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One copy of the drawings must be on blue transparent linen or tracing-cloth, and the other copy either on that material or on drawing-paper or linaura fabric. The sheets on which the drawings are made to be either 13 in. by 8 in. or 18 in. by 16 in., with a margin of at least 1 in. All the lines must be absolutely black, Indian ink of the best quality being used, and the same strength of colour of the ink maintained throughout the drawing. Any shading must be in lines clearly and distinctly drawn, and as open as is consistent with the required effect. Section-lines should not be too closely drawn. No colour must be used for any purpose upon the drawing, and all letters and figures of reference must be bold and distinct. The drawings must not be folded, but be delivered at the Patent Office either in a perfectly flat state, or rolled upon a roller or in a stiff case, so as to be free from creases or breaks.

The signature must be in perfectly black ink, and no other writing, impressions of stamps, or the like ought to appear on any part of the sheet.

F. WALDEGRAVE,
Registrar.

Printing Drawings in Gazette.

IN advertising the acceptance of complete specifications in the *Gazette* it is intended to reproduce a portion of the drawings. For this purpose it is desirable that as much of the invention as possible be shown in one or two views. These views, which will also serve as the drawings or part of the drawings referred to in the specification, should be within a space of 6 in. by 8 in. In printing they will be reduced to about one-sixth of their original size, and the number of figures shown within the space mentioned should be regulated accordingly, as one figure of a fair size will in many cases convey a better idea of an invention than two or more figures reduced to the point of indistinctness.

Where it is found necessary to exceed the space mentioned, it is desired that the drawings will, if possible, be within a space of 14 in. by 6 in., or a space conforming to those dimensions as closely as possible.

In cases where drawings are produced by lithography or other process, three copies (one on tracing cloth) might be furnished to this office in place of two.

No change will be made in the following regulations already in force, but strict compliance with them will be necessary.

A

Notice of Acceptance of Complete Specifications.

Patent Office,
Wellington, 1st April, 1903.

COMPLETE specifications relating to the undermentioned applications for Letters Patent have been accepted, and are open to public inspection at this office. Any person may, at any time within two months from the date of this *Gazette*, give me notice in writing of opposition to the grant of any such patent. Such notice must set forth the particular grounds of objection, and be in duplicate. A fee of 10s. is payable thereon.

No. 14670.—25th March, 1902.—JOHN CHAMBERS AND SON, LIMITED, of Auckland, New Zealand, Engineers (nominees of Babcock and Wilcox, of 147, Queen Victoria Street, London, Steam-boiler Manufacturers—assignees of A. Arndt, of 83, Pitt Street, Sydney, New South Wales). Improvements in and relating to oil-separators.

Claims.—(1.) An apparatus to be fitted in the exhaust-pipe from the steam-engine to separate oil from the steam, consisting of an outer casing and an inner removable cage,

provided with baffle-plates for scraping the steam and a perforated plate for allowing the oil to pass through to the drain, substantially as described. (2.) An apparatus for separating the oil from the exhaust steam, in combination with an oil-tank connected with the drain from the separator, the separator being placed between the steam-engine and the condenser to separate the oil from the exhaust steam before the exhaust steam passes into the condenser, substantially as described.

(Specification, 2s. 3d.; drawings, 2s.)

No. 14866.—7th May, 1902.—ERNEST JOSEPH PARROTT, of Christchurch, New Zealand, Merchant. Improved apparatus for slaking lime used in the manufacture of lime-sand, bricks, and artificial stone.*

Claims.—(1.) In apparatus for slaking lime, the general arrangement, construction, and combination of parts substantially as described with reference to Figs. 3 and 4 of the drawings, and for the purposes specified. (2.) In apparatus for slaking lime, in combination, a steam-chamber comprising within itself a smaller chest in boiler-connection, said chest having a perforated roof, and a removable chamber that has a perforated floor coincident with said perforated roof, the removable chamber being in communication with the principal chamber by a valve, and a steam-connection on the principal chamber, as described, and operating for the purposes set forth. (3.) In apparatus for slaking lime, in combination, a removable inner chamber as 5, whereinto the lime is fed, said chamber having a perforated floor and a tray coincident with the perforated roof of a steam-chest in boiler-connection, a screen in the chamber, and a valve communicating the same with the enveloping chamber, as described, and illustrated in Figs. 3 and 4 of the drawings. (4.) In apparatus for slaking lime, in combination, a removable inner chamber having a perforated floor and a tray coincident with the perforated roof of a steam-chest in boiler-connection, a valve communicating the chamber with an enveloping chamber, a screen in its roof, and metal strips beneath the screen with downwardly projecting points, as described and illustrated, and for the purposes specified.

