PATENTS FOR INVENTIONS.

ABRIDGMENTS

OF

Specifications

RELATING TO

TEA, COFFEE, CHICORY, CHOCOLATE, COCOA, &c.

(COMPRISING THEIR MANUFACTURE, BUT NOT THE PREPARATION OF DRINKS THEREFROM).

PART II.—A.D. 1867–1876.

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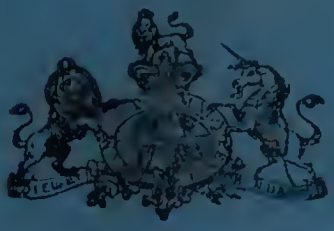

LONDON:
PUBLISHED AND SOLD AT
THE COMMISSIONERS OF PATENTS' SALE BRANCH,
38, CURSITOR STREET, CHANCERY LANE, E.C.

1883.

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PREFACE.

The present volume forms Part II. of the series of abridgments of specifications of inventions entitled "Tea, Coffee, "Chicory, Chocolate, Cocoa, &c.," and embraces the period from A.D. 1867 to 1876 inclusive,—Part I. containing the abridgments of this class from the earliest date (A.D. 1704) to the end of the year 1866.

This series comprises the various processes relating to the manufacture of tea, coffee, chocolate, cocoa, and their substitutes, beginning at the period after the plucking of the leaf or fruit, and stopping short at the preparation of drinks from the manufactured article. Thus, concentrated extracts, infusions, or decoctions of tea, &c., either alone or in combination with concentrated milk, will be found in this work, but potable or unconcentrated extracts must be looked for in the series entitled "Unfermented Beverages, Aerated Liquids, "Mineral Waters, &c." Measuring tea will be included in a volume not yet published.

A detailed list of the various kinds of inventions comprised in the present series of abridgments is furnished by the subject-matter index at the end of this volume.

It should be borne in mind that the abridgments are merely intended to serve as guides to the specifications, which must themselves be consulted for the details of any particular invention.

At the foot of each abridgment is stated the price at which a printed copy of the specification may be purchased at the Commissioners of Patents' Sale Branch (38, Cursitor Street, Chancery Lane, E.C.).

R 7648. Wt. 4690.

By means of the "key" at page 20 of the List of Works at the end of this volume, the reader will be able to find out what series of abridgments contains any other class of inventions to which he may desire to refer.

H. READER LACK.

October, 1883.

INDEX OF NAMES.

[The names printed in *Italic* are those of the persons by whom the inventions have been communicated to Applicants for Letters Patent.]

TEA, COFFEE, CHICORY, CHOCOLATE, COCOA, &c.

(COMPRISING THEIR MANUFACTURE, BUT NOT THE PREPARATION OF DRINKS THEREFROM).

1867.

A.D. 1867, July 17.—No. 2102.

KLUG, Christian.—(*Letters Patent void for want of Final Specification.*) — "An improvement in the preparation of "chocolate and cocoa."

"Malt, barley, and salep," in the form of "paste, flour, or "cakes, or tablets," are mixed with chocolate and cocoa during the manufacture thereof. The ingredients are cleansed, purified, and ground, and the proportions preferred are 50 parts of chocolate or cocoa, 30 of patent barley, 10 of malt, and 10 of salep.

[*Printed, 4d. No Drawings.*]

A.D. 1867, December 24.—No. 3653.

MYERS, Saul. — (*A communication from Charles Gustavus Mueller.*) — (*Provisional protection only.*) — "Apparatus for "roasting coffee."

A hollow globe is "fitted loosely within and pivoted to a "concave half globe;" it revolves easily and freely by means of "a small crank rod;" and it is made with "a neck "or mouth, which projects through a circular opening in the "said half globe, and is adapted to receive and discharge the "coffee." The crank rod is supported by a bent handle attached to the half globe; it is "provided with a lid" which fits into and closes the neck or mouth, and the lid "may be "made with a catch."

[*Printed, 4d. No Drawings.*]

1868.

A.D. 1868, January 7.—No. 65.

HEYWOOD, Bennett Johns.—(*Provisional protection only.*)—"An improved construction of coffee roaster," such that "the operator may with certainty determine when the roasting is complete."

The coffee is put into a glass vessel, "by preference "spherical, with a cylindrical neck that forms a hollow "trunnion." The vessel is surrounded "by cross bands of "wire threaded through holes made near the edges of a cup-"shaped metal disc" and connected at their opposite ends "with a metal collar which is fitted to the neck or hollow "glass trunnion." A stud projecting from the centre of the disc "forms a trunnion for the vessel to rotate on." The hollow trunnion (through which the coffee is put into the vessel) is fitted with "a spring stopper" to allow the escape of the vapour during the roasting, and a winch handle is applied to the stud axle. The vessel thus fitted is mounted in bearings on a stand carrying a spirit lamp.

[*Printed, 4d. No Drawings.*]

A.D. 1868, June 9.—No. 1879.

WILSON, Joseph Spoor.—(*Provisional protection only.*)—"Imparting rotatory motion to mills employed for grinding "grain, coffee, and other berries and vegetable substances of "a similar character."

The mill is attached to "a cart or truck," the wheels of which are connected "by means of toothed driving wheels "and pinions to the grinding cylinder of the mill." The coffee or other substance is ground as the cart or truck is being drawn along. It is intended "to adapt levers to the "vehicles for throwing the toothed driving wheels into and "out of gear with the grinding mechanism" and to fit drawers for the reception of the ground substance. A winch handle allows the grinding to be carried on when the vehicle is not moving.

[*Printed, 4d. No Drawings.*]

A.D. 1868, July 23.—No. 2314.

PEARSON, Peter.—"Improvements in the treatment and "preparation of cocoa."

"A concentrated essence or preparation of cocoa in a liquid "or semi-liquid form" is obtained by combining one pint of strong liquid extract of cocoa nuts or nibs, about one quarter of a pound of cocoa from which the fatty matter has been wholly or partly extracted, any flavouring matter, and "a "sufficient quantity of alcohol or other suitable preservative "agent." For a beverage "take about one dessert spoonful "of the preparation to a breakfast cup full of hot water, and "add sugar and cream according to the taste."

[*Printed, 4d. No Drawings.*]

A.D. 1868, September 11.—No. 2799.

THOMPSON, William. — (*Provisional protection only.*) — "Machinery or apparatus for sifting, cutting, and mixing "tea."

The following apparatus "for previously sifting and cutting "the tea" is combined with that described in No. 1861, A.D. 1866:—"Upon the top of the framing of the tea mixing "apparatus" is fixed the tea cutting apparatus, namely a horizontal cylindrical casing (slightly tapering towards one end) wherein is fitted a drum of corresponding form, which rotates on a central spindle. The spindle passes through the casing and carries at one end a handle or a driving pulley. On the surface of the drum are cutting blades running along the whole length thereof, and on the sides of the casing are other blades (either removable or fixed) running its entire length. The drum is adjustable lengthways by means of a set screw at one end of the spindle, so that the tea may be cut to a greater or less degree of fineness. The tea passes from the casing "into the casing of the tea mixing machine below."

The tea enters the cylindrical casing "through a shoot "leading from the tea sifting machine above;" it passes "into one or more inclined screens" whereby it is separated from "foreign matter," and thence "into the open end of a "revolving cylindrical sieve." The dust and small tea fall through the meshes of the sieve and descend into the tea

mixing machine, and the large tea passes into the tea cutting apparatus.

[*Printed, 4d. No Drawings.*]

A.D. 1868, September 15.—No. 2839.

DAVIES, GEORGE.—(*A communication from James Fowle Baldwin Marshall and Augustus Jones.*)—(*Provisional protection only.*)—A "machine for hulling and cleaning or polishing "coffee, rice, and other grain."

"An endless elevating band," supported by the frame of the machine, is provided with brackets "for raising the "hulled grain to the hopper of the polishing device." The grain is conducted by "inclined shaking tables" to the front part of the machine. Endless belts, mounted on drums "composed of a series of serrated or roughened plates placed "at right angles with the belt" and forming a level surface, "carry the berries along under the strippers and polisher." The strippers are long narrow bars having a roughened under surface; "they are pivoted at one end so as to allow the other "end to be raised or lowered," and a spring regulated by a bolt presses the fore end of each downwards "with sufficient "force to remove the hulls without injuring the kernels." A covering plate, to which the springs are attached, can be raised or lowered by screws, and adjusting screws "permit a "variation of the tension" of the springs. "Within the "throat of each hopper" there is a grooved cylinder provided with guards "to allow the grain to be fed to the machine "without danger of choking" the throat. A stationary brush is "arranged over an endless serrated or roughened "band, by which the berry is effectually cleansed and "polished." The berries after being subjected to the operation of hulling "fall down the inclined shaking board," meeting at the same time a blast from a fan blower; they are then "carried up by the elevating band and conducted to the "polishing device," and thence to a receptacle, being again subjected to a blast of air, which separates from them all light particles of the hulls and impurities.

[*Printed, 4d. No Drawings.*]

A.D. 1868, September 19.—No. 2893.

DICKINSON, Benjamin.—"Improvements in treating the "leaves of the tea plant and other similar materials, and in "machinery and apparatus to be employed therefor."

Three processes are described, (1) "expressing the juices "from the fresh gathered leaves," (2) rolling up the expressed leaves, (3) giving the rolled up leaves the "necessary cross "twist or curl."

1. The leaves are put into bags of hair or similar material, and the bags are passed between rollers under pressure. Instead of pairs of rollers, traversing tables and rollers ("somewhat like an ordinary mangle") may be used.

2. An endless band receives the leaves and carries them forward "against and under light and freely revolving "rollers," which are capable of "being regulated or retarded "in their motion." Or two endless bands move in contrary directions, but "parallel to each other horizontally, the "degree of contact being regulated as may be required."

3. A circular table is mounted on a spindle, which can be raised by means of a pedal whilst the workman "can freely "turn the said table" round on its spindle. The table is so placed in relation to the under side of a revolving endless band that, by laying the rolled leaves on a portion of its surface (whilst it is lowered and at rest) and then raising it so as to bring the leaves into gentle contact with the under surface of the band, and partially turning it by hand "in the oppo- "site direction to that in which by its contact with the belt "it would be caused to rotate," a compound action is produced, "which causes a twisting of each leaf." Several of such tables may be used, "each mounted or fitted in a frame." Or a horizontal table may be caused to move backwards and forwards at right angles to the motion of the band. Or several rollers "set at suitable angles" may be mounted above the band.

The rolling and the twisting may be effected by the following apparatus:—Two wide endless bands "with their faces "nearly equidistant from or parallel to each other" are set at an angle to each other "in the line of their longitudinal "motion," and they revolve "in opposite directions and at "different speeds." The leaves are fed "on to the upper face"

of the lower band, and are carried forward until they come into contact with the lower surface of the upper band, "when they "are subjected to a compound rolling and curling motion." Modifications are described.

[*Printed*, 1*s*. 6*d*. *Drawings*.]

A.D. 1868, September 19.—No. 2894.

DICKINSON, Benjamin.—"Improvements in withering and "desiccating the leaves and flowers of plants and other "vegetable substances, and in the apparatus to be employed "therein."

This invention is applied to "desiccating the leaves of the "tea plant." Trays or shallow boxes without covers, of the same size, "capable of fitting into and side by side the one "with the other interchangeably," and each having a bottom of open canework, are arranged in or on a frame or open top trough. The leaves are laid on the bottoms of the trays in depth suitable to allow hot air to pass freely up through among them. The frame or trough is large enough to "take "one or two in width, one, two, or more in height, and "several in length," and the sets of trays and the layers of trays so fit into and upon one another that the hot air passed into the frame can escape only through the bottoms and so through the leaves. Hot air is admitted into the frame through a pipe at one end, and after ascending through the trays and leaves it passes off into the atmosphere.

The patentee describes three forms of apparatus for heating the air, one being for "temporary garden use," but he does not claim any "hot air impeller nor heating pipes employed "for the purpose of desiccating."

[*Printed*, 1*s*. 6*d*. *Drawings*.]

1869.

A.D. 1869, January 6.—No. 44.

PIDDING, William.—(*Provisional protection only*.)—"Im-"provements in the method or methods of treating plants, "shrubs, and vegetable productions for the purpose of extract-"ing, collecting, and preserving the aroma and volatile "matter or essential oil yielded by them."

