (which, by the way, is the most popular one) will be supplied, one hundred copies for \$25, or two hundred for \$35. These on pasteboard will likewise cost \$20 per hundred extra, as we must cut to size the large sheet, in which only it can be bought in the market, at a great waste of material.

A very convenient and popular mode of advertising now is by leaflets, of about twelve pages, one of which when folded is devoted to a title-page, the others to carriages in variety, eleven in number. When folded, the strip looks like an uncut pamphlet, and may be conveniently sent by mail to correspondents or customers. For one hundred copies in this form, we charge \$15; for two hundred, \$20. Now is the time to send on your orders, and secure for yourselves a good business year, if possible. Orders not accompanied with the money will have express costs for returning it to this office, added to the above items.

Persons who deal in carriage materials will likewise find in our pages the most favorable place for reaching manufacturers, because this magazine circulates almost exclusively among employers, the very class you wish to find. Our course in battling with the unrighteous pretensions of Trades-Unionists, which are "founded upon the right of *the many* to coerce *the few*, and the employment of such means as may be deemed necessary to give effect to these dangerous and delusive principles," has secured for us a circulation among employers such as we have never attained before. We have reached our present position without so much as pretending to be the organ of any party—simply in pursuing an independent course against wrong. There is, therefore, no prejudice in the minds of those who need and must buy your goods, *on account of our record in the cause of Trades-Unionism*. Our terms, which are lower than anywhere else, will be made known on call, or through the mails.

#### INTERNAL REVENUE TAX.

THE internal revenue tax bill, which we mentioned last month as having already passed in the House of Representatives, has since been acted upon in the Senate. When it came up in the Senate it met with some opposition, because it swept away so many means of income. The Senate, to obviate some of its more objectionable features, proposed to amend the bill by retaining the tax on coffees, spices, sugars, confectionery, diamonds, precious stones, imitations thereof, and all jewelry; but this failed. Finally, the Senate proposed to amend the bill by reducing the tax on the products of petroleum and other bituminous substances to one-half that before imposed. This

amendment, when sent to the House, readily passed, as did one amendment reported by the Committee of Ways and Means, imposing a tax of \$2 on every \$1,000 worth of sales of manufacturers in excess of \$5,000 annually. Besides this, an amendment was passed forbidding in future the allowance of any drawback on account of Internal Revenue tax heretofore paid on manufactures exported, and which, by the operation of this law, are relieved from such tax. As the law now stands, the tax is removed from all articles of domestic manufacture except that imposed on "gas made of coal, wholly or in part, or of any other material, or illuminating, lubricating, or other mineral oils, or articles the products of distillation, redistillation, or refining of crude petroleum, or of a single distillation of coal, shale, peat, asphaltum, or other bituminous substances" (which are to pay one-half the tax hitherto imposed), "in wines, tobacco, and all manufactures thereof." This bill, which went into operation on the first of April, fixes the tax, as far as it affects coach-making, at the rates mentioned in our notice on page 173, which, compared with the items on page 172, volume eight, exhibit a small advance.

#### A PICTURE FROM THE SOUTH.

WE give the extracts which follow, from a letter we have recently received from an old subscriber in the South. It tells its own story, and gives us a vivid insight into the present state of carriage-making in the *ci-devant* Confederacy:

"TUSKEGEE, Alabama, March 28, 1868.

"Mr. E. M. STRATTON. *Dear Sir*: My shop is closed up at this time, as our people had to sell their cotton before the rise in its price. The low price, with the tax, leaving them without any money for the crop. So there is scarcely any money left to pay for carriages or wagons, but I hope in the coming fall, as the tax has been taken off cotton grown this year, times will be better; if the farmers can manage to get along with their crops, as it requires much bacou and corn to do, and nearly all of this has to come from the west, at high prices.

"Good hands are hard to be got here, as there are now four small Buckeye shops started by negroes who have very little experience in business, and frequently take much less than their work is worth. This tends to keep others (white men) from contracting with them, as no white man can live as cheaply as a negro. There is likewise much stealing going on, which it is hard to prevent, because we have no patrol at night now. Negroes being the 'top rail' here now, none can be molested without the Bureau agents becoming much troubled in their behalf."