(Specification, 5s.; drawings, 4s.)

No. 14882.—16th May, 1902.—UNITED SHOE MACHINERY COMPANY, of Paterson, New Jersey, United States of America, a corporation duly organized under the laws of the said State of New Jersey, and having their principal place of business at 205, Lincoln Street, Boston, Massachusetts, United States of America aforesaid (assignees of Edward Allin Striggins, of Beverly, Essex, Massachusetts aforesaid, Inventor). Improvements in lasting-machines.*

Claims.—(1.) In a lasting-machine, a jack for holding a shoe, a support for said jack, a movable connection between the jack and its support, means for yieldingly maintaining the relative position of the jack and support, and positive means operated automatically for clamping said jack and support during the operation of the machine to hold said parts against relative movement. (2.) In a lasting-machine, a jack for holding a shoe, a support for the jack, a movable connection between the jack and its support, and automatic means for locking the jack rigidly upon the support during each operation of the machine and then unlocking the jack. (3.) In a machine of the class described, a shoe-rest, a jack for holding a shoe, and mechanism for forcing the jack toward the shoe-rest and into operative position, said mechanism acting with greatest force when the jack is in operative position. (4.) In a machine of the class described, a shoe-rest, a jack for holding a shoe, mechanism for forcing the jack upward toward the shoe-rest, said mechanism comprising a lever, a spring, and a connecting-device between said lever and spring arranged to apply the force of the spring to the lever with increasing directness as the jack is moved toward the shoe-rest. (5.) In a lasting-machine, a jack for holding a shoe, means for sustaining the jack to hold the shoe in position to be operated upon, and means under the control of the operator for lifting the jack. (6.) In a machine of the class described, a shoe-rest, a jack for holding a shoe, means acting on the jack during repeated operations of the machine for holding the shoe yieldingly against the shoe-rest, and means for clamping the shoe firmly against the shoe-rest during a portion of each operation of the machine. (7.) In a machine of the class described, a jack for holding a shoe, yielding means for sustaining the jack, and a shoe-rest comprising a movable contact-piece to be engaged by the shoe and adapted to move with said shoe as the shoe is fed. (8.) In a lasting-machine, a shoe-rest, lasting-devices, a jack, and means for actuating said lasting-devices and simultaneously clamping the shoe between the jack and the shoe-rest. (9.) In a machine of the class described, a jack for holding a shoe, a shoe-bottom rest, means for sustaining the jack to hold the shoe yieldingly against the rest during re-