The aroma, &c. is collected "without destroying the "vitality" of the plant or other vegetable production. The plant is placed in a receiver "so formed as to allow of the air "from within being extracted as required," and remains therein a sufficient time to allow it to give forth its aroma or essential oil. The air in the receiver "becomes impregnated "and scented;" it is then extracted from the receiver by means of "an exhausting apparatus" (to such an extent as not to injure the plant), and it is passed into a suitable vessel. This vessel may contain "oil, fatty or oleaginous, saponaceous, "or other appropriate matter or spirits suitably arranged so "that they may become impregnated with the scented air "and vapour let into them from the first receiver." For some portions of the process the receivers are by preference constructed with an outer jacket so that heat may be applied.

[*Printed, 4d. No Drawings.*]

A.D. 1869, May 20.—No. 1565.

NEWTON, Henry Edward.—(*A communication from Charles Frederic Dietz-Monnin.*) — (*Provisional protection only.*) — "Portable coffee mill," especially applicable "for the use of "soldiers on the march."

This mill is attachable to "a mess bowl or porringer." The bowl is provided with a cover closable by "a kind of bayonet "joint." Under the cover "is fixed a hopper having at its "bottom a box or casing for the grinding block," and the axle of the block "is supported by a box below and by a collar "above the cover." The position of the block in its casing is regulated by "an adjusting screw and nut below." A space between the upper part of the hopper and the lower part of the cover admits a sliding disc, which "serves to close the "orifice through which the coffee berries are fed to the "hopper." When the mill is not in use, the handle by which it is worked is taken off its spindle and placed in the bowl.

[*Printed, 4d. No Drawings.*]

A.D. 1869, June 17.—No. 1869.

LAKE, William Robert.—(*A communication from Sylvester Bowers.*)—"Culinary utensil to be used on stoves or ranges for

" broiling, toasting, baking, and other analogous purposes," among which is mentioned " roasting coffee."

A band or ring of metal has a groove formed on its inner face " to receive the periphery " of a rim; the rim however may be cast in one piece with the band. The rim " has an " inward convergence," and a grate fitting loosely within the band rests on the rim. The grate is made of wire or iron, and it is intended to have several grates " of various degrees " of fineness," to be substituted one for another as required. The cover fits upon the band above the grate; to its inner surface is fixed a polished reflector, or instead thereof the inner surface may be polished. This utensil is intended to be used " upon the holes in the upper plates of cooking stoves."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1869, July 3.—No. 2011.

ANGELL, ALBERT.—" Machinery for hulling and polishing " coffee, rice, and other berries or seeds."

" An endless chain of serrated plates " revolves against " a " series of serrated spring pads." The pads are supported at one end by hinges or pinjoints and at the other are pressed downwards by spiral or other springs; they are carried by a frame " which encloses the top of the apparatus and is " capable of adjustment in a vertical direction." The coffee berries are fed from a hopper, and as they are carried forward between the plates and the pads the hulls are removed. The berries and hulls fall on to an inclined board, " by which they " are directed into the centre of a coarse screen," whence they descend " in the most favourable manner to be acted " upon by a blast of air." The blast is produced by a fan and is directed by boards against the mass " just above the " point " where it would fall down an inclined shoot into a well; and by this means the hulls are blown away through an aperture. The berries are raised from the well " by an " elevator " which delivers them into a hopper " placed over " one end of the polishing apparatus." In this apparatus an endless chain of serrated plates carries the berries forward under " a bristle or fibre brush " by which they are polished. The berries fall on to a coarse screen and thence on to a screen " which is the first of a series of screens " employed in order

that "the different qualities may be separated" and be delivered by spouts. A fan blows away the dust from the berries after they have been operated upon by the brush and in their fall from screen to screen. The coarse screens and the directing boards are carried by a frame supported at one end by springs and at the other by excentrics, "which serve "to give a shaking motion to the frame" and so "assist the "action of the parts."

The slight alterations for hulling rice and similar grains are described.

[*Printed*, 1*s*. 4*d*. *Drawings*.]

A.D. 1869, August 27.—No. 2544.

HUNT, Bristow. — (*A communication from James Fowle Baldwin Marshall and Augustus Jones.*) — "Apparatus for "hulling, cleansing, and polishing or preparing coffee, rice, "and other berries or grain."

These operations are performed in one apparatus. The berries drop through a hopper into a box containing a hulling plate, a corrugated roller, a serrated plate, and elastic pads, and in their descent between these "receive a thorough "scrubbing and working" whereby the hulls are completely separated from the berries. Hulls and berries drop through an orifice at the bottom of the box, where a current of air from a fan "will blow the light chaff away and through an "aperture" at the end of the apparatus, while the berries will drop upon an endless belt and be carried to the polisher. Here the berries are rubbed and cleaned by brushes rotating inside a corrugated cylindrical casing; hence they pass over a sieve through which the dust, &c. falls, and thence into a receptacle. The hulling plate is composed of "reversible "square steel bars" laid one upon another so that one edge projects beyond that of the succeeding one; or it is "a rever- "sible and peculiarly formed solid plate;" it receives "a "vertical reciprocating motion" by means of a crank and arm and "a vibrating motion" from a rack attached to one side of it and "operating on a pinion." The roller, serrated plate, and pads, are held in a moveable frame provided with an adjustable cap; the rotation of the roller prevents "any "clogging of the berries," and spring bolts "make the pads "yielding and elastic."

A modification of the hulling portion consists of "adjust-
"able spring hullers" in combination with an endless belt of serrated metallic plates linked to each other. In a modification of the polishing portion the berries "fall down an "inclined shaking board," being at the same time subjected to the blast of the fan; they are then "carried up by an "elevating belt to the polisher," which may consist of a stiff stationary brush with an "endless serrated or roughened "belt;" and thence they are "carried to a proper receptacle, "being again subjected to a blast of air."

[*Printed*, 10*d*. *Drawing*.]

A.D. 1869, October 22.—No. 3073.

GOODBODY, Robert James, and DONOVAN, Richard Edward.—"Apparatus for roasting tobacco for snuff, also "applicable for roasting, baking, burning, or drying coffee, "malt, and other granular, pulverous, and vegetable sub-
"stances."

A horizontal or slightly inclined cylindrical casing is supported at each end by trunnions running in bearings; it receives a slow rotary motion from a pulley and belt or from other driving gear. On the inner surface is formed "a "helical or screw blade or passage" leading from the front or inlet end to the back end. This blade is connected at the back end "with the end of a second central helical passage," which passes from the back end to the front end, "where it "communicates by a funnel-shaped mouth" with "the central "opening" of the casing, and by "a side aperture" with "the front end of the outer screw blade.' The opening is provided with a cover or slide which turns on a pin and may be pressed tight against the opening by a screw.

The apparatus "is suspended over a fire-grate;" the coffee "is made to travel backwards and forwards" until the roasting is completed, "whereupon the front aperture is opened in "such a manner as to allow the substance after travelling "forward in the central passage to escape from the same."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1869, December 6.—No. 3527.

LAKE, William Robert. — (*A communication from John Tucker Prince.*)—"Machinery for hulling grain or seed."

Two bearings on the top of a case carry the axle of a metal or metal-surfaced wheel or cylinder. The bearings are ad- "justable vertically" and "preferably supported on springs." The periphery of the wheel is "formed with transverse serra- "tions or grooves." The upper half of the wheel "is covered "by a shell," wherein is a spout for the introduction of the grain. On the upper part of the shell is "a curved stripper "formed with stripping teeth, the ends of which stand con- "centric with the periphery of the wheel." The stripper is attached to "segmental blocks which are made adjustable "with respect to the adjacent surface of the wheel." To keep the wheel "from taking up the grains too fast" a gauge or throat piece is fixed to the under surface of the first segmental block, adjacent to the spout and in front of the stripper teeth. The hulled grains and hulls fall into the case.

For hulling coffee it is preferable to attach to the segmental blocks "teeth similar to the teeth of the wheel" instead of "constructing the stripper card with card teeth."

[*Printed*, 6*d*. *Drawing*.]

A.D. 1869, December 6.—No. 3528.

GEEVES, William.—"Improvements in the manufacture of "capsules or packages for containing tea and other like "articles, and in apparatus employed in such manufacture."

The apparatus is a block "rectangular in section and "divided longitudinally into four parts which receive a "wedge between them." The parts are connected by dowels and an elastic band which lies in a groove cut round the block. The wedge is four-sided; when pushed down its lower end is flush with the lower ends of the parts, and within it is a plunger "to aid in drawing off the capsule."

The capsule consists of a sheet of paper and a sheet of tin foil pasted together; the paper is "somewhat longer than the "sheet of foil to give a sufficient overlap," and the foil is in length sufficient "to wrap round the four sides" of the block and to overlap slightly and in width sufficient "to form the "length of the capsule and to overlock at the ends." The compound sheet is wrapped round the block; the overlap is pasted down; the end projecting beyond the block "is turned "in neatly on all four sides;" the block is set on end, and

the wedge is forced down so as to strain the sheet tight and make the corners square. When the capsule is dry, the wedge is drawn up; the block thus rendered slack is lifted out, and the capsule "is held down by the weight of the "plunger." The capsules may either be filled with tea or have packed in them a number of similarly formed small capsules "not metal lined" and each containing a weighed quantity of tea.

[*Printed, 8d. Drawing.*]

A.D. 1869, December 7.—No. 3534.

JONAS, JOHN.—"Apparatus for packing and consolidating "tea and other substances."

The chest or canister containing the tea is supported on a stand, and a follower acted on by a screw compresses the contents. To assist in packing or consolidating the contents "beaters or mallets" are employed to strike against the "sides and bottom" of the chest. The beaters "may be "caused to operate in any suitable or convenient manner," but the arrangement preferred and described in the Specification "consists of a number of spring arms or strikers "which are operated by a peg wheel mounted on an axis to "which rotary motion is given in any suitable manner."

[*Printed, 8d. Drawing.*]

1870.

A.D. 1870, March 5.—No. 658.

STEVENS, EBENEZER.—"Improvements in the means and "utensils employed with apparatus used in cooking, com-"bining arrangements for burning a light, forming a "complete 'kitchener.'"

One part of this invention relates to an apparatus for roasting coffee. It is composed of three parts; the outside one is an iron cylinder having a fixed bottom at one end and at the other a cover "similar to a saucepan lid;" the bottom and the lid have each a slightly projecting edge. The cylinder turns round in two hoops arranged round it, one at

each end, and the handle of the cylinder is fixed upon a bar which is carried by the hoops. Inside the cylinder is fitted a case "made of sheet iron and iron rods or wire," and inside the case is another cylinder made of open wirework and "coming up high enough in the outer cylinder of all" that the one lid serves for them all. The apparatus may either stand upright on the top of a fire or be laid lengthways thereon.

[*Printed*, 1*s*. 6*d*. *Drawing*.]

A.D. 1870, June 25.—No. 1809.

NORRIS, Stephen, and GRIFFITHS, Thomas.—"Apparatus "for mixing and kneeding dough and other ingredients, and "for working the same into bread, biscuits, and other pastry, "and also applicable to other purposes."

One application of this invention is "for mixing cocoa," but no special arrangement of the apparatus for such purpose is described. The principal parts are a trough, a hopper, a tank, stirrers, and moulds. The trough is surrounded by a case containing hot or cold water or steam, or "by other "means found most suitable," and it is so arranged as "to "render it easy of being capsized or placed in such other "position as to readily discharge itself of its contents" (when they are kneaded or mixed) into moulds or other suitable appliances. The bottom of the hopper is provided with revolving or oscillating blades to prevent its contents from passing into the trough "in a lumpy or coarse condition." The tank contains water for mixing with the contents of the trough. The stirrers or arms by means of handles, levers, or other convenient appliances, "dip down into" and "oscillate "or otherwise move about in" the contents of the trough.

"As this invention is applicable to a variety of different "sized machines having for object the meeting of the re-"quirements of various circumstances, the construction "necessarily varies."

[*Printed*, 6*d*. *No Drawings*.]

A.D. 1870, June 28.—No. 1844.

LAKE, William Robert. — (*A communication from Henry Thomas Pratt and John Carver Alden*.)—"Machine for hulling "coffee and rice."