After calling for help from the North, the writer continues:

"I will guarantee good treatment to all such as will come here, as all are anxious for such to come; but we want no negro apostles, as such have done more injury than good, but good honest men who will identify them-



selves with the interest of the country. Such will all be welcome, where we have a pleasant and healthy place, probably more so than any in the State, with two female colleges and two first-class male schools, and which in time must become a good place for business, as it was before the war."

#### EDITORIAL CHIPS AND SHAVINGS.

**GREASING WAGONS.**—But few people are aware that they do wagons and carriages more injury by greasing too plentifully, than in any other way. A well-made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but, if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wood axle-trees, and castor-oil for iron.

Just enough grease should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder-bands and nut-washers into the hub around the outside of the boxes.

To oil an iron axle-tree, first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor-oil near the shoulder and end. One teaspoonful is sufficient for the whole.

**SLEIGHING IN PARIS.**—In Paris, this winter, sledges have been more numerous than formerly; some of them are fantastic and even artistic in their decorations. The *demi-monde*, as usual, take the lead in this locomotive novelty; their sledges are sometimes adorned with a carefully-modeled swan, flying cupids, grotesque dragons, and such conceits as appear to have their origin in Russian models. The fair drivers adopt coquettish hats and expensive furs, and certainly obtain the main object in view, namely, conspicuous notoriety. The carriages of the aristocracy drive round the frozen waters, and in elegant toilettes the ladies walk down to the borders of the lake and watch the animated scene. The Emperor and the court visit the Bois de Boulogne daily. The Seine continues to present the same snowy-white aspect, and the thickness of the ice has considerably increased.

#### RETROSPECTIVE.

In a wagon made of willow  
Wheeled I once a little maiden,  
Ringlets shining on the pillow,  
Rolling homewards, treasure-laden,  
Like a boat upon the billow.

Ten years fled; oh! how I missed her  
When she left the village school;  
But she said she'd be my sister,  
As we lingered by the pool,  
And I passionately kissed her.

Ten more hopeful years renew it;  
Little wagon made of willow—  
Loving eyes are bent to view it,  
Loving hands adjust the pillow,  
And we've fitted rockers to it.

**MACHINE FOR CUTTING FILES.**—A new machine for cutting files, perfected and patented by Messrs. G. F. Card and C. A. Studley, of Bridgeport, Conn., will cut

off six-inch files, ten in an hour, or 100 per day, will make from 28 to 2,000 cuts in a minute, and produce a file so fine and regularly cut that it requires a strong magnifying glass to perceive the teeth.

#### A BLACKSMITH'S EPITAPH.

"Here lies John Mellows,  
The Prince of Good Fellows,  
Clerk of All-hallows,  
And maker of bellows,  
He bellows did mend till the day of his death;  
But he who made bellows could never make breath."

#### LITERARY NOTICES.

OUR YOUNG FOLKS for April is one of the most interesting of this deeply interesting periodical. The number for May will contain the fourth portion of Mr. Dickens' "Holiday Romance," "Dotty Dimple Making a Call," "The Peterkins at Home," "How June found Massa Lincoln," "Cast away in the Cold," and "Frightened Eyes," with other articles, most of them attended by fine illustrations.

Our old favorite, *The Atlantic Monthly* for April, comes to us freighted with a store of good things. Among them is "A Plea for the Afternoon," "The Wreck of the Pocahontas," "By-ways of Europe," "Doctor Molke's Friends," and "April." This last we republish, with the proviso that the Poet promises more that the past April has given us:

APRIL has searched the winter land,  
And found her petted flowers again;  
She kissed them to unfold their leaves,  
She coaxed them with her sun and rain,  
And filled the grass with green content,  
And made the weeds and clover vain.

Her fairies climb the naked trees,  
And set green caps on every stalk;  
Her primroses peep bashfully  
From borders of the garden-walk;  
And in the reddened maple-tops  
Her blackbird gossips sit and talk.

She greets the patient evergreens,  
She gets a store of ancient gold,  
Gives tasselled presents to the breeze,  
And teaches rivers songs of old—  
Then shakes the trees with stolen March winds,  
And laughs to hear the cuckoo scold.

Sometimes, to fret the sober sun,  
She pulls the clouds across his face;  
But finds a snow-drift in the woods,  
Grows meek again and prays his grace;  
Waits till the last white wreath is gone,  
And drops arbutus in the place.

Her crocuses and violets  
Give all the world a gay "Good year!"  
Tall irises grow tired of green,  
And get themselves a purple gear;  
And tiny buds, that lie asleep  
On hill and field, her summons hear.