peated operations of the machine, said shoe-rest comprising a tapering rotatable contact-piece adapted to roll over the shoe as the latter is fed, and to assist in turning the shoe while it is being fed. (10.) A machine of the class described, comprising a jack for holding a shoe, and a reciprocating presser for forcing the upper material of the shoe into lasted position, in combination with mechanism for actuating said presser and mechanism for lifting the jack when the presser is actuated. (11.) A lasting-machine comprising a jack for holding a shoe, a reciprocating presser, means for sustaining the jack in position for the shoe to be operated upon, and means for clamping the shoe in said position while the presser is in engagement with the shoe and for releasing the shoe after such engagement to permit it to be fed. (12.) In a machine of the class described, a jack for holding a shoe to be lasted, a shoe-rest provided with a rotatable contact-piece, a presser, means for sustaining the jack with the shoe against the rest and the presser, and means for rotating the presser to force the upper into lasted position and feed the shoe under the shoe-rest. (13.) In a lasting-machine, a jack having means for holding a shoe against rearward and vertical movement, a toe-band, and means for moving the toe-band to cause it to wipe the upper of the shoe along the toe portion and around the toe end of the last. (14.) In a lasting-machine, a jack comprising a toe-band, supports for said toe-band, including yielding elements normally holding said band open for the insertion of the last, and means for moving the band toward the last, said yielding elements operating, when the band is brought into engagement with the last, to close said band around the toe of the last. (15.) In a machine of the class described, a jack comprising means for supporting a last, and a toe-band for embracing the toe end of the last, in combination with means for adjusting one side of the toe-band vertically with relation to the other side. (16.) In a last-supporting jack, means for clamping the sides of the shoe near the ends of the counter, said means comprising resilient arms, a band connecting said arms and extending around the counter, and means for producing a relative movement of the last and the band to cause the arms to clamp the end portions of the counter to the last. (17.) In a lasting-machine, a jack for holding a shoe, said jack comprising a counter-embracing band and a pivotally supported last-pin, and yielding means for holding said last-pin normally away from said band to facilitate the application of a last to the jack. (18.) In a lasting-machine, a jack provided with a last-pin mounted for tipping movement about a centre near the upper end of the last-pin. (19.) In a lasting-machine, a jack provided with a last-pin, a last-pin support mounted for tipping movement longitudinally of the jack, and a block carrying said last-pin and mounted for tipping movement transversely of the jack, as and for the purpose described. (20.) In a lasting-machine, a jack for holding a shoe to be lasted, said jack comprising a last-pin adapted to tip transversely of the jack, and a toe-band provided with means for adjusting one side vertically with relation to the other side, as and for the purpose described. (21.) A jack comprising means for supporting a last, a toe-band movable into and out of operative position about the toe of the last, a heel-band, and a support for the heel-band, said support being constructed to cause the heel-band to clamp the last laterally when the toe-band is moved into operative position. (22.) In a machine of the class described, a jack for supporting a shoe to be lasted, said jack comprising means for wiping the upper around a portion of the last and clamping the upper to said portion of the last, in combination with grippers for pulling the upper, a spring for actuating the grippers, and means under the control of the operator for varying the tension of the gripper-actuating spring when lasting different parts of the shoe. (23.) A lasting-machine comprising upper-manipulating mechanism and a wiper constantly in engagement with the upper to force the edge portion of the manipulated upper into the angle of union of the feather edge and the lip of the inner sole. (24.) A lasting-machine comprising upper-manipulating mechanism and a rotary wiper to force the edge portion of the manipulated upper into the angle of union of the feather edge and the lip of the inner sole. (25.) A lasting-machine comprising upper-manipulating mechanism and a wiper constantly in engagement with the upper to place a binder in binding relation with the manipulated upper. (26.) A lasting-machine comprising upper-manipulating mechanism and a wiper constantly in engagement with the upper to force the edge portion of the manipulated upper into the angle of union of the feather edge and the lip of the inner sole, and means to put said wiper into and out of operative position as desired. (27.) In a lasting-machine, upper-manipulating mechanism comprising a rotatable presser and means for positively rotating said presser. (28.) In a machine of the class described, the combination with mechanism for working an upper over a last, of a rotatable presser provided with peripheral fingers for forcing the upper into the angle of union between the feather edge and lip of the sole of the shoe being lasted. (29.) In a lasting-machine, the combination with lasting-devices, of