A hollow cylinder rotates freely in fixed bearings, and its periphery is pierced with a series of holes, in which "corru- " gated or toothed plates" are fitted. Of these plates one set are attached each to a rod, "which is allowed to slide " freely in a bearing," and the rod has on it a spiral spring, which has a tendency to keep its plate "thrust outward to its " fullest extent;" the other set operate "substantially in the " same way," but each "is pivoted at one end" and has a spiral spring "bearing against its inner side." It is proposed " to have a space of about one inch in length between the " ends of the pressure plates and to have the latter but " slightly exceed in width the length of a coffee bean." A semicircular or concave plate extends about half way around the cylinder; it is concentric with the cylinder, at such a distance from it "that a single bean of unhulled coffee will " be held in place without slipping between them," toothed or corrugated on its inner side, stationary, and "may be " composed of sections bolted to plates," one at each side of the cylinder. The unhulled coffee passes from a hopper down between the concave plate and the cylinder, and "the effect " is to subject the coffee to a constant rolling motion under " pressure without grinding or cutting it."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1870, July 13.—No. 1973.

COFFEY, John Ambrose.—"Apparatus employed for drying " and roasting coffee, chicory, malt, and other vegetable " substances, also applicable to baking and desiccation " generally."

A cylinder, containing the coffee or other substances, revolves by means of driving gear in bearings on standards. Within the cylinder or a jacket surrounding it is a coil of pipe, through which heated oil or like matter continuously flows, the coil "being connected at each end" with a pipe inside a furnace. Sometimes "a small force pump" is interposed "in the return pipe" leading from the cylinder to the furnace. A thermometer is inserted into the pipe "entering " the cylinder," and the heat is regulated by dampers in the furnace.

Or a bath of oil is heated by a fire beneath it or by the flue of a furnace passing through it, and a cylinder, containing

the coffee, is rotated in the bath, or its contents are stirred " by fanners rotating within it."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1870, July 13.—No. 1979.

NEWELL, William. — " Improvements in cleaning and " polishing coffee and in apparatus employed therein, appli- " cable also to the cleaning and polishing of grain and other " produce."

The cylinder which holds the coffee is of such size that about " two-thirds of the capacity " will hold " about a ton " weight." This cylinder is made of well seasoned hard wood with iron appendages ; it is mounted on a strong frame and revolves at a speed " not exceeding forty-five revolutions " in a minute." The axle of the cylinder is hollow forming a pipe, so that, if the coffee be damp, hot air or steam may pass in at one end and out at the other end without touching the coffee. The ends of the cylinder are closed ; in the sides are doors for charging and discharging, and the doors are " provided with wirework so that they may act as screens." The ends also are " connected by tie bars supported by cross " arms and passing through the interior of the cylinder from " end to end." The bars and arms " act as rubbers," and for this purpose they are covered with canvas. The whole of the interior of the cylinder is by preference lined with coarse canvas.

[*Printed*, 6*d*. *Drawing*.]

A.D. 1870, August 1.—No. 2145.

GIBBS, William Alfred. — " Apparatus for drying agri- " cultural, animal, and chemical and commercial products."

The object of this invention is to utilise " the waste heat " from furnaces or chimney shafts or the heat obtainable " from stoves and other heat suppliers." The heated air is usually drawn " by means of fans or blowing machines " described in No. 3036, A.D. 1866, and No. 289, A.D. 1868, and two arrangements are described for drying " damp " grain of all kinds, coffee and other beans," and similar substances.

1. "At the exit mouth of a hot blast fan" there is constructed "a hopper into which the substance to be dried is "lifted" by any convenient elevator. The lower part of the hopper "is left open both back and front," so that the hot air has a free passage through it, and the substance, as it falls slowly down, is subjected "to the drying action of the hot "air." In order that no portion may remain exposed too long to the drying action, "pushing machinery" is employed; it consists of "a pair of scrapers" travelling to and fro horizontally through the open passage at the lower part of the hopper. The blades of the scrapers are so hinged to the rods by which they are moved that in their forward movement "they move at right angles," and in their backward movement "they present only a thin edge;" moreover in their forward movement they pass under two side guides which form "inclined planes up which the scrapers in their retiring "movement are made to pass."

2. "A stationary tapering hot air duct with a slit between "lips extending along its whole length" is encircled by a revolving tapering case. The substance enters the case through apertures in "a fixed hopper adjusted to the larger "end" and passes out through outlets at the smaller (and depressed) end. The rotation of the case is effected by any suitable gearing; by preference it receives an "intermittent "or vibratory motion." Sometimes an "oscillating" instead of a rotating movement is given to the case.

[*Printed*, 10*d*. *Drawing*.]

A.D. 1870, August 3.—No. 2160.

SPRATT, JAMES.—"An improved mixture and preparation "of coffee and tea."

The first part of this invention consists in compressing ground coffee or roasted coffee berries, either alone or mixed with concentrated essence of milk or cream and with sugar or other saccharine matter, "to such an extent as to render the "same solid," and in "enclosing the same in tin foil or lead "foil or other suitable cases." Either finely chopped or ground dried skins of soles or isinglass may be added. It consists also in compressing and enclosing in like manner tea mixed with milk and sugar or "without any admixture, "either hot or cold in a dry state."

The second part consists in making an extract of coffee or tea (mixed with sugar and milk or cream) "in a liquid and "concentrated form" and securely bottling the extract.

The third (and last) part consists in making bread, biscuits, &c., of either preparation mixed with flour and butter or lard.

[*Printed, 4d. No Drawings.*]

A.D. 1870, October 20.—No. 2758.

HOWARD, JOHN. — (*Provisional protection not allowed.*) — "The manufacture of a powder from beet, carrot, parsnip, "mangold wurzel, or other saccharine roots, to be used as a "substitute for chicory for mixing with coffee, or for separate "use as a beverage boiled or infused."

The sugar having been extracted from the above-mentioned roots, the "residual pulp" is dried, roasted, and reduced to powder.

[*Printed, 4d. No Drawings.*]

1871.

A.D. 1871, February 25.—No. 505.

BOYES, EBENEZER.—"Apparatus for roasting coffee, and for "cooling it when roasted."

The roasting and cooling apparatuses are connected. When the roasting process is completed, the cylinder containing the coffee is removed from the fire and "emptied into the cooling "vessel or hopper, where it is without further removal at "once acted upon by lifting boards, vanes, or agitators."

The cylinder is provided with longitudinal tubes similar to those of a tubular boiler and with vertical tubes "connected "and open to" the longitudinal tubes and "passing to the "periphery of the cylinder." The ends of the cylinder are perforated, and caps or covers are placed "over the ends of "the longitudinal tubes." The heat arising from a furnace, in addition to acting upon the under side of the cylinder, passes also into the vertical tubes "which for the time being are

"lowermost," and thence "into and through the longi-
"tudinal tubes" into "the spaces enclosed between the
"perforated ends" and "the caps or covers." Or the fire may be made "to play on the ends as well as at the bottom" of the cylinder; or there may be "a fire at each end and one "below" the cylinder. When the coffee is roasted, the cylinder (the axle of which is carried by a frame "mounted "on axes of motion") is raised off the fire and "turned over "the hopper." During the rotation doors in the cylinder are unlocked and opened by sliding bolts (having projections thereon) on the doors coming against inclines on a bar carried by the hopper, and the cylinder is rocked until all the berries therein are discharged into the hopper. The arrangement of the bolts, projections, and inclines, is fully described in the specification. When the berries are cooled, the hopper, secured to a base by hooks or catches, is raised therefrom by chains or other "suitable tackle," and the berries are discharged through a door at one end. "Suitable gearing is "employed to communicate motion to the roasting cylinder "and to the agitators in the cooling vessel."

[*Printed*, 10*d*. *Drawing*.]

A.D. 1871, October 20.—No. 2806.

McKENZIE, William, and CAMERON, Charles Alexander. (*Letters Patent void for want of Final Specification*.) — "The "manufacture of solidified tea and coffee."

An infusion of the tea or coffee is made in boiling water, and the infusion after being filtered is evaporated until "a "residual solid or nearly solid substance" is obtained. This residue is then mixed with condensed milk and sugar and formed into tablets. To obtain "very dry solid extracts" the mixture may be exposed to a gentle heat. The extracts may be prepared without the admixture of milk and sugar.

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1871, October 21.—No. 2821.

HAWORTH, William.—"Machinery for rolling tea leaf."

The object of this invention is "to exert a variable pressure "on the bag of leaf, commencing the rolling process with a "light pressure" and gradually increasing the pressure as the rolling proceeds.

The outer cylinder is supported on side frames; it is made with a door in the bottom and with an opening opposite the feeding board. The feeding board can be "slidden into this "opening until it approaches the inner cylinder," when the bag, as it is rolled round the space between the cylinders, "comes on to this inclined board and rolls out of the "machine;" but should this method of delivery fail, the bag is taken out at the door. The inner cylinder is "fixed "upon the main shaft" which "turns in brasses." The brasses "are surrounded and supported by a star-shaped "block" of vulcanized india-rubber made in halves, and the points of the block are received into "recesses formed in the "interior of the metal plummer block or bearing which is "fixed to the framing." The brasses are supported also on stems attached to weighted levers. "Conical wheels" mounted loosely on the main shaft have their motion to and from each other controlled by forked levers. "Conical cups" are "fixed on the frame and concentric with the outer "cylinder." As the wheels are moved towards each other, they enter the cups, and the main shaft "is brought more "and more nearly concentric with the cups," until the bag of leaf is fully compressed.

[*Printed*, 1*s*. 10*d*. *Drawings*.]

1872.

A.D. 1872, January 31.—No. 314.

GIBBS, William Alfred, and BORWICK, Alfred.—"Apparatus and arrangements for drying."

This invention relates to improvements on No. 3036, A.D. 1866, No. 289, A.D. 1868, and No. 2145, A.D. 1870; it consists in combining an air chamber with a revolving cylinder and air duct. One end of the air chamber "com-"municates with the discharge end" of the cylinder. The chamber is "in communication with a compound exhaust and "blast fan" (one or more), or with "a chimney shaft," so that "a strong current of air is forced or drawn through the "air duct" into the cylinder and thence "into and through

" the air chamber." The air is previously heated by passing through or over a furnace, or other heating apparatus, or through pipes set in the furnace. The air duct may be stationary or be caused "to revolve in a direction contrary" to that of the cylinder. Numerous arrangements of the parts are described, and "the cylinder and duct apparatus" is applicable (*inter alia*) to the drying of "raw coffee."

[*Printed*, 2*s*. 10*d*. *Drawings*.]

A.D. 1872, February 5.—No. 376.

BONNEVILLE, Henri Adrien. — (*A communication from Edouard Beckman-Olofson.*)—"A new and improved ali- "mentary drink."

The substances used are about "one kilogramme of rye or rye "malt, fifty grammes of dried barley malt, twenty grammes "of natural coffee, and from twenty to twenty-five grammes "of burnt sugar or caramel." The rye or rye malt and the coffee are roasted at the same time in adjoining compartments, and "the current of vapour emanating" from the coffee "is "made to pass through" the rye or rye malt. The coffee is not to be mixed with the rye, the drink being made from "the malted substances." The barley malt is roasted "without being subjected to the vapour" of the coffee. The rye and the barley malt are afterwards mixed together; the sugar or caramel is then added, and the compound is ground in the ordinary manner. The rye and the barley malt may be ground separately "before mixture and before the "burnt sugar is added."

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1872, March 9.—No. 724.

GRINLINTON, John Joseph.—(*A communication from Robert Dawson.*) — (*Provisional protection only.*) — "Preparing the "several products of the coffee bush (other than the bean) so "as to turn the same to use as articles of food."

"The pulp, parchment, silver skin, leaves, bark, wood, "roots, shoots, twigs, and pith of the coffee bush," are dried or partially dried, and decoctions or infusions of the same are made "either separately or all or any two or more of them "mixed together," thereby turning to use "the coffeine con-

" tained therein." The invention includes converting to use " such coffeine in any form whatever, and either mixed with " or separated from the coffee bean."

[*Printed, 4d. No Drawings.*]

A.D. 1872, April 18.—No. 1162.

WARRY, HENRY.—" Improvements in various beverages."

A strong infusion of tea, coffee, cocoa, or analogous substance, is poured into a steam jacketed evaporating pan; the soluble portion is evaporated; when the substance in the pan becomes quite dry, it is removed into an atmosphere as dry as possible, " allowed to cool until brittle," then reduced to powder, and then put into " air-tight bottles or other " receptacles." Milk is prepared in the same manner; either condensed milk or fresh milk mixed with sugar may be used. The beverage is obtained by dissolving a portion of the mixture in hot water " with the usual adjuncts of milk and " sugar."