She rocks the saucy meadow-cups;  
The sunset's heart anew she dyes;  
She fills the dusk of deepest woods  
With vague, sweet sunshine and surprise,  
And wakes the periwinkles up  
To watch her with their wide, blue eyes.



At last she deems her work is done,  
And finds a willow rocking-chair,  
Dons spectacles of apple-buds,  
Kerchief and cap of almonds rare,  
And sits, a very grandmother,  
Shifting her sunshine-needles, there.

And when she sees the deeper suns  
That usher in the happy May,  
She sighs to think her time is past,  
And weeps because she cannot stay,  
And leaves her tears upon the grass,  
And turns her face, and glides away.

## Patent Journal.

### AMERICAN INVENTIONS.

February 18. (74,530) CARRIAGE FOR ADVERTISING.—William C. Harris, A. Robert Roseman, and Hubbil B. Hutchins, Philadelphia, Pa. :

We claim a large-skeleton frame, having lamps enclosed therein, and being supported on wheels or runners, so that it can be drawn or driven like a carriage or car through the streets of a town, and having also a long semi-transparent advertising-band or canvas curtain arranged around the outside of the said frame, so that it can be moved by the driver as a panoramic curtain, the whole being constructed, arranged, and operated as herein described and set forth, for the purpose specified.

(74,556) CAST-IRON SLEIGH-RUNNER.—E. W. Lockwood and B. T. Frederick, Marshalltown, Iowa :

We claim, *First*, the U-shaped metallic knees B, provided upon their upper curved sides with the slotted horizontal supports *c*, the runners D, having the shoulder *g* for the reception of the end of the rave, all cast in one piece, substantially as described for the purpose specified. *Second*, The metallic knees B, when made V-shaped in their transverse section, and curved vertically, to form a brace for the runners D and supports *c*, substantially as described for the purpose specified.

(74,579) CARRIAGE-WHEEL.—Thomas Nevison, Jr., and James Nevison, Morgan, Ohio :

We claim the herein-described wheel, when the spokes of the same are constructed and secured to each other and the felloe or rim, in the manner substantially as set forth.

(74,581) WAGON-POLE SUPPORT.—Don Carlos Newton, Batavia, Ill. :

I claim, *First*, The combination of the steel spring B with the wooden lever C. *Second*, The manner of attaching the wooden lever C to the draw-bolt E, by means of the chain D.

(74,589) CARRIAGE-STEP.—G. M. Plympton, New York, N. Y. :

I claim a step for carriages, &c., formed of the two plates F and A, in combination with the India-rubber ribs D, or their equivalents, when the plate A is formed to receive such ribs D, substantially as and for the purpose described.

(74,591) SHACKLE FOR PLATFORM-SPRINGS OF WAGONS.—John Price, New York, N. Y. :

I claim a shackle for connecting the ends of the parts of platform-springs, composed of the cross-tubes *a b*, and the bolts *c c c c*, all constructed and applied substantially in the manner as and for the purpose herein specified.

(74,649) CARRIAGE-CURTAIN FASTENER.—Edward P. Whitney, Stamford, Conn. :

I claim a fastener for the aprons and curtains of carriages, composed of the parts A and B, the former provided with the eyes *c c'*, and the latter with the head *d* and offset *e*, and both provided with loops *a* and otherwise constructed and operated, substantially as herein specified.

(74,677) SHAFT AND POLE-COUPLING.—Perry Finley, Memphis, Tenn. :

I claim the coupling E, with the groove L and staples G G G, the square thimble F, the slide D, with the mortise H, the strap I, and buckle M, the fixed bolt, arranged substantially for the purposes herein set forth.

(74,689) CARRIAGE.—Edgar Hitt, Katonah, N. Y. :

I claim, *First*, The clamp C, provided with a socket *a*, in combination with the spring-bar A and body-loop B, substantially as and for the purpose set forth. *Second*, The square head *d*, at the end of the body-loop, to fit into a corresponding socket in the clamp C, substantially as and for the purpose described. *Third*, The projections or lips *e*, on the inner surfaces of the clamp, to fit into notches *d* on the spring-bar A, substantially as and for the purpose set forth.

25. (74,761) WHIFFLE-TREE.—Daniel W. Johnson, Bloomsburg, Pa. :

I claim a whiffle-tree, having spring A, slide B, levers H and M, chains K, and button C, constructed, combined, and arranged substantially as specified.

