

TR 137  
W 21  
FIRST EDITION.

PART FOURTH.

W. H. WALMSLEY.

ISAAC COLLINS.

MORRIS EARLE.

AN ILLUSTRATED CATALOGUE  
OF  
PHOTOGRAPHIC CAMERAS,  
LENSES,  
AND OTHER APPARATUS AND MATERIALS  
FOR PHOTOGRAPHY.



W. H. WALMSLEY & Co.,

SUCCESSORS TO R. & J. BECK,

NO. 1016 CHESTNUT STREET,  
PHILADELPHIA.

◆ — PRICE, TEN CENTS. — ◆

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# NOTICE.

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Having a full stock of all the articles enumerated in this Catalogue always in store, we are prepared to fill all orders with the utmost promptness, a matter of great importance to many, avoiding the vexatious delays formerly so common.

W. H. WALMSLEY & CO.

April 1, 1884.

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A CLASSIFIED AND ILLUSTRATED  
PRICE-LIST  
OF  
PHOTOGRAPHIC CAMERAS,  
LENSES,  
AND OTHER  
APPARATUS AND MATERIALS  
FOR THE USE OF  
AMATEUR PHOTOGRAPHERS.

—  
*“Vino Bono Non Opus Est Hedera.”*  
—



W. H. WALMSLEY & CO.,

SUCCESSORS TO, AND SOLE AGENTS FOR,

R. & J. BECK,

No. 1016 CHESTNUT STREET,  
PHILADELPHIA.

1884



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# INTRODUCTION.

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The love of pictures and the desire to reproduce in some manner the lineaments of a beautiful or beloved form, or striking bit of landscape are universal passions of mankind. They have existed from the remotest antiquity, and all that is left to tell of the existence of races long since passed away are their rude carvings and drawings upon implements of stone and pottery found in their tenantless graves. But, with all their longings and aspirations, how few possessed the ability to give their mental pictures a more tangible shape until the Genius of the Camera appeared and bade them use the means he so freely placed at their disposal? Then, indeed, a new world was opened to our gaze, and, with the introduction of Dry Plates, the hitherto impossible was made so utterly an every-day matter that in viewing the accurate scenes of foreign lands presented to our view, we lose sight of the means whereby they were procured and thus brought home to us. The magic exists none the less, however, and can be turned to account by any one who possesses an eye for the picturesque and beautiful, and the patience to master the few preliminary difficulties that go before all achievements.

Photography is not a Fine Art, but is a most excellent handmaiden thereto, and many eminent artists do not hesitate to call in its aid to their inspirations. It educates the eye, teaches one to seek the salient points in a landscape or bit of architecture, and impresses the same upon the memory in a wonderful and imperishable manner. It is a fascinating pursuit, entices its devotees to seek a closer communion with nature, affords needed exercise to the man of sedentary habits, promotes digestion, and carries one in the dismal winter months back to many a summer ramble whilst looking on the pictured mementos of the same. What if some plates are "fogged," others "over" or "under exposed," or the "developer" has gone astray, there will still be found a good balance on the right side of the account.

And it is an inexpensive "hobby." Look over the succeeding pages, and note for what an insignificant outlay of money an "Outfit" capable of producing finished work may be procured. We have seen pictures made with ten-dollar Cameras of which any worker might be proud. Our advice to all is to purchase at the outset the best Camera and Lenses they can afford, but not to forego the possession of *any*, because they cannot buy the more costly ones. The lowest-priced instrument herein described will do most excellent and satisfactory work if properly handled; the intelligent and enthusiastic operator is as important a factor in the proceeding as the tools with which he works.

In compiling this Catalogue of Cameras and other articles pertaining to Photography, it has been our aim to gather together in a succinct and classified manner the best of everything now attainable relating to Amateur Photography and the needs of its devotees. In no other Commercial Price List published on either side of the Atlantic is there such a varied fund of information on the subject to be found; and it is the *only* one in which any classified system is attempted. Beginning with the lowest-priced Cameras (but cheap and good), the reader is led through a tempting array of the latest devices and appliances up to the very best, regardless of cost. Then come the various parts and appliances which make up an "outfit"—Lenses, Plate Holders, Tripods, etc., succeeded by Developing and Printing outfits, to suit all desires and all purses—ending with a valuable selection of Standard formulæ of various sorts. The mysteries of Photo-Micrography are explained in a clear and concise manner, and cameras specially designed for this purpose are illustrated and described. Each article is designated by its own particular number, so that in ordering, it is merely necessary to give the number, without going to the trouble of writing out its name or description. The price of each article is also given, and the same will be strictly adhered to; one price to all, and that the lowest, at which first-class goods only (for we deal in no others), can be afforded. We guarantee every article sold, and if any is not satisfactory, will in every instance make it so. Although scarcely two years have elapsed since we added this branch to our business, we have already attained the position of the leading house in Amateur Photographic requisites in America; which has only been reached, and can be retained, by keeping the best of everything, at the lowest prices, and dealing fairly with every one.

R. & J. Beck (of London—of which famous house we are the only American representatives) have recently added the making of Photographie Cameras and Lenses to their extensive business, and we shall shortly have a full supply of same for the Amateur and Professional Photographer. The same care and skill which have kept their Microscope Objectives in the van for more than the third of a century will be given to the construction of the Photographie Lenses. Their new Rapid Landscape Lenses, Nos. 2760-63, of this List, are unsurpassed by any, whilst their cost is very moderate. We are also direct importers of the Lenses of Ross, Dallmeyer, and Darlot; those of the latter bearing our firm name engraved on them by the maker. We import our Sensitized Albumen papers, Pyrogallic Acid, and some other chemicals direct from the makers in Paris, whilst those of domestic brands are obtained from the manufacturers, fresh and pure.

We have recently added a Dark Room to our establishment, replete with every convenience, the use of which is freely offered to our friends and customers, to whom every instruction will be given by competent assistants, without charge. From those at a distance who cannot visit our establishment in person, we solicit inquiries, which will be carefully and fully answered by return post.

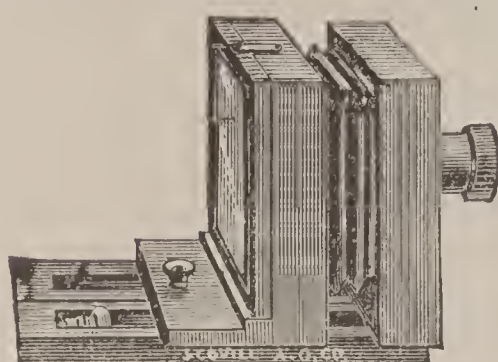
The mechanical part of Photography, with modern Dry Plates, is very easily acquired, and presents no serious difficulties to any. It is practiced by very many ladies all over the country, and has as enthusiastic devotees among the fair sex as with the opposite one. It promotes digestion, gives one a taste for healthy exercise, and enables him to preserve many a scene for after contemplation that would otherwise be buried in oblivion. Therefore, we say to one and all, old and young, be not discouraged by seeming difficulties in the way, but try for yourselves. Our Mr. Walmsley is now preparing a little practical work, giving valuable hints to beginners, not found elsewhere in connected form, and we hope soon to announce its appearance.

W. H. WALMSLEY & CO.



## CAMERAS.

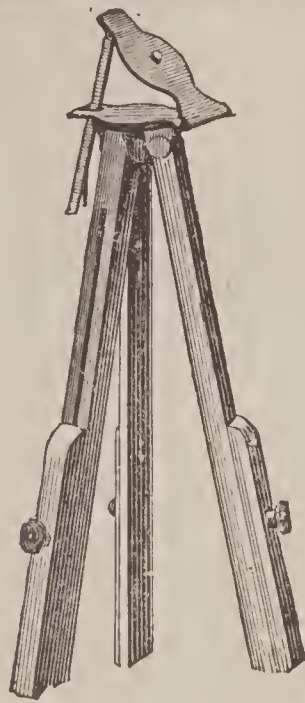
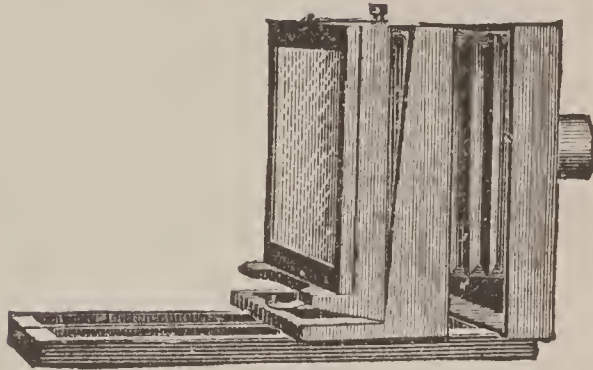
### NE PLUS ULTRA APPARATUS OUTFITS.



Nos. 2500-2513.

No.		PRICE.
2500.	<b>OUTFIT A.</b> For making 4x5-inch Pictures, . . . . . This outfit comprises a Ne Plus Ultra Camera, with rubber bellows and rigid platform, one Double Dry Plate Holder, Achromatic View Lens, Folding Tripod, and Carrying Case.	\$10 00
2501.	<b>OUTFIT B.</b> For making 5x8-inch Pictures, . . . . . The same as Outfit A in all respects excepting size.	12 00
2502.	<b>OUTFIT C.</b> For making 5x8-inch and Stereoscopic Pictures, . . . . . The same in all respects as Outfit B, with the addition of a pair of matched Lenses for making Stereoscopic Pictures.	18 50
2503.	<b>OUTFIT D.</b> For making Pictures 6½x8½ inches, . . . . . The same as Outfit A in all respects excepting size.	14 00
2504.	<b>OUTFIT E.</b> For making Pictures 8x10 inches, . . . . . The same as Outfit A in all respects excepting size.	28 00
2505.	<b>OUTFIT A A.</b> Complete for Field Service, . . . . . This equipment consists of Outfit A, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 4x5 Dry Plates.	12 25
2506.	<b>OUTFIT B B.</b> Complete for Field Service, . . . . . This equipment consists of Outfit B, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 5x8 Dry Plates.	15 00
2507.	<b>OUTFIT C C.</b> Complete for Field Service, . . . . . This equipment consists of Outfit C, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 5x8 Dry Plates.	21 50
2508.	<b>OUTFIT D D.</b> Complete for Field Service, . . . . . This equipment consists of Outfit D, with the addition of one Focusing Cloth, one Ruby Lantern, and one dozen 6½x8½ Dry Plates.	18 00

## NEW YORK OUTFITS.



Nos. 2510-2512.

No.	PRICE
2510. NEW YORK OUTFIT, No. 601, for $4\frac{1}{4} \times 5\frac{1}{2}$ -inch Pictures, . . . .	\$14 00

This Outfit comprises the following articles :

One Finely Finished Single-swing Camera, of Polished Sycamore Wood, with Folding Bed.

One Improved Double Plate Holder.

“ Waterbury Achromatic View-lens, No. 1.

“ Extension Tripod, No. 1, with Reversing Attachment.

“ Compact Carrying Case, with Handle.

2511. NEW YORK OUTFIT, No. 602, for 5x8-inch Pictures, . . . .	17 00
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This Outfit is the same as 601 in all respects, excepting size.

2512. NEW YORK OUTFIT, No. 603, for $6\frac{1}{2} \times 8\frac{1}{2}$ -inch Pictures, . . . .	20 00
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This Outfit is the same as 601 in all respects, excepting size.

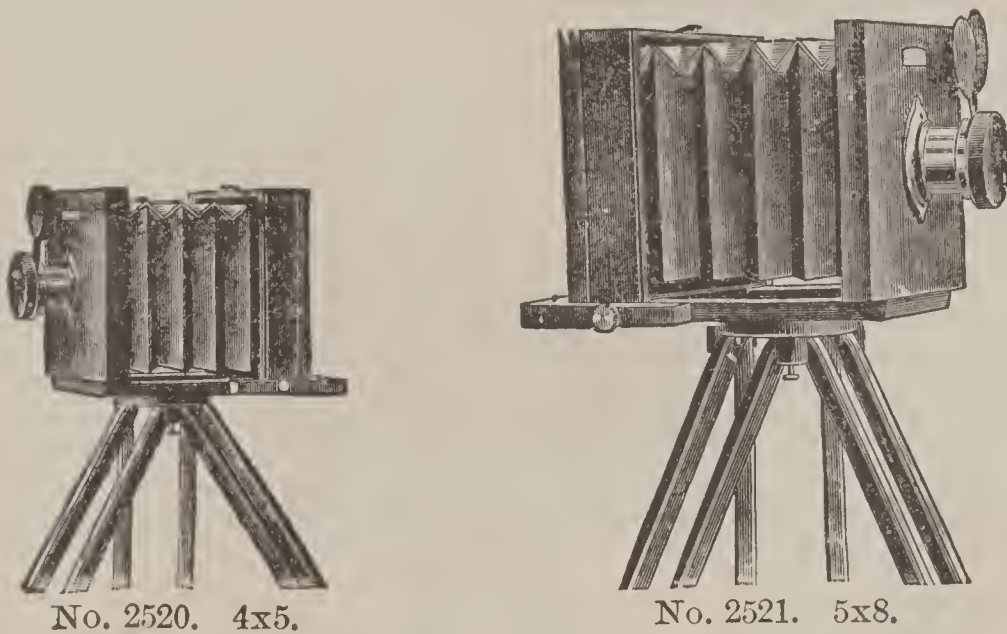
*The New York Outfits (just introduced) are the best and most perfect of any of the cheap outfits now in the market. They comprise most of the advantages hitherto obtainable only with the highest priced Cameras.*



In cases where exposed Plates are taken to a photographer's and there developed, printed from, and mounted on cardboard, any of the above equipments lack nothing that is essential. We recommend the amateur to finish his own pictures, and hence to procure one of the following equipments, which are complete in every requisite for making the highest class pictures, lacking nothing for view taking, development, and the printing and mounting of photographs.

No.		PRICE.
2515.	EQUIPMENT A A A. Complete in every requisite, . . . . . This equipment consists of Outfit A, with Developing Outfit No. 3102 and Printing Outfit No. 3110, for 4x5 Pictures.	\$20 50
2516.	EQUIPMENT B B B. Complete in every requisite, . . . . . This equipment consists of Outfit B, with Developing Outfit No. 3103 and Printing Outfit No. 3111, for 5x8 Pictures.	25 00
2517.	EQUIPMENT C C C. Complete in every requisite, . . . . . This equipment consists of Outfit C, with Developing Outfit No. 3103 and Printing Outfit No. 3111, for 5x8 and Stereoscopic Pictures.	31 50
2518.	EQUIPMENT D D D. Complete in every requisite, . . . . . This equipment consists of Outfit D, with Developing Outfit No. 3104 and Printing Outfit No. 3112, for 6½x8½-inch Pictures.	30 00

“NEW MODEL” CAMERAS.

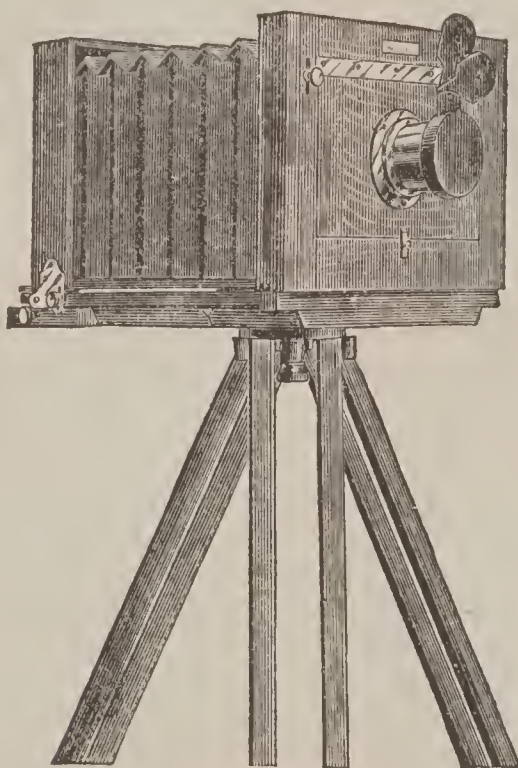


These Cameras are designed especially for the million—well made, accurate, reliable, easily worked, simple, practical, and cheap.

The Camera-box is made of the best seasoned cherry, well finished in the natural wood. The Focusing Screen is *hinged* to camera-back, which is more convenient and less liable to loss and breakage than a removable one. The back with screen, slides upon the bed, being fastened by a set screw when the focus has been obtained. The Tripod is attached to the bed by a screw which, while it allows the swinging of box horizontally, or entire removal, remains in its socket at all times, thus obviating danger of loss. The lens is of remarkably fine quality, giving sharp definition and great depth of focus. The diaphragms are *removable*—a point of the greatest importance, to compensate for the varying strength of different lights. This is the only low-priced Camera in the market having this improvement. The Plate Holder is made on a greatly improved plan, doing

away with ledges, and thus exposing all of the plate to the action of the light, making a picture the full size of plate. By the old method a quarter of an inch all around was lost. The Tripod Legs are jointed, capable of folding to half length, but when in position are rigid and firm. A Carrying Case with handle is furnished with each outfit, and will take four Holders, a Focusing Cloth, Lens Cap, etc. The 5x8 and 6½x8½ sizes are provided, at a slight extra cost, with *rising* and *falling fronts*, a *swinging back*, *hinged and folding beds* (almost indispensable adjuncts for some views), and are adjustable for *stereoscopic work*, having *double lenses*, on interchangeable fronts with partitions. All the sizes are reversible, thus allowing the pictures to be taken either vertically or horizontally, as may be desired.

No.	PRICE.
2520. OUTFIT No. 1. For making 4x5-inch Pictures, . . . . .	\$10 00
This outfit comprises a "New Model Camera," with rubber bellows and rigid platform, one Double Dry Plate Holder, Achromatic View Lens, with three removable Diaphragms, Folding Tripod, and Carrying Case.	
2521. OUTFIT No. 2. For making 5x8-inch Pictures, . . . . .	12 00
This outfit comprises the same articles as those with No. 2520, but of larger size.	
2522. OUTFIT No. 2, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work, . . . . .	18 00
2523. OUTFIT No. 3. For making 6½x8½-inch Pictures, . . . . .	14 00
This outfit comprises the same articles as those furnished with No. 2520, but of larger size.	
2524. OUTFIT No. 3, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work, . . . . .	20 00



Nos. 2525-2527.

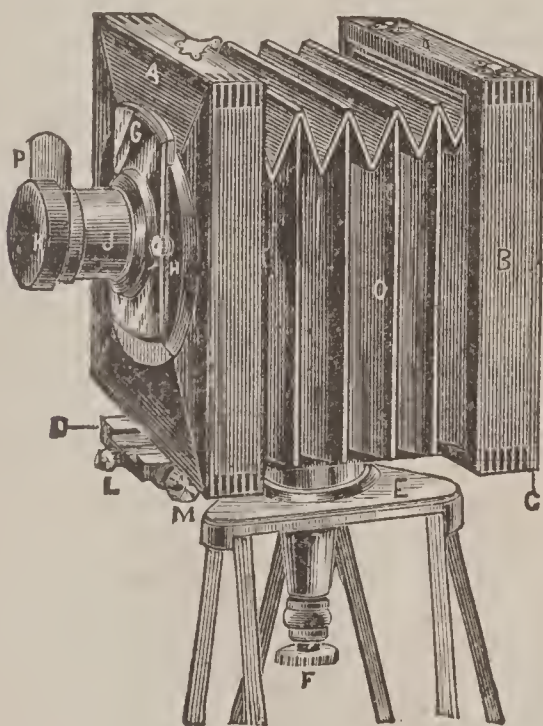
2525. OUTFIT No. 4. For making 5x8-inch Pictures, . . . . .	16 00
This outfit consists of an "Improved New Model Camera," which has rising and falling Front, adjusting for sky or fore-	



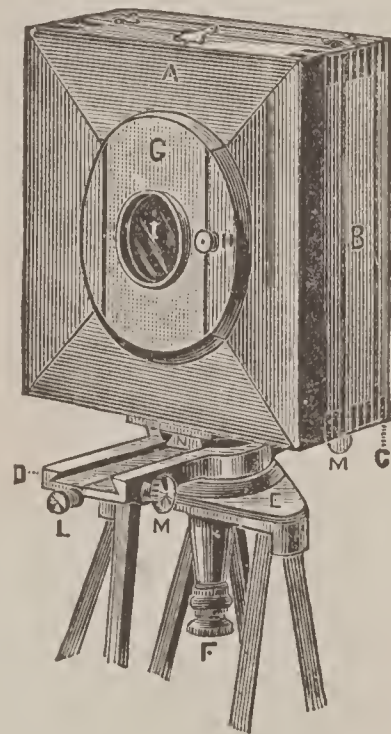
No.		PRICE.
	ground; Folding Bed, for compactness in packing, and single Swing Back. All the other apparatus is the same as that furnished with No. 2521.	
2526.	OUTFIT No. 4, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work, . . . . .	\$22 00
2527.	OUTFIT No. 5. For making 6½x8½-inch Pictures, . . . . . This outfit consists of an "Improved New Model Camera," with the same apparatus as that furnished with No. 2520, but of larger size.	20 00
2528.	OUTFIT No. 5, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work, . . . . .	26 00
	The Developing and Printing Outfits Nos. 3100-02 and 3107-09 are specially designed for use with these Cameras.	

**"THE AMERICAN CHALLENGE" SWIVEL-BED CAMERA.**

These Cameras are made in three sizes—3½x4½, 4x5, and 5x8, the first two being identical, except in size. The bed is of best seasoned cherry, highly finished in natural wood. The front is mitred in four pieces, giving it a very elegant appearance. The bed swivels under the box, as shown in cut. *L*, fig. 6, is a focusing screw, and *M* lock nut for fastening box in position when focus is



"AMERICAN CHALLENGE," FIG. 5.  
No. 2530. Open.

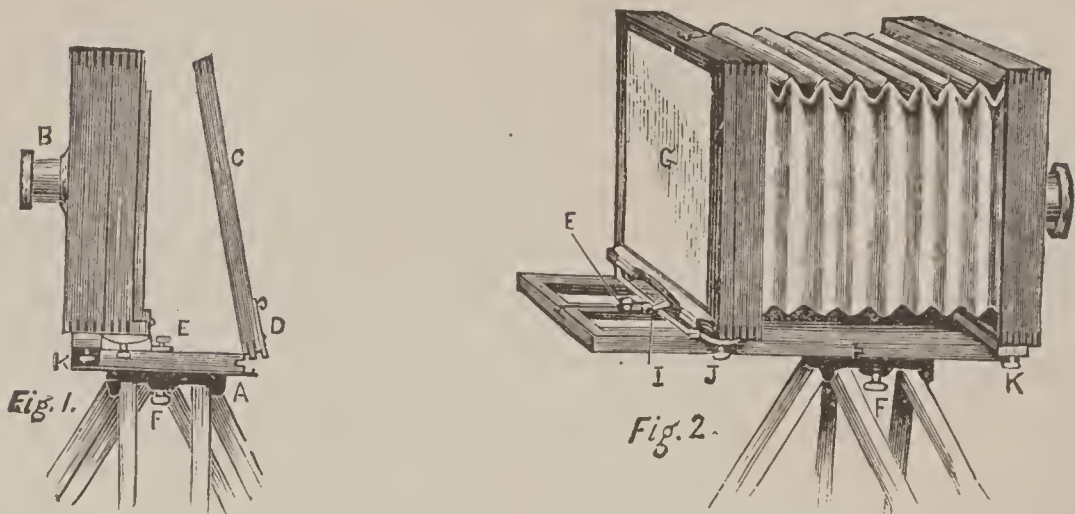


"AMERICAN CHALLENGE," FIG. 6.  
No. 2530. Closed.

obtained. The tripod head *E* is adjustable, so that the camera may be leveled without necessity of moving the tripod legs. The *rising and falling front G* is *reversible* for packing more compactly. (See fig. 6.) *The diaphragms are removable.* The focus screen is hinged and falls down at the camera back, thus offering least resistance to wind. This camera is but two inches thick when closed, thus making it most compact for transportation. The lens is of great depth and fine quality, giving a sharp and clear-cut picture.



## THE "CHALLENGE" 5x8 STEREOSCOPIC CAMERA.



This Camera combines all the superior points of excellence usually found only in high-class instruments, at a moderate price. The *Tripod legs* are attached to the *tripod head A*, fig. 1, which is so arranged that the Camera box may be leveled instantly with set nut *F*, without the necessity of moving the tripod legs; the greatest convenience on uneven ground.