[*Printed, 4d. No Drawings.*]

A.D. 1872, June 6.—No. 1713.

CLARK, CHARLES FREDERICK, and BRUERTON, GEORGE.—(*Provisional protection only.*) — " Improvements in coffee " mills."

This mill is worked by a handle on the top, and the grinding is effected by " a serrated cone working with a " hollow cone similarly serrated." The improvement consists in being able " to regulate the distance between the surfaces " of the cones." The spindle of the inner cone works in a bearing at its upper end and in a cross bar at its lower end. A lever, " turning upon a hinge " at one end, supports the lower end of the spindle; its other end is connected to a bar, " the upper end of which is screwed, and after passing " through a hole in the top of the mill is fitted with a " thumbscrew." Or the lower end of the spindle is supported by a screw working through a cross bar. One end of a lever is fitted to the head of the screw, and the other end passes through a " curved opening in the body of the mill." Or the bearing of the lower end of the spindle is formed with " inclined planes " and the lever with corresponding inclined

planes. Or the lower end of the spindle is supported by a thumbscrew, which can be turned by drawing out the drawer at the bottom of the mill and introducing the fingers.

[*Printed*, 8*d*. *Drawing*.]

A.D. 1872, June 10.—No. 1743.

DOYEN, Octave.—(*Provisional protection only*.)—"Prepara-" tion and utilization of coffee in the form of tablets for food."

The coffee is ground to an impalpable powder and mixed (or not) with sugar.

"Dry tablets" are made from the impalpable powder mixed with sugar.

"Oleaginous tablets" are made from a similar mixture with the addition of "oily matters," by preference cocoa nut oil.

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1872, June 17.—No. 1821.

PERRY, Alexander.—(*Provisional protection only*.)—"Appa-" ratus for drying and roasting malt, coffee, and other " similar substances."

The object of this invention is to "consume the vapour " instead of letting it escape into the atmosphere." A rotating cylinder is placed in a hot air chamber which is connected with a furnace. In the top or other convenient part of the chamber there is an aperture, through which the chamber "communicates with a pipe which extends down to the " bottom of the apparatus and is conducted below the furnace " to the ash-pit." The end of this pipe opens into the ash-pit, and "a branch pipe passing up into the furnace opens " into the same above the fire-bars." Either of these pipes may be opened or closed by means of dampers, and the vapour be "made to enter the furnace either through the fire-grate or " above the same." The apparatus has a chimney provided with a damper; hot air is forced into the chamber by a fan or blower.

[*Printed* 4*d*. *No Drawings*.]

A.D. 1872, August 13.—No. 2405.

McKINLAY, Peter.—"Apparatus for husking, hulling, or shelling, and for cleaning and preparing rice and other grain."

The husking, hulling, and removal of the refuse "are all "performed at one operation," and "the same arrangement "of apparatus is equally applicable for removing the pulp "from the bean of the coffee berry."

The drawing shows two oblong vessels resting on a fixed framing and provided each with a moveable or hinged cover. In the bottom of each vessel is a groove or channel running lengthways and fitted with "india-rubber, wood with its "grain endwise, or any other suitable substance." In each vessel is a rocker working and guided in slotted uprights of the framing. The lower part of each rocker "forms a segment "of a circle," and therein is a groove or channel corresponding to the one in the bottom of the vessel, and similarly fitted. In the lower part of each vessel and parallel with the groove therein are openings on each side, and into the openings are inserted perforated plates kept in position by thumbscrews; there are also "outlets" for discharging the grain. The upper part of the rockers is slotted and fitted with cranks carried by a shaft which carries also loose and fast pulleys. The inner uprights are continued upward, and carry an arrangement for lifting the rockers out of the vessels.

[*Printed 8d. Drawing.*]

A.D. 1872, September 9.—No. 2667.

ROSS, EDWARD.—(*A communication from Robert Dawson.*)—"Utilizing and giving additional value to the products of the "coffee bush."

"The pulp, parchment, silver skin, leaves, bark, wood, "roots, shoots, twigs, and pith of the coffee bush, either "together with or separated from the coffee bean," are dried or partially dried, and decoctions or infusions are made thereof "either together or separately or any two or more of them "mixed together and either with or without the coffee bean." The object of the invention is to convert to use "the caffeine "contained in the said several products of the coffee bush," and "to obtain therefrom a beverage or beverages."

[*Printed, 4d. No Drawings.*]

A.D. 1872, September 27.—No. 2854.

BARTLETT, JOHN.—"Machine for mixing teas, coffees, and "granular substances."

A vessel made of sheet metal or wood, octagonal or polygonal in form, closed at the ends, and provided with a sliding door, rotates on a horizontal shaft which is mounted in bearings in a frame. Inside the vessel are fixed internally projecting sets of beaters or deflectors, preferably made of sheet metal, "of "various angular shapes," and arranged at suitable distances apart. There may be "inclined conductors" fixed at each side of the beaters. The vessel is rotated by changeable wheel and pinion gear or by power. A sliding drawer for the reception of the mixed matters may be fitted in guides in the frame.

[*Printed*, 6*d*. *Drawing*.]

A.D. 1872, October 19.—No. 3099.

BOYES, Ebenezer.—"Apparatus for roasting and cooling "coffee, cocoa, and other berries and materials."

The roasting apparatus is set above the cooling apparatus "in a single frame," so that, when the material is roasted, it may be immediately discharged into the cooling apparatus.

The roasting cylinder has numerous holes in its periphery and receives rotary motion by means of a handle and suitable gearing. In the centre of the cylinder a chamber is formed wherein an "air burner" is arranged, and other air burners are arranged on the under side of the cylinder. The inside of the cylinder is divided into chambers by means of a number of perforated discs, which have holes in their centres large enough "to form the chamber" for the central air burner. The discs "do not extend to the periphery" of the cylinder, "but leave a sufficiently large annular space" for the reception of the material to be roasted, and they are "at their "centres connected together in pairs by means of rings or "short cylinders." The discs "are not connected together "at their peripheries," and they may be made either dished or parallel to each other. The inner surface of the cylinder is provided with "inclined guides or stirrers." The lower part of the cylinder and the air burners are enclosed in a chamber which has a door and a sliding bottom, and the contents are discharged into the cooling apparatus through a door which extends from end to end. "To facilitate the "taking of a sample from the cylinder" a small sliding door

is so arranged that it "may be acted upon by a kind of ladle," and be opened and shut during the revolution of the cylinder.

The cooling apparatus consists of a chamber divided into compartments "in a somewhat similar manner to the roasting "cylinder." The bottom of the chamber is perforated and mounted in guides to permit of its being readily removed. "Air is drawn or forced through the contents from below "upwards" by a rotating fan.

[*Printed*, 1*s*. *Drawing*.]

A.D. 1872, October 24.—No. 3156.

GOLDSMITH, GEORGE, and DILKES, JAMES.—"Apparatus "for roasting, baking, or cooking by gas."

This invention, a modification of No. 2063, A.D. 1871, is now adapted "for roasting coffee."

A rectangular or other shaped chamber mounted on a stand is pierced with a number of holes for the admission of air. Within the chamber and fitted to the upper part of it is a flanged cast-iron trough "partially lined with fire-"clay or fire-proof cement." In the bottom of the trough there is an opening, under which is fixed a burner suitable for the combustion of a mixture of air and gas. A roasting cylinder revolves in the trough, the bearings of its axle being formed on the flange. In the periphery of the cylinder are two openings; the one is for charging and discharging; the other is "fitted with a guard on the inside so as to prevent "any material contained therein from escaping while the "cylinder revolves in one direction, but permits a small "quantity to drop out when moving in the opposite direc-"tion." The whole of the top is covered by a lid provided with an opening for the escape of vapour, &c. The supply of gas "is diminished while nothing is being subjected to its "heat" and is increased "immediately the apparatus is "brought into active operation," by means of a valve, a spring, and a lever. "The closing of the lid" produces pressure "upon the projecting end of the lever, thereby opening "the valve and admitting a full supply of gas."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1872, November 20.—No. 3465.

HEMINGWAY, SAMUEL.—(*Provisional protection only.*)—"Apparatus for packing dry soap, starch, corn flour, baking "powder, mustard, tea, coffee, or any other article in a "powder or granulated state."

A series of receptacles of suitable size and shape are supported in a frame; they are open at top to receive bags or wrapping papers and "closed at bottom with a false bottom." To each false bottom is attached a stem which passes through a perforation in the fixed bottom. A portable hopper, made with a series of outlet tubes equal in number and shape to the receptacles, contains the article to be packed, which passes through the tubes into the bags. The hopper being removed, the top ends of the bags are closed by hand, and then "by means of a lever or combinations of levers, screws, "cams, or other mechanical contrivance brought to bear and "operate on the stems," the bags are lifted out of the receptacles. Or the apparatus may be so constructed that, when the top ends are closed, it may be "turned over" and the bags be forced out downwards by the attendant operating on the stems.

[*Printed, 4d. No Drawings.*]

1873.

A.D. 1873, February 25.—No. 701.

LIEBERT, JULIUS. — (*Provisional protection only.*) — "An "improved mixture of ground substances to be used as a "substitute for coffee, and in the apparatus employed in the "preparation thereof."

"A healthy and invigorating infusion" is obtained from a mixture of "pelotas berries and coffee berries" in the proportion by weight of about 3 parts of the former to 1 part of the latter. The berries in their green state are roasted in a coffee roaster which has two compartments separated by a perforated partition; the pelotas berries being put into the one and the coffee berries into the other, the former become "thoroughly impregnated with the aroma of the coffee."

The roasted berries are ground in an ordinary mill, and the mixture is ready for use.

[*Printed, 4d. No Drawings.*]

A.D. 1873, March 14.—No. 936.

PUMPHREY, Josiah.—"Sifters or screens for sifting or "screening cinders, and for other like purposes," including "mixing tea."

A cylindrical case, furnished with a lid, a "jointed handle," and a "fixed side handle," contains a sifter or screen made of perforated metal or wire gauze, conical or cylindrical in shape, and capable of rotating or oscillating therein. Fixed in the lower part of the sifter is a spindle, the lower portion of which is hollow, and the upper portion solid, square or angular and taper, and passing through a cross bar on the top of the sifter. Fixed to the lower part of the case is a spindle, the upper portion of which enters the hollow portion of the sifter spindle, its "pointed end" taking into a correspondingly shaped seat in the bottom of the solid portion. On the lid is "a rotating handle," a part of which "projecting from the "inner side" is made of "a hollow key form" to fit on to the head of the sifter spindle. The arrangement for "closing the "top" of the case and for "giving motion to the rotating "sifter" may be varied.

[*Printed, 10d. Drawing.*]

A.D. 1873. April 19.—No. 1428.

CLARK, Alexander Melville.—(*A communication from Wm. Helme Ireland Howe.*)—"Cans for preserving fruits and other "substances," namely "spices, teas, coffee," &c. &c.

The can is "properly made of tin;" when filled, a top preferably of tin foil "is tightly soldered or fastened to the rim." A tin cover is then fitted to the can "so as to be removed at "pleasure;" the cover may be hinged to the can.

Printed, 6d. Drawing.]

A.D. 1873, May 15.—No. 1783.

LAKE, William Robert.—(*A communication from John Ashcroft.*)—(*Provisional protection only.*)—"Improved processes "and apparatus for colouring, refining, and maturing coffee."

One improvement consists in "maturing and browning" coffee by subjecting it "to the direct action of steam" or "to "the sweating and expanding action of steam and the drying "action of heat." A second consists in "maturing and "colouring raw coffee" by subjecting it to the action of steam and heat in sacks or in tiers of sacks having free communication with each other by means of coils of pipe. A third describes an apparatus "for colouring and refining raw coffee":—it is composed of (1) a shell or frame, (2) compartments "around which steam circulates," (3) "sweating boxes" perforated for the admission of steam into the compartments, (4) valves to draw off from the compartments the water resulting from the condensation of steam, (5) a safety valve. A fourth describes an apparatus "for colouring, maturing, and "refining" raw coffee:—it has preferably six sides, forming a chamber wherein to put coffee in bags or bulk; "it may be "held by a frame or receptacle having open sides and a per-"forated botttom;" it may have "a gate in front and casters "or wheels on it." There are openings at or near the top of the chamber for the expulsion of the cold air when steam is admitted.

[*Printed, 4d. No Drawings.*]

A.D. 1873, June 11.--No. 2075.

GUENARD, José. — "Machinery for drying coffee and "grain."