(74,802) RUNNING-GEAR FOR WHEELED VEHICLES.—W. C. Cook, Appleton, Wis. :

I claim, *First*, The combination of the reach E with the hounds C C of the front axle A, the bearing-plates *a a* at the rear of the hounds, the pivoted rear axle B, and the segment-bar *c*, with the front end of the reach connected to it by a staple, *b*, all arranged substantially in the manner as and for the purpose set forth. *Second*, The construction of metal stakes G, secured to the bolsters, each by a single bolt, *f*, arranged and applied substantially as shown and described.

(74,809) FRAME FOR CARRIAGE-TOPS.—James H. Flagg, Perkinsville, Vt. :

I claim the carriage-top frame, consisting of two or more bows of metal or other suitable material, the side bows being hung by an internal one, and the whole jointed in the middle, in manner and for the purposes substantially as above set forth and described.

(74,816) THILL-COUPLING.—Kingston Goddard, Richmond, N. Y. :

I claim the spring C, secured at one end to the bottom of the clip D, and extending around the axle and clip, secured at its other end to the thill B, forming a spring-coupling as herein described for the purpose specified.

(74,817) THILL-COUPLING.—Kingston Goddard, Richmond, N. Y. :

I claim the bending or forming of the outer end of the thill-iron, substantially as shown and described, so as to be capable of being fitted to the under side of the clip, in the manner as and for the purpose set forth.

(74,820) CARRIAGE-THILL.—Silas B. Harmon, Portland, Me. :

I claim the thill-brace *b*, when applied substantially as and for the purposes set forth.

(74,831) WAGON-LOCK.—O. A. Kenyon, McGregor, Iowa :

I claim the slotted arm F of the lever L, in combination with the pivot *a3*, pawl P, segment R, connecting-rod *a*, and pivoted brake C, as herein described, for the purpose specified.

(74,841) HUB AND AXLE.—Norman Maxham, Hancock, Vt., assignor to himself and C. G. Robbins, same place :

I claim the sand-head D, in combination with the hub A and cover H and axle B, substantially as shown and described, and for the purposes set forth.

(74,843) WAGON-COUPLING.—Henry Mitchell, Racine, Wis. :

I claim, *First*, The method of coupling the reach C to the other running parts of a wagon or other wheeled vehicle by



means of the front coupling A and the rear coupling B, constructed and attached substantially as shown and described. *Second*, The construction of the coupling-box A, having the sides thereof bent inward, so as to form the sockets *a*, substantially as shown and described and for the purposes set forth. *Third*, The flanges *c* upon the rear coupling-box B, in combination with the bolster E and the axle F, substantially as shown and described and for the purposes set forth. *Fourth*, The manner of adjusting the length of the reach C to the length of the load, substantially as shown and described. *Fifth*, The forward coupling-box A, with the reach C, and the hounds D, in combination with each other and with the rear coupling-box B and the axle F and bolster E, substantially as shown and described and for the purposes set forth.

(74,856) DUMPING-WAGON.—Henry Shirey, Fond du Lac, Wis. :

I claim, *First*, The revolving supporters *d d d d*, cams *f*, bar *g*, lever *h*, fulcrum *k*, and brace *i*, constructed substantially as described and operating as set forth. *Second*, The bottom boards *b b*, loops *c c*, in combination with a body or wagon-bed, when constructed and operating substantially in the manner and for the purposes set forth.

(74,891) TIP-SLED.—Stephen Chamberlin, Boston, Mass. :

I claim, in combination with the sled-runners, a body so mounted as to tip, substantially as described.

March 3. (75,026) CONSTRUCTION OF VEHICLES.—George P. Kimball, San Francisco, Cal. :

I claim, *First*, The combination of the perch A and jack P with the bars J J and H H, substantially as described and for the purposes set forth. *Second*, The combination of the bar D, plate O, bolts I I, braces G and perch A, substantially as described and for the purposes set forth. *Third*, The combination of the screw-plate C and nut C with eye-bolt S, substantially as described and for the purposes set forth.

(75,099) AXLE FOR VEHICLE.—J. A. Williams, Elizabeth, Ill. :

I claim, *First*, The serrated extension T of the spindle E of an axle, in combination with a serrated rack, R, for holding the said spindle firmly in its place, substantially as and for the purpose shown and described. *Second*, The longitudinal slots, substantially as described and for the purpose specified. *Third*, The reversible character of the rack R, substantially as described and for the purpose specified.