a presser, means for adjusting said presser to and from operative position, and actuating mechanism for rotating said pressure when it is in operative position. (30.) In a lasting-machine, a reciprocating lasting-device and a rotatable presser, and connections between said lasting-device and said presser for rotating the presser at each reciprocation of the lasting-device. (31.) In a lasting-machine, means for plaiting the upper of a shoe, in combination with a movable presser for forcing the plaited upper into lasted position, and means for moving said presser in the direction in which the plait has been formed. (32.) In a lasting-machine, means for stretching and plaiting the upper of a shoe, in combination with a rotatable device having peripheral fingers and notches adjacent said fingers, and means for rotating said device step by step to bring the fingers successively over the plait last formed and the notches opposite the portion of upper next to be plaited. (33.) A lasting-machine comprising devices for stretching the upper of a shoe, a rotatable presser and means for rotating it, said presser being adjustable to and from position to be rotated, in combination with mechanism for rendering said stretching-devices operative to plait the upper when the presser is adjusted into position to be rotated. (34.) A lasting-machine comprising grippers, operating mechanism for moving said grippers toward and from the sole of the shoe being lasted, and means to render said operating mechanism inoperative. (35.) A lasting-machine comprising grippers and mechanism for moving said grippers to stretch the upper of a shoe, said mechanism comprising a driving-shaft, a cam, and means detachably connecting said cam with said shaft. (36.) A lasting-machine comprising grippers, operating mechanism for moving the grippers toward and from the inner sole of a shoe being lasted, and means to discontinue said movement of the grippers and support them away from the shoe. (37.) In a machine of the class described, a jack for holding a shoe, a rotatable presser, actuating mechanism for each of said devices, and means under the control of the operator for rendering one of said devices operative when the other is inoperative. (38.) In a machine of the class described, a jack for holding a shoe, actuating mechanism for said jack, grippers, actuating mechanism to cause the grippers to plait the upper, and controlling-means for rendering said jack-actuating mechanism inoperative when the said gripper-actuating mechanism is operative. (39.) In a lasting-machine, a shoe-bottom rest comprising a shank and a contact-piece rotatably mounted thereon. (40.) In a machine of the class described, a shoe-rest provided with a rotatable contact-piece for engagement with the shoe to be lasted, a presser for forcing the upper material of the shoe into lasted position, and means for actuating said presser to force the upper material into position and feed the shoe with relation to the shoe-rest. (41.) A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means for turning the grippers. (42.) In a lasting-machine, grippers and means for actuating them to stretch the upper, in combination with means for turning said grippers, said means comprising an actuator and mechanism connecting said actuator with said grippers, said mechanism comprising a yielding element through which the movements of the actuator are transmitted to the grippers, whereby the turning of the grippers is yieldingly effected. (43.) A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means for turning the grippers in both directions. (44.) In a lasting-machine, grippers and means for actuating the same to stretch and plait the upper, in combination with yielding means for turning said grippers in either direction during the plaiting operation, said means comprising a lever having a chamber therein, a plunger movable in bearings in said chamber, said plunger having enlarged portions near its ends, collars loose on said plunger between said enlarged portions and adapted to be stopped thereby and by the said bearings, and a spring interposed between said collars, in combination with a rod connecting said plunger with the grippers, whereby movement of said grippers imparted through the lever will be effected yieldingly in either direction. (45.) In a jack, a movably sustained last-pin, means adapted for clamping the last, and mechanism for forcing a last supported on said last-pin downwardly into operative relation to said clamping-means.

(Specification, £2 10s.; drawings, 11s.)

No. 14943.—31st May, 1902.—WILLIAM GEORGE GEARY, of Weraroa, New Zealand, Butcher. An improvement in martingales.*

Claim.—In an improvement in martingales consisting of steel bar and fork and bar bit, as shown on drawing and as described.

(Specification, 1s.; drawings, 1s.)

No. 15000.—13th June, 1902.—ENOCH RICHARDSON, of 18, Muir Street, Hawthorn, Bourke, Victoria, Engineer. An improved electrical amalgamating and concentrating apparatus for the extraction of gold, silver, amalgam, and floured mercury from refractory ores, slimes, battery and alluvial tailings, and other waste products, by the combined use of electricity, hydrogen, and mercury.*

Claims.—(1.) In the machine, consisting of the parts A, B, C, and D, for the extraction of gold and silver from refractory ores, slimes, battery and alluvial tailings, and other waste products, in combination with electricity, hydrogen, and mercury, the travelling chain *f*, with angled plates *f*1, running over gun-metal sprockets, sections B and C, Fig. 1, as before described. (2.) In the machine, consisting of the parts A, B, C, and D, for the extraction of gold and silver from refractory ores, slimes, battery and alluvial tailings, and other waste products, in combination with electricity, hydrogen, and mercury, the insulating glass plates *c* and *e*, sections B and C, Fig. 1, as before described. (3.) In the machine, consisting of the parts A, C, and D, for the extraction of gold and silver from refractory ores, slimes, battery and alluvial tailings, and other waste products, in combination with electricity, hydrogen, and mercury, the travelling belt *b*, working on rollers *c*, *c*1, and *c*2, with revolving brush *e*, section D, Figs. 3 and 4, as before described. (4.) The specified machine for the extraction of gold and silver from refractory ores, slimes, battery and alluvial tailings, and other waste products, in combination with electricity, hydrogen, and mercury, consisting of the parts A, B, C, and D combined, as constructed and arranged, substantially as described and illustrated, as and for the purposes set forth, as a combination of parts.