A horizontally revolving drum "works upon two bars with "four rollers;" or it is mounted in bearings in the framework, "having suitable driving gear worked by hand or other "power." The drum is surrounded by two perforated cylinders, the ends of which are closed by discs, and a space is left between the cylinders, and another space between the drum and the inner cylinder. The coffee is put through a door or lid into the space between the cylinders, and "artificial "heat or hot air" is introduced into the space between the drum and the inner cylinder. The heat passes through the perforations of the inner cylinder and escapes through those of the outer one. If the drum is mounted upon bars with rollers the heat is introduced at either end of the inner cylinder through a pipe; if it is mounted in bearings, the heat enters

at any suitable point in either end or through the axle, which is hollow and perforated for such purpose.

[*Printed*, 10*d*. *Drawing*.]

A.D. 1873, July 12.—No. 2418.

COLE, Frederic.—(*Provisional protection only*.)—"Machinery "for crushing and reducing to impalpable powder baryta, "cocoa, refined sugar, and similar substances both vegetable "and mineral."

Iron rollers are mounted in an iron frame, which is "fur- "nished with knives and scrapers to clear each roller as it "revolves as well as the iron bed over which the rollers pass." When the substance is sufficiently crushed, "a shovel is "lowered by the action of a set screw" to clear the bed for a fresh supply. The frame is worked backwards and forwards by chains "by means of a hand wheel placed at the end of "another iron frame over which the above travels." The iron bed lies level on a wooden bed, and weights for increasing the crushing power of the rollers are placed over them. It is proposed to adapt the machine "so as to use steam and water "as well as hand power" in working it.

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1873, July 17.—No. 2465.

D'HUMY, Paul Raoul de Faucheux.—(*Provisional protection only*.)—"Improvements in tea and coffee caddies or canisters," whereby the tea or coffee "can be measured out as required "in given quantities."

There is attached to the neck of an ordinary caddy or canister an apparatus, by means of which the tea or coffee therein can be received "into a chamber of a given size," the communication between the caddy and the chamber be then closed, and the measured quantity be discharged into any suitable receptacle. The measuring apparatus may be cylindrical or otherwise shaped, and it may be made to turn on either a vertical or a horizontal axis; or it may be arranged to work in guides. Sometimes the caddy or canister is mounted on a stand, and the measuring apparatus is placed "at the bottom thereof."

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1873, August 8.—No. 2663.

MORTON, Charles.—"Improvements in the mode of and "apparatus for roasting coffee."

The coffee is roasted "by reflection of heat." A strong reflecting oven, having its inner surface "made perfectly "bright," is supported on an iron frame and placed in position in front of a fire. The oven is made in two parts hinged or jointed "midway at the top," and the back part opens upwards, being counterbalanced by weights and pulleys. At the bottom or lower portion of the oven there is an opening "to allow the draught to pass through the oven and thus form "a blower for the purpose of purifying the heat used to "roast the coffee." Within the oven is fitted a perforated cylinder of galvanized iron or other suitable material, and the axle on which the cylinder revolves "is fitted in bearings "mounted on slides which slide upon the iron frame."

[*Printed*, 8*d*. *Drawing*.]

A.D. 1873, August 13.—No. 2682.

WETHERILL, James.—"An improved system or method of "drying malt, barley, and other grain, also applicable for "drying chicory, roots, or vegetable products, and apparatus "to be employed therefor."

The drying is effected by means of heated air obtained "by "passing ordinary atmospheric air through open-ended "tubes." The tubes are arranged horizontally or otherwise across the fireplace of a kiln; their ends rest on supports of firebrick or other suitable material, and are "covered with "an arch of iron or brickwork" which "retains the products "of combustion and prevents them from having access "to the material being dried." These products find their exit through a flue or flues to a chimney. The air is admitted to "an enclosed firing place" through a grating or shutters; it passes through the tubes to a hot air chamber, and thence through perforated tiles to the substance being dried. "The waste heated air may then pass through a "second perforated flooring" so as "to partly dry" the substance thereon.

[*Printed*, 8*d*. *Drawing*.]

A.D. 1873, September 16.—No. 3031.

FRANCIS, Walter Penn, and ADDISCOTT, Francis.—(*Provisional protection not allowed.*)—"The process of manufacturing coffectina."

This article, intended for use as a substitute for coffee or for mixing with coffee, "is prepared from the stone of the "tamarind." The stone when roasted and ground "assumes "the character of coffee."

[*Printed, 4d. No Drawings.*]

A.D. 1873, September 26.—No. 3139.

LIEBERT, Julius.—"Improved means of and apparatus for "treating acorns and beech nuts."

These substances are rendered suitable "for consumption "by themselves or with the admixture of coffee." The acorns and nuts are freed from their husks and roasted in the same compartment as the coffee, caramel or other saccharine substance being added to the mixture. Or the roaster may be divided by perforated partitions, the coffee being put into one compartment, the acorns, nuts, and caramel into another. During the roasting the substances are kept stirred by arms on a revolving vertical shaft, and when sufficiently roasted, they are "conveyed from the roaster by a shoot to a cooler." The cooler is a wire gauze cylinder revolving horizontally and having therein longitudinal ribs or projections. The substances when cooled are ground and "are then ready "for use."

[*Printed, 4d. No Drawings.*]

A.D. 1873, October 24.—No. 3456.

BRANSON, William Powell.—"Improvements in the mode "of roasting coffee, cocoa, and malt, and in apparatus em-"ployed therein."

The improvements consist in the employment of "a gas and "air furnace" to heat the outside of the roasting cylinder, and of "a blast of hot air" which, being forced into the cylinder through one of its "hollow necks or axes," circulates among the contents, and passes out through the other neck

and through perforations in the cylinder, if a wire or perforated cylinder is used. A tube, "coming from the hot air "supply," is fixed rigidly in position opposite the position "occupied by the end of one of the hollow necks or axes "when the roasting cylinder is over the furnace," and a "sliding or telescopic" tube is mounted on the fixed tube, "so as to permit of its being readily slidden thereon and into "and out of the hollow neek." The hot air is forced into the tube by any suitable "air foreing apparatus."

[*Printed, 4d. No Drawings.*]

A.D. 1873, December 11.—No. 4089.

LAKE, William Robert.—(*A communication from Edwin Moorey.*)—"An improved metal package for the preservation "of meat and other perishable substanees," such as "pre-"serves, spices, teas, coffees, powders, and others."

These paekages are so shaped that when emptied "they can "be packed one inside the other, and returned to the original "user at a mere fraction of the expense they would otherwise "cost." The shape may be varied; for example the shape may be that "of a basin or of an inverted trnneated cone;" the latter is preferable, having the cone "sufficiently sharp to "permit of the paekages fitting into eaeh other without "jamming." The inventor does not propose to make any alteration "in the method of affixing the top and bottom of "these metal packages, or in the material of which they are "composed."

[*Printed, 4d. No Drawings.*]

1874.

A.D. 1874, January 14.—No. 181.

COLE, Frederic.—(*Provisional protection only.*)—"Machinery "for crushing and reducing to impalpable powder baryta, "cocoa, refined sugar, and similar substances, both vegetable "and mineral."

Iron rollers revolve in an iron frame furnished with scrapers "to clean each roller as it revolves," with knives, and "some-"times with combs to clear the iron bed as the rollers pass "over it." When the substance on the bed is sufficiently crushed, "a shovel is lowered by the action of a set screw to "remove the same from the bed" for a fresh supply. The frame is worked backwards and forwards by chains "by "means of a hand wheel placed at the end of another iron "frame over which the above travels." The iron bed lies level on a wooden bed or on masonry, and weights for increasing the crushing power of the rollers may be placed over them. It is proposed to work the machine by "steam and water as "well as hand power."

[*Printed, 4d. No Drawings.*]

A.D. 1874, February 18.—No. 606.

HUNT, Bristow.—(*A communication from the Enterprise Manufacturing Company.*)—"Improvements in the construc-"tion of grinding mills."

The construction of this hand-grinding coffee mill allows of ready access to the interior, ready removal of the working parts, and adjustment of the grinding surfaces. The casing consists of two semicircular halves, pinjointed on one side and connected on the other by a bolt, lugs, and a thumb nut. The lower half is attached to a base which contains a drawer. The coffee, descending from a hopper situate on the upper half, is ground by passing between "a rotating burr keyed to the "spindle and a fixed shell through which the spindle passes." The spindle has its bearings partly in each half; in the annexed drawing it has two fly wheels, one at each end, but in smaller mills it "is furnished at one end only with an "ordinary handle." The spindle carries at one end a spiral spring, and at the other a loose collar against which a set screw bears. The burr is drawn away from or towards the shell by turning the screw; it is composed of a soft metal disc keyed to the spindle and of a "hard metal grinding "portion" secured to the disc. The shell is "rigidly con-"fined between the two halves of the casing" by means of "lugs and recesses."

[*Printed, 8d. Drawing.*]

A.D. 1874, March 14.—No. 922.

NICOLL, DONALD.—"A compound for making tea, coffee, and "cocoa."

A tube or case of isinglass or gelatine is filled with "a pre- "paration of cream, or milk, or sugar, alone or in combina- "tion," and is then closed up air-tight. The filled case is combined "by moderate pressure with a suitable quantity of "dried tea, or ground coffee, or crushed cocoa," and hot water poured thereon "will produce in a complete condition "and without the ordinary waste of the several ingredients "the well-known beverages called tea, or coffee, or cocoa."

[*Printed, 4d. No Drawings.*]

A.D. 1874, March 20.—No. 990.

CLARK, ALEXANDER MELVILLE. — (*A communication from Eugène Anduze.*) — "Mills for grinding coffee and other sub- "stances."

In mills for "grocery and other establishments" a flat circular casing encloses a pair of cast-iron discs; one of these is fixed and forms one side of the casing; the other is keyed on a horizontal spindle which turns in bearings in the fixed disc and in the casing. In the fixed disc above the centre there is an aperture for the admission of a spout surmounted by a hopper. Each disc has on its grinding face projecting teeth "which mesh with those on the other." The teeth are "disposed in concentric circles, those nearest the centre "being alternated with spaces." The teeth are "generally "quadrangular in form at the base, with the ends inclining "towards the centre of the disc, the dimensions of the teeth "diminishing from the centre towards the circumference." One disc is flat and the other slightly dished; or both may be "dished to accommodate teeth of a greater height in the "inner circles." The coarseness or fineness of the product is regulated by means of washers, and the ground coffee escapes "at the edges of the discs," is collected into the casing, and falls into a receptacle at the bottom.

In mills "for domestic use" the working parts are enclosed in a casing. "A hollow or female cone" furnished with teeth is screwed or otherwise fixed into the bottom of a conical hopper. A male cone, corresponding to the interior of the

female cone and furnished with similar teeth (which mesh together), is keyed on a spindle. The spindle passes up through a bearing in the cover; it carries a handle, and adjusts the distance between the cones by washers or other means. The fixed cone has apertures around the central bearing of the spindle "to admit the substances between "the cones." The teeth "differ somewhat in form from "those of the mill first described," and their shape will be "readily understood from the drawing;" they are alternated with spaces except in the "outermost circle" on the male cone and "the two outermost circles" on the female cone.

[*Printed*, 10*d*. *Drawing*.]

A.D. 1874, July 14.—No. 2456.

COLE, FREDERIC.—(*Provisional protection only*.)—"Machinery "used for crushing and reducing to impalpable powder "baryta, cocoa, refined sugar, and similar substances, both "vegetable and mineral."

Iron or other rollers revolve in an iron frame, which is furnished with scrapers "to clear each roller as it revolves," with knives, and sometimes "with combs to clear an iron bed "over which it passes." When the substance is sufficiently crushed, "a shovel is lowered by the action of a set screw" to remove it into a sieve, "which is also connected by another "action with the iron frame." The frame is worked backwards and forwards by chains, by means of "a hand wheel "placed at the end of another iron frame, over which the "above travels." The iron bed lies level on a wooden bed or on masonry, and weights for "increasing the crushing "power of the rollers may be placed over them." It is proposed to work the machine "by steam or any other motive "power as well as hand power."

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1874, July 22.—No. 2559.

PERRY, ALEXANDER.—"Apparatus for drying grain, roast-"ing malt and coffee, and for other like purposes."