(76,105) CARRIAGE-HUB.—Seaman Allaire, New York, N. Y., assignor to himself, Robert Henry and E. Wright Vail, same place :

I claim the solid metallic hub A, provided with radial sleeves *b* and wooden spokes B, when constructed and combined essentially as shown and described.

(75,167) MACHINE FOR BORING HUBS.—Niels Johnson, Berlin, Wis. :

I claim the bars H H, clamps I and J', pinions L L, rack-bar J, and set-screw K, for forming a universal clamp for hubs, substantially as set forth.

(75,183) CARRIAGE.—Hiram Moon, Red Creek, N. Y. :

I claim the combination and arrangement of the upper and lower part of the circle A A' with spring-brace *k* and perch-plate *m*, as and for the purpose set forth and described.

(75,213) CARRIAGE-WHEEL.—J. C. Sparks, Philadelphia, Pa., assignor to himself and A. G. Buzby, same place :

I claim the arrangement of the ferrule A, having tapering sockets as described, the felloes C C', and spoke B, when projections on the said felloes are recessed for the reception of a

tenon on the spoke, which projects through the side of and into the ferrule, all as set forth.

10. (75,262) MODE OF ATTACHING ANIMALS TO CARRIAGES.—Henry B. Hale and Thomas Flagler, Grass Lake, Mich. :

We claim the construction of a draught or extension-bar, with or without joints, in connection with pulleys, straps, chains and rods, arranged in the manner and for the purposes specified.

(75,299) YOKE FOR HORSES.—Elias Sanford, Meriden, Conn. :

I claim, *First*, The peculiar construction of the ordinary hames, such as are used in draught-harness for horses, so as to dispense with traces, and connect them for draught with a beam or yoke passing under the horses' necks, by lengthening and extending downwards through mortises in the ends of said yoke, and fastened by pin on the under side, as shown in the drawings. *Second*, The slide-plate D, secured to the under part of the beam, by which means the hames may be adjusted to the necks of the horses, and then firmly secured in position by the set-screw, as shown in the drawings.

(75,314) MODE OF SECURING THE ENDS OF FELLOES AND SPOKES IN CARRIAGE-WHEELS.—John Switzer, Lynn, Mass. :

I claim the improved mode of fastening the ends of the felloes and the spokes in carriage-wheels, by means of the metallic block E, constructed and applied and secured by the bolts *d, d*, as explained.

(75,397) SEAT FOR VEHICLE.—Walter A. Eddy, East Randolph, N. Y. :

I claim the arrangement of the lever B with the connecting-rods C C, plates D D, when secured or adjusted to the bottom of a seat, A, for the purpose of securing the same on a buggy, wagon, or cutter-top, substantially as and for the purpose herein set forth.

(75,408) SINGLE-TREE.—George Gibbs and William Gibbs, Canton, Ohio :

We claim the tree *a*, provided with the short disconnected springs *b b*, loops *c c*, and one or more indicators *e*, for marking the numbers on said loops, all combined and used substantially as set forth.

(75,440) TREBLE-TREE.—W. W. Mathews, Yates City, Ill. :

I claim, *First*, The staple-attachment *d e* of the inner ends of drawing-bars *a a*; and *Second*, The curved hook *b*, shown in fig 2, each and all substantially as shown, and in combination as and for the uses and purposes herein expressed.

(75,457) MACHINE FOR ROLLING AXLES.—William P. Porter, Pittsburgh, Pa. :

I claim the combination of the adjustable rolls A and B and the roll C, constructed and arranged in relation to one another, and to the frame which supports them, as and for the purpose herein described.

17. (75,574) WAGON-HUB, AXLE, AND BOX.—John W. Pollock, Cross Bridges, Tenn. :

I claim, *First*, The combination of the hub A, and the box D with each other, and with the axle C, substantially as shown and described, and for the purposes set forth. *Second*, The combination of the box D with the axle C, substantially as shown and described and for the purposes set forth.

(75,682) THILL-STRAP.—Edward Howell, Ashtabula, Ohio, assignor to himself and P. C. Ford, same place :

I claim the loop C, connected with the spring E, in combination with the pin *e*, strap A, and loops *a a*, substantially as and for the purpose set forth.























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