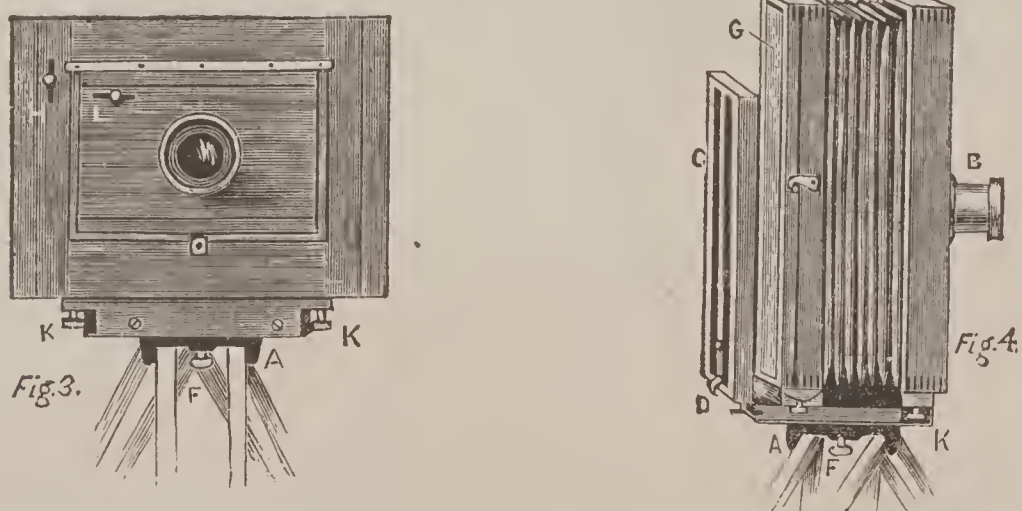
Drop folding bed *C* and clamp with hook *D*, which gives perfect rigidity.

The Camera box may now be drawn out upon the bed, fig. 2, and locked in position by lever *E*.

The *double rising and falling front* now comes into play, in order to give more foreground or more sky upon glass screen *G*, fig. 2, and is held in any desired position by the nuts *H* and *L*, fig. 3.

Should the nature of the view require the focusing of near and distant, or tall objects on the screen, the *double swing back* is used by means of nuts *E*, fig. 1, and *J*, fig. 2. This is a most essential attachment to any first-class instrument, and is more conveniently arranged on the Challenge 5x8 than any other Camera in existence.

FOR STEREOSCOPIC WORK, the screw *H*, fig. 3, is removed, and sliding front raised until the stereo partition furnished will occupy its position in recesses



inside of Camera box. The *stereo front with two lenses* is then inserted in place of single tube and the Camera is prepared for stereo work.

It often becomes necessary, or it is preferred to take a view of some tall spire or lofty gorge, with the longest diameter of the plate vertical, the Challenge is especially arranged whereby this may be effected quickly and conveniently.

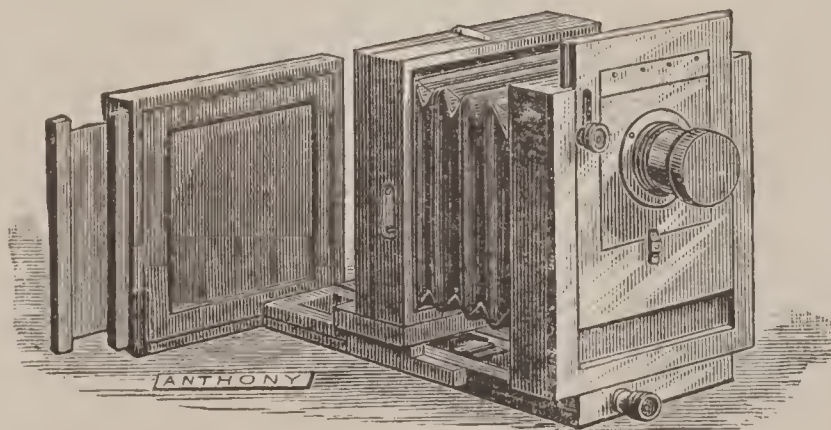
The screws *J J*, fig. 2, and *K K*, fig. 3, are unscrewed until Camera box is detached, but without the screws leaving their sockets so that they are never liable to be lost. The Camera box is then reversed, placed in a vertical position, and securely fastened by the same screws. (See fig. 4.) The change of box from a horizontal to a vertical position does not interfere in the least with the use of the double sliding front, the double swing-back, or any of the other attachments. It occupies but a moment, and is a far more simple method than is employed in most instruments.

A good lens giving great depth of focus is supplied with this Camera, with standard flange whereby, if desired, a more expensive one may be applied. The length of draw for the bellows is also sufficient to accommodate a lens of either long or short focus.

No.	PRICE.
2530. OUTFIT No. 6. For making 3¼x4¼-inch Pictures, . . . . .	\$15 00
This outfit consists of an American "Challenge Camera," for taking pictures 3¼x4¼, with mitred front, <i>reversible lens</i> , <i>Swivel Bed</i> , <i>Bellows Body</i> , <i>Focusing Screw</i> , <i>Adjustable Tripod Head</i> , for uneven ground, set of <i>Folding Tripod Legs</i> , three <i>Removable Diaphragms</i> , one <i>Improved Reversible Double Plate Holder</i> , and <i>Carrying Case</i> .	
2531. OUTFIT No. 7. For making 4x5-inch Pictures, . . . . .	20 00
This outfit consists of an American "Challenge Camera," with apparatus and improvements same as No. 6, but for taking pictures 4x5 inches in size.	
2532. OUTFIT No. 8. For making 5x8-inch Pictures, . . . . .	30 00
This outfit consists of an American "Challenge Camera," for taking pictures 5x8 inches in size, with apparatus and improvements same as No. 6, with the exception of a folding instead of a swivel bed, with the addition of the following; <i>Double Rising and Falling Front</i> and <i>Double Swing Back</i> .	
2533. OUTFIT No. 8, with the addition of an extra front, partition, and pair of Lenses for Stereoscopic work, . . . . .	36 00

All the above Cameras are reversible, so that views may be taken either horizontally or vertically upon the plate. The Carrying Cases furnished with each are capable of taking *Four Extra Plate Holders*; in ordering, it would be well to include two or three extra, as they will surely be needed.

ANTHONY'S EQUIPMENTS.



No. 2540.

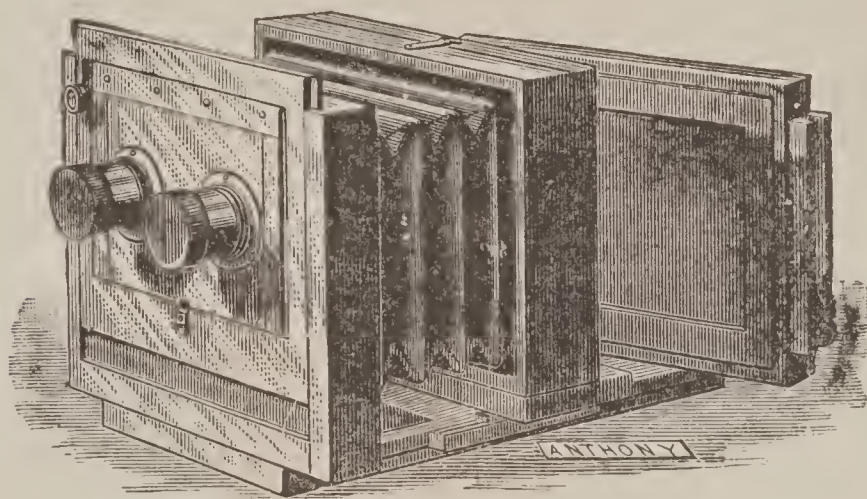
2540. ANTHONY'S EQUIPMENT No. 4. Complete, . . . . .	25 00
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This equipment comprises a Mahogany Camera, for making pictures vertically or horizontally, measuring 4x5 inches, complete with Rising Front, Folding Bed, Rubber Bellows, and Focusing Serew, one fine Single Achromatic Lens, improved Tripod, six 4x5 Patent Double Dry Piate Holders, and Carrying Case.

*Parts of No. 4 are supplied as follows:*

No.	PRICE.
2541. 4x5 Camera, as above, <i>without shield</i> , . . . . .	\$10 00
2542. 4x5 Patent Double Dry Plate Holders, each, . . . . .	2 00
2543. Single Achromatic Lens, . . . . .	3 75
2544. Improved Tripod, . . . . .	2 25
2546. Carrying Case, . . . . .	75



No. 2547.

2547. ANTHONY'S EQUIPMENT No. 5. Complete, . . . . .	33 00
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This equipment comprises a 5x8 Mahogany Stereoscopic Camera, with Rising Front, Folding Bed, Rubber Bellows, Removable Ground-glass, Focusing Serew, extra Front Board, six 5x8 Patent Double Dry Plate Holders, Improved Folding Tripod, Carrying Case, and one pair of fine Achromatic Stereoscopic View Lenses.

*Parts of No. 5 are supplied as follows:*

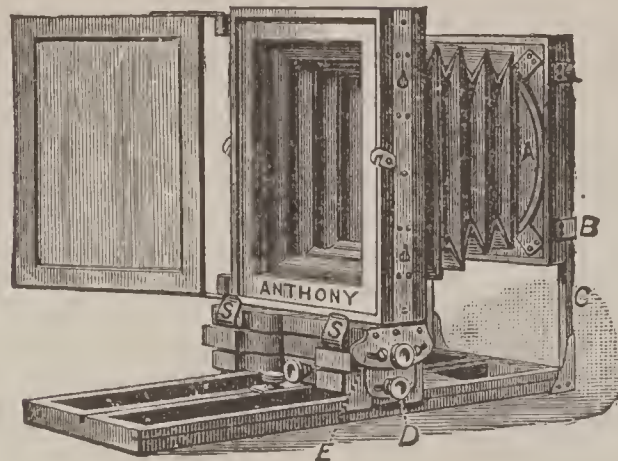
2548. 5x8 Camera, as described, <i>without shield</i> , . . . . .	12 50
2549. 5x8 Patent Double Dry Plate Holders, each, . . . . .	2 25
2550. One pair of Achromatic Stereoscopic Lenses, . . . . .	7 50
2551. Improved Tripod, . . . . .	2 25
2552. Carrying Case, . . . . .	1 00
2553. ANTHONY'S EQUIPMENT No. 6. Complete, . . . . .	37 50

This equipment is the same as No. 5, with the addition of a fine Single Achromatic Lens, for producing single views on plates measuring 5x8 inches.

*The Cameras thus far described in this Catalogue are all priced complete, with Lenses, Tripods, etc. Those to follow, consist of the Camera Boxes only, with one double Plate Holder and Carrying Case. Lenses, Tripods, and all additional apparatus may be selected from the lists given elsewhere.*

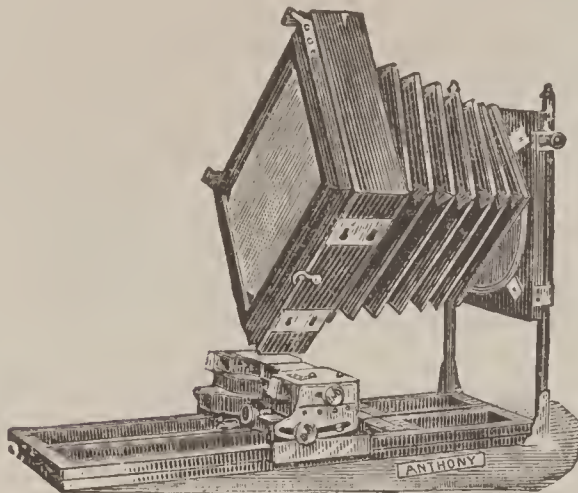


## ANTHONY'S NOVEL VIEW-CAMERAS.



Nos. 2555-2559.

FIG. NO. 1. NOVEL VIEW-CAMERA IN POSITION FOR VERTICAL PICTURES.



Nos. 2555-2559.

FIG. NO. 2. NOVEL VIEW-CAMERA, SHOWING METHOD OF REVERSING.

These Cameras are made in the best possible manner, and of first quality Mahogany, in good, hard varnish finish. They have Single and Double Swing Backs, Cone Bellows, and Folding Beds; are very light, compact, and strong. Their peculiar construction admits of making the pictures either vertically or horizontally with equal ease, the change of position being effected very quickly.

The rear part of the Camera is separated from the bed by merely pushing it from left to right, the keyhole slots releasing the heads of the screws.

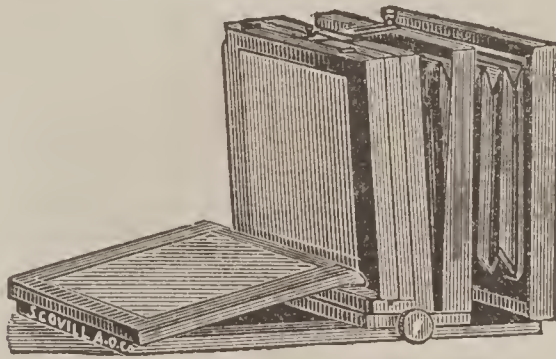
The front end of the bellows is arranged so as to revolve in a light framework, which runs on the two hollow upright brass rods; when the rear of the Camera is separated from the bed, the entire bellows revolves at the same time with the rear. When this is turned on its side and replaced on the screw the Camera is reversed. The whole operation of reversing a 5x8 camera requires but two seconds by the watch.

They are made with as long a bellows as possible, the 5x8 being about four inches longer than those of the ordinary kind. The ground glass is hinged to the Camera.

No.	PRICE.
2555. ANTHONY'S NOVEL VIEW-CAMERA, 4x5, . . . . . With Single Swing, one Double Plate Holder, and Carrying Case.	\$17 50
2556. ANTHONY'S NOVEL VIEW-CAMERA, 4½x6½, . . . . . With Single Swing, one Double Plate Holder, and Carrying Case.	20 00
2557. ANTHONY'S NOVEL VIEW-CAMERA, 5x8, . . . . . With Single Swing, one Double Plate Holder, and Carrying Case.	20 00
2558. ANTHONY'S NOVEL VIEW-CAMERA, 6½x8½, . . . . . With Single Swing, one Double Plate Holder, and Carrying Case.	25 00
2559. ANTHONY'S NOVEL VIEW-CAMERA, 8x10, . . . . . With Single Swing, one Double Plate Holder, and Carrying Case.	30 00

(The three latter sizes have Stereoscopic partitions and extra front.)

### AMERICAN OPTICAL COMPANY'S CAMERAS.

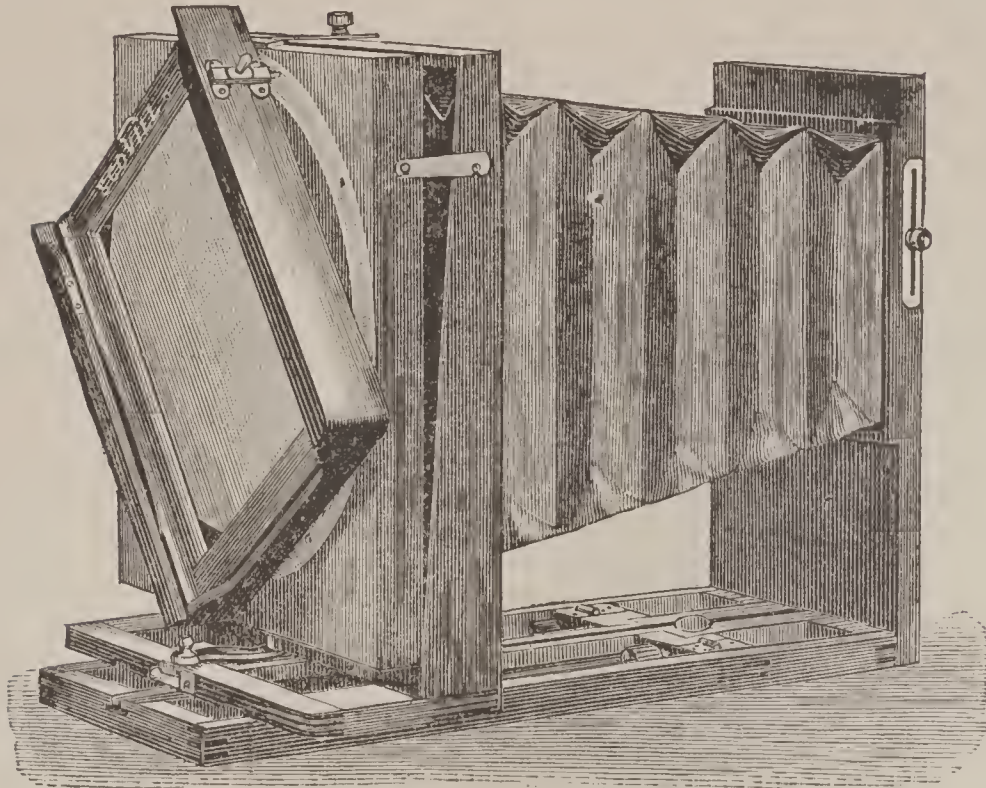


Nos. 2565-2568.

2565. AMERICAN OPTICAL COMPANY'S OUTFIT No. 202, . . . . . This outfit comprises a Folding Mahogany Polished Camera for taking pictures 4x5 inches, with <i>Folding Bellows Body</i> , Single Swing, Hinged Bed, Brass Guides, and a Shifting Front for adjusting the sky and foreground, with one Daisy Double Dry Plate Holder, one Canvas Carrying Case, and one Extension Tripod, No. 1.	25 00
2566. AMERICAN OPTICAL COMPANY'S OUTFIT No. 202 A, . . . . . This outfit is the same as No. 202, but adapted for taking pictures 4½x5½ inches.	26 50
2567. AMERICAN OPTICAL COMPANY'S OUTFIT No. 203, . . . . . This outfit comprises a Folding Mahogany Camera, French polished, for taking 5x8-inch pictures, and also for Stereoscopic views, Single Swing, Brass Guides, and Shifting Front, together with one Daisy Dry Plate Holder, one Extension Tripod No. 2, and Canvas Carrying Case.	38 00
2568. AMERICAN OPTICAL COMPANY'S OUTFIT No. 204, . . . . . This outfit is the same in all respects as No. 203, but has Extension Tripod No. 3, and is adapted to taking pictures 6½x8½ inches.	46 00



FLAMMANG'S PATENT  
REVOLVING BACK CAMERAS.



Nos. 2575-2582.

“These are the finest View Cameras ever constructed,” so says every photographer who has examined any of them, and this exclamation is not merely a tribute to the beauty and grace of their design; for invariably the desire has at the same time been expressed to possess one of these truly novel and substantial Cameras.

Wherein lies the merit of the Revolving Back Camera, that photographers want to cast aside others now in use and procure one of this new pattern? Briefly stated, it enables the view taker to secure either an upright or a horizontal picture without changing the plate holder after it has been slid into the carriage. No other camera can with such wondrous ease and celerity be changed from the vertical to the horizontal or *vice versa*. The carriage is simply turned about in the circle and automatically fastened. By this latter provision the carriage may be secured at either quarter of the circle. Ordinarily, the slide will be drawn out of the holder to the right; but, in certain confined situations, the ability to withdraw the slide to the left enables the photographer to obtain a view which he could not get with the usual provision in a Camera. The photographer of experience is well aware of the difficulty, when taking an upright picture with a large camera, of reaching up to draw out the slide at the top, and, what is more essential, of getting out the slide without fogging the plate in the holder.

Grace and strength are combined in the Revolving Back Camera, and its highly desirable features are gained without the sacrifice of steadiness or any other essential principle in a good camera. Indeed, its merit is such, that outdoor photography will be advanced and made more attractive by its introduction.

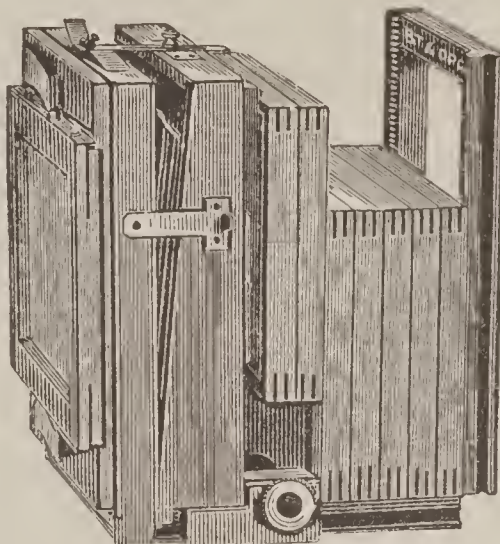


## PRICE-LIST.

*Revolving Back Cameras, each in a Canvas Carrying Case.*

No.							PRICE.	
							Single Swing.	Double Swing.
2575.	Flammang's Revolving Back Camera, for view	4½ x	5½ inch,				\$33 00	\$38 00
2576.	"	"	"	"	"	5 x 7 "	35 00	40 00
2577.	"	"	"	"	"	5 x 7½ "	35 00	40 00
2578.	"	"	"	"	"	5 x 8 "	35 00	40 00
2579.	"	"	"	"	"	6½ x 8½ "	45 00	50 00
2580.	"	"	"	"	"	8 x 10 "	50 00	55 00
2581.	"	"	"	"	"	10 x 12 "	65 00	70 00
2582.	"	"	"	"	"	11 x 14 "	77 50	82 50

## BLAIR'S REVERSIBLE-BACK COMBINATION CAMERA.



Nos. 2590-2593. Closed.

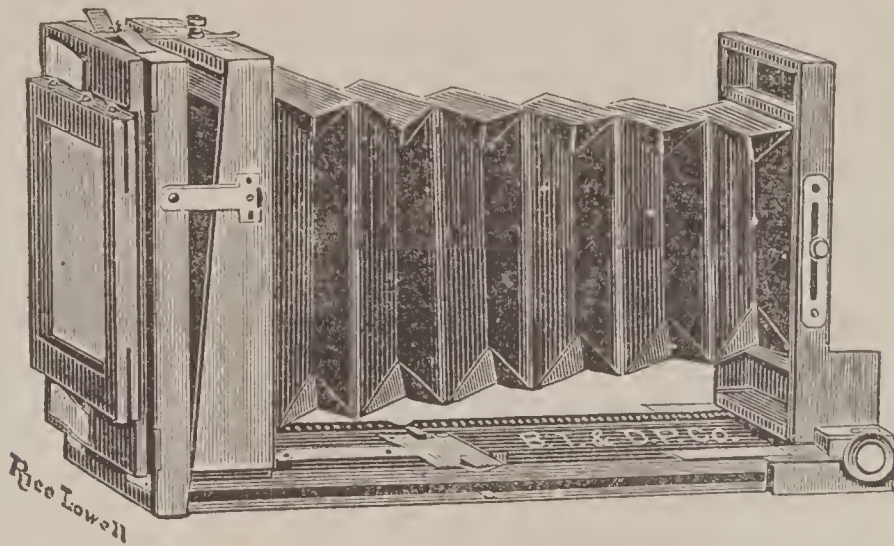
This Camera, whilst the lightest of any in the American market, is perfectly firm and rigid, being constructed in the most thorough and workmanlike manner, of the best materials. The "Feather Weight" Double Plate Holders, with which it is provided, are perfectly light-tight, yet so thin and small that seven of them can be carried within the folding bed of the Camera when the latter is packed in its Carrying Case, thus giving the operator the use of fourteen plates in a day's outing.

The reversing of the back is accomplished by simply pressing a spring, and changing the holder from vertical to horizontal; and as great pains are taken to have very accurate adjustments on all sides, no appreciable gain could be made were it constructed to revolve, whilst increase in bulk would be necessitated.

Another unique part of its construction is the means of attaching the plate holder and ground glass. The latter is held by all the four corners, and kept in position, wherever it may come to a bearing, by a spring; and when the plate holder is to be inserted, the lateral movement of a couple of inches causes the ground glass frame to recede sufficiently for the holder to be slid in freely without a spring to retard its motion or jar the camera; and when in position, and the ground glass frame acted upon by the spring is released, the latter lies firmly behind the plate holder, keeping it in position; all of which is accomplished without the touching of a catch or removing or swinging the focusing frame.

The stationary portion of the bed has two sockets for attaching the tripod, which enables the operator to balance his camera whether using a short or long focus lens.

In using the former, the *folding portion of the bed must be turned up*, otherwise it would interfere with the view. In addition to the improvements named these cameras possess all of the latest adjustments and are of the highest order of workmanship.



Nos. 2590-2593. Extended.