An outer casing, preferably of a cylindrical form, is composed of any suitable material "surrounded with boiler plate

" or sheet iron," and within the easing is a eockle or fire-place having a dome-shaped top. "The eastings which form " the said eockle and its dome-shaped top have a number of " tubes, whose lower ends communicate with horizontal air " passages" formed through the casing below the grate, whilst their upper ends "open into the space above the " eockle." There are also "vertieal air passages communi- " eating with the said horizontal passages and extending up " outside the said tubes into the spaee above the eockle." In the centre of the dome there is an aperture, and in the arrangement "adapted for the roasting of malt, coffee, and the " like " a series of discs, each having a central aperture corresponding with that in the dome, form " a eontinuous " passage or flue" from the eockle to the top or chimney of the apparatus. " At or near the top " of the apparatus is arranged a cylinder, double-eased (with sand or like substance between the eases), provided with an aperture (and eover) for the admission of the eoffee, &c., with an exit spout at the bottom, and with a pipe at the top for the eseape of vapour, &e., and communicating by a pipe or passage (eontrolled by a damper or valve) "with the chamber eontaining " the aforesaid discs." A drum, containing tubes and having a surface of wire gauze or perforated metal, rotates inside the cylinder, and the eoffee, &e., " is earried round in the " annular space" between the eylinder and the drum to the spout, its diseharge from the spout being controlled by a slide.

[*Printed*, 1*s*. 4*d*. *Drawings*.]

A.D. 1874, October 6.—No. 3406.

GEDGE, William Edward.—(*A communication from Messrs. Redon and Company.*)—(*Provisional protection only.*)—" An " improved self-acting mill for grinding eoffee and other " substanees."

This mill stands on a wooden framing, a plate supported by four pillars " earrying the entire arrangement." A cylinder, whereon a eord attached to a eounterweight winds, is eonneeted to a toothed driving wheel, which gears with a pinion, " communieating the requisite power to the other pieees." This power eomes first on to a toothed wheel, carrying excen-

tric plates; these, connected to connecting rods and cranks, give to the axle of a bevel wheel (supported by pillars) the rotary motion required to turn a cone inside a receiver. A brake is provided, by turning the handle of which "the "manipulator can regulate the speed of the mechanism." The cord is rewound by means of a handle fitted to the cylinder.

[*Printed, 6d. Drawing.*]

A.D. 1874, October 10.—No. 3485.

PATTERSON, JOHN. — "Improvements in machinery for "pulping and expressing juice from vegetable substances, "and improvements in the construction of beetling, stamp-"ing, and crushing machines."

This invention, an improvement on No. 872, A.D. 1866 and No. 527, A.D. 1871, renders the machines "applicable to "various other purposes for which they were formerly in-"applicable;" they can now be used *inter alia* for "pulping "or husking coffee berries, cocoa fruit and beans."

The first part of the invention is described in its application to "an ordinary sugar cane crushing mill." The stamps are suspended to metal springs which are attached by connecting rods to a cam shaft actuated by power. A parallel motion is secured by "sliding blocks, connecting rods, or "other mechanical equivalents." The connecting rods or stamps, "as the case may require," pass or work through guides. The canes are guided by a trough to a roller, above which the stamps work. The stamps bruise and partially crush the canes, which are thence carried forward through another trough "to the ordinary crushing rollers."

The second part consists of "contrivances of shields and a "tray," whereby any dropping of oil from the upper parts is "prevented from reaching the material operated upon." The upper edges of short tubes are attached "to a swell" on each of the connecting rods, "which are thus surrounded "by shields like inverted cups, over which any spark or drop "of oil must pass in its descent." A shallow rectangular tray "is secured in a horizontal position to the sides of the "machine;" its bottom is perforated with circular openings "corresponding in positions with those of the connecting

" rods," and of such diameter as to allow the rods to work freely through them; round each opening is a collar which its shield overlaps, and any drop of the lubricating oil falls into the tray.

[*Printed*, 1*s*. 2*d*. *Drawings*.]

A.D. 1874, November 7.—No. 3845.

MANNING, AUGUSTUS, and TYDEMAN, BRICE.—"Improve-
" ments in the method of and apparatus for beating coffee
" and other seed casks," in order to "reduce the bulk of the
" coffee or other seed contained therein."

A ring is made with pairs of lugs, which form bearings for hinge pins "carrying beaters." The beaters are vertical "double-armed levers," each lower arm forming a hammer acted upon by a spring, and each upper arm carrying at the top a loosely mounted roller. The ring is also made with brackets for supporting the axles of other loosely mounted rollers, whereon the under surface of an upper ring bears, and this ring is retained in a horizontal position between overlapping projections on the brackets and the rollers, "at
" the same time that it is free to rotate upon its own axis." The upper ring "has formed on its inner periphery a series
" of cam or ratchet projections," which work against and in contact with the rollers of the beaters, and on its under side an annular rack, with which a pinion gears. The pinion is mounted on a centre, which is supported in brackets formed on the lower ring, and is provided with a handle. This apparatus is carried by the arms of a forked lever; the lower ends of the arms are fitted to the axles of the ring-bearing rollers, and the upper ends are mounted on pins "supported in bear-
" ings in a frame or carriage." The outer extremity of the straight arm of the lever is attached to a chain which is connected with a windlass on the carriage. The carriage is mounted on wheels, and hooked levers which "engage with
" the chime of the cask" are carried by the hinge pins of the beaters. The method of operating with the apparatus is explained; and as modifications the cams may be hinged to the ring; the beaters may be arranged to strike horizontally; and the apparatus may be stationary and the cask be moved to it.

[*Printed*, 1*s*. 4*d*. *Drawings*.]

A.D. 1874, November 27.—No. 4068.

LYLE, William Stewart.—(*Letters Patent void for want of Final Specification.*)—"Machinery for rolling tea leaf."

The axle of the inner and revolving cylinder "runs in "bearings fixed fast to the frame of the machine," so that "the axis of revolution is always in the same straight line." Instead of an outer cylinder lined with ribs a frame is used "of cylindrical shape," the two ends being "of a disc shape" and having "slots or recesses radiating from the centre." The outside of the frame is "composed of bars of suitable "section," and their ends "fit freely in the slots of the frame "ends, in which they can be moved either towards or away "from the centre by adjustable springs or other means." Sometimes the slots are curved, and "at each outside end" of the axle there is placed "another disc, in which are "curved slots corresponding to those in the frame ends." The bars are long enough to allow of their ends projecting through the slots, and "by turning the moveable discs partly "round the whole of the bars can be brought towards the "centre or vice versâ."

[*Printed, 4d. No Drawings.*]

A.D. 1874, December 2.—No. 4133.

PRIDHAM, Theodore. — "Apparatus for drying tea and "other substances."

A number of tubes are fastened at each end into "tubular "rings," and the rings "being thereby united," the whole structure forms a cylinder. The cylinder is lined with wire gauze, or a perforated plate may be attached to it by means of three rings "fitting on the tubes and perforated with small "holes near their inner peripheries." Steam, hot water, or hot air is admitted at one end through a pipe and "cir-"culates through the tubular parts," and at the opposite end is an outlet provided with a regulating tap. Inside the cylinder there is "a spiral running through from end to end." The tubular rings rest on four rollers, one pair being united by a spindle carrying a hand wheel. On turning the hand wheel the rollers "communicate frictional revolving motion" to the cylinder, and the tea put into the cylinder will during

the rotary movement of the cylinder be carried to the other end and fall out into a receptacle. The whole apparatus may, if desired, be surrounded by a casing; air drawn in at the bottom becomes heated by contact with the tubes, passes through the tea, dries it, and is drawn off by a fan or other means. The cylinder "may be made to revolve in many other "ways," and "the circulation may be effected by other "tubular arrangements."

[*Printed*, 8*d*. *Drawing*.]

1875.

A.D. 1875, January 12.—No. 110.

COLE, FREDERICK.—"Machinery for crushing or reducing to "impalpable powder barytas, cocoas, refined sugar, and "similar substances, both vegetable and mineral."

A frame supports a bed plate having "raised side edges," between which the "crushing rollers" of "a travelling re-"ciprocating frame" are free to move. To the travelling frame are attached comb plates or knife blades for loosening the material on the bed plate, scrapers to prevent the rollers from becoming clogged, and "a shovel blade" which by "the "pressure of a threaded rod" will press upon the bed plate and "scrape the crushed substance along it" into a sieve. The frame and its rollers are drawn to and fro on the bed plate by chains attached to the frame and "to an end pulley "or drum," one chain "giving off while the other is being "wound on alternately" by turning a crank handle. The frame may however be made to reciprocate "by the action "of steam, water, or other power, suitable reversing gear "being fitted thereto." On the top of the travelling frame is a box containing stones, pieces of iron, &c., to increase the crushing power of the rollers. The sieve is fitted "at one "end of the main frame;" it is agitated "by the machine "while at work," and the finer particles pass through into a receptacle beneath; or it may be detached by hand and be shaken.

[*Printed*, 10*d*. *Drawing*.]

A.D. 1875, March 25.—No. 1103.

LIDGERWOOD, William Van Vleck.—"Coffee pulping "machines."

The pulping cylinder and other parts of the machine are mounted on a frame. The cylinder is of metal; dovetailed grooves extend from end to end of its outer surface; strips of wood are driven into the grooves; and "the roughened sheet "copper" forming the pulping surface is fastened to the strips. The hopper is "arranged in the proper position for "delivering the cherry coffee to the cylinder," and it is provided with a reciprocating slide operated by an excentric rock shaft and rods. The "chops" are arranged "adjacent "to the surface" of the cylinder; they are attached to "adjustable blocks;" the upper chop is formed wholly or partly of india-rubber or elastic material, and the lower one preferably of iron faced with brass. "The excess of water "from the coffee" passes away through a sheet of fine wire gauze or perforated metal. The chops discharge the berries through an inclined trough into the upper end of a rotating screen, "which is more or less inclined downwards towards "the opposite end of the machine." The pulp passes away down a shoot. The trough "receives a supply of water "through the said wire gauze." The axle of the screen is in gear with the axle of the cylinder and receives motion from it. The coffee berries which have been freed from their pulpy covering "escape in their passage down the screen;" but "the unripe and other coffee cherries which cannot pass "through the perforations" of the screen are carried along and discharged from its lower end into "a second set of "pulping mechanism" similar to that above described.

[*Printed*, 8*d*. *Drawing*.]

A.D. 1875, May 22.—No. 1886.

WALKER, Andrew Barclay.—"Improvement in machinery, "plant, utensils, arrangements, and buildings of breweries "and distilleries, and in the working of such machinery and "plant, which improvements are also applicable in whole or "in part to other purposes."

"The ninth operation of my process," the patentee states, "relates to the treatment of slack or damp malt" and other

substances, the process being also applicable "to coffee "roasting." In a strong cylindrical case, having an annular case secured outside of it, is placed one of the patentee's "tubular worms" (described in the specification), "the end "of which reaches down into a reservoir," whereinto the substance "is collected by the revolutions of the screw." The substance "is passed over the surface" which is heated by steam or hot air, and "is discharged into a suitable "receptacle."

[*Printed*, 10*d*. *Drawings*.]

A.D. 1875, May 28.—No. 1959.

HAWORTH, WILLIAM.—"Machines or apparatus for rolling "tea leaf."

This invention is an improvement on No. 2821, A.D. 1871; the bag of tea leaf is placed between and acted upon by preferably "three rollers revolving in the same direction." Two of the rollers are "supported at the same height" in bearings in the side frames of the machine; the third is carried "above "the other two" by a pair of levers mounted on a shaft; all revolve horizontally; the upper roller is "completely or "nearly counterbalanced" by a weight "fixed to the back "ends" of the levers, and when it is in its lowest position, it "has its axis in a vertical plane midway between" the lower rollers. All the rollers are formed with "end flanges" to prevent any thing "from being improperly caught and "drawn in," and "at the ends of the central space" revolving discs prevent either end of the bag "from creeping "beyond" the ends of the rollers. The "most efficacious" form of roller is one "with deep smoothly rounded flutings;" the bags are cylindrical "with the ends gathered together;" they may be of vulcanized rubber covered (or not) with canvas. One or more of the rollers may be made "to reciprocate longi-"tudinally as well as rotate." At the front of the machine a board is supported by legs and by hooked arms "engaging on "the shaft" of the front lower roller; the bag is laid on the board, which is then tilted by handles "so as to tip the bag "into the space between the rollers," the upper roller being capable of being "turned up on its carrying rollers."