(Specification, 5s. 6d.; drawings, 2s.)

No. 15025.—23rd June, 1902.—FREDERICK BONNINGTON, of Tinwald, Canterbury, New Zealand, Sheep-farmer. Improved damper regulator.*

Claim.—The rack as described for regulating the amount of opening of the damper on register grates, being detachable or a part of the grate itself.

(Specification, 1s.; drawings, 1s.)

No. 15049.—27th June, 1902.—GEORGE DARELL, of the Union Club Hotel, Collins Street, Melbourne, Victoria, Author. Improved method of and means for advertising.*

Claims.—(1.) Method of displaying advertisements, consisting in arranging the advertisements on rollers, bands, or blocks, set in vertical, horizontal, or oblique directions, or any combination of these, causing the rollers, bands, or blocks to rotate spasmodically at intervals and in different directions, substantially as and for the purposes described. (2.) Apparatus for displaying advertisements, consisting of endless advertisement bands on rollers set in a frame in vertical, horizontal, or oblique directions, or any combination of these, means for causing the bands to move spasmodically at intervals and in directions varying one from another, substantially as and for the purposes described. (3.) Apparatus for displaying advertisements, consisting of rollers, bands, blocks, or the like set in a frame on spindles in vertical, horizontal, or oblique directions, or any combination of these, means for causing the rollers, bands, or blocks to turn or move some continuously some spasmodically in directions varying one from another, so as to bring to view a different set of advertisements and pictures at each move, and means for illuminating the advertisements, substantially as and for the purposes described. (4.) The apparatus described, and substantially as illustrated, for displaying advertisements.

(Specification, 5s. 6d.; drawings, 3s.)

No. 15053.—27th June, 1902.—ROBERT AUBREY MORGAN and CHARLES SCOTT JOHNSTON, of Lyttelton, New Zealand, Railway Employees. An improved non-refillable bottle.*

Claims.—(1.) In a bottle, the combination with neck thereof that is provided with an inner annular shoulder, of a stopper that is pierced to support a spring or springs that engage with the shoulder when the stopper is pressed home, and a cork above which is an outside ring *F* and an annular groove *G*, the whole as specified and for the purposes set forth. (2.) In a bottle, in combination, a stopper that supports a spring or springs that engage with a shoulder in the neck of the bottle when the stopper is forced home, a shoulder as *c* upon the stopper that exactly fills the diameter of the shoulder *B*, and means for removing part of the neck from the rest, consisting of a ring as *F* and an annular groove as *G* above a cork, the whole substantially as described and illustrated.

(Specification, 2s. 3d.; drawings, 1s.)

No. 15735.—6th December, 1902.—WILLIAM BORLASE, of North-east Valley, Dunedin, New Zealand, Cycle Mechanic. Improvements in animal-traps.*

[NOTE.—The title in this case has been altered. See list of Provisional Specifications, *Gazette* No. 2, of the 8th January, 1903.]

Claims.—(1.) The improvement in animal-traps consisting of a spring adjustable by means of a nut and threaded bolt adapted to secure the spring to the back of the trap, substantially as described and illustrated. (2.) The improvements in animal-traps consisting of a heel on the plate-support below the pivot-pin, adapted to engage the back of the trap so as to prevent the plate being raised above a horizontal position and so as to give a fine adjustment to the trigger, substantially as described and illustrated. (3.) The general construction, arrangement, and combination of parts composing my improved animal-trap, all substantially as and for the purposes described with reference to the drawings.

(Specification, 2s. 9d.; drawings, 1s.)

No. 15939.—2nd February, 1903.—FRANCIS WILLIAM PAYNE, of Dunedin, New Zealand, Consulting Engineer. Improvement in protecting bucket tumblers from wear.