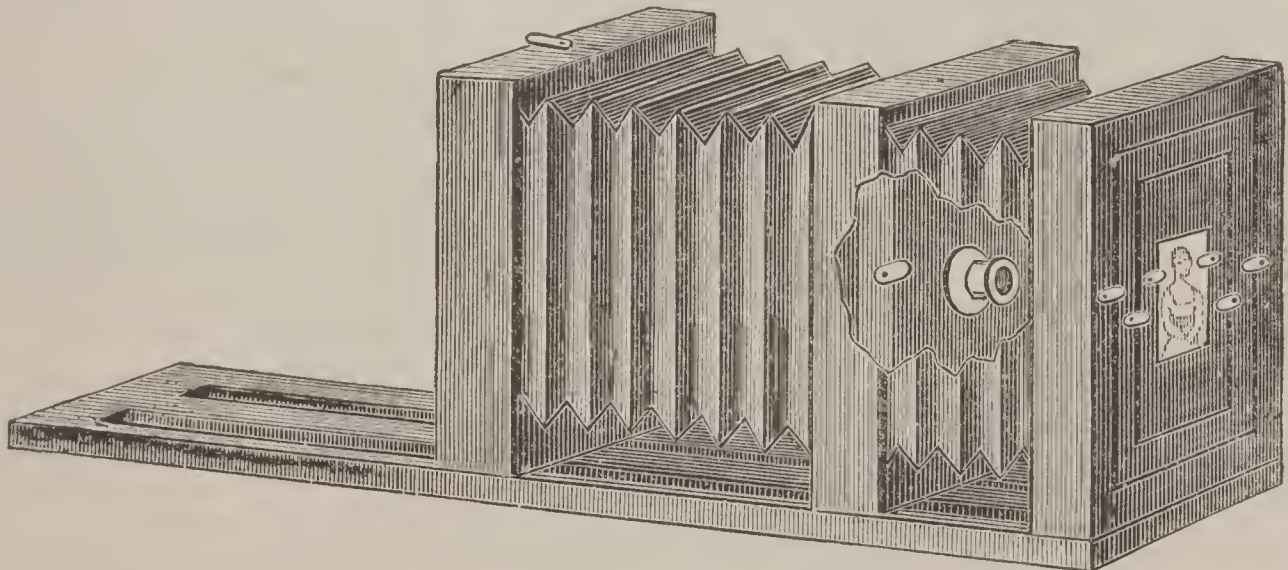
No.	SIZE OF PLATE.	WEIGHT.	PRICE.
2590. BLAIR'S REVERSIBLE-BACK CAMERA,	4½x5½	3¼ lbs.,	\$28 00
2591. " " " "	5 x7	4 lbs.,	31 00
2592. " " " "	6½x8½	5 lbs.,	35 00
2593. " " " "	8x10	7¼ lbs.,	40 00

Each of the above Cameras is provided with one "Feather Weight" Double Plate Holder and Carrying Case.

We are arranging for a full assortment of the finest and lightest English Cameras, which will be illustrated and priced in the next edition of this Catalogue.

We generally have in stock a few Second-hand Cameras, which will be sold at greatly reduced prices, though good as new. Descriptions of same will be sent on application.

SCOVILL'S ENLARGING, REDUCING, AND COPYING CAMERA.



No. 2625.

2625. SCOVILL'S COPYING CAMERA, 8x10,	. . . . .	35 00
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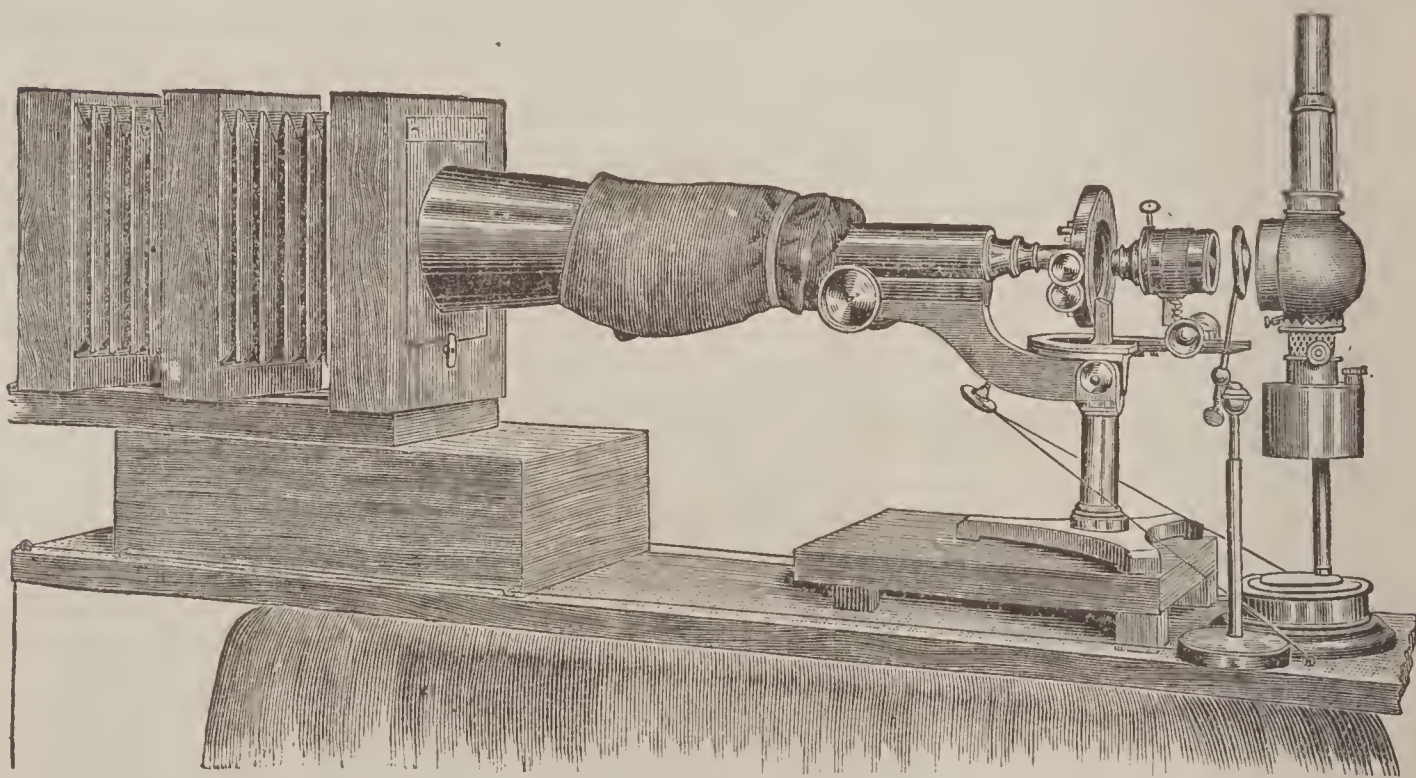


The construction of this Camera is clearly shown in the illustration. The box is square and of a size to carry 8x10 plates either vertically or horizontally, the front and plate holder being reversible. Both are fitted with kits to carry any sized plates, from  $3\frac{1}{2} \times 4\frac{1}{2}$  to 8x10 inches. The double bellows has an extension of about 6 feet, and has a side opening to permit the manipulation of the lens and diaphragms without removing the front. It is an invaluable instrument for the production of lantern and other transparencies.

#### DIRECTIONS FOR USE.

To copy a negative in the natural size, place it in the kit on the front of Camera and button it in. Attached to the centre frame of the Camera is a division upon which, on the side toward the Camera front, a Lens is mounted. Suppose this to be a quarter plate Portrait Lens, the focal length of which is 4 inches—draw back the centre frame and the Lens twice the focal length of the Lens (8 inches); slide the back frame with ground glass the same distance from the centre frame. To enlarge with the same Lens to eight times the size of the original, the centre of the Lens must be  $4\frac{1}{2}$  inches from the negative, and the ground glass be 36 inches from the centre of the Lens. To reduce in the same proportion, reverse and have 36 inches from the centre of the Lens to the negative, and from the centre of Lens to ground glass  $4\frac{1}{2}$  inches.

#### WALMSLEY'S PHOTO-MICROGRAPHIC CAMERAS.



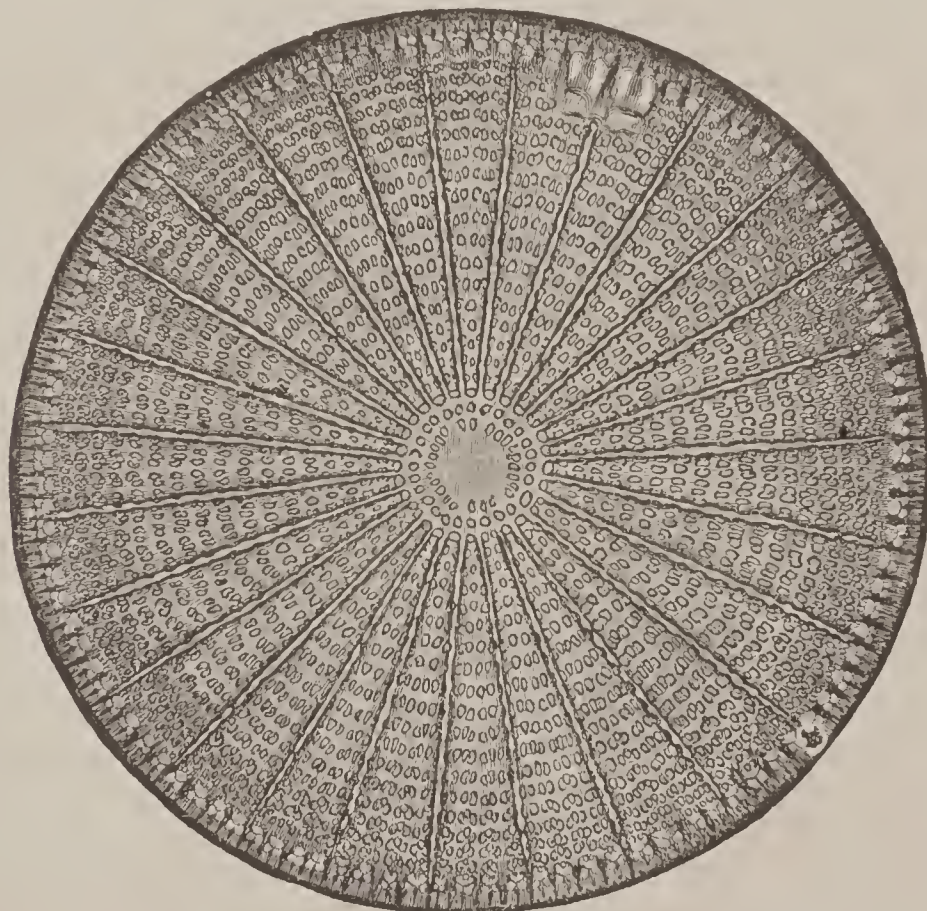
No. 2644.

No.		PRICE.
2640.	WALMSLEY'S PHOTO-MICROGRAPHIC CAMERA, with Plate Holder, The Camera has Cone front, ready for work.	\$12 50
2641.	WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT A, . . . . .	17 50
	This outfit comprises Camera and Plate Holder, as above, Du- plex Lamp on Stand, with adjustments for different heights, and Ruby Lantern; a complete apparatus for exposing plates.	



- | No.   |   | PRICE.  |
|-------|---|---------|
| 2642. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT B, . . . . .   | \$20 00 |
|       | This outfit comprises Camera and Plate Holder, as in 2640, one Carbutt's Multum in Parvo Lantern No. 2823, one dozen Plates $4\frac{1}{4} \times 5\frac{1}{2}$ , and one dozen ditto $3\frac{1}{4} \times 4\frac{1}{4}$ , for making negatives, one dozen special Transparency Plates for Lantern Slides, and one Walmsley's Focusing Glass No. 2807.   |         |
| 2643. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT C, . . . . .   | 37 50   |
|       | This outfit comprises a Square Camera Box as above, with Extension Bellows and Cone Front, one Plate Holder with Kits for plates $3\frac{1}{4} \times 4\frac{1}{4}$ , or $4\frac{1}{4} \times 5\frac{1}{2}$ ; reversible—so that the negative may be taken vertically or horizontally, as desired—Platform to hold the Camera (made to order), and a Microscope Lamp with Duplex Burner, mounted so as to be maintained at a proper height above the platform to suit any Microscope; Focusing glass, No. 2807, two dozen Dry Plates for negatives, Developing Outfit No. 3103, and Printing Outfit No. 3110, for making negatives and finished prints from same. |         |
| 2644. | WALMSLEY'S PHOTO-MICROGRAPHIC OUTFIT D, . . . . .   | 42 50   |
|       | This outfit is precisely the same as 2643, with the substitution of a Fiddian Illuminator (as shown in the illustration) for the Duplex Lamp, and the addition of one dozen special Transparency Plates for Lantern Slides, with Mats, Covering Glass, and Needle Paper for binding their edges.  |         |
| 2645. | PLATFORM to hold Camera and Microscope (made to order), . . . . .   | 4 50    |
|       | <i>In ordering this Platform please state what Microscope is to be used with it, and the exact distance from the table to the centre of the eye-piece when the body is inclined to a horizontal position.</i>   |         |

ARACHNOIDISCUS EHRENBERGII.



Phototype from a Photo-Micrograph, by W. H. WALMSLEY.  
 ×215°

## Walmsley's Photo-Micrographic Camera.

This simple and inexpensive form of Camera, of which a very fair idea can be gained from the illustration, is designed to produce by the aid of Gelatine Dry Plates and ordinary Lamp-light, Photo-Micrographs of a high order of excellence, and of almost all transparent objects requiring microscopical examination. It will answer equally well for photographing opaque bodies, if the latter be illuminated by the light of the sun reflected from a Silvered Mirror.

Any Microscope, Monocular or Binocular, having an axial joint whereby the body can be inclined to a horizontal position, may be employed. The Microscope is placed upon a base-board four feet in length and nine inches in width, upon one end of which is constructed a platform for holding the Camera, of such a height that the tube of the Microscope when inclined shall be precisely in the centre of the Camera, which is firmly secured to the platform by a thumb-screw beneath.

The Camera box, which is square to allow reversal of the plates, has a removable cone front, and bellows sliding upon a frame, with an extension of three or four feet, which has been found sufficient for all ordinary work, though it could be increased to any desired extent. A simple form of clamp holds the focusing frame tightly at any point of extension. A second front is provided to replace the one carrying the Cone, to which any ordinary photographic lens may be fitted, thus providing an excellent Camera for copying or other studio or laboratory purposes. The focusing screen is of glass, with an exceedingly fine ground surface mounted in a hinged frame, which is turned aside when the plate-holder is inserted. This screen is only used, however, in adjusting and centering the object, the final and delicate focusing being done on a sheet of plate-glass, as presently to be described.

The plate-holder (single) is square, opening at the back to admit the plates, which can be placed either vertically or horizontally. The usual size of plate employed is  $4\frac{1}{4} \times 5\frac{1}{2}$  inches, but there is a "kit" furnished also, which permits the use of plates  $3\frac{1}{4} \times 4\frac{1}{4}$ —the proper size for Lantern Positives—which can be very readily made by contact printing from the finished negatives.

Any coal oil or petroleum lamp of good illuminating power, and which can be placed at any desired height above the table, may be used. The Fiddian Illuminator (originally intended for microscopic purposes) has been found admirably adapted to use with the Camera, and is the one figured in the illustration. It gives a strong white light through the lens composing its front, all the other rays being cut off by the metallic chamber and chimney containing the flame. It can be raised to any required height, and is recommended as being the best lamp for the purpose with which we are acquainted.

Although any Microscope Stand with axial inclination may be used, it has been found that those of the size and general form of Beck's National and "Ideal" Stands are the best adapted to this class of work. The shortness of tube of the "Ideal" renders it specially valuable, whilst the revolving stage adds greatly to the proper adjustment of the object in the centre of the focusing screen, and the sub-stage carrying an achromatic Condenser is almost indispensable. A Mechanical Stage will also be found to greatly facilitate the necessary manipulations; though the very simplest form of stage, with clips, will, with a little care and patience, answer every requirement.



In using this simple apparatus, the base-board is to be placed upon a solid table and the Camera firmly secured to the platform, as shown in the illustration. The Microscope (from which the Eye-piece has been removed, and the tube lined with a roll of dead black paper) is to be inclined to a horizontal position and firmly secured to the board by turn-buttons, with the end of the body inserted in the Cone front of the Camera; about the joining of which a piece of black cloth or velvet is to be wrapped to exclude all extraneous light. The lamp is now to be lighted and raised to such a height as will bring the flame exactly even with the centre of the stage; the direct light being used without the mirror, which must be removed. It is presumed that the proper object-glass has already been attached to the Microscope body, and that an Achromatic Condenser has likewise been inserted in the Sub-stage. A Kellner Eye-piece answers admirably for this purpose. A secondary Condenser is sometimes necessary between the lamp and stage, as shown in the engraving, to secure a bright and even illumination all over the focusing screen. This accomplished, the object to be photographed is placed upon the stage, secured in position by the clips or slides, and focused; which is readily done with the coarse adjustment, for the bellows of the Camera being still closed, one can observe the image on the screen and manipulate the milled head of the adjustment at the same time.

The image having been accurately centered on the screen, the bellows is to be extended until the desired magnification is reached, when it will be found that its sharpness is considerably reduced, whilst the screen has been removed so far from the object that it is impossible to readjust the focus and observe the image at the same time without some special appliance, controllable from the screen end of the Camera. A very simple contrivance has been adopted in this case, which works with the utmost smoothness and delicacy. A groove is turned in the periphery of the fine adjustment screw, around which a small cord is passed, and carried through a succession of screw-eyes on either side of the base-board to the rear, where a couple of small leaden weights are attached to its ends, thus keeping the cord taut. A very slight pull on either side, whilst the eye is fixed upon the image on the screen, suffices to adjust the focus with the utmost exactness. A glance at the illustration will show the arrangement of this focusing cord, which is applicable alike to stands having the fine adjustment screw on the nose-piece or at the rear of the compound body.

Since no ground-glass has a sufficiently fine surface to admit of really sharp focusing of the image, with even moderately high powers—the final adjustment is made as follows: The front and back of the plate-holder having been removed, a sheet of plate-glass the size of the gelatine plate to be used is inserted, and the holder adjusted to the Camera, when, by means of a focusing glass placed against the outer surface of the plate, a sharp and accurate adjustment can be made in a moment, after which nothing remains to be done toward securing the negative but to substitute (in the dark room) a sensitive plate for the plain glass, attach the holder to the Camera, and make the exposure.

Gelatine plates, possessing the two qualities of extreme sensitiveness and great density after development, are essential for the production of the finest negatives by the foregoing process. The brands known as Monroe's "Semper Idem" and "Carbutt's Special" combine these qualities in an eminent degree, and are recommended accordingly. Either Ferrous Oxalate or Pyro developer may be used with equal success, but they should be strong and active, as a rapid development is necessary to the best results. If Ferrous Oxalate be employed, it should be made quite acid with Citric or Oxalic acids.

It having been found by actual work that the chemical and visual focii of the rays from a lamp are almost exactly coincident, there is no need of employing specially corrected objectives with this apparatus. And the following table of

exposures with Beck's Objectives may be depended upon as an accurate basis for work with the average of objects to be photographed, using "Diamond" plates:

1½	inch,	10 to 45	seconds.
$\frac{2}{3}$	"	½ to 1½	minutes.
4-10	"	1 to 3	"
1-5	"	3 to 7	"
1-10	"	6 to 10	"

For Opaque Objects, illuminated by sun-light, exposures of six to twenty seconds, depending upon the power employed and reflecting qualities of the specimen itself, will generally be found sufficient.

A Binocular Microscope may be used for photographing quite as well as a Monocular by removing the Eye-piece of the straight tube, and arranging the prism for monocular illumination.

### DIRECTIONS FOR MAKING THE NEGATIVES.

To any one familiar with the ordinary processes of photography, the foregoing directions will be all-sufficient for the production of finished Negatives. But since there will, doubtless, be many Microscopists desirous of photographing their preparations, who have no knowledge whatever of the latter art, the following simple directions are given to enable them so to do readily and with certainty.

Presuming that all the preliminaries as described have been attended to, and that the plate-holder, with its sensitized plate, has been attached to the Camera, proceed to make the exposure. A card having been placed between the lamp and stage of the Microscope, to prevent all light from entering the tube, the slide of plate-holder covering the plate is to be withdrawn. Wait a moment to allow the subsidence of all tremor, then gently remove the card and allow the light to fall upon the object, whilst (watch in hand) the time is carefully noted. When the full exposure is reached, replace the card and insert the slide in plate-holder, when the latter may be removed from the Camera box in safety. If more than one negative is to be made, it will be best to do them all before proceeding with the development, after a few experiments have given the operator a fair acquaintance with his subjects and time of exposure.

The development may be made either by the Ferrous Oxalate or Pyro methods, as the operator may prefer. The former has the writer's preference, as being more cleanly, more easily controlled, and producing negatives of greater density than the latter. Formulæ for both, however, are given, and the student may take his choice, with a certainty of success if directions are carefully followed.

To make the Ferrous Oxalate developer, two solutions are necessary:

No. 1.—Neutral Oxalate of Potassium.....	8 ounces.
Water.....	32 "

Dissolve and add sufficient Citric acid to render the whole decidedly acid; filter.

No. 2.—Proto-sulphate of Iron.....	4 ounces.
Water .....	16 "

Dissolve and add 16 drops of Sulphuric acid; filter. Both these solutions will keep indefinitely.

To make the developing mixture, add one-half ounce of No. 2 solution to two ounces of No. 1, which will be sufficient to develop six plates of the size employed, one after another.



The work thus far (with the exception of placing the plate in holder) has been done in the full light of day or lamp—but now we must enter the dark room and depend solely upon the ruby light from our lantern. Remove the plate from the holder, place it in the developing tray, and pour the Ferrous Oxalate fluid over it with a rapid but steady sweep, to prevent the formation of air-bubbles, which may be still further guarded against by brushing the surface carefully with a camel's-hair pencil. It is scarcely necessary to add that the film side of the plate is to be kept uppermost.

If the exposure has been correctly timed, the image will begin to appear in from ten to twenty seconds; first the high lights, then the shadows, gradually deepening until the whole picture seems to have sunk, as it were, beneath the surface of the film and to appear on the back of the plate. Do not be afraid of overdoing the matter. A properly exposed plate can scarcely be over developed by Ferrous Oxalate; density is necessary to the production of satisfactory prints, and is much better obtained in the development than by after intensification.

If the image appears very suddenly, flashing from all portions of the plate at once, it is an evidence of *over-exposure*, the remedy for which is to remove the plate at once to a vessel of water, add a few drops of a solution of Bromide of Potassium to the developer, return the plate to same, and finish the development. If, on the other hand, the image either does not appear at all, or so thin and indistinct as to make certain no printing density can ever be reached by the most prolonged development, it is a sure sign of *under-exposure*, for which there is no other remedy than to throw the plate away and try again.

The development completed, the plate is to be thoroughly washed in water and placed for a minute or two in a saturated solution of alum to harden the film, and then (after again washing) it is to be transferred to a solution of "Hypo" for fixing. The latter is made as follows:

Hypo-sulphite of Soda.....	8 ounces.
Water.....	32 "

The plate must be left in this solution until all milkiness has disappeared from its back, leaving only the clear negative; after which another washing, a further soaking in the alum bath, and a thorough washing in pure water, to remove all traces of the Hypo, followed by the final drying, give the finished negative ready for printing from.

If the Pyro development be preferred, the following formula will be found most satisfactory:

No. 1.—Pyrogallie Acid .....	$\frac{1}{2}$ ounce.
Alcohol .....	2 "
No. 2.—Water .....	30 ounces.
Bromide of Ammonium.....	30 grains.
Strong Liquor Ammonia.....	1 drachm.

To use, add to two and a half ounces of No. 2, fifteen drops of No. 1 immediately before using, and proceed in exactly the same manner as with Ferrous Oxalate. Do not attempt to develop more than two plates with the same mixture, and it will be better to prepare a fresh one for each. For over-exposure, dilute No. 2 with one-half water and slightly increase the amount of No. 1.

From various causes it will occasionally happen that the negative refuses to acquire sufficient density for printing, and no amount of care or patience in the development will remedy the trouble. Recourse must then be had to *intensification*, and the following formula will be found to give the most satisfactory

results. The utmost care must, however, be taken in its use, as both solutions are deadly poisons:

No. 1.—Bi-chloride of Mercury .....	96 grains.
Bromide of Potassium.....	96 “
Distilled Water.....	12 ounces.
No. 2.— <i>Crystallized</i> Cyanide of Potassium.....	90 grains.
Nitrate of Silver .....	96 “
Distilled Water.....	12 ounces.

To use, wash the negative thoroughly in cold water and place in a tray containing No. 1 until it is well grayed over, taking care not to overdo the matter, or too great density will be the result. Then wash again thoroughly in clean water and transfer to solution No. 2, where it must remain until all the grayness has disappeared from the back, but not longer, as a reduction of the density then begins to take place. Remove to clean water and wash again most *thoroughly*; indeed, this is the most important axiom in Photography—*wash thoroughly*.

After using the intensifying solutions, return each to its respective bottle, as they can be used over and over again almost indefinitely. And, again, be cautioned as to their deadly poisonous natures, taking every precaution to prevent possible accidents.

After the final washing, the negative must be placed on a rack to dry, which it must be allowed to do spontaneously, and the film side must not be touched with anything until entirely hard. Varnishing is not *necessary*, unless a number of prints are to be made, but it is always *desirable*, since it will save the negative from many a possible injury.