A modification is described, in which "only two acting or "main rollers" are used. The upper roller "may be a plain

" cylinder mounted so as to revolve freely;" or one of the main rollers may be placed above the other, both revolving in the same direction " so as to produce rotation in the bag be- " tween them." The bag is prevented " from getting from " between the two rollers by two smooth antifriction rollers " or two smooth plates " placed a little to each side of the middle " space." The main rollers " may be grooved annularly " and be made to reciprocate longitudinally in opposite " directions."

The gearing required for connecting and driving the rollers is explained but not specially claimed.

[*Printed*, 1*s*. 4*d*. *Drawings*.]

A.D. 1875, June 2.—No. 2010.

LYLE, JAMES. — (*A communication from William Stewart Lyle*.)—" Machinery for rolling leaf tea."

The tea is put into bags, and the bags are passed round a ribbed or corrugated barrel which revolves within a cylindrical frame. This frame has circular or disc-shaped ends and " for its periphery a series of bars which fit into slots in " the frame ends so as to be capable of being moved either " towards or away from " the barrel. In the Provisional Specification one mode of working the bars is by " springs " and adjusting screws;" in the Final Specification " two out- " side discs," one at each end of the axle of the barrel, " are " left loose to revolve as far as may be required to expand or " contract " the bars. Each disc " has radial slots to receive " the ends " of the bars, and when the outside discs are turned round, the bars " are carried to or from the centre and " alter the space " between the barrel and the cylindrical frame. " Any means can be used to turn the outside discs," and the inventor describes the method which he prefers. " There are three ribs of outside cylinder left out opposite " the feeding board for the bag containing the tea to be " inserted."

[*Printed*, 10*d*. *Drawing*.]

A.D. 1875, June 24.—No. 2307.

HYATT, THADDEUS. — " Improvements in the treatment, " preparation, and preservation of substances or bodies for

" dictary and medicinal uses and sanitary purposes (partly " applicable in the arts), and in the processes and machinery " or apparatus for effecting the same."

Under the head of "drying or desiccating," the patentee states that he roasts coffee by laying it on a bed of "clean " sand, the heat being gradually raised to the roasting point, " the sand being afterwards screened out;" but by preference the bed is "a food absorbent," such as "dried sweetened " bran," the bran "becoming caramelized while imbibing " the flavour of the roasting coffee."

Under the head of "pulverising or comminuting, collect- " ing, and compressing," tea or coffee is reduced to "an " impalpable powder" and compressed into tablets or other- wise "to be consumed bodily instead of in fusion." Cocoa also is reduced to "varying grades of dust" by a process similar to that "employed for obtaining refined plumbago;" the dust is compressed into cakes, tablets, and other forms, " using sugar in dust form to combine with it when making " sweetened cocoa."

[*Printed*, 10*d*. *Drawing*.]

A.D. 1875, November 11.—No. 3929.

LAKE, WILLIAM ROBERT.—(*A communication from George Lafayette Squier.*)—"Machinery for hulling, cleaning, polish- " ing, and separating coffee and other grain or seed."

Two modes are described, (1) subjecting a charge of coffee " repeatedly to the action of one hulling and polishing " mechanism until finished," (2) passing the coffee "through " two or more hulling and polishing mechanisms."

1. A rectangular frame is supported on legs. A "double " hulling screw," consisting of a right hand and a left hand screw joined at the middle, is secured to a horizontal shaft turning in bearings in the frame. The screws, "each com- " posed of two or more sections," are so arranged on the shaft that "the ends of the threads of one section will coin- " cide with the spaces" of the adjacent section. "Two " propellers or end sections" having "threads of less pitch" are arranged "at the feed ends" of the screws, and the screws nearly fill a cylinder made of a lower part secured to the frame and an upper part bolted to the lower part, and

having angular corrugations on its inner surface. The shaft of the screws is "preferably arranged a little below the "centre" of the cylinder. The lower ends of "two feeding "chambers" communicate with the ends of the cylinder, and "an intermediate pressure chamber of hopper form" is connected with the cylinder by an opening over the point where the screws meet; the size of the opening may be adjustable. Between the middle and the feeding chambers there is on each side a "sliding partition" to increase or diminish the height. All parts of each chamber are "tapering at an acute "angle towards the opening in the cylinder that belongs to "that compartment." In working the machine, the three compartments being filled with unhulled coffee, a constant circulation is kept up; the coffee is forced up into the middle compartment and thence over the partitions into the end or feeding chambers. If "greater pressure" is desired, balls or weights are placed on the coffee in the middle compartment. "A V shaped deflector" placed across the middle compartment prevents the coffee from accumulating in a heap, and "an adjustable finger or agitator" prevents it from packing and clogging at the bottom of the middle compartment. The coffee "mixed with the husks and silver skins" is finally discharged through an opening in the cylinder opposite the one in the upper half into "a shaking separator" beneath, in which are arranged a series of removable screens having meshes of graduated sizes. The shaking may be done by hand, but preferably by mechanism connected to the shaft of the screws.

2. Two cylinders contain each a hulling screw. Both screws and cylinders may be constructed as before described, the screws being mounted on the same revolving shaft. The unhulled coffee passes from a hopper into the first cylinder and thence into a "discharge hopper" at the other end thereof. The discharge hopper has "its rear side" inclined to facilitate the forcing up of the coffee; it is provided with a mouthpiece and a discharge spout. "A vibrating sepa- "rator" is arranged below the spout and above the feed hopper of the second cylinder; it consists of an upper and a lower screen. The meshes of the upper screen "retain all "the grain," permitting the dust, &c. to fall on "an inclined "plate" whence it is discharged by a spout. "The grain

" will pass over the tail end " of the screen and fall on a second screen, which is made with " oblong and round or " square holes in alternate rows, through which the oblong " and round hulled grains are passed into the feed hopper." The unhulled grains " pass over the tail end " of the second screen through a spout " to an elevator," which returns them to the feed hopper of the first cylinder. At the outer end of the second cylinder there is a discharge hopper similar to the former one. The separator vibrates by means of a cam engaging with a rock lever ; the elevator is driven by a belt from a pulley on the screw shaft. Each arrangement admits of slight modifications which are described in the specification.

[*Printed*, 1*s*. *Drawing*.]

1876.

A.D. 1876, January 7.—No. 75.

BARLOW, Charles.—(*A communication from Thomas Cook.*) —" Machinery for manufacturing blocks of concrete, artificial " stone and fuel."

The heating apparatus described is applicable to various purposes including " drying grain, roasting coffee, &c."

A furnace with its appendages " is arched over," the arch " forming the heating chamber," in which a heater, " sup- " ported upon friction rolls" and driven by "suitable gearing," rotates on a hollow axle. The heater consists of " a series of " concentric cylinders having screw threads arranged in the " spaces enclosed therein." The coffee, &c. is fed into the central cylinder through a shoot, is forced backwards and forwards into each space by means of a " conveyor screw," and is discharged from an opening or series of openings in the outermost cylinder on to an inclined floor, whence it " runs off by a lateral passage " into receptacles. Heat from the furnace passes round and over and into (through the openings) the heater, finally escaping through the hollow axle into a chimney. In a modification the heater " consists in " mounting a volute or scroll upon the central cylinder," the

inner end of the voluto communicating with "the interior "of the cylinder" and its outer end with "the heating "chamber." "The heads of the heater" are perforated for the passage of hot air "through the different convolutions" of the scroll.

[*Printed, 6d. Drawing.*]

A.D. 1876, January 29.—No. 362.

HATTON, James Greene. — "An improved packing "material."

This material, useful for many purposes, is "especially "applicable for lining cases, bales, boxes, tea chests, coffee, "sugar, or other bags." The material consists of "vege- "table parchment" combined by means of paste or other adhesive substance with Hessian canvas, cotton, or other cloth, or "with other fibrous woven or textile material, or "with ordinary brown or other paper." If the joints of the linings, bags, &c. are made with waterproof cement, the articles will be found to be impervious to water, oil, or other fluid.

[*Printed, 2d. No Drawings.*]

A.D. 1876, February 9.—No. 517.

MACKENZIE, Francis William. — (*Provisional protection only.*) — "Improvements in drying tea and in apparatus "connected therewith."

The improvement consists in passing a current of hot air through trays of wire cloth or other perforated material, the current and temperature being regulated "by means under "control of the attendant." The air is heated by passing it "through tubes, chambers, cells, or passages of metal passing "through a metal chamber containing steam." The trays are laid in drawers or frames fitting into the chamber through which the hot air ascends, and the drawers are so constructed that when a tray is "withdrawn laterally from time to time "for inspection," the ends of the drawers "close the aper- "tures of the hot air chamber sufficiently air-tight so as not "to disturb the upward current."

[*Printed, 2d. No Drawings.*]

A.D. 1876, February 24.—No. 769.

THOMPSON, Andrew Charles Guy.—"Apparatus for "cleaning, softening, and separating the fibre of flax, hemp, "rhea or China grass, and other fibrous substances, also "applicable to rolling tea leaves."

A drum revolves in horizontal bearings, and narrow grooves are formed "across the periphery." Frames curved to fit the drum have their inner sides formed of "transverse "strips" adjustable so that they may be pressed towards the periphery, and having grooves "parallel or nearly so" with those on the drum. The frames are not "concentric "with the drum," the intervening space being greater at one end than at the other; they may be fixed or be made "to "vibrate backward and forward;" or the drum may be arranged "to reciprocate backward and forward round its "centre during its revolution." Sometimes a similarly constructed apparatus is placed "underneath or adjoining" the above, "but having its drum revolving in the opposite "direction."

Or two endless belts, carrying on their outer surfaces transverse grooved strips, are stretched over rollers; the surfaces of the belts "are in contact with each other or "nearly so;" the bearings of the rollers are adjustable, and the belts "travel in the same direction," but not at the same speed.

Or one endless belt, having transverse grooves or grooved strips and stretched on rollers, is pressed into contact with a drum, which either is fixed or made to revolve at a greater or less speed than the belt.

An "arrangement of crank and wheels" (which may be applied to one or both ends of the drum) is described, whereby "the squeezing and rolling action may be made more "effective."

Tea leaves are placed in the space between the drum and the frames "either loose or in bags."

[*Printed*, 8*d*. *Drawings*.]

A.D. 1876, March 1.—No. 878.

NICOLL, Donald.—"Gelatine capsules or cases for contain- "ing and preserving food, medicine, and various substances, "solid and liquid."

These capsules are intended to enclose *inter alia* tea, coffee, cocoa, milk, &c.

Sheets of gelatine, cut into the requisite size and shape, are placed successively in an envelope-making machine, which is so constructed that heat (most conveniently obtained from a jet of gas) may be applied to the flap-folding plates. If the temperature of the atmosphere is high, the application of heat may be dispensed with. When the sheet is placed upon the machine, the quantity of ingredients to be sealed up is laid on the sheet; the edges of the sheet are moistened with water; and the flaps are folded over by the automatic folding action of the machine, the edges being thereby brought into contact and pressed together. In some cases it is preferred to make the capsules by hand, and in others to make them "upon a suitable mould."

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1876, March 11.—No. 1075.

LOBB, Nicholas William.—"The preparation of farinaceous "food and other alimentary substances."

All the moisture is evaporated by heat from condensed milk; the "solid dry substance" which remains is ground to powder, and the powder is then readily mixed with any alimentary substance; among the substances mentioned are tea, coffee, cocoa, and chocolate. The mixture may be packed in tins and hermetically sealed. The substance may be combined with the milk "previous to its being evaporated to "dryness."

[*Printed*, 2*d*. *No Drawings*.]

A.D. 1876, April 15.—No. 1596.

HOOKER, John.—"Mixing cocoa, corn flour, and other "substances with milk."

Milk condensed or preserved with sugar is combined with cocoa either pure or mixed with farinaceous or other substance, "so that the mixture when well worked together shall "become solid and capable of being sold in blocks or tablets." The proportions preferred are one part of cocoa or cocoa

mixture and four parts of milk. The ingredients are incorporated in "a steam jacketed pan fitted with a stirring "apparatus."

[*Printed*, 2*d*. *No Drawings*.]

A.D. 1876, May 3.—No. 1865.

LLOYD, ARTHUR.—"The preparation of articles of food and "drink."