Claims.—(1.) In tumblers for endless buckets and links, in combination with the shaft A and the body of the tumbler B, bars or angles B¹ formed longer than necessary with spare holes for allowing them to be driven to a new position and present fresh wearing-surfaces, all substantially as shown, and as described, and as explained. (2.) In combination, a shaft and tumbler for working an endless chain of buckets and links, with hard corner-pieces arranged to slide to a fresh position, and furnished with either slots or spare holes for this purpose, all substantially as described and explained, and as illustrated in the drawing.

(Specification, 2s. 6d.; drawings, 1s.)

[NOTE.—The drawings in this case appeared in last *Gazette*.]

No. 15995.—18th February, 1903.—JAMES EBENEZER TONKIN, of Missenden Road, Camperdown, Sydney, New South Wales, Mining Agent; WILLIAM AMES, of West Street, North Sydney aforesaid, Engineer; and WILLIAM EUGENE HORT NICOLLE, of Beecroft, near Sydney aforesaid, Engineer. An improved means to secure the fastenings of railway or tramway rails at the joints.

Claims.—(1.) A locking-device adapted to secure the fastenings of railway or tramway rails, consisting of a suspended clamping-plate held in position by the fish-plate bolts, the nuts of which are secured by a lock-plate supported and engaged at the ends in the manner shown, and for the purposes set forth. (2.) In the means employed for securing the fastenings of railway or tramway rails, the combination of a removable lock-plate with a fish-plate adapted to retain the said lock-plate in its position, as and for the purposes set forth. (3.) In the construction of gapped lock-plates, the arrangement of an outward extended portion adapted to be retained by a similar device associated with the folded ends, in which the said lock-plate is retained, as in Fig. 3. (4.) The general combination and arrangement of the parts described and illustrated, the whole forming a locking-device for securing the fastenings of railway or tramway rails as described and illustrated, and for the purposes set forth.

(Specification, 3s.; drawings, 1s.)

No. 16035.—26th February, 1903.—EDWARD TARLTON HORNE, of Invercargill, and GEORGE LEONARD JONES, of Dunedin, both of New Zealand, Inventors. An improved artificial manure.

Claims.—(1.) In artificial manure, the described composition of matter, consisting of lime, chloride of sodium, gypsum, guano, ammonia, nitrate of soda, and New Zealand flax (either any varieties of the whole plants or the refuse of same after the extraction of the fibre), and mixed in the proportions specified, substantially as and for the purposes set forth, and as described and explained. (2.) In artificial manure, the described composition of matter, consisting of lime, chloride of sodium, gypsum, guano, and New Zealand flax (either any varieties of the whole plant or the refuse of the same after the extraction of the fibre), and mixed in the proportions indicated, substantially as described and explained.

(Specification, 1s. 9d.)

No. 16036.—26th February, 1903.—EDWARD TARLTON HORNE, of Invercargill, and GEORGE LEONARD JONES, of Dunedin, both of New Zealand, Inventors. The manufacture of alcohol for commercial and manufacturing purposes only.

Claims.—(1.) In the production of methylated spirit for manufacturing purposes, power, light, heat, and suchlike, the use of either the whole of the New Zealand flax plant or such portions as remain after the extraction of the fibre, same being prepared for distilling and being distilled in the usual manner for preparing spirit, substantially as described and explained. (2.) In the production of vinegar, the use of the fermented flax-plants (either the whole of them or such parts as are left after the extraction of the fibre), substantially as described and explained.

(Specification, 1s. 3d.)

No. 16057.—3rd March, 1903.—EDWARD ROBERTS, of Dunedin, New Zealand, Consulting Engineer. An improved lower tumbler shaft for dredges.

Claims.—(1.) In the lower tumblers of dredges, the combination of the said lower tumblers with a cast-iron shaft, preferably hollowed concentrically throughout its length and chilled at the bearings, substantially as described and explained, and as illustrated in the drawing. (2.) In dredge lower tumblers, the combination of said tumbler with a turned and keyed cast-iron shaft, preferably chilled at the bearings, substantially as described and explained, and as illustrated in the drawing. (3.) In the lower tumblers of dredges, the fitting and securing of the usual tumbler-cheeks A to the shaft B by a collar forming part of the said shaft B¹, in combination with chilled bearings B¹, all substantially as described