## DIRECTIONS FOR MAKING PAPER-PRINTS.

The necessary articles for this work—after the negative is secured—are a printing-frame, sensitized paper, cards for mounting the same upon, and materials for toning and fixing the prints. The printing-frame should be a deep one, with a sheet of plate-glass in front to support the negative, thereby lessening the danger of breaking the same. This supporting-glass is also necessary for making transparencies for the lantern by contact printing. Ready sensitized paper should be used, as it produces quite as good prints as those made upon paper freshly silvered, without the trouble and stains attendant upon the latter operation by novices. This paper should be cut and kept in a subdued light, to prevent changing. Fuming with ammonia will add to the brilliancy of the prints. This must be done immediately before printing.

The negative is to be placed in the printing-frame film side up, and the paper is to be laid upon it, sensitized surface down—this in a subdued light; then lay a pad of felt-cloth upon the paper and insert the back of the frame, fastening it down with the spring catches, and place it in the light to print. Some negatives will require the direct rays of the sun, others print better if a piece of tissue paper or ground glass be placed over them to modify the light. Experience and experiment will alone enable the student to determine which plan to pursue. The time required for printing will also vary greatly, according to the density of the negative and whether it has been developed with Ferrous Oxalate or Pyro; the former generally yielding the quickest prints. The printing must be examined as it proceeds by opening one-half of the back of frame in a subdued light. Do not print too deeply, as the beauty and usefulness of Photo-micrographic prints depend largely upon all the delicate markings being visible, which



is not the case if the printing is carried too far. As soon as the print is found to be dark enough, it must be removed to a light tight drawer or box, to await the operation of toning, which must be as soon as possible if freshly sensitized paper has been employed, but may be postponed several days with the ready sensitized.

### TONING THE PRINTS.

Gold is the material that really does the toning, but it has to be used in combination with some other which will neutralize its acidity and assist in giving a pleasant and harmonious tone to the finished prints. Very many formulæ for this purpose have been published—Bi-carbonate of Soda, Borax, Acetate of Soda, etc., all of which are good and will give satisfactory results. The following will be found simple and good: Dissolve seven and a half grains of the Chloride of Gold in as many ounces of distilled water and keep it in a glass-stoppered bottle as a stock solution. To make the bath, which must be done just before using, dissolve twenty grains of Phosphate of Soda in eight ounces of water, with a pinch of table-salt. The proportion of gold required for toning is one grain to the sheet of paper (18x22); if, therefore, you have made that many prints, add one ounce of the gold solution to the bath, which will give one grain of same, and more or less, in proportion to the number of prints to be toned. If two sheets are to be done at once, the amount of water and soda must be doubled as well as that of the gold.

The prints must have previously been washed in several changes of water to remove all free silver, an operation which will require an hour or an hour and a half. The first water must be poured off immediately and the subsequent washings at intervals of about ten minutes, until all traces of milkiness disappear. To the last washing, add a pinch of table-salt, which will turn prints made on ready sensitized paper a brick-dust red in a few moments. From this final washing they must be removed to a vessel of clean water, when they are ready for toning. All the foregoing operations, as well as the toning, should be done in a light sufficiently bright to see clearly, but not in the full light of day, as this will impair the brilliancy of the prints.

Everything being in readiness, place in the toning-bath eight or ten of the prints, one after another, face up, and keep them moving about, to insure evenness in the toning. They will soon reach the desired tint, which should be a little deeper than the finished prints are to be, since they will lose somewhat in the final fixing. As each one reaches the proper tone, remove it to a vessel of water and replace it with an untuned print, until the whole are done, when the bath is to be thrown away, as it will not keep.

### FIXING THE PRINTS.

If all the foregoing operations have been successfully conducted, the prints are now perfect, and objects of beauty, but they would quickly fade if not "*fixed.*" Immersion in a solution of Hypo-sulphite of Soda is necessary to this end, followed by a prolonged washing in water, to remove all traces of the former. For be it known to the novice, "*Hypo*" is a good friend, but a very cunning and to be dreaded enemy. If the fingers come in contact with it, they must be immediately washed clean; vessels or trays in which it is used must be kept for that purpose only. No trace of it must be allowed to remain in the finished print;

otherwise, ugly yellow stains will be the result. The fixing bath must be used but once, then thrown out, and the tray well washed and wiped dry.

The fixing solution is made as follows:

Hypo-sulphite Soda.....	2 ounces.
Water.....	10 “

Immerse the prints one by one in this solution, and keep them moving about for fifteen or twenty minutes, after which they must be placed in clean water, which should be frequently changed to insure the entire removal of the Hypo. Some hours are required for this purpose; indeed, an all-night washing in running water, if practicable, is to be recommended.

The prints, which should have been trimmed to a uniform size before toning, are now ready for mounting upon card-board. The ordinary cabinet mounts will be found best adapted to the purpose. The operation is a simple one. The prints must be removed from the water one by one, carefully drained of all superfluous moisture, and placed in a pile, one above another, face downward, on a sheet of glass. Brush the uppermost one over with a thin layer of parlor paste, and place it carefully on the card mount, pressing it down with a soft cloth. Proceed in same manner with the rest until all are finished, when they may be placed in a pile with a blotting pad between each and subjected to a slight pressure until quite dry. Burnishing will greatly improve the appearance and sharpness of the prints. This is best done with Entriken's burnisher, as named in this list.

The appearance of a Photo-micrograph is greatly improved by printing it with a mat of non-actinic paper (having a circle cut from its centre two and three-quarters inches in diameter) interposed between the negative and the front of plate-glass in the printing-frame. This gives a clean-cut circle of the object alone, leaving a margin of pure white paper around it. The effect is neat and pleasing. In making the negative, it is well so to centre the object as to allow of such printing.

## LANTERN TRANSPARENCIES.

These very beautiful slides may be readily and rapidly made from *good* negatives; requiring no additional apparatus or chemicals to those already enumerated. The plates only, are different from those employed in making the negatives, being *slow* in action, while the latter are extremely sensitive and *quick*. The work may all be done in the dark-room, as lamp-light is to be preferred to that of day.

By the red light of the lantern, place a negative in the printing-frame, film side *uppermost*, and upon it lay a *slow* gelatine plate, film side *down*, so that the two coated surfaces are in contact. Replace the pad and back, and, covering up the front, carry the frame to where the light of a lamp or gas flame may be allowed to fall upon it at a distance of about two feet. The exposure must be varied, according to the density of the negative, from two to twenty seconds, averaging about ten, but only to be determined by practice and experience. Returning to the dark-room, the plate is to be developed with Ferrous Oxalate, precisely as was the negative, care being taken not to carry the development too far, as much density is to be avoided in transparencies intended for the lantern. If successful, the result will be a transparency full of vigor and sharpness, with clear glass in all the high lights and no appearance of smokiness. When dry, the slide is to be covered with one of same size of clear glass, a mat of black paper with opening

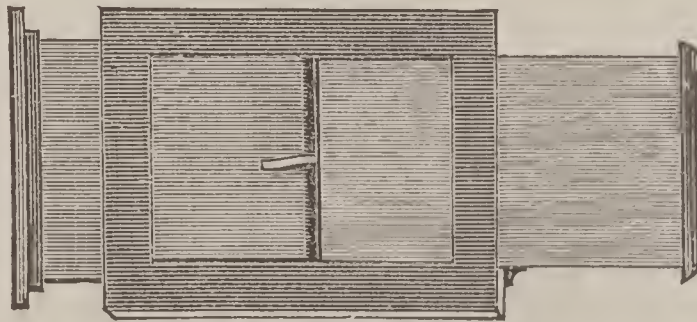


of suitable size and shape being placed between them, and the edges bound with *needle paper*, attached by means of parlor paste.

The foregoing directions would seem to cover the whole ground, and enable any one with a little practice to do satisfactory work. But if insurmountable difficulties are met, correspondence on the subject is solicited, and all questions will be answered promptly and intelligently.

## PARTS AND ACCESSORIES OF CAMERAS

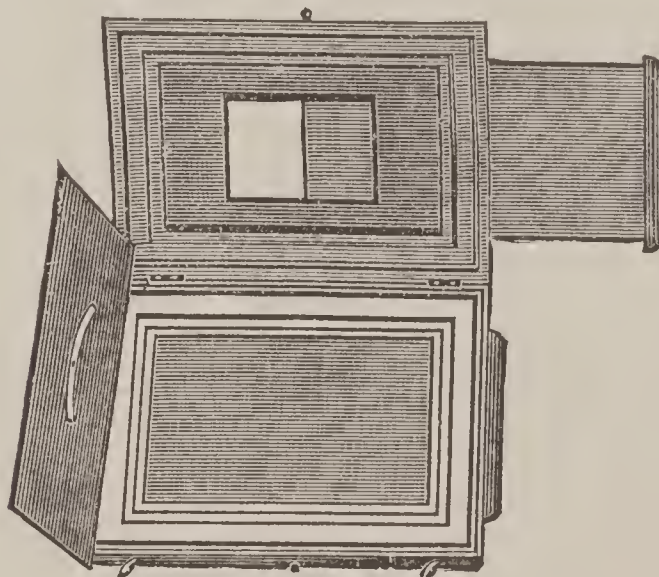
### PLATE HOLDERS.



Nos. 2650-2653.

No.						PRICE.
2650.	NE PLUS ULTRA DOUBLE PLATE HOLDER,	4 x 5	for Camera	2500,		\$2 15
2651.	"	"	"	2501,	5 x 8	2 93
2652.	"	"	"	2503,	6½ x 8½	4 50
2653.	"	"	"	2504,	8 x 10	7 00
2655.	" NEW MODEL "	"	"	2520,	4 x 5	1 75
2656.	"	"	"	2521,	5 x 8	2 25
2657.	"	"	"	2523,	6½ x 8½	3 00
2660.	" CHALLENGE " DOUBLE PLATE HOLDER,	3¼ x 4¼	"	2530,		1 50
2661.	"	"	"	2531,	4 x 5	2 00
2662.	"	"	"	2532,	5 x 8	2 50

### "DAISY" PLATE HOLDERS.



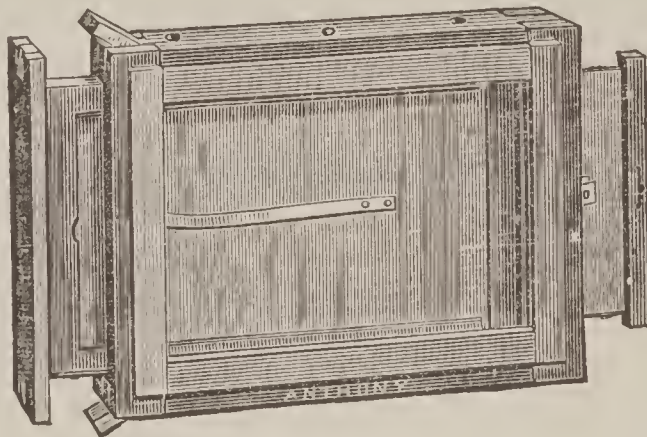
Nos. 2665-2671.

"This holder is a Daisy." The frequent repetition of this exclamation fixed the name by which it is designated. It has the great merit of being lighter and of

occupying less space than any other substantial holder that has ever been devised. Although constructed to hold two plates, it is not thicker than a single holder. The Daisy Holder opens like a book when the dry plates are being put into or taken out of it, and is so arranged that light cannot penetrate through from one side to the other. It also permits the use of "Kits," whereby smaller plates may be employed if desired.

No.					PRICE.
2665.	"DAISY" DOUBLE PLATE HOLDER,	4 x 5	for Camera	2565,	\$2 15
2666.	"	"	"	2566-2575,	2 15
2667.	"	"	"	2576,	2 93
2668.	"	"	"	2577,	2 93
2669.	"	"	"	2567-2578,	2 93
2670.	"	"	"	2568-2579,	4 50
2671.	"	"	"	2580,	7 00

### NOVEL VIEW PLATE HOLDERS.



No. 2675.

Anthony's Novel View Plate Holders are so arranged that one or two 4x5 plates can be used in a 5x8, one or two 4½x6½ can be used in a 6½x8½, or one or two 5x8 in an 8x10 plate holder. Thin wooden frames can be supplied for holding still smaller sizes, if desired, so that the amateur can experiment with smaller plates than the extreme limit of his holders, and at much less expense.

2675.	NOVEL VIEW DOUBLE PLATE HOLDER,	4 x 5	for Camera	2555,	\$2 00
2676.	"	"	"	2556,	2 25
2677.	"	"	"	2557,	2 25
2678.	"	"	"	2558,	4 00

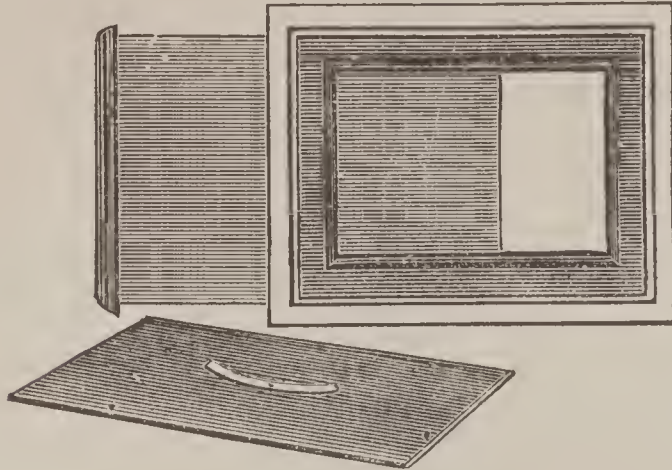
### BLAIR'S "FEATHER-WEIGHT" PLATE HOLDERS.

2680.	"FEATHER-WEIGHT" DOUBLE HOLDER,	4½ x 5½	for Camera	2590,	1 25
2681.	"	"	"	2591,	1 50
2682.	"	"	"	2592,	2 00
2683.	"	"	"	2593,	3 00

*These Holders are the thinnest and lightest of any ever made, but are so perfectly constructed as to be absolutely light-tight.*



THE FLAMMANG SINGLE PLATE HOLDER.

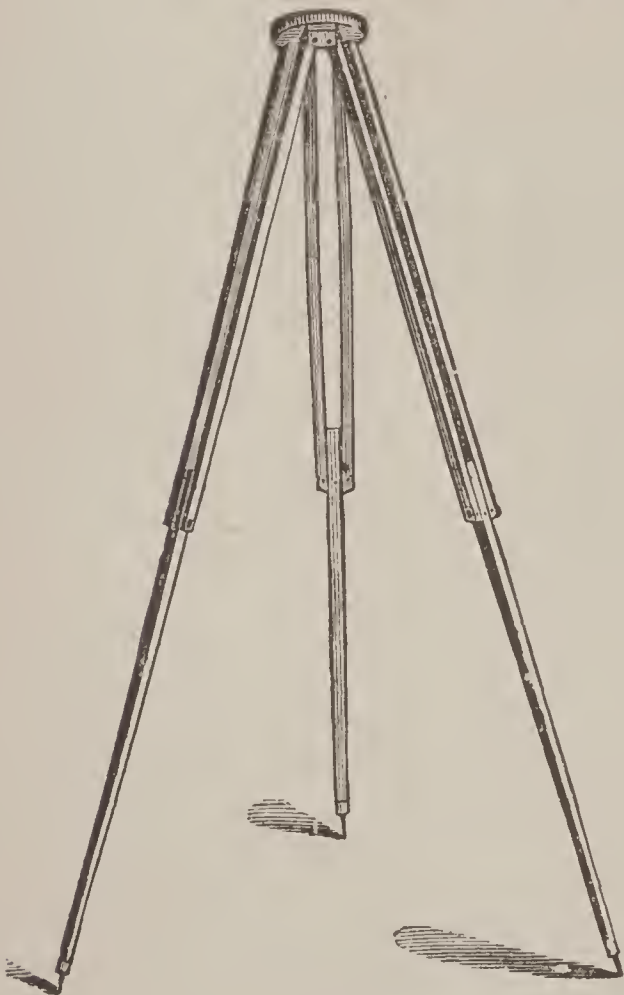


Nos. 2685-2686.

- |       |                                   |          |           |       |        |
|-------|-----------------------------------|----------|-----------|-------|--------|
| 2685. | THE FLAMMANG SINGLE PLATE HOLDER, | 4½ x 5½, | with Kit, | . . . | \$2 15 |
| 2686. | “ “ “ “                           | 8 x 10   | “ . . .   |       | 7 00   |

*These Holders are made in all sizes, but we have selected the above two as specially suited to Camera No. 2625, and Photo-Micrographic Camera No. 2640.*

TRIPODS.



No. 2700.

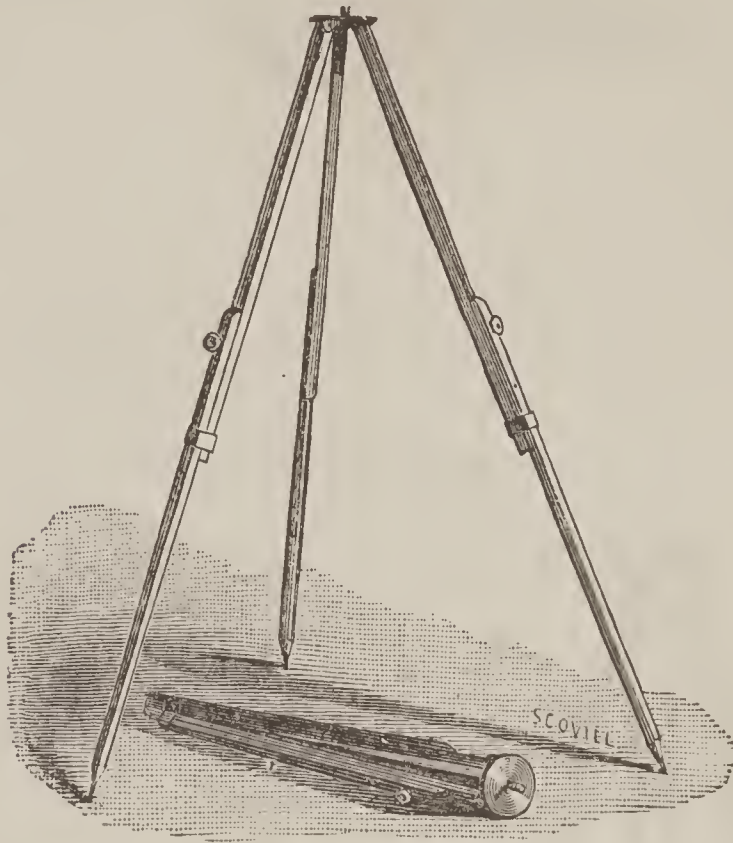


No. 2701.

- |       |                        |                                  |           |        |
|-------|------------------------|----------------------------------|-----------|--------|
| 2700. | FOLDING TRIPOD.        | For any size of Cameras to 8x10, | . . . . . | \$2 25 |
| 2701. | TAYLOR FOLDING TRIPOD. | For any size of Cameras to 8x10, | . . . . . | 3 50   |

The Taylor Folding Tripod is of English origin. The illustration makes an extended description unnecessary. Suffice it to say that it is very firm when set up and folds compactly by simply pressing together the two upper joints of each leg, thus unsetting them from the pins on the brass top, and then doubling them over on to the third joint. This movement is naturally reversed when placing the tripod in position to support the camera. The brass top should have the side uppermost which has the arms flush.

### THE SCOVILL EXTENSION TRIPOD.



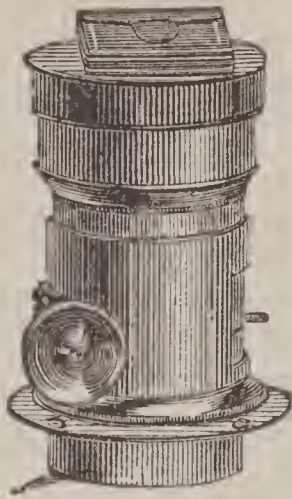
Nos. 2705-2707.

No.	PRICE.
2705. SCOVILL EXTENSION TRIPOD. No. 1, for 1-4; 4½x5½ Cameras,	. \$3 50
2706. " " " No. 2, " 5x7; 5x8 "	. 4 00
2707. " " " No. 3, " 6½x8½; 8x10 "	. 6 00

This Tripod possesses special advantages. It can be set up, ready for use, more quickly than any other, and with less trouble. By turning the brass buttons shown in the accompanying illustration, the legs may "in a twinkling" be extended to the desired length, and fastened. When this Tripod is placed on uneven ground, the camera it supports may be brought to the proper level by simply adjusting the length of the legs. Another commendable feature of the Extension Tripod is, that it has no detachable parts to be misplaced or lost. Combining, as it does, firmness, strength, and lightness, this Tripod has gained great favor with the amateur view-taker, who very often wastes valuable time or loses opportune moments in placing the Tripod legs and changing their position to include just what is wanted in a picture and to level the camera. The artist, for a sketching trip, finds the top of this Tripod a very convenient place to fasten his easel as well as his camera.



## LENSES.



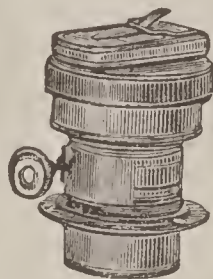
Nos. 2720-2722.

### PORTRAIT LENSES.

No.					PRICE.
2720.	DARLOT PORTRAIT LENS,	$\frac{1}{4}$ size,	$4\frac{1}{2}$ inch focus,	. . . .	<del>\$10 00</del> 9 00
2721.	"	"	" $\frac{1}{3}$ " $5\frac{1}{2}$ "	. . . .	15 00
2722.	"	"	" $\frac{1}{2}$ " 7 "	. . . .	18 00

Whilst very moderate in cost, these Lenses are of exceptionally fine performance, quite equal to the wants of the most advanced amateurs. They are also specially adapted to magic lantern and stereopticon purposes. We are direct importers of these and all others of Darlot's Lenses, which have our name engraved on them, and are sold with our guarantee.

## VIEW LENSES.

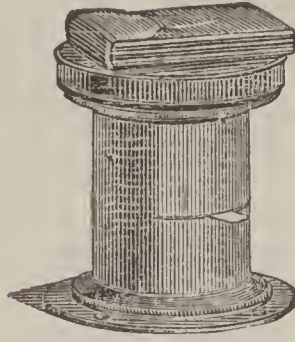


Nos. 2725-2727.

### DARLOT'S RAPID HEMISPHERICAL VIEW LENSES.

2725.	DARLOT RAPID HEMISPHERICAL LENS, No. 1, for 4 x5 Cameras,	\$15 00
2726.	" " " " No. 2, " 5 x8, "	25 00
2727.	" " " " No. 3, " $6\frac{1}{2} \times 8\frac{1}{2}$ , "	35 00

These Lenses embrace angles from 60 to 75 degrees; are quick-acting, perfectly rectilinear, and provided with central-stops. They will be found very fine Lenses for landscapes, out-door groups, and instantaneous work; also for copying engravings, maps, architectural subjects, etc.



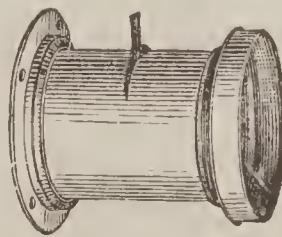
Nos. 2730-2733.

## VOIGTLAENDER'S EURYSCOPE VIEW LENSES.

No.				PRICE.
2730.	IMPROVED EURYSCOPE VIEW LENS,	No. 0,	for 4 x 5 Cameras,	\$27 00
2731.	"	"	No. 00, " 5 x 8 "	37 50
2732.	"	"	No. 1, " 6½ x 8½ "	45 00
2733.	"	"	No. 2, " 8 x 10, "	53 00

These Lenses are unrivalled for groups, full-length figures and large heads, working with full apertures, and giving a depth of focus and equal distribution of light unexcelled by any known lenses. They are entirely free from distortion, and the pictures produced by them are mathematically correct, rendering them invaluable for copying plans and for architectural subjects. Another advantage is their extraordinary power of gathering light, adapting them particularly to the making of instantaneous views, animals in motion, yachts, etc. The width of angle embraced is from 65 to 85 degrees, according to the size of diaphragm employed.

*Nos. 0 and 00 can be had in matched pairs for stereoscopic work.*



Nos. 2735-2738.

## DALLMEYER'S RAPID RECTILINEAR VIEW LENSES.

2735.	DALLMEYER'S RAPID RECTILINEAR LENS,	5 x 4,	6-inch focus,	\$37 00
2736.	"	"	8¼ " "	45 00
2737.	"	"	11 " "	57 50
2738.	"	"	13 " "	75 00

These Lenses are constructed to embrace angles from 60 to 80 degrees. They admit of being used with full opening, and are therefore invaluable for dimly lighted interiors and for instantaneous exposures. The image produced by them is absolutely free from distortion, and the resulting pictures from all flare or central spots. We are direct importers of these Lenses.

*No. 2735 can be had in matched pairs for stereoscopic work.*



ROSS' SYMMETRICAL LENSES.

No.							PRICE.
2740.	ROSS' RAPID SYMMETRICAL LENS,	4 $\frac{1}{4}$ x3 $\frac{1}{4}$ ,	4 $\frac{1}{2}$ -inch focus,				\$33 00
2741.	"	"	"	5 x4,	6	" "	36 00
2742.	"	"	"	7 x5,	7 $\frac{1}{2}$	" "	44 00
2743.	"	"	"	8 x5,	9	" "	48 00
2744.	"	"	"	8 $\frac{1}{2}$ x6 $\frac{1}{2}$ ,	10 $\frac{1}{2}$	" "	54 00
2745.	"	"	"	9 x7,	12	" "	62 00
2746.	"	"	"	10 x8,	14	" "	70 00
2747.	"	"	"	12 x10,	16	" "	85 00

The Rapid Symmetricals being Aplanatic, work with full apertures, and are as good and useful lenses as an Amateur or Professional Photographer can possess for general out-door purposes. They are provided with the systems of diaphragms recommended by the Photographers' Society of Great Britain, by which each stop requires double the exposure of the next larger, as shown below.

UNIFORM RATIO OF STOPS.

Nos.....	*0	1	2	3	4	5	6
Ratios...	f. 8	f. 11.3	f. 16	f. 22.6	f. 32	f. 45'25	f. 64

\*0 signifies the ratio of the lenses to their focii.

2750.	ROSS' PORTABLE SYMMETRICAL LENS,	4 $\frac{1}{4}$ x3 $\frac{1}{4}$ ,	4-inch focus,				\$28 00
2751.	"	"	"	5 x4,	5	" "	30 00
2752.	"	"	"	7 x5,	6	" "	34 00
2753.	"	"	"	8 x5,	7	" "	42 50
2754.	"	"	"	8 $\frac{1}{2}$ x6 $\frac{1}{2}$ ,	8	" "	50 00
2755.	"	"	"	9 x7,	9	" "	58 00
2756.	"	"	"	10 x8,	10	" "	67 00

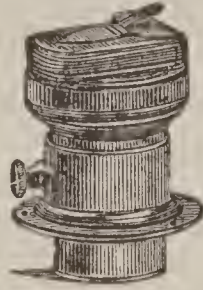
Perhaps no lenses for Landscape and Architectural purposes has had a greater share of popularity than the Portable Symmetricals. This is doubtless attributable to their extraordinary definition and flatness of field, as well as to the exceedingly portable form in which they are constructed, the series fitting the same flange. They are fitted with the Standard Series of Diaphragms, same as the Rapid Symmetrical, as shown below.

UNIFORM RATIO OF STOPS.

Nos.....	1	2	3	4	5
Ratios.....	f. 16	f. 22'6	f. 32	f. 45'2	f. 64

*These Lenses are supplied accurately paired for stereo work.*

## BECK'S RAPID LANDSCAPE LENSES.



Nos. 2760-2763.

No.						PRICE.
2760.	BECK'S RAPID LANDSCAPE LENS,	4½x5½,	.	.	.	\$17 50
2761.	"	"	"	"	5 x8,	27 50
2762.	"	"	"	"	6½x8½,	37 50
2763.	"	"	"	"	8 x10,	50 00

These Lenses, being Aplanatic, work with full aperture, are perfectly rectilinear and exceedingly rapid, rendering them specially valuable for groups and instantaneous exposures.

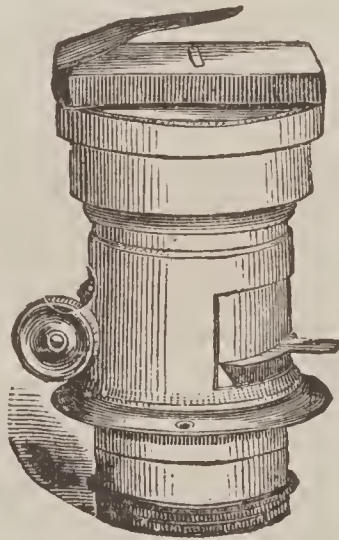
No. 2760 can be had in matched pairs for stereoscopic work.

## MORRISON'S RAPID COPYING LENSES.

2770.	MORRISON'S RAPID COPYING LENS.	B, 5 x 8,	6-inch focus,	\$40 00
2771.	"	"	"	45 00
2772.	"	"	"	60 00

These Lenses are unexcelled by any in the market for copying outdoor groups and instantaneous views. They work with full aperture for groups and will copy absolutely sharp to the corners of the plate. They are perfectly rectilinear.

## IMITATION DALLMEYER LENSES.



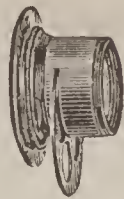
No. 2775.

2775.	IMITATION DALLMEYER LENS,	4x5, focus 4 inches,	.	.	.	\$10 00
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These Lenses are made expressly for us by Darlot and are the cheapest Lenses in the market, while their quality is most excellent. In point of speed they are unsurpassed, rendering them specially serviceable for instantaneous work, groups, etc., in or out of doors. Each is provided with a set of diaphragms in case, and rack and pinion adjustment of focus.



DALLMEYER'S SINGLE LANDSCAPE LENSES,  
IN RIGID TUBES, WITH ROTATING STOPS.

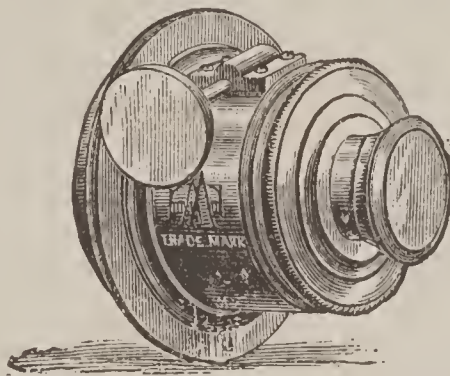


Nos. 2776-2779.

No.							PRICE.
2776.	DALLMEYER'S SINGLE LANDSCAPE LENS,	1a,	5 x4,	5¼-inch focus,			\$27 50
2777.	"	"	"	"	1,	7 x5½, 7	" 32 00
2778.	"	"	"	"	2,	8½x6½, 8½	" 37 50
2779.	"	"	"	"	3,	10 x8, 10	" 46 00

These Lenses are of extremely wide angle, and for landscapes pure and simple have no equal. The apertures of all the diaphragms (as well as those of all others made by Dallmeyer,) are so arranged that counting from the LARGEST to the next size SMALLER the time of exposure is DOUBLED. Stops marked X are exceptions to this rule, and require an exposure only HALF AS LONG again as the PRECEDING LARGER stop.

DARLOT'S SINGLE VIEW LENSES.



Nos. 2780-2782.

2780.	DARLOT'S SINGLE VIEW LENS,	4 x5,	focus 5½ inch,	.	.	.	\$5 75
2781.	"	"	"	"	5 x8,	" 7 "	. . . 6 50
2782.	"	"	"	"	6½x8½,	" 9½ "	. . . 8 00

These Lenses (as well as the preceding) consist of a single Achromatic Combination, and for landscapes only are probably superior to any double combinations made. Where buildings form only a portion of the view they are entirely satisfactory, but are not recommended for architectural subjects exclusively, since they are not absolutely rectilinear. They are provided with diaphragms of various sized openings, and Rack and Pinion adjustment of focus.

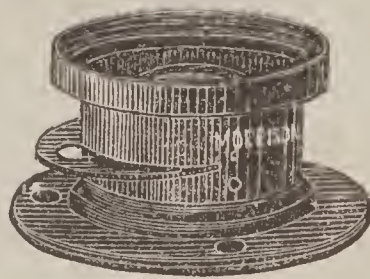
WIDE ANGLE LENSES.

For street views, architectural effects in confined situations, and many interiors, it becomes necessary to employ lenses of a very wide angle and comparatively short focus. Those now to be described embrace angles from 90 to 100 degrees, and are the most useful to the amateur of any lenses of their class in the market.



Nos. 2785-2788.

No.	PRICE.
2785. DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 1, 3¼x4¼, focus 2½ inches, . . . . .	\$13 00
2786. DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 2, 4x5, focus 3 inches, . . . . .	15 00
2787. DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 3, 5x8, focus 5 inches, . . . . .	20 00
2788. DARLOT'S WIDE ANGLE HEMISPHERICAL LENS No. 4, 8x10, focus 8 inches, . . . . .	25 00



Nos. 2790-2795.

2790. MORRISON'S WIDE ANGLE VIEW LENS No. 1, 3¼x 4¼, focus 3 inches,	25 00
2791. " " " " " No. 2, 4 x 5, " 3½ "	25 00
2792. " " " " " No. 3, 5 x 7, " 4¼ "	25 00
2793. " " " " " No. 4, 5 x 8, " 5¼ "	25 00
2794. " " " " " No. 5, 6½x 8½, " 6½ "	25 00
2795. " " " " " No. 6, 8 x10, " 8 "	30 00

These Lenses embrace an angle of fully 100 degrees, are perfectly rectilinear, and the most rapid Wide Angle Lenses in use.

2797. DALLMEYER'S WIDE ANGLE RECTILINEAR LENS 1 A A, 7x5, focus 4 inches, . . . . .	37 50
2798. DALLMEYER'S WIDE ANGLE RECTILINEAR LENS 1 A, 8½x6½, focus 5¼ inches, . . . . .	47 50
2799. DALLMEYER'S WIDE ANGLE RECTILINEAR LENS 1, 10x8, focus 7 inches, . . . . .	62 50

These Lenses are mounted in rigid settings or tubes, and furnished with *rotating* diaphragm plates. The No. 1 A A can be had in matched pairs for stereoscopic work, They are probably the finest Wide Angle Lenses made.



Nos. 2801-2806.

2801. VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 00, 3¼x4¼, focus 3¼ inches, . . . . .	29 00
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No.		PRICE.
2802.	VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 0, 4x5, focus 4½ inches, . . . . .	\$30 00
2803.	VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 1, 5x7, focus 5½ inches, . . . . .	35 00
2804.	VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 2, 5x8, focus 6½ inches, . . . . .	40 00
2805.	VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 3, 6½x8½, focus 7½ inches, . . . . .	50 00
2806.	VOIGTLAENDER'S WIDE ANGLE EURYSCOPE LENS No. 4, 8x10, focus 9 inches, . . . . .	65 00

Nos. 00 and 0 may be had in matched pairs for stereoscopic work. In confined situations, where the ordinary View Euryscope is not available, these wide angle ones are most excellent, as they embrace objects not accessible with the aid of the former. They are provided with rotating stops; all sizes will screw into one flange, and are of such convenient shape as to be easily carried in the pocket.

### FOCUSING GLASSES.



No. 2807.

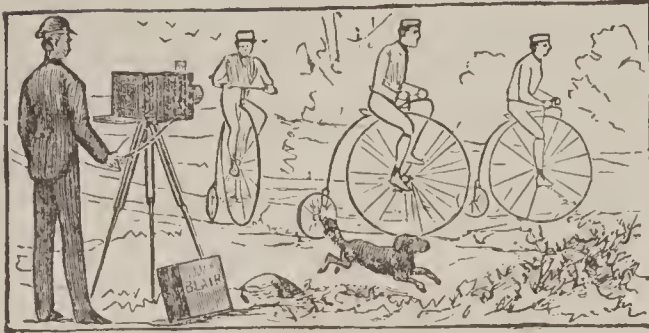


No. 2808.

2807.	WALMSLEY'S FOCUSING GLASS, with Screw Adjustment,	\$0 75
2808.	DARLOT'S " " " Sliding "	2 50

A Focusing Glass is an exceedingly useful accessory to the camera for field use, especially when very accurate focusing of buildings is required. It is *indispensable* for dimly lighted interiors and photo-micrography. Being placed against the back of the ground glass screen on the camera and the focus adjusted by means of the screw or sliding tube, all the details of the view are seen most sharply defined when the proper focus of the lens on camera is obtained. In the Darlot form a clamping screw retains the lens in adjustment, whilst the solid tube in front shuts off all extraneous light. The Walmsley form answers very well, however, whilst it is much less expensive. It is also an exceedingly useful magnifier for all purposes requiring only a low power.

## INSTANTANEOUS SHUTTERS.



AN INSTANTANEOUS SHOT.



ANOTHER INSTANTANEOUS SHOT.

No.	PRICE.
2809. WALMSLEY'S DROP SHUTTER, with Trigger Escapement, . . . . .	\$3 00
2810. " " " " Pneumatic " . . . . .	6 00
2811. PHANTOM " " . . . . .	12 50
2812. JACKSON'S " " . . . . .	12 50
2813. HUNTER AND SAND'S DROP SHUTTER, . . . . .	15 00
2814. DALLMEYER'S FLAP SHUTTER, . . . . .	4 00

These Shutters will be fitted to any lens without extra charge. Other forms will be added to the list soon as received from England.

The photographing of objects in motion is becoming more and more popular with amateurs. It is a fascinating employment, and with the facilities now obtainable, an easy one. With the rapid lenses and plates in use no difficulty is experienced in getting excellent negatives of Animals, Railway Trains, Steamers, Yachts, Bicyclers, etc., in rapid motion, provided a suitable shutter is used for making the exposures. Any of the above described can be timed for a variety of exposures, according to rapidity required.

In taking pictures of moving objects it is highly important that the exposure should be made at the exact moment when the object occupies the proper position upon the screen. This is best accomplished by the employment of a

### VIEW ADJUSTER.

2819. WALMSLEY'S VIEW ADJUSTER, with Attachment for Camera, . . . . .	\$3 00
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This little instrument consists of a magnifying lens, with focusing adjustment, mounted in a tube containing a ground glass focusing screen, forming a miniature camera. When attached to the side or top of the view-camera its field embraces exactly the same picture as that seen in the latter, so that when a moving object comes into the proper position upon the small screen the instantaneous shutter is dropped and the exposure made with certainty.

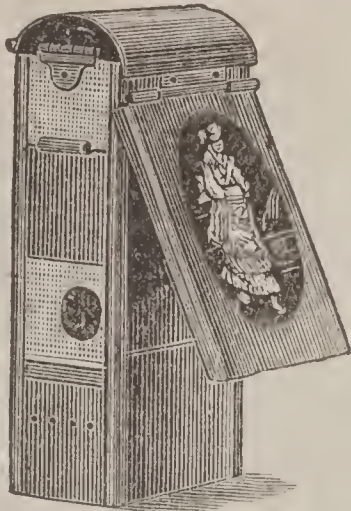
*Having now given very complete lists of Cameras and their parts, we next proceed to the illustration and description of the necessary apparatus for the development of the plates after exposure, and for making and mounting the finished prints.*



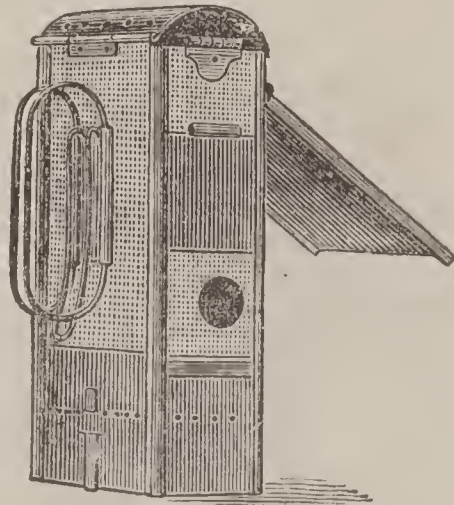
# APPARATUS FOR DEVELOPING NEGATIVES.

## DARK-ROOM LANTERNS.

The importance of a *safe light*, combined with a sufficiency thereof, to enable the operator to see clearly in the dark room, cannot be overestimated. These qualities are combined in an eminent degree in the Lanterns described below.

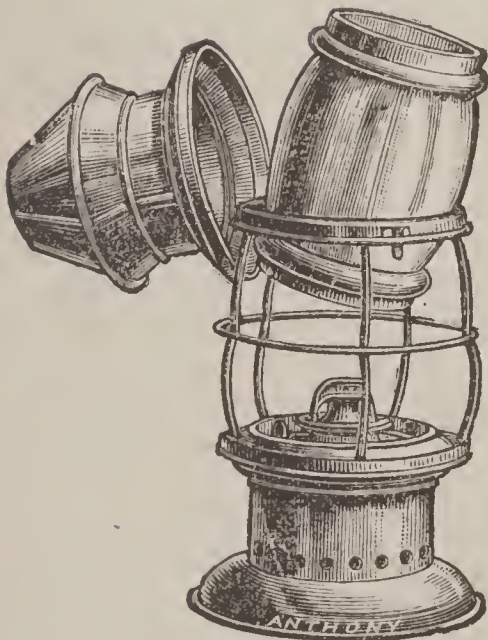


No. 2820. Front.



No. 2820. Back.

No.		PRICE.
2820.	W. I. A. PORTABLE RUBY LANTERN, for traveling, . . . . .	\$0 50



No. 2821.



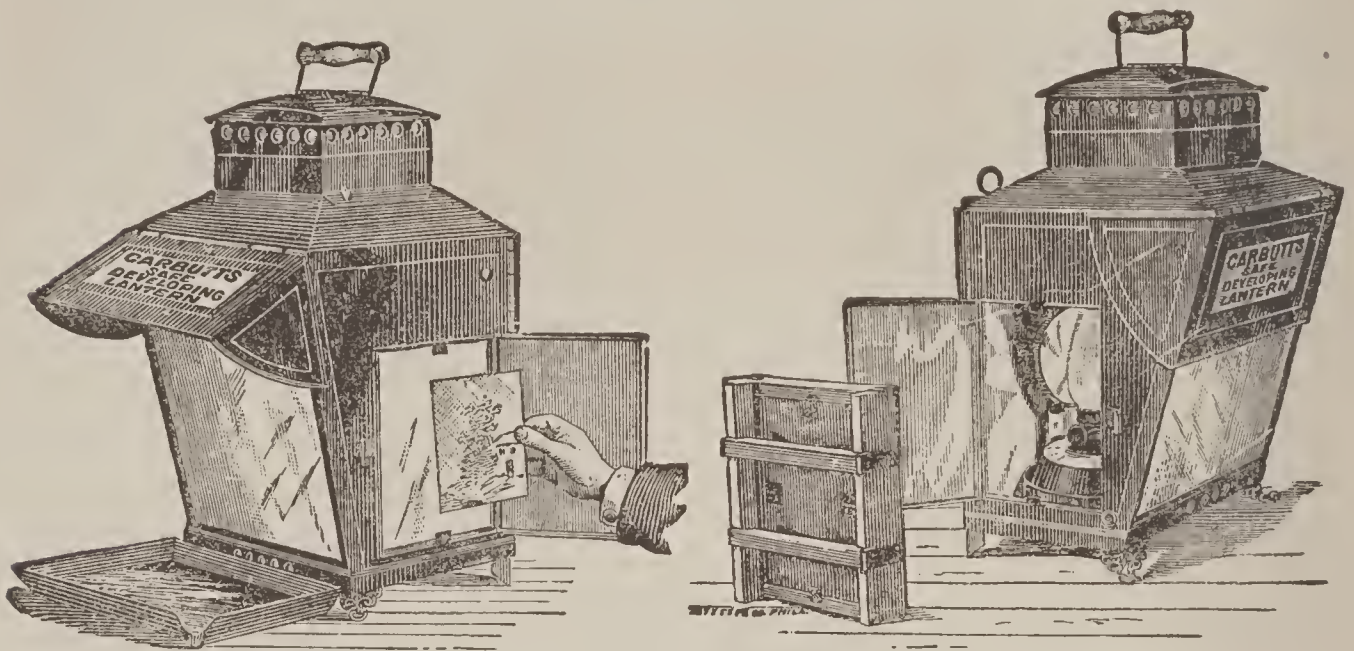
No. 2822.

2821.	ANTHONY'S PERFECT DRY PLATE LANTERN, . . . . .	1 50
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In Anthony's Perfect Lantern all the parts are separable, and easily and quickly adjusted. It has no hinges to break, can be instantly extinguished, requires but little oil, is abundantly wicked, and yields a superb light.

No.	PRICE.
2822. SCOVILL'S NON-ACTINIC DARK-ROOM LANTERN, . . . . .	\$2 00

This Lantern marks another and decided step in advance, dispensing with the old and baleful ruby light and substituting therefor a clear, bright orange, very pleasant to work with and abundant in amount, whilst entirely safe with the most sensitive of plates. The Lantern is thoroughly well made and entirely impervious to the escape of any white light.



No. 2823.

Lantern arranged for developing, and after fixing, examining negatives by opal light.

No. 2823.

Lantern arranged for making positives by contact.

2823. CARBUTT'S MULTUM IN PARVO LANTERN, . . . . .	\$6 00
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This Lantern, though somewhat costly, is so manifestly superior to all others, and can be put to so many uses, that no one will regret the first outlay after using it a short time.

The following are some of the advantages possessed: It is simple and easy to manage, nothing complicated, yet has three separate and distinct forms of light. It is adapted to the use of either oil or gas; is about nine inches square by fourteen high, with eight by ten deep orange eathedral-glass, coated with ruby colored glass substitute in front, giving a perfect, safe, and pleasant orange-red light. Each Lantern is provided with a coal-oil lamp, with improved patent burner and silvered reflector, which may be revolved in any direction, and operated from the outside. By removing the revolving lamp bed, a hole will be found through which a gas burner can be introduced.

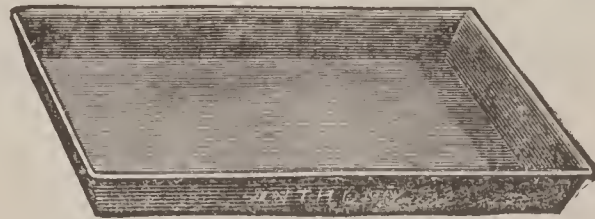
It can be used for seven or more different operations in photography, several of which have never been combined in any one lantern, to wit:

1. A safe light for the preparation of gelatino-bromide emulsion.
2. A safe light for the coating of gelatino-bromide plates.
3. A safe light for developing the most sensitive plates; whilst, for preparing developer or doing other work, the room can be instantly flooded with white light and as quickly changed to the orange-red, giving abundance of light by which to develop the largest sized plates used. The adjustable hood effectually shields the eyes from the glare of the light, a matter of the greatest importance to those having a large number of negatives to develop.
4. An opal light by which to examine negatives or positives after fixing, enabling the operator to judge of their quality, thereby avoiding the necessity of leaving the dark-room in search of white light.



- 5. A clear, transparent light for making positives on glass (gelatino-bromide).
- 6. The making of enlarged negatives from gelatine positives, placed in front of opal light.
- 7. By the adjustment of condensers and holder for slides and objective in front of the clear light, a very effective Magic Lantern is formed.

## DEVELOPING TRAYS.



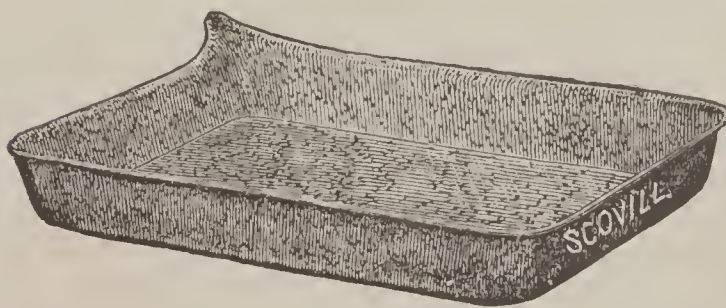
Nos. 2825-2831.

No.					PRICE.
2825.	JAPANNED IRON DEVELOPING TRAY,	4½x 5½,	.	.	\$0 20
2826.	" " " "	5½x 8½,	.	.	25
2827.	" " " "	7 x 9,	.	.	30
2828.	" " " "	9 x10,	.	.	40
2829.	" " " "	10 x12,	.	.	50
2830.	" " " "	12 x15,	.	.	75
2831.	" " " "	15 x18,	.	.	1 00

## INDIA RUBBER DEVELOPING TRAYS.

2835.	HARD RUBBER DEVELOPING TRAY,	4x5, No. 2,	.	.	60
2836.	" " " "	5x7, No. 3,	.	.	80
2837.	" " " "	5x8, No. 3½,	.	.	1 00
2838.	" " " "	7x9, No. 4,	.	.	1 10
2839.	" " " "	8x10, No. 5,	.	.	1 40

## AGATE-IRON LIPPED TRAYS.



Nos. 2840-2845.

					Shallow.	Deep.
2840.	AGATE-IRON DEVELOPING TRAY,	5x 7,	.	.	\$0 80	\$1 00
2841.	" " " "	7x 9,	.	.	1 00	1 25
2842.	" " " "	8x10,	.	.	1 25	1 60
2843.	" " " "	10x12,	.	.	2 00	2 25
2844.	" " " "	11x14,	.	.	3 00	3 37
2845.	" " " "	14x17,	.	.	5 00	6 00

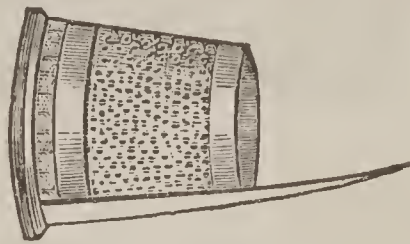
These Trays are not affected by acids or any chemicals that may be employed.

GLASS-LIPPED DEVELOPING TRAYS.

No.						PRICE.
2846.	GLASS DEVELOPING TRAY, WITH LIP, 5x 7,	.	.	.	.	\$0 50
2847.	" " " " " 7x 8,	.	.	.	.	75
2848.	" " " " " 8x10,	.	.	.	.	1 15
2849.	" " " " " 10x12,	.	.	.	.	1 90

These Trays are very strong, and being transparent enable the operator to see *through* the negative during the process of development.

THE EFFICIENT PLATE-LIFTER.



No. 2850.

2850.	THE EFFICIENT PLATE-LIFTER,	.	.	.	.	.	15
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This little piece of apparatus is like an ordinary thimble, with a pointed piece of metal soldered securely to it, as shown in the illustration. Slipped on to the end of the finger, it is a most "efficient" aid in lifting the negative from the tray for examination during development.

FERROUS-OXALATE DEVELOPING BOTTLE.



No. 2852.

2852.	FERROUS-OXALATE DEVELOPING BOTTLE.	Pint,	.	.	.	.	60
2853.	" " " " " " " "	Quart,	.	.	.	.	75
2854.	" " " " " " " "	Half-gallon,	.	.	.	.	1 00

Full directions for use on each bottle.

CAMEL'S-HAIR DUSTERS.



Nos. 2855-2860.

2855.	CAMEL'S-HAIR DUSTER, 1/2-inch wide,	.	.	.	.	.	15
2856.	" " " 1 " " " " " "	.	.	.	.	.	20

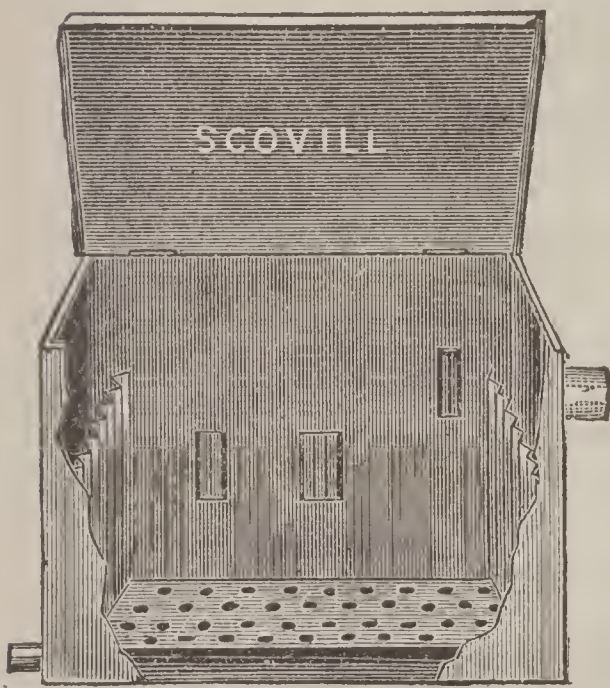


No.		PRICE.
2857.	CAMEL'S-HAIR DUSTER, 1¼-inch wide, . . . . .	\$0 25
2858.	" " 1½ " " . . . . .	30
2859.	" " 2 " " . . . . .	50
2860.	" " 2½ " " . . . . .	65

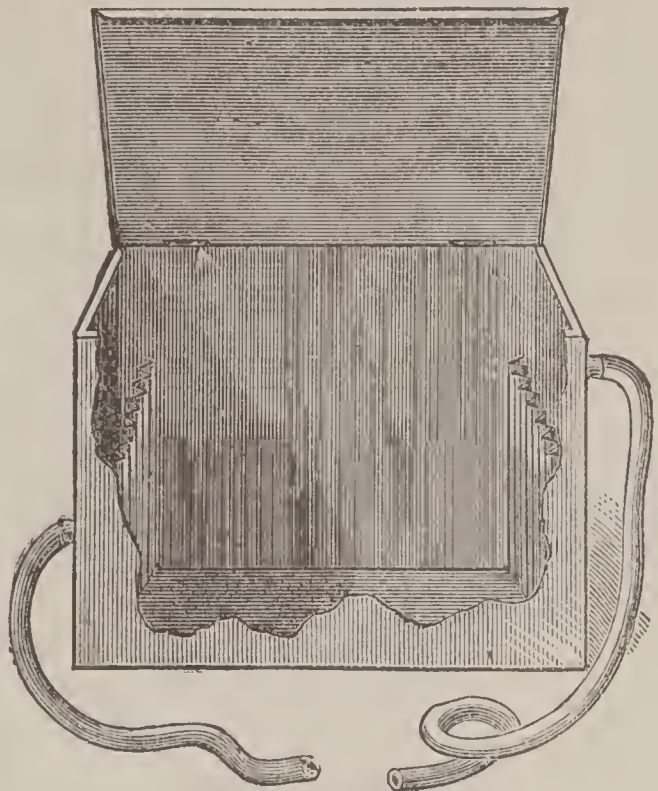
These Brushes are exceedingly useful for removing dust from the surface of Sensitized Plates before placing same in the holders and air-bells when the developing fluid is poured over the plates in developing tray. Two or three of them should be found in the outfit of every amateur.

NEGATIVE WASHING BOXES.

*Guaranteed not to Rust.*



No. 2865.



No. 2866-2873.

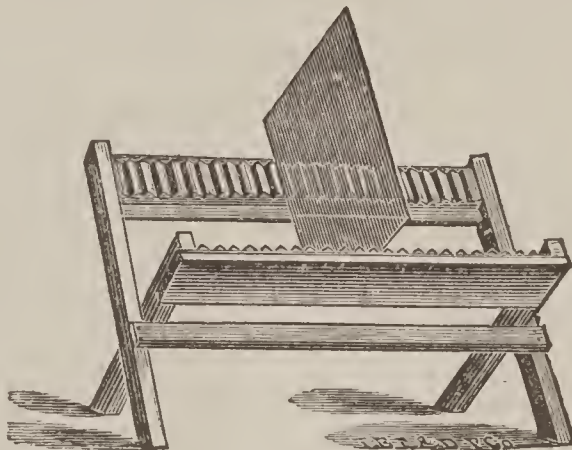
2865.	SCOVILL'S ADAPTABLE NEGATIVE WASHING BOX, . . . . .	2 75
	Arranged to carry plates 4x5, 5x8, 6½x8½, and 8x10.	
2866.	SCOVILL'S PLAIN NEGATIVE WASHING BOX, 3¼x 4¼, . . . . .	1 20
2867.	" " " " 4 x 5, . . . . .	1 25
2868.	" " " " 4¼x 5½, . . . . .	1 30
2869.	" " " " 4¼x 6½, . . . . .	1 35
2870.	" " " " 5 x 7, . . . . .	1 40
2871.	" " " " 5 x 8, . . . . .	1 50
2872.	" " " " 6½x 8½, . . . . .	1 75
2873.	" " " " 8 x10, . . . . .	2 25

It is necessary in the last stage of development to remove from photographic negatives all traces of hyposulphite of soda, and it is not generally convenient to place them where water will flow over their surface a sufficient length of time to accomplish this effectually, without injury to the sensitive film. To watch the plate is to waste time. The flow over it should be with gentle force. This can best be regulated, and a thorough cleansing from hyposulphite of soda of every portion of the negative be assured, by the employment of one of the continuous flow Negative Washing Boxes. Plates are simply slid into the grooves, a guarantee that the film will not be disturbed or marred; a bit of hose is slipped over

a tap, and the other end over the spout of the box. If need be, another section of rubber tubing is used to carry off the waste water to an outlet. After this simple preparation the Washing Box is in readiness for service.

The Adjustable Washing Box has a false bottom with perforations to every square inch. The receiving-pipe conducts the water underneath the false bottom. The result accomplished by this form of construction is to prevent the water passing through the box with too great force. Not only is it checked, but it is also equally distributed so that every plate and each portion of a plate is washed equally.

### NEGATIVE DRYING RACKS.

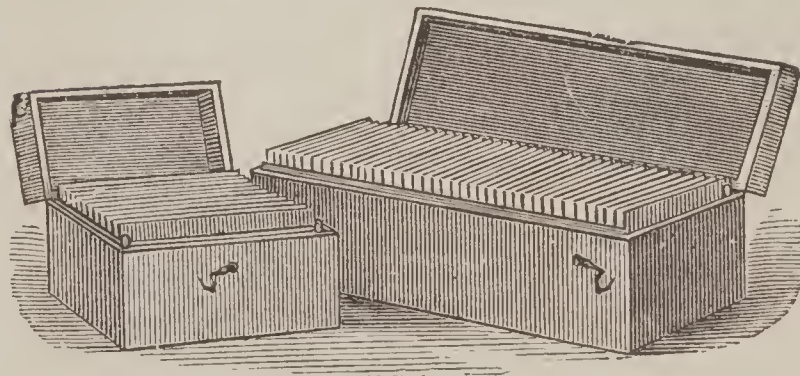


No. 2875.

No.	PRICE.
2875. FOLDING DRYING RACK. Will hold any size of plate, . . . .	\$0 50

The Negative Drying Rack is an indispensable adjunct to the Dark-Room, as it facilitates the drying of the negatives after development without danger of scratching.

### NEGATIVE BOXES.



Nos. 2876-2885.

2876. NEGATIVE BOX, for holding twenty-four plates,	$3\frac{1}{4} \times 4\frac{1}{4}$ ,	. . .	70
2877. " " " " " "	$4 \times 5$ ,	. . .	75
2878. " " " " " "	$4\frac{1}{4} \times 5\frac{1}{2}$ ,	. . .	75
2879. " " " " " "	$4\frac{1}{4} \times 6\frac{1}{2}$ ,	. . .	75
2880. " " " " " "	$5 \times 7$ ,	. . .	90
2881. " " " " " "	$5\frac{1}{2} \times 7$ ,	. . .	95
2882. " " " " " "	$5 \times 8$ ,	. . .	95
2883. " " " " " "	$6\frac{1}{2} \times 8\frac{1}{2}$ ,	. . .	1 05
2884. " " " " " "	$8 \times 10$ ,	. . .	1 20
2885. " " " " " "	$10 \times 12$ ,	. . .	2 40

These are thoroughly well made Cases, and furnish a most desirable method of storing negatives.





No.		PRICE.
2906.	GLASS FUNNEL, Half-pint, . . . . .	\$0 18
2907.	“ “ Pint, . . . . .	20
2908.	“ “ Quart, . . . . .	25
2909.	“ “ Half-gallon, . . . . .	35
2910.	GLASS FILTER AND FUNNEL COMBINED, Pint, . . . . .	50
2911.	“ “ “ “ “ Quart, . . . . .	65
2912.	“ “ “ “ “ Half-gallon, . . . . .	1 00

This combination of Funnel and Filter is intended specially for the use of cotton as the filtering medium. The bulb retains the cotton in such a manner as to obviate the difficulty experienced with the ordinary funnel from the cotton becoming compressed too tightly. A glance at the illustration will make its advantage apparent.

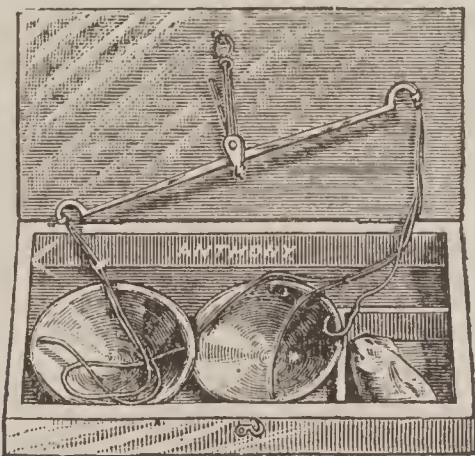
### FILTERING COTTON.

2913.	FILTERING COTTON, four ounces, in paper box, . . . . .	25
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### FILTER PAPER.

2915.	FILTER PAPER, Best Round Gray, No. 15, 6 inch, per 100, . . . . .	25
2916.	“ “ “ “ No. 19, 8 “ “ . . . . .	30
2917.	“ “ “ “ No. 25, 10 “ “ . . . . .	35
2918.	“ “ “ “ No. 33, 13 “ “ . . . . .	40
2920.	“ “ “ “ No. 40, 16 “ “ . . . . .	50
2921.	“ “ “ “ No. 45, 18 “ “ . . . . .	60
2922.	“ “ “ “ No. 50, 20 “ “ . . . . .	75
2923.	“ “ Swedish (Munktel's), per quire, . . . . .	1 00

### SCALES AND WEIGHTS.

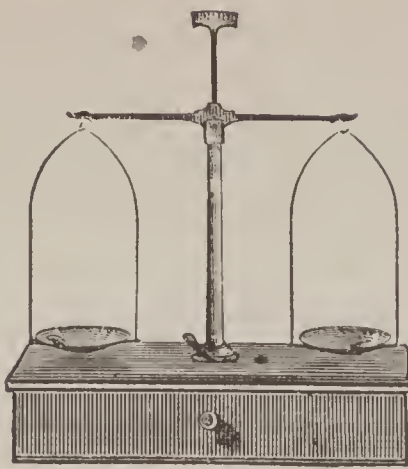


Nos. 2925-2926.

2925.	SCALES AND WEIGHTS, 5-inch beam, drachms and grains, . . . . .	65
2926.	“ “ “ 6 “ “ “ “ . . . . .	90

In wood or metal cases,



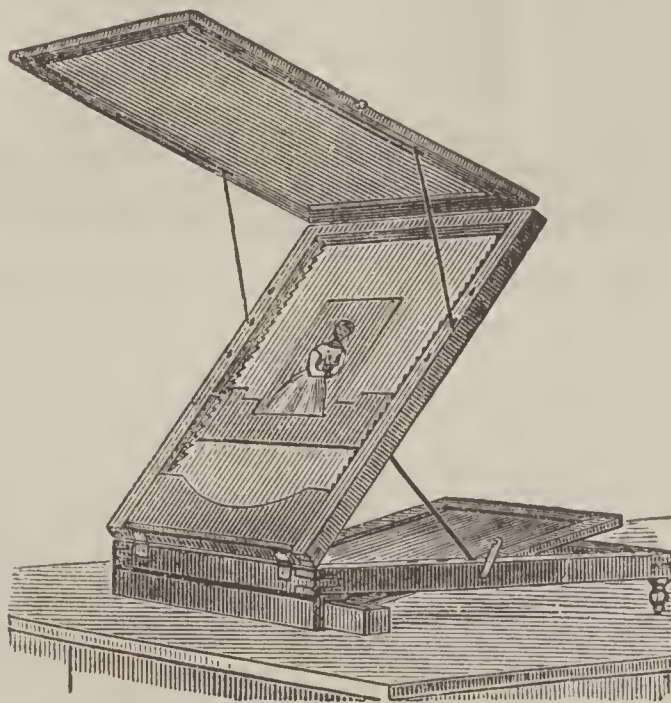


Nos. 2928-2930.

No.		PRICE.
2928.	STANDARD BALANCE, 5½-inch beam, 2-inch pans, No. 2, . . .	\$4 00
2929.	“ “ 7 “ 2¼ “ No. 1, . . .	5 50
2930.	“ “ 8 “ 2½ “ No. 0, . . .	6 50

These Balances are provided with a full set of Weights and are mounted on a Polished Walnut Case containing a drawer in which the whole apparatus can be packed.

### RETOUCHING FRAMES.



No. 2935.

2935.	RETOUCHING FRAME, for 8x10 and under, . . . . .	\$3 75
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This is a compact and most convenient apparatus for retouching negatives, stopping out spots, etc.

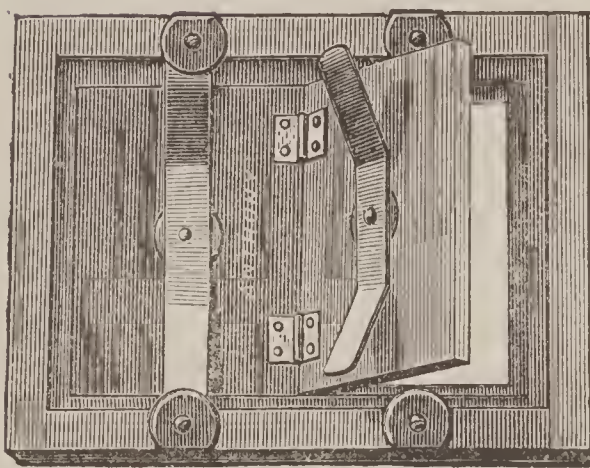
2936.	CROWELL'S METALLIC LEAD, for retouching, . . . . .	20
2937.	GIHON'S OPAQUE, for stopping out faults, . . . . .	50

*Gihon's Opaque is applied with a brush and is the most perfect material for stopping out light ever made.*

The apparatus thus far described is all that is necessary to the production of finished negatives ready for printing from. Many amateurs are content to rest their labors here, and confide their negatives to the professional printer for the production of the finished prints. Much the larger majority, however, prefer to do their own printing, toning, and mounting; which is indeed the only true way of producing amateur work; and for such we now proceed to illustrate and describe apparatus suited to the purpose.

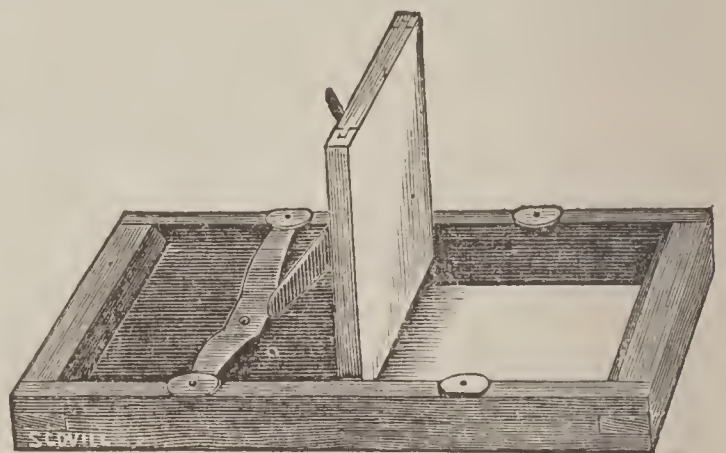
## APPARATUS FOR MAKING PRINTS.

### PRINTING FRAMES.



Nos. 2950-2959.

FLAT.



Nos. 2950-2959.

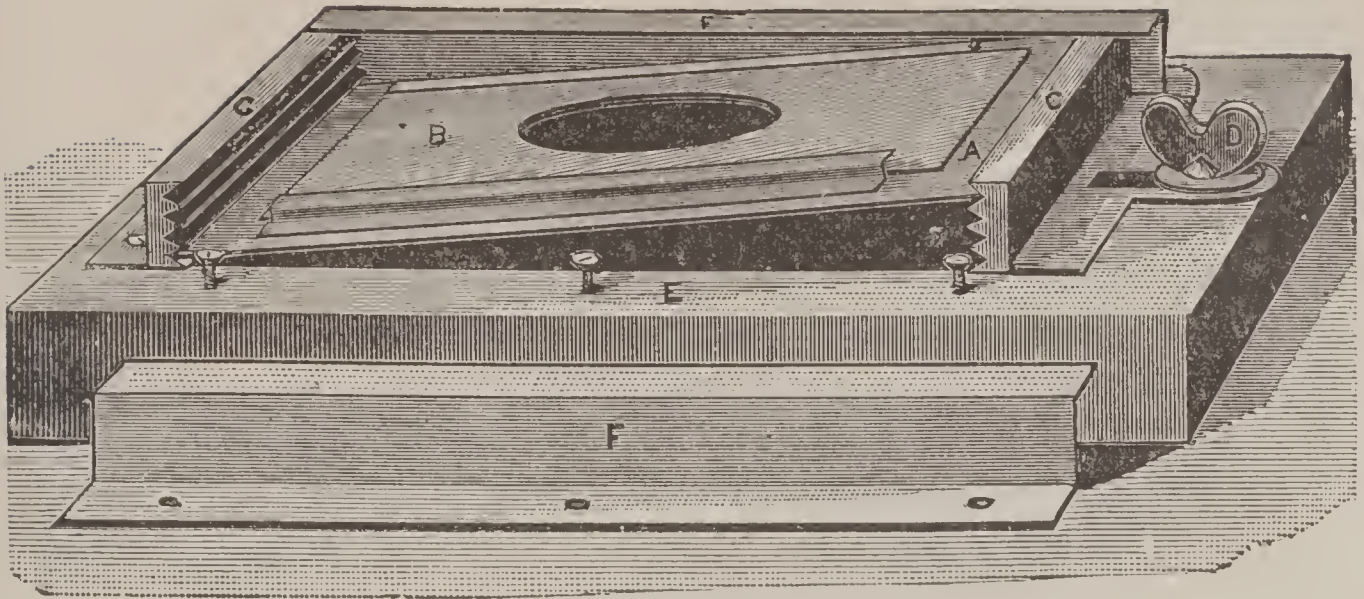
DEEP.

No.	PRINTING FRAME.	For Plates	Size	PRICE.	
				Flat.	Deep.
2950.	PRINTING FRAME.	For Plates	3½ x 4½,	\$0 55	\$0 75
2951.	"	"	4 x 5,	55	75
2952.	"	"	4½ x 5½,	55	75
2953.	"	"	4½ x 6½,	60	85
2954.	"	"	5 x 7,	70	1 05
2955.	"	"	5½ x 7,	70	1 05
2956.	"	"	5 x 8,	70	1 05
2957.	"	"	6½ x 8½,	75	1 10
2958.	"	"	8 x 10,	85	1 20
2959.	"	"	10 x 12,	1 15	1 40

These Frames are made of Cherrywood, with Panelled Back and Brass Springs, in a very superior manner, and are so constructed that a uniform pressure is exerted, thus insuring perfect contact between the positive paper and the negative plate. The backs are hinged in the middle, so that the progress of the printing may be watched without danger of shifting the paper. The deep frames are specially adapted to the making of transparencies by contact printing.



## VIGNETTING FRAMES.

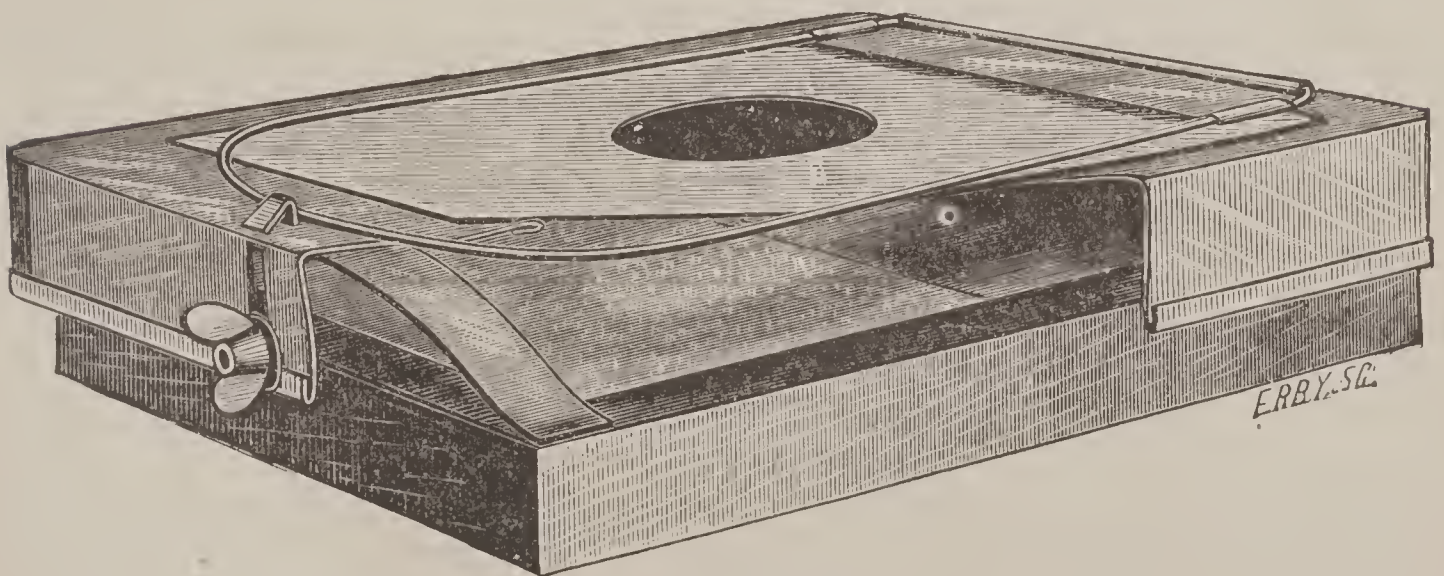


Nos. 2961-2969.

No.	McDONALD'S METALLIC VIGNETTER.			For Frame	PRICE.
2961.	"	"	"	3½ x 4½,	\$0 50
2962.	"	"	"	4 x 5,	65
2963.	"	"	"	4½ x 5½,	65
2964.	"	"	"	4½ x 6½,	65
2965.	"	"	"	5 x 7,	65
2966.	"	"	"	5½ x 7,	65
2967.	"	"	"	5 x 8,	65
2968.	"	"	"	6½ x 8½,	75
2969.	"	"	"	8 x 10,	75

*These Vignettors are adapted to the Flat Printing Frames Nos. 2950 to 2958. They are readily adjusted and can be changed to thirty different positions; any one of them in three to five seconds.*

## SCOTT'S ADJUSTABLE VIGNETTER AND PLAIN PRINTER.

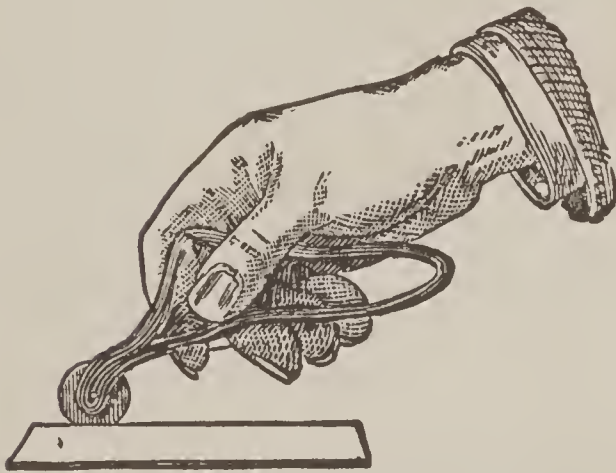


Nos. 2970-2979.

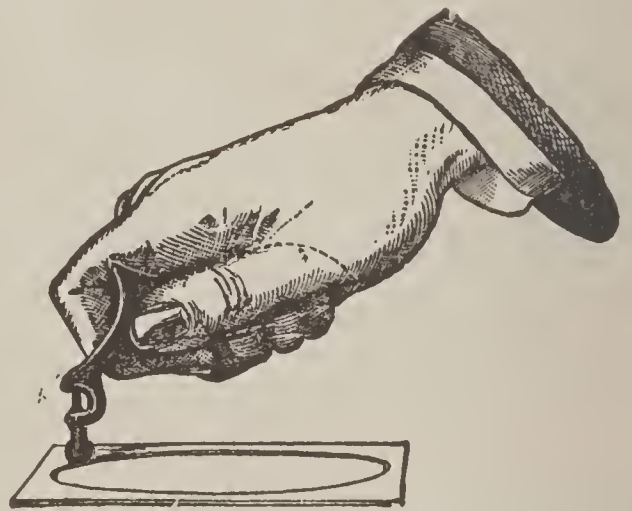
No.						PRICE.
2970.	SCOTT'S ADJUSTABLE VIGNETTER.	For Frame	3¼x 4¼,	.	.	\$0 50
2971.	"	"	4 x 5,	.	.	60
2972.	"	"	4¼x 5½,	.	.	60
2973.	"	"	4¼x 6½,	.	.	65
2974.	"	"	5 x 7,	.	.	70
2975.	"	"	5 x 8,	.	.	70
2976.	"	"	5½x 7,	.	.	70
2977.	"	"	6½x 8½,	.	.	75
2978.	"	"	8 x 10,	.	.	85
2979.	"	"	10 x 12,	.	.	1 00

*The Scott Adjustable Vignetter is easily attached to any ordinary printing frame, and when once in position need not be removed, as the square opening is sufficiently large to print to the full capacity of the frame. It is readily adjusted to any desired position, and is firmly held with thumb screws. The frame is of tin, with brass springs beneath to raise the vignetter to proper position, whilst a clamping wire holds tightly either tissue paper, cut-out, or both.*

### ROBINSON'S PHOTOGRAPH TRIMMERS.



No. 2980.



No. 2981.

2980.	ROBINSON'S STRAIGHT CUT TRIMMER,	.	.	.	.	50
2981.	ROBINSON'S REVOLVING TRIMMER, with guide,	.	.	.	.	1 00

*Robinson's Photograph Trimmer does the work much more expeditiously and elegantly than a knife. It does not cut but pinches off the waste paper, and leaves the print with a neatly beveled edge, which facilitates adherence to the mount. For ovals, circles, and rounded corners it is indispensable.*

### ROBINSON'S GUIDES.

These Guides are made of sheet-iron for use with the Revolving Trimmer No. 2981. They may be had round, oval, square, or round-cornered, as desired, and of sizes to suit any of Collins' Card Mounts. Price, ten cents per inch the longest way of the aperture.

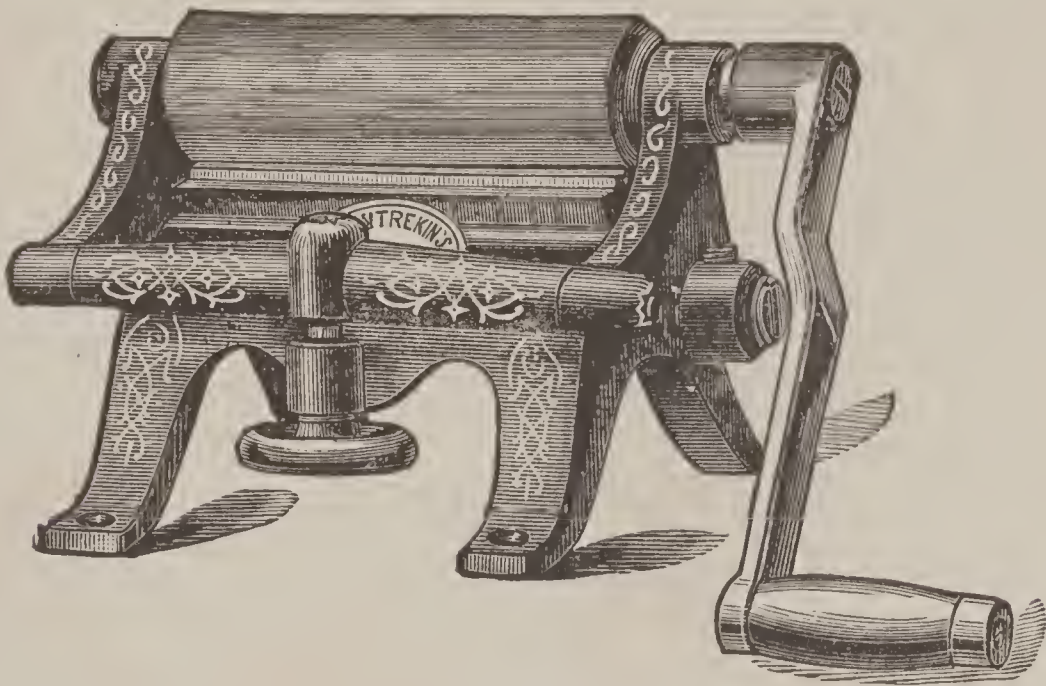


GLASS FORMS.

No.				PRICE
2982.	GLASS FORM OR GUIDE,	4 x5,	. . . . .	\$0 50
2983.	" "	4½x5½,	. . . . .	60
2984.	" "	5½x7,	. . . . .	75
2985.	" "	5 x8,	. . . . .	75

*These Forms are intended for use with Robinson's Straight Trimmer, No. 2980. They are of plate-glass with beveled edges.*

ENTREKIN'S BURNISHERS.



No. 2986.

2986.	ENTREKIN'S BURNISHER,	6-inch roll,	. . . . .	15 00
2987.	" "	10 "	. . . . .	25 00

*Each Burnisher is furnished with a lamp for heating; cake of lubricator, emery cloth to polish tool, and instructions for use.*

CARD MOUNTS.

PER PACKAGE OF 25.

2990.	PLAIN CARDS, assorted tints,	No. 1,	6½x 8½,	. . . . .	40
2991.	" "	No. 2,	" "	. . . . .	30
2992.	" "	No. 1,	9 x11,	. . . . .	65
2993.	" "	No. 2,	" "	. . . . .	50
2994.	" "	No. 1,	10 x12,	. . . . .	75
2995.	" "	No. 2,	" "	. . . . .	60
2996.	INDIA TINT CARDS.	No. 34,	8 x10,	. . . . .	1 00
2997.	" "	No. 20,	11 x14,	. . . . .	1 25

*The tinted opening of 2996 measures 5¾x7¾ inches, and that of 2997 8x10¼ inches.*

2998.	BLACK OR CHOCOLATE CARDS,	No. 13,	6¾x9¾,	. . . . .	1 25
2999.	" "	No. 13,	5½x8½,	. . . . .	75
3000.	" "	No. 13,	6½x8½,	. . . . .	1 00
3001.	CABINET CARDS, assorted,	No. 43,	4½x6½,	. . . . .	50
3002.	" black,	No. 43,	4½x6½,	. . . . .	56
3003.	" seconds,	No. 42,	4½x6½,	. . . . .	20

No.				PRICE.
3004.	BOUDOIR CARDS, green or maroon,	No. 68,	5¼x8½, . . . .	\$1 25
3005.	CARTE DE VISITE MOUNTS, assorted,	No. 35,	2½x4½, . . . .	15
3006.	“ “ “ “	No. 42,	2½x4½, . . . .	20
3007.	“ “ “ “	No. 43,	2½x4½, . . . .	30
3008.	STEREOSCOPIC CARD MOUNTS, assorted,	No. 5,	3½x7, . . . .	20
3009.	“ “ “ “	No. 5,	4 x7, . . . .	25
3010.	“ “ “ “	No. 5,	4¼x7, . . . .	30
3011.	“ “ “ “	No. 5,	4½x7, . . . .	35
3012.	“ “ “ “	No. 5,	5 x8, . . . .	40

*All the above Cards are from pure stock (A. M. Collins, Son & Co.), guaranteed entirely free from soda, and not to injure the prints. The prices are all for packages of twenty-five.*

### READY SENSITIZED ALBUMEN PAPER.

3015.	PACKAGE SENSITIZED PAPER, one dozen,	4 x 5, . . . .	25
3016.	“ “ “ “	4¼x 5½, . . . .	25
3017.	“ “ “ “	5½x 7, . . . .	40
3018.	“ “ “ “	5 x 8, . . . .	40
3019.	“ “ “ “	6½x 8½, . . . .	50
3020.	“ “ “ “	8 x10, . . . .	80
3021.	ROLL SENSITIZED PAPER, “	18 x22, . . . .	3 00

This Paper is made expressly for us by the best manufacturer in Paris, in various shades, rose, white, mauve, etc. Its quality is of the best, it is highly sensitized, prints readily, and tones to any desired tint with the greatest facility. It is almost universally used in the galleries of Europe, yielding effects in no wise inferior to those obtainable with freshly sensitized paper. Its keeping qualities are extraordinary, as excellent prints may be made with it a year after sensitizing. Each package is made up with chemically prepared pads, which greatly add to its keeping qualities; and to save possible loss, packages and rolls are not broken. Formulæ for printing and toning accompany each package. For the amateur, this Ready Sensitized Paper is an indispensable requisite, whilst to the professional photographer it offers numerous advantages which he will not be slow to recognize.

3022.	JAPANNED TIN CASE, to hold roll of 3021, . . . . .	35
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### FERRO PRUSSIAN PAPER.

3025.	PACKAGE FERRO PRUSSIAN PAPER. 1 Dozen,	4 x 5, . . . .	15
3026.	“ “ “ “	4¼x 5½, . . . .	20
3027.	“ “ “ “	5½x 7, . . . .	30
3028.	“ “ “ “	5 x 8, . . . .	30
3029.	“ “ “ “	½x 8½, . . . .	40
3030.	“ “ “ “	8 x10, . . . .	50
3031.	ROLL FERRO PRUSSIAN PAPER. 11 yards, 29 inches wide, . . . .	5 00	

This Paper is also made expressly for us in Paris, and is far superior to any other in the market, being of uniform sensitiveness and entirely free from spots, streaks, or flaws, printing a brilliant blue with clear whites. It is extremely simple in its manipulation and therefore very convenient for making proofs from negatives, whilst for the rapid reproduction of plans, drawings, etc., it has no equal. Full instructions for use accompany each package.



No.		PRICE.
3035.	LITMUS PAPER. Blue or Red, per sheet, . . . . .	\$0 06
3036.	" " " " in books, per doz., . . . . .	40
3037.	POST " For Dark Room, " . . . . .	25
3038.	ONION " " Vignetting, etc., " . . . . .	25
3039.	TISSUE " " " best English, per doz., . . . . .	20
3040.	" " " Dark Room, yellow, " . . . . .	10
3041.	WHITE BLOTTING PAPER. 19x24, " . . . . .	1 00

### PASTES FOR MOUNTING PRINTS.

3045.	PARLOR PASTE. $\frac{1}{2}$ pint jar, . . . . .	20
3046.	" " 1 " " . . . . .	45
3047.	" " 1 quart " . . . . .	65
3050.	ANTHONY'S PEARL PASTE. $\frac{1}{2}$ pint jar, . . . . .	25
3051.	" " " 1 " " . . . . .	45
3052.	" " " 1 quart " . . . . .	65

This paste is warranted not to ferment or become sour, mouldy, or offensive. It will remain moist even after much exposure to the air, and it possesses a pleasing, pearly color. Its adhesive properties are unsurpassed, and, like starch, it leaves no stain upon the card mount. If found too thick, it may readily be thinned with water, and will *keep* for any length of time, no matter what may be the temperature.

### VIEW ALBUMS.

3055.	VIEW ALBUMS. For Pictures $3\frac{1}{4} \times 4\frac{1}{4}$ to $4\frac{1}{4} \times 5\frac{1}{2}$ , . . . . .	1 10
3056.	" " " " $4\frac{1}{4} \times 6\frac{1}{2}$ to 5 x8, . . . . .	1 30
3057.	" " " " $6\frac{1}{2} \times 8\frac{1}{2}$ , . . . . .	1 95
3058.	" " " " 8 x10, . . . . .	2 40

These Albums are made of the finest cardboard, chemically free from anything that could injure the print. Each contains forty-eight pages and is neatly and substantially bound in cloth, with leather back and corners. No more compact or convenient method of preserving prints for examination has been devised.

### GELATINE DRY PLATES.

Though the amateur may be the possessor of the most perfect and complete outfit of Camera and Lenses that money can procure, coupled with a thorough acquaintance with their manipulation, all his efforts to produce satisfactory negatives will prove futile unless he is provided with *good* Dry Plates suited to the work he has on hand. Most of the plates now in the market are good and reliable, but each brand possesses some merit peculiarly its own. Thus, one make is especially adapted to portraiture, another to landscaping, another to photomicrography, and, again, another to the production of transparencies for the lantern and windows. Recognizing these facts, we keep in stock a full line of plates by all the leading makers, and will cheerfully give our unbiased advice in the choice of plates for any particular kind of work, where such is sought. Some makers produce plates of various degrees of sensitiveness for different kinds of work, whilst others confine their manufactures to a single sort. In both cases we carry in stock their entire assortment. The following brands we are always prepared to furnish promptly: Beebe's; Carbutt's "Keystone" *A*, *B*, "*Special*" and Transparency; Cramer's; Diamond; Eastman's "Tropical"

and "Special;" Inglis' "Insoluble;" Monroe's "Semper Idem," and Norden's. The prices of all makers being the same, it is unnecessary to give more than a single table of same, which will be applicable to any and all of them. In ordering please name the *make* of plates desired, as well as the Catalogue number. If Keystone, state in addition whether A, B, or "Special" shall be sent; if Eastman's, whether "Tropical" or "Special." All the other makers produce but one grade.

### GENERAL PRICE-LIST.

No.		PRICE.
3060.	GELATINE DRY PLATES, any make, 2 $\frac{1}{4}$ x 3 $\frac{1}{4}$ , per dozen, . . . . .	\$0 50
3061.	" " " 3 $\frac{1}{4}$ x 4 $\frac{1}{4}$ , " . . . . .	60
3062.	" " " 4 x 5, " . . . . .	90
3063.	" " " 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ , " . . . . .	1 00
3064.	" " " 4 $\frac{1}{4}$ x 6 $\frac{1}{2}$ , " . . . . .	1 20
3065.	" " " 5 x 7, " . . . . .	1 55
3066.	" " " 5 $\frac{1}{2}$ x 7, " . . . . .	1 65
3067.	" " " 5 x 8, " . . . . .	1 75
3068.	" " " 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ , " . . . . .	2 30
3069.	" " " 7 x 9, " . . . . .	2 75
3070.	" " " 8 x10, " . . . . .	3 40
3071.	" " " 10 x12, " . . . . .	5 00
3072.	" " " 11 x14, " . . . . .	6 50
3073.	CARBUTT'S SPECIAL LANTERN PLATES, 3 $\frac{1}{4}$ x4 $\frac{1}{4}$ , per dozen, . . . . .	70

*These Lantern Plates are made on special extra thin, crystal glass, and are the best Gelatine Plates for the purpose ever made.*

### TRANSPARENCY FRAMES.

3075.	TRANSPARENCY FRAME. 4 x 5 inches, . . . . .	30
3076.	" " 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ " . . . . .	35
3077.	" " 5 $\frac{1}{2}$ x 7 " . . . . .	40
3078.	" " 5 x 8 " . . . . .	40
3079.	" " 6 $\frac{1}{4}$ x 8 $\frac{1}{2}$ " . . . . .	45
3080.	" " 8 x10 " . . . . .	60
3081.	" " 10 x12 " . . . . .	75

*These Frames are made with Plain or Ornamental Borders, and with rings to hang vertically or horizontally. In ordering please state which pattern is desired.*

*To give Transparencies a finish they are backed when placed in the frames with a plate of ground glass, either plain or with etched margins, as below.*

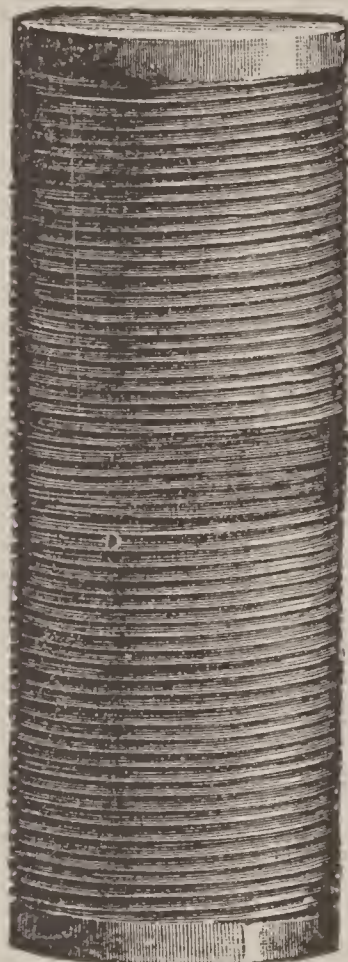
		Plain.	Etched Margin.
3083.	GROUND GLASS. 4 x 5, . . . . .	20	50
3084.	" " 4 $\frac{1}{4}$ x 5 $\frac{1}{2}$ , . . . . .	23	50
3085.	" " 5 $\frac{1}{2}$ x 7, . . . . .	25	55
3086.	" " 5 x 8, . . . . .	25	60
3087.	" " 6 $\frac{1}{2}$ x 8 $\frac{1}{2}$ , . . . . .	30	60
3088.	" " 8 x10, . . . . .	35	70
3089.	" " 10 x12, . . . . .	50	80



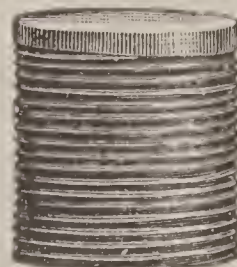
VARNISHES.

No.		Per bottle,		PRICE.
3091.	ANTHONY'S DRY PLATE VARNISH.	.	.	\$0 40
3092.	CARBUTT'S KEYSTONE	"	"	50
3093.	RETOUCHING	"	"	50
3094.	GROUND GLASS SUBSTITUTE.	"	"	50

METALLIC PROTECTING CASES, with GLASS BOTTLE and TUMBLER.



Nos. 3095-3097.



Nos. 3095-3097. Open.

Where is the amateur who, when on a photographic excursion, has not wished very often for some safe method of carrying with him developers and other chemicals in solution? A most useful article is in the market which answers this purpose. We allude to the Patent Metallic Protecting Cases invented for similar purposes. The bottles may be of ordinary shape so that they fit the metal cases, which latter are drawn from solid metal, with a locking ring, to afford perfect protection for the bottles containing the liquids which are entrusted to their care. They are made of different sizes for bottles of one, two, four, and eight ounces capacity, and each case is made adjustable to bottles of different lengths. They are very light, and the corrugation makes them so strong as to resist crushing. They can be packed in any position. The metal is drawn of even thickness throughout by hydraulic pressure.

3095.	METALLIC CASE, with 1 oz. Bottle.	No. 1,	.	.	50
3096.	" " " 4 " " and Tumbler.	No. 3 A,	.	.	85
3097.	" " " 8 " " "	No. 4 A,	.	.	1 10

## DEVELOPING OUTFITS.

No.	PRICE.
3100. DEVELOPING OUTFIT, No. 1. $4\frac{1}{4} \times 5\frac{1}{2}$ , . . . . .	\$3 50

One dozen Plates $3\frac{1}{4} \times 4\frac{1}{4}$ , $4 \times 5$ , or $4\frac{1}{4} \times 5\frac{1}{2}$ , Two Developing Trays, $4\frac{1}{4} \times 5\frac{1}{2}$ , One 2-ounce Graduate, " 1-pound Neutral Oxalate Potassium, " " Protosulphate Iron, " " Hyposulphite Soda,	One Ruby Glass Lantern, W. I. A., " set Scales and Weights, 5 inches, " half-pound Alum, " ounce Bromide Potassium, " " Sulphuric Acid, " Instruction Book.
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3101. DEVELOPING OUTFIT, No. 2. $5 \times 8$ , . . . . .	5 00
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This Outfit is the same as No. 3100, with the substitution of  $5 \times 7$  to  $5 \times 8$  Plates, and Pans, Graduates, etc., to correspond.

3102. DEVELOPING OUTFIT, No. 3. $6\frac{1}{2} \times 8\frac{1}{2}$ , . . . . .	6 50
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This Outfit is the same as No. 3100, with the substitution of  $6\frac{1}{2} \times 8\frac{1}{2}$  Plates, and Pans, Graduates, etc., to correspond.

*The foregoing Outfits comprise only those articles absolutely essential to the making of a negative. Those now to be described are much more complete and afford greater latitude for experimental developing.*

3103. COMPLETE DEVELOPING OUTFIT, No. 4. $4\frac{1}{4} \times 5\frac{1}{2}$ , . . . . .	7 00
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*This Outfit comprises the following articles, securely packed in a wooden case :*

One dozen Dry Plates, $3\frac{1}{4} \times 4\frac{1}{4}$ to $4\frac{1}{4} \times 5\frac{1}{2}$ , Two Japanned Developing Trays, One set Scales and Weights, 5-inch, " 4-ounce Graduate, " Minim Measure, " ounce Bromide Potassium, " " Sulphuric Acid, " " Oxalic Acid, " bottle Walmsley's PyroDeveloper, " Camel's-hair Brush, flat,	One pound Neutral Oxalate Potassium, " " Protosulphate Iron, " " Hyposulphite Soda, " " Alum, " bottle Negative Varnish, " Ruby Glass Lantern, W. I. A., " Efficient Plate Lifter, " Focusing Cloth, " Note Book, " Instruction Book.
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3104. COMPLETE DEVELOPING OUTFIT, No. 5. $5 \times 7$ to $5 \times 8$ , . . . . .	<del>6 00</del> 8 50
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This Outfit is the same as No. 3103, with the substitution of  $5 \times 7$  to  $5 \times 8$  Plates, and Pans, Graduates, etc., to correspond.

3105. COMPLETE DEVELOPING OUTFIT, No. 6. $6\frac{1}{2} \times 8\frac{1}{2}$ , . . . . .	10 00
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This Outfit is the same as No. 3103, with the substitution of  $6\frac{1}{2} \times 8\frac{1}{2}$  Plates, and Pans, Graduates, etc., to correspond.

## PRINTING AND TONING OUTFITS.

3107. PRINTING AND TONING OUTFIT, A, . . . . .	2 25
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One Printing Frame, Two dozen Sheets Sensitized Paper, Two dozen Card Mounts,	$7\frac{1}{2}$ grains Chloride of Gold, One ounce Phosphate of Soda, One half pint jar, Parlor Paste.
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*With the above Outfit the Printing Frame and Sensitized Paper are furnished to suit  $3\frac{1}{4} \times 4\frac{1}{4}$ ,  $4 \times 5$ , or  $4\frac{1}{4} \times 5\frac{1}{2}$  negatives as required, at the same price.*



No.	PRICE.
3108. PRINTING AND TONING OUTFIT B, . . . . .	\$3 00

This Outfit is the same as A, with the substitution of Printing Frame, Sensitized Paper, and Card Mounts suited to negatives 5x7, 5½x7, or 5x8.

3109. PRINTING AND TONING OUTFIT C, . . . . .	3 75
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This Outfit is the same as A, with the substitution of Printing Frame, Sensitized Paper, and Card Mounts suited to negatives 6½x8½.

*The above Outfits comprise all the absolutely necessary articles for printing, toning, and mounting finished pictures.*

3110. COMPLETE PRINTING AND TONING OUTFIT D, . . . . .	6 00
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One Printing Frame, " Porcelain Pan, 5x7, deep, " ounce Acetate Soda, " bottle Chloride of Gold, 7½ grains, Four dozen sheets Sensitized Paper, " Card Mounts, One four-ounce Graduate, One sheet Blue Litmus Paper.	One half-pint jar Parlor Paste, " one-and-a-half-inch Bristle Brush, " Glass Form (for trimming prints), " Robinson's Straight Trimmer, " Japanned Tray, 5½x8½ inches, " pound Hyposulphite Soda, " ounce Borax, " doz. sheets Ferro Prussiate Paper.
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The various articles with the above Outfit are furnished in sizes to suit. 3¼x4¼, 4x5, or 4¼x5½ inch negatives, as may be desired, at the same price.

3111. COMPLETE PRINTING AND TONING OUTFIT E, . . . . .	7 00
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This Outfit is the same as D, with the substitution of Printing Frames and other apparatus, Sensitized Paper, etc., to suit negatives 5x7, 5½x7, or 5x8 inches.

3112. COMPLETE PRINTING AND TONING OUTFIT F, . . . . .	8 00
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This Outfit is the same as D, with the substitution of Apparatus, Paper, etc., to suit negatives 6½x8½ inches.

*Outfits 3110-3112 are complete in every conceivable requisite for Printing, Toning, and Mounting, securely packed in a strong cardboard box.*

## GELATINO-BROMIDE RAPID PRINTING PAPER.

This paper being prepared with the same substance as the Gelatino-bromide Dry Plates, requires no other chemicals for the production of prints than those used with the plates, which is a great convenience to amateurs who intend to travel and do not wish to be burdened with too many chemicals.

It must, of course, be opened only in a ruby or orange light, and can be printed by the light of a gas jet or kerosene lamp in five seconds.

By the use of Eastman's Tropical Dry Plate (which can be dried over a spirit lamp after development), and this paper (which can be printed in so short a time), a proof can be made within twenty minutes after the exposure of the plate in the camera.

Any one possessing a Magic Lantern or Solar Camera can make beautiful enlargements on this paper, which may be subsequently painted or finished in crayon.

Another great advantage is that the prints may be made in the evening, independently of cloudy or foggy weather, and the exposure being so short, many more prints can be made in a given time than with any other paper.

No.						PRICE.
3120.	GELATINO-BROMIDE PAPER.	1 Dozen.	4 x 5,	.	.	\$0 40
3121.	"	"	5 x 8,	.	.	75
3122.	"	"	6½ x 8½,	.	.	1 10
3123.	"	"	8 x 10,	.	.	1 50

*Each dozen sheets, packed in a light, tight box, with ample directions for use.*

### GLASS STIRRING RODS.

3130.	GLASS STIRRING ROD.	8-inch,	.	.	.	10
3131.	"	12 "	.	.	.	15
3132.	"	15 "	.	.	.	20
3133.	"	18 "	.	.	.	25

### FLAT BRISTLE BRUSHES.

3135.	BRISTLE BRUSH, FLAT.	1 inch wide,	.	.	.	15
3136.	"	1¼ "	.	.	.	20
3137.	"	1½ "	.	.	.	25
3138.	"	2 "	.	.	.	35
3139.	"	2½ "	.	.	.	50

*For Mounting Prints, with Parlor or other pastes.*

### MISCELLANEOUS ARTICLES.

3140.	RUBBER FOCUSING CLOTH.	40 inches square,	.	.	.	1 00
3142.	VELVET	"	.	.	.	2 00
3143.	MATS for Lantern Slides.	Per package,	.	.	.	25
3144.	GLASS	Covers. 3¼x4¼.	Per dozen,	.	.	30
3145.	NEEDLE PAPER for binding edges of Lantern Slides.	Per sheet,	.	.	.	10
3146.	INDIA INK.	Per stick,	.	.	.	25
3147.	CANVAS BAG for Extension Tripods Nos. 1 and 2,	.	.	.	.	1 50
3148.	"	No. 3,	.	.	.	2 50

### POULENC & WITTMAN'S CHEMICALS.

3175.	POULENC & WITTMAN'S PYROGALLIC ACID,	one-ounce bottle,	.	50
3176.	"	BROMIDE AMMONIUM, one-ounce bottle,	.	20
3177.	"	BROMIDE POTASSIUM, one-ounce bottle,	.	25

*The above are of our own importation, and the finest articles of their kind made. The Pyrogallie Acid is instantly and entirely soluble in cold water, leaving no residue.*

### WALMSLEY'S ALKALINE DEVELOPER.

3180.	WALMSLEY'S CONCENTRATED ALKALINE DEVELOPER,	ten-ounce bottle,	.	1 00
3181.	WALMSLEY'S CONCENTRATED ALKALINE DEVELOPER,	twenty-ounce bottle,	.	1 50

*This is the best and most economical Developer in use. A ten-ounce bottle will develop six dozen 5x8 negatives if carefully used, producing the finest results with*



any make of plates. Errors of exposure are more easily controlled than with any other developer, and the negatives are without stain or blemish. It is made from Poulene & Wittman's Pyro, with the utmost care, and its keeping qualities are excellent. Try it, and you will use no other.

### CYANIDE OF SILVER INTENSIFIER.

No.	PRICE.
3183. WALMSLEY'S SILVER INTENSIFIER, in two ten-ounce bottles,	\$1 00

*It sometimes happens that negatives, full of detail and otherwise excellent, have not sufficient density to make good prints. Resort must then be had to an Intensifier, and the above will be found easy of manipulation, and perfect in its performance. It is put up in two bottles, containing solutions Nos. 1 and 2, with full directions for use. It may be repeatedly used by returning each solution to its respective bottle.*

### WALMSLEY'S PURE CHEMICALS.

#### W. P. C.

All Chemicals are bought and sold by Avoirdupois weight, which has four hundred and thirty-seven and a half grains to the ounce, and sixteen ounces to the pound, whilst all the formulæ for their use and mixing are made by Apothecaries' weight—four hundred and eighty grains to the ounce and twelve ounces to the pound. Hence, if you get but four hundred and thirty-seven and a half grains of any chemical for an ounce do not think it short weight.

3200. Acid, Acetic, No. 8,	one-pound bottle,	20
3201. " " Glacial,	one-ounce "	15
3202. " Citric,	" "	15
3203. " Muriatic, C. P.,	four ounce "	20
3204. " Nitric, C. P.,	one-ounce "	15
3205. " Oxalic,	" "	10
3206. " Pyrogallic,	" "	50
3207. " Sulphuric, C. P.,	" "	15
3208. Ammonia, Bromide,	" "	15
3209. " Liquid Conc., C. S.,	one-pound "	20
3210. Alcohol, Absolute,	two-ounce "	25
3211. " ninety-five per cent.,	" "	15
3212. Alum, Chrome,	one-ounce "	10
3213. " powdered,	" box,	20
3214. Chloroform,	two-ounce bottle,	30
3215. Gold, Chloride, pure,	seven-and-a-half-grain bottle	35
3216. " " "	fifteen-grain bottle,	60
3217. " " "	" " "	75
3218. Glycerine,	two-ounce bottle,	25
3219. Hydrokinone,	one-ounce bottle,	1 50
3220. Iron, Proto-sulphate,	one-pound box,	10
3221. Iodine, Tincture,	one-ounce bottle,	15
3222. Lead, Acetate,	" "	15
3223. Lime, Chloride,	one-pound "	15
3224. Mercury, Bichloride,	one-ounce "	15
3225. Potassium, Bromide,	" "	15
3226. " Cyanide,	" "	10

No.		PRICE.
3227.	Potassium, Iodide, . . . . . one-ounce bottle, .	\$0 20
3228.	“ Neutral Oxalate, . . . . . “ box, .	50
3229.	Potassa, Bichromate, . . . . . “ “ .	35
3230.	Soda, Acetate, . . . . . “ bottle, .	15
3231.	“ Bicarbonate, . . . . . one-pound box, .	15
3232.	“ Carbonate (Sal.), . . . . . “ “ .	10
3233.	“ Citrate, . . . . . “ bottle, .	20
3234.	“ Hyposulphite, . . . . . “ box, .	10
3235.	“ Phosphate, . . . . . one-ounce bottle, .	15
3236.	“ Sulphite, . . . . . “ “ .	15
3237.	Silver, Nitrate (crystallized), . . . . . “ “ .	85
3238.	Tannin, . . . . . “ “ .	20
3239.	Uranium, Nitrate, . . . . . “ “ .	1 00

## STANDARD FORMULÆ.

### FERROUS OXALATE DEVELOPERS.

No. 1. Saturated Solution Neutral Oxalate of Potash. Filter.

No. 2. Saturated Solution Protosulphate of Iron, with one drop of Sulphuric Acid or one drop of a Saturated Solution of Citric to each ounce of the Iron Solution. Filter.

To use, add one part No. 2 to six parts of No. 1 for ordinary exposure. For instantaneous, one part No. 1 to four parts No. 2. If over-exposed, add at once a few drops of a solution of Bromide of Ammonium, which should always be kept for the purpose.

#### ANOTHER.

##### No. 1.—POTASSIC OXALATE SOLUTION.

Potassic Oxalate (neutral), . 8 ounces | Water, . . . . . 32 ounces

Dissolve the Oxalate in the water heated to boiling, and filter. The solution should be tested with blue litmus paper; if it is not slightly acid, add sufficient Oxalic Acid to render it so.

##### No. 2.—IRON SOLUTION.

Sulphate of Iron (pure), . 2 ounces | Sulphuric Acid, . . . 15 drops  
Water, . . . . . 8 “

After the solution has settled, decant and use only the clear supernatant portion.

##### No. 3.—BROMIDE SOLUTION.

Bromide Potass., . . . 30 grains | Water, . . . . . 2 ounces

*To make the developer, take*

No. 1 Solution, . . . 3 ounces | No. 3 Solution, . . . 5 drops  
No. 2 “ . . . 4 drams

Over-exposure may be corrected by decreasing the amount of No. 2 Solution to one and a half drams and doubling the amount of the No. 3 Solution; while under-exposure may be corrected by doubling the amount of No. 2 Solution and leaving No. 3 out of the developer.



As the developer becomes exhausted the proportion of No. 2 Solution may be increased, but the entire amount added should never exceed one-fourth of the mixture, *i. e.*, four parts of No. 1 to one part of No. 2.

## ANOTHER.

## No. 1.

Neutral Oxalate of Potash, . 1 pound | Water, . . . . . 5 pints  
Make decidedly acid with Citric Acid, and filter.

## No. 2.

Sulphate of Iron, Pure, . 1 pound | Water, . . . . . 2 quarts  
Filter, and add sixty drops Sulphuric Acid.

*To develop, take*

No. 1. Oxalate Solution, . 4 ounces | No. 2. Iron, . . . . . 4 drams

*Always have ready a bottle of*

Water, . . . . . 10 ounces | Bromide Ammonium, . 300 grains

If more intensity is needed add ten drops Bromide Solution and continue the development.

Image should show through on back of plate. An over-exposed plate needs weaker developer and more Bromide Solution. An under-exposed plate needs stronger developer and less Bromide Solution.

Carry the development until image is well sunken in; don't try to hurry.

## SPECIAL DEVELOPERS FOR TRANSPARENCIES.

## No. 1.—OXALATE SOLUTION.

Oxalate of Potash, . . . 8 ounces | Water, . . . . . 32 ounces

When dissolved, add of a strong Solution of Citric Acid sufficient to faintly change blue litmus paper, then add two hundred grains more of Citric Acid; when dissolved, filter.

## No. 2.—IRON SOLUTION.

Pure Protosulphate of Iron, 4 ounces | Water, . . . . . 16 ounces

Dissolve and add of Sulphuric Acid, sixteen drops.

## DEVELOPER FOR BLACK TONES.

Oxalate Solution, . . . . 4 parts | Iron, . . . . . 1 part

## DEVELOPER FOR BROWN TONES.

To the above add two or three parts water, bearing in mind what has been said about regulating the exposure to suit the developer. The development should be carried on until the detail in the strongest light of the image is well defined; then wash, and fix in clean and fresh Hypo. Solution, made by dissolving four ounces of Hypo. Soda in twenty ounces of water; place in Alum Solution a few minutes, then give a thorough washing, and before putting to dry, with a swab of absorbent cotton go over the surface while holding the transparency under the tap, rinse and place to dry spontaneously, and it is then ready to bind in the metal frames sold by dealers for that purpose.

N. B.—By leaving out the two hundred grains Citric Acid in the above Oxalate Solution, it is suitable for the ordinary Negative Developer.

## ALKALINE DEVELOPERS.

## No. 1 SOLUTION.

Pyrogallic Acid (Poulenc & Witt-		Distilled Water, . . .	6 ounces
man's), . . . . . 1 ounce		Nitric Acid, C. P., . . .	20 drops
Bromide Ammonium, . . . 600 grains			

## No. 2 SOLUTION.

Concentrated Liquid Ammonia, $\frac{1}{2}$ ounce		Distilled Water, . . .	20 ounces
--	--	------------------------	-----------

*Keep both Solutions tightly corked.*

To use, add one-quarter ounce No. 1 Solution to five ounces of water, and to this an equal quantity of Solution No. 2, which will be sufficient to develop several plates.

## ANOTHER.

## No. 1.

Strong Liquid Ammonia, . $1\frac{3}{4}$ ounces		Water, . . . . .	80 ounces
Bromide Potassium, . . . 240 grains			

## No. 2.

Pyrogallic Acid, . . . . . 30 grains		Water, . . . . .	10 ounces
--------------------------------------	--	------------------	-----------

*In case of an ordinary exposure, mix equal volumes.*

## SWAN'S DEVELOPER.

## No. 1.

Pyrogallic Acid, . . . . . 2 grains		Water, . . . . .	1 ounce
-------------------------------------	--	------------------	---------

## No. 2.

Liquid Ammonia, . . . . . 1 ounce		Water, . . . . .	80 ounces
Bromide Ammonium, . . . $\frac{3}{4}$ "			

*Equal parts of 1 and 2.*

## NELSON'S DEVELOPER.

## No. 1.

Pyrogallic Acid, . . . . . 1 ounce		White Sugar, . . . . .	1 ounce
Alcohol, . . . . . 7 ounces			Distilled Water, . . . . .

## No. 2.

Liquid Ammonia, . . . . . 4 ounces		White Sugar, . . . . .	$\frac{1}{2}$ ounce
Bromide Ammonium, . . . 1 ounce			Water, . . . . .

For half-plate take one-half drachm of No. 1 and put in developing cup. Now take one-half drachm of No. 2 and dilute with one and a half ounces of water; pour No. 2 thus diluted on to No. 1, and develop immediately.

## WRATTEN'S DEVELOPER.

## No. 1.

Pyrogallic Acid, . . . . . 6 grains		Water, . . . . .	2 ounces
-------------------------------------	--	------------------	----------

## No. 2.

Liquid Ammonia, . . . . . 1 ounce		Water, . . . . .	2 ounces
Potassium Bromide, . . . 60 grains			

Pour on No. 1 after soaking the plate in water for a few seconds; now add five drops of No. 2, wait till high lights show themselves, and then add fifteen or twenty drops more to finish development.



## ALUM BATH.

Powdered Alum, . . . . .	2 ounces		Water, . . . . .	20 ounces
Table Salt, . . . . .	1 ounce			

This form of Alum Bath is exceedingly useful with iron developed gelatine negatives, preventing any tendency to frill in hot weather and removing stains and Hypo after fixing.

## HARDENING AND BLEACHING BATH.

Pulverized Alum, . . . . .	2 ounces		Water, . . . . .	20 ounces
Oxalic Acid, . . . . .	$\frac{1}{4}$ ounce			

This Bath is to be used after development with Pyro. and before fixing. It effectually removes the yellow stains so frequently accompanying Alkaline development, producing a clear, gray negative resembling one developed with iron.

## TO INTENSIFY GELATINE NEGATIVES WITH MERCURY.

Bichloride of Mercury, saturated solution in cold water. (The negative should be placed in alum for a short time before treatment.) Wash the negative well, and immediately pour on Mercury Solution; do not keep it on too long unless the negative is very thin. Wash well, and immerse in bath of

Water, . . . . .	10 ounces		Ammonia, . . . . .	10 drops
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Leave plate in this solution until the black color goes quite through the film. Wash well. If the Mercury Solution makes the negative too dense, dilute with water.

## SELECTED TONING FORMULÆ.

## No. 1.

Chloride of Gold, . . . . .	1 grain		Water, . . . . .	8 ounces
Acetate of Soda, . . . . .	30 grains			

This must not be used till one day after preparation. It keeps well, and gives warm, rich tones.

## No. 2.

Chloride of Gold, . . . . .	1 grain		Water, . . . . .	8 ounces
Bicarbonate of Soda, . . . . .	4 grains			

This is ready for immediate use after preparation, but it will not keep.

## No. 3.

Chloride of Gold, . . . . .	1 grain		Water, . . . . .	8 ounces
Phosphate of Soda, . . . . .	20 grains			

This gives rich tones of a deep purple nature, but must be used soon after preparation.

## No. 4.

Gold Solution, . . . . .	10 drachms		Chloride of Lime, . . . . .	1 grain
Acetate of Lime, . . . . .	20 grains		Tepid water, . . . . .	20 ounces

The "Gold Solution" before mentioned is prepared by neutralizing as much as is required of a one-grain solution of chloride of gold by shaking it up with a little prepared chalk, then allowing it to settle, and filtering off the clear liquid. This toning bath improves by keeping. To use, add two ounces of it to eight ounces of tepid water, which will prove sufficient to tone a full-sized sheet of paper.

## No. 5.

Chloride of Gold, . . . . .	15 grains		Water, . . . . .	5 ounces
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Neutralize with lime water, make up to fifteen ounces with water, and add two drachms of chloride of calcium. This stock solution will keep for a long time. For use, dilute one ounce with ten ounces of water.

## No. 6.

## TONING AND FIXING IN ONE BATH.

Chloride of Gold, . . . . . 1 grain		Hyposulphite of Soda, . . . . . 240 grains
Phosphate of Soda, . . . . . 15 grains		Water, . . . . . 2 ounces
Sulphocyanide of an'ium, 25 "		

Dissolve the gold separately in a small quantity of water, and add it to the other solution.

## SOLUTION FOR MOUNTING PRINTS WITHOUT THEIR COCKLING.

Nelson's No. 1 Photographic		Glycerine, . . . . . 1 ounce
Gelatine, . . . . . 4 ounces		Alcohol, . . . . . 5 ounces
Water, . . . . . 16 "		

Dissolve the gelatine in the water, then add the glycerine, and lastly the spirit.

## MOUNTING SOLUTION FOR SCRAP BOOKS, ETC.

Soak half a pound best glue in cold water till soft. Melt the glue in kettle or earthen jar standing in a saucepan. When quite thin, pour in gradually Alcohol, stirring well between each addition until quite clear. Strain through coarse muslin into pickle bottles. Well cork and store away for use. When wanted, stand bottle in hot water till glue is melted.

## WEIGHTS AND MEASURES.

## APOTHECARIES' WEIGHT.

## SOLID MEASURE.

20 Grains	= 1 Scruple	= 20 grains.
3 Scruples	= 1 Drachm	= 60 "
8 Drachms	= 1 Ounce	= 480 "
12 Ounces	= 1 Pound	= 5760 "

## FLUID. Symbol.

60 Minims	= 1 Fluid Drachm	f. $\frac{3}{4}$
8 Drachms	= 1 Ounce	f. $\frac{3}{4}$
20 Ounces	= 1 Pint	O
8 Pints	= 1 Gallon	gall.

*The above weights are those usually adopted in formulæ.*

*All Chemicals are usually sold by*

## . AVOIRDUPOIS WEIGHT.

27 $\frac{1}{2}$ Grains	= 1 Dram	= 27 $\frac{1}{2}$ Grains,
16 Drams	= 1 Ounce	= 437 $\frac{1}{2}$ "
16 Ounces	= 1 Pound	= 7000 "

*Precious Metals are usually sold by*

## TROY WEIGHT.

24 Grains	= 1 Pennyweight	= 24 Grains.
20 Pennyweights	= 1 Ounce	= 480 "
12 Ounces	= 1 Pound	= 5760 "

NOTE.—An ounce of *metallic* silver contains 480 grains, but an ounce of *nitrate* of silver contains only 437 $\frac{1}{2}$  grains.



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*Either of the works in the following list will be mailed to any address in the world on receipt of the price.*

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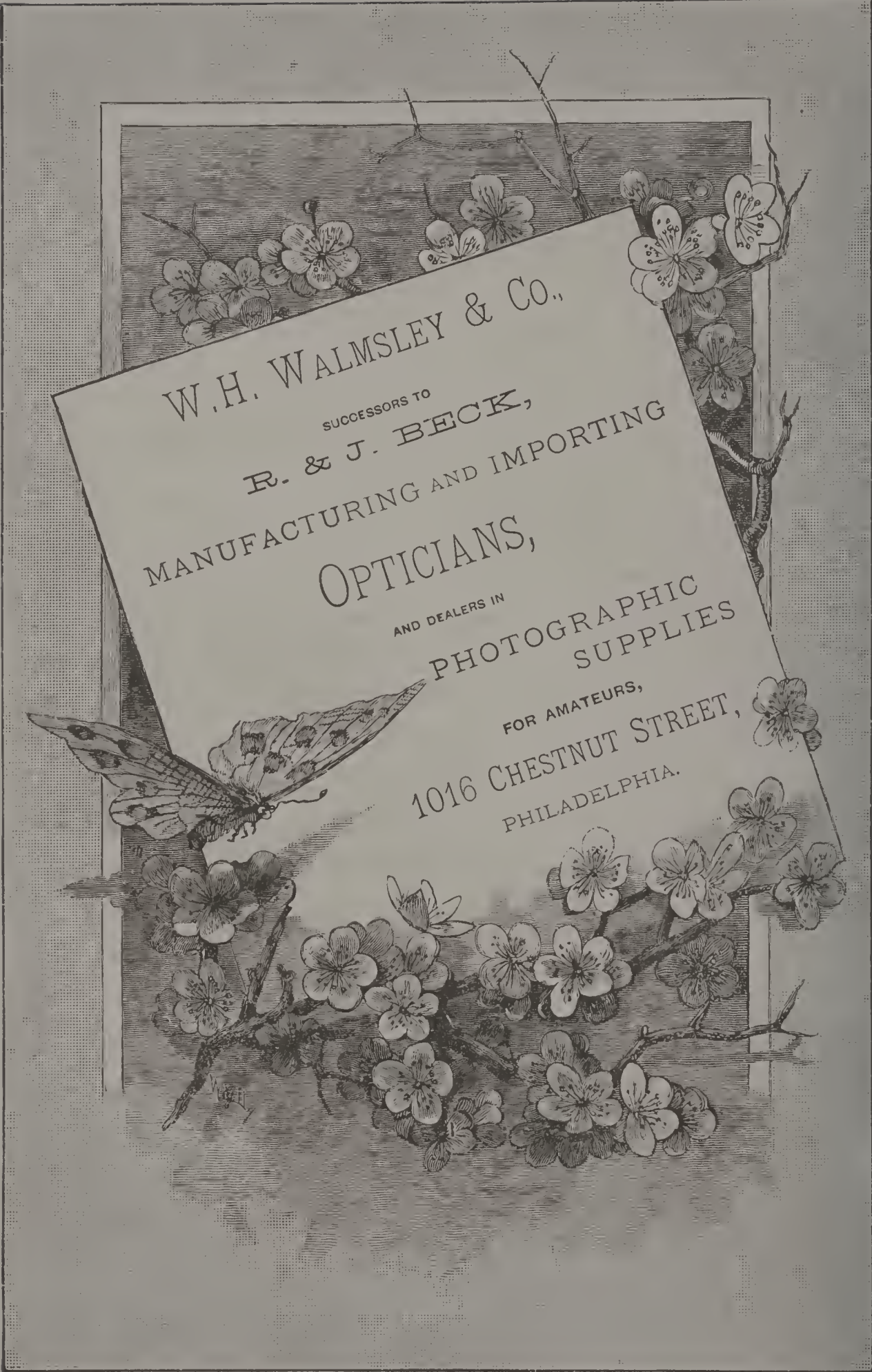
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