This invention relates to the combination of "cuca or "coca" with articles of food and drink. Clean dry leaves of cuca or coca (the "Erythroxylon coca") are ground "until "the powder will pass through a fine sieve." In preparing chocolate or cocoa "about three quarters of an ounce of "extract of cuca or coca" is added to about one pound of chocolate or cocoa. In preparing syrup of cocoa a mixture is made of about one pound of cocoa syrup and "the extract "obtained from about two ounces of cuca or coca leaves "digested in about two ounces of proof spirit." The patentee describes also the manufacture of cuca or coca biscuits and lozenges and of several beverages.

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1876, June 17.—No. 2522.

DOWNING, GEORGE.—(*A communication from Edward Henry Cradock Monckton.*)—"Improvements in the treatment of "vegetable fibres, and in the application of certain vegetable "matters to useful purposes, and in the machinery necessary "for carrying the same into effect."

The inventor describes various methods of treating the plant called in Arabic "daum," and in French "palmier "nain," the fibre of the bark of the mauve plant, the African nettle, the wild mint, the stalks of the rye, and the roots of the trefoils, and clovers of various descriptions; he explains also the apparatus which he employs without confining himself "to any particular form of construction of machinery," and then states that he uses "the wild peppermint" for making a decoction to be drunk "as a substitute for tea, "especially where there is pain in the stomach," and "the "essential oil of this mint with a similar intent on sugar."

[*Printed*, 4*d*. *No Drawings*.]

A.D. 1876, July 4.—No. 2739.

CLARK, Alexander Melville.—(*A communication from José Antonio Mosquera.*)—"An improved coffee pulping machine."

A cylinder, revolving by steam or other power, is made with "longitudinal concaved grooves" of about "the width "of a coffee berry," and "forming teeth" into which "notches are cut transversely to the grooves." The berries are fed to the cylinder by a hopper, and are carried by the grooves and notches "against a pulping or breaking knife." A second or separating knife is placed "below the breaking "knife and nearer to the circumference of the cylinder to "separate the beans from the pulps by the action of the "cylinder thereon." The mashed or broken pulps are carried by the grooves and notches "past the separating "knife," while the soft and elastic beans "escape through a "channel between the upper and lower knives."

[*Printed, 4d. Drawing.*]

A.D, 1876, August 5.—No. 3119.

THOMSON, William Richard Middlemore.—(*A communication from Francis William Mackenzie.*)—"Improvements in "drying tea and in the apparatus employed therefor."

A current of hot air ascends through trays of wire or perforated metal which are "spread over with the tea leaf." The trays form the bottoms of drawers or frames, which fit air-tight into the upper part of a hot air chamber "by making "their ends to overlap the front openings through which they "slide." In the apparatus described there are "four sets" of drawers (two sets opening from the front and two from the back), and at the top of the chamber there are "ventilating "openings" and "regulating slide doors." Below the drawers and mounted on a frame stands "a close steam heat-"ing cylinder chest;" it is closely fitted with vertical tubes "open right through from the bottom" to the top, and steam admitted to the lower part of the chest heats the outside of all the tubes and "the air passing through them." The chest is closed in by "angled boarding," and is provided with a condensed-steam pipe. "The small tea" which escapes through the trays descends by means of a "conical plate" through the

tubes into a "save-all tray or slide." The inventor does not confine himself to "the precise details" described in his specification.

[*Printed*, 6*d*. *Drawing*.]

A.D. 1876, August 23.—No. 3302.

GRIFFIN, George Featherstone.—"Boxes for matches and "other articles."

Three of the figures in the sheet of drawings "show a "canister made on the same principle and intended to hold "tea, coffee, and similar articles." An outer case and an inner case or lining are formed each with an orifice "in the "same radius and almost the same position." Indentations in the outer case forming projections therein, and corresponding grooves in the inner case allow "a portion of the box to "turn slightly," so that the orifices "are brought one over "the other when anything is wanted out of the box." A guide piece "in conjunction with the curvature of the box" leads the contents to the orifice.

[*Printed*, 6*d*. *Drawing*.]

A.D. 1876, August 23.—No. 3310.

WHITE, William.—(*Provisional protection only*.)—"The "treatment of coffee and cocoa beans for the preparation of "the beverages of coffee and cocoa."

The beans, roasted in the usual manner, are put into "a "strong box or die, widening slightly to the lower end or "otherwise adapted to facilitate removal of the formed cake." When pressure is applied by means of a closely fitting plunger, the beans are "crushed to powder and compressed "into a friable cake," in which "the savour of the bean is "better preserved" than in ordinary ground beans. The usual adjuncts may be "introduced with the beans ground or "unground."

[*Printed*, 2*d*. *No Drawings*.]

A.D. 1876, September 28.—No. 3778.

GOUNDRY, Richard.—(*Provisional protection only*.)—"The "treatment of coffee to prepare it for the market."

The roasted berries are pressed in metal moulds into blocks about an inch thick, and weighing each about a quarter of a pound. The coffee when submitted to very high pressure "exudes a liquid," which is to be reabsorbed by protecting the blocks from the air. When the blocks are quite dry, they are wrapped in tin foil. Powdered sugar mixed with the coffee "serves to give greater tenacity and firmness to the "block."

[*Printed, 2d. No Drawings.*]

A.D. 1876, October 14.—No. 3985.

FARQUHAR, ARTHUR ANDREW.—(*A communication from John Alexander Farquhar.*)—(*Provisional protection only.*)—"Machinery for rolling tea leaves."

Two funnels, by preference octagonal and of wood, are mounted concentrically on a vertical spindle. The inner funnel is fixed on the spindle and revolves with it, whilst the outer one is capable of revolving freely round it. The inner funnel is closed at the top and bottom, and the top and bottom of the outer one are open. The lower end of the outer funnel "is supported by arms radiating outwards from a collar "loose on the spindle," and the two funnels by means of bevel gearing revolve in opposite directions. The tea leaves are put into the space between the funnels at the top; they are rolled over and over, and descend to the bottom of the space between the funnels. Below the bottom of the outer funnel is a circular table, which revolves with the spindle and can be raised or lowered on it.

[*Printed, 2d. No Drawings.*]

A.D. 1876, October 31.—No. 4214.

KINMOND, JAMES CRICHTON.—"Apparatus for rolling tea "leaves."

The framework is of angle iron, and "in the shape of a "triangle, when viewed downwardly;" its sides are provided "both exteriorly and interiorly with plummer blocks or bear-"ings." The rolling is effected between horizontal plates, the inner faces of which are recessed and corrugated. The under plate is mounted on "three strong cranks" arranged at

equal distances apart " in the form of an equilateral triangle," their shafts being " carried by the exterior plummer blocks." One of the shafts has revolving motion imparted to it by bevel gearing from a driving shaft, and the under plate " thus " receives a horizontal rotatory motion, but has no circular " motion around its own axis, neither has it a vertical or rising " and falling motion." The upper plate is suspended from three equidistant cranks " connected by a triangular frame," their shafts being carried by " the interior plummer blocks," and one of the shafts receiving revolving motion from the driving shaft by means of spur and bevel gearing. The upper plate is connected by a rod to a lever carrying an adjustable weight, so that it may be raised when the tea leaves are fed in between the plates, and lowered to effect the rolling and to adjust its pressure; it revolves in an opposite direction to the lower plate. The arrangement of the upper plate admits of modifications which are described in the specification. The upper plate is " encircled by a loose iron ring," which rests on the lower plate and prevents the escape of the leaves while being rolled; it is provided also with a hole for the admission of the lower end of a hopper. The lower plate is furnished with a door for the exit of the rolled leaves into a sieve. The method of working the apparatus is explained by the patentee.

[*Printed*, 6*d*. *Drawing*.]

A.D. 1876, November 28.—No. 4605.

McKAY, Richard.—(*Provisional protection only*.)—" Tins or " canisters for containing paints, preserved meats, fish, fruit, " coffee, and other similar substances, or liquid mixtures."

The lid is cut out of sheet tin " in a flat circular form with " a lug-like extension at one side," its diameter being slightly less than that of the canister to which it is to be applied. The body of the canister is formed in the usual way, but preferably corrugated round the sides near the top and bottom, " leaving " a slight bead at the extreme edge and narrow flange pro- " jecting inwards to form a rest for the flat lid." When the canister is filled, the lid is placed on the flanged end (with a sprinkling of resin between the two) and " soldered down flat." The lug-like extension " is then turned over and pressed " down flush against the side " of the canister. The opening

is effected by taking hold of the lug with the finger and thumb "and giving it a smart pull upwards." Or the lid may be soldered on before the canister is filled. In this case a hole is formed in the bottom, through which the coffee or other substance is poured in, and the hole is then covered over "with a button or cap and sealed or soldered down air and "liquid tight."

[*Printed*, 2*d*. *No Drawings*.]

INDEX OF SUBJECT MATTER.

[The numbers refer to the pages on which the Abridgments commence. The names printed in *Italic* are those of the persons by whom the Inventions have been communicated to the Applicants for Letters Patent.]

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Holt, Norfolk (*Literary Society*).
Holywell Green (*Mechanics' Instit.*)
Horncastle (*Mechanics' Institution*).
Huddersfield (*Mechanics' Institution*).
Hull (*Church Institute*).
—— (*Literary, Scientific, and Mechanics' Institute*).
—— (*Lyceum Library*).
—— (*Royal Institution, Albion Street*).
—— (*Young People's Institute*).
Huntingdon (*Literary and Scientific Institution*).
Inverness (*The Free Library*).
Ipswich (*Working Men's College*).
Kendal (*Christian & Literary Instit.*)
——— (*Highgate Mechanics' Inst.*)
——— (*Working Men's Institute*).
Kilmarnock (*Library*).
Kingston-on-Thames (*Workmen's Club and Institute, Fairfield Road*).
Lancaster (*Mechanics' Institute and School of Science*).
Lee, Kent (*Working Men's Instit.*)
Leeds (*Chapeltown Branch Library*).
——— (*Church Institute*).
——— (*Holbeck Branch Library*).
——— (*Hunslet Branch Library*).
——— (*Leeds Library*).
——— (*Mechanics' Institution and Literary Society*).
——— (*Philosophical and Literary Society*).
——— (*Working Men's Institute*).
——— (*Young Men's Christian Association*).
Leek, Staffordshire (*Literary and Mechanics' Institution*).
Leicester (*Law Society*).
Leighton Buzzard (*Working Men's Mutual Improvement Society*).
Leith (*Mechanics' Subscription Library*).
Lewes (*Fitzroy Memorial Library*).
——— (*Mechanics' Institute*).
——— (*School of Science and Art*).
Lincoln (*Mechanics' Institute*).
Liverpool (*Institute*).
——— (*Medical Institution*).
——— (*Polytechnic Society*).
Llanelly (*Chamber of Commerce and Reading Room*).
Lockwood (*Mechanics' Institution*).
London (*Bank of England Library and Literary Association*)
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London (*Birkbeck Institution, Southampton Buildings, Chancery Lane*).
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——— (*King's College*).
——— (*Literary and Scientific Institution, Walworth*).
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——— (*London Library, St. James'*).
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Marlborough (*Reading and Mutual Improvement Society*).
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Middlesborough (*Iron and Steel Institute*).
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Mildenhall (*Suffolk Literary Inst.*)
Newark (*Mechanics' Institute*).
Newbury (*Literary and Scientific Institution*).
Newcastle-upon-Tyne (*Mechanics' Institution*).
——— (*Working Men's Club*).
New Mills, near Stockport (*Mechanics' Institute*).
Newport, Isle of Wight (*Young Men's Society and Reading Room*).
Northampton (*Mechanics' Institute*).
North Shields (*Free Library*).
Nottingham (*Mechanics' Institution*).
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Oswestry (*Institute*).
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Patricroft (*Mechanics' Institution*).
Pembroke Dock (*Mechanics' Institute*).
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——— (*Working Men's Association*).
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Preston (*Institution for the Diffusion of Knowledge*).
Redruth (*Redruth Institution*).
Reigate (*Mechanics' Institution*).
Richmond, Surrey (*Free Public Library*).

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Saffron Walden (*Literary and Scientific Institution*).
St. Helens (*Public Library*).
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Salisbury (*Literary and Scientific Institution*).
Saltaire (*Literary Institute*).
Scarborough (*Mechanics' and Literary Institute, Vernon Place*).
Selby (*Mechanics' Institute*).
Sevenoaks (*Literary and Scientific Institution*).
Shaftesbury (*Literary Institution*).
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Stafford (*Mechanics' Institution*).
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Stalybridge, Cheshire (*Mechanics' Institution*).
Stamford (*Institution*).
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Stowmarket (*Literary Institution*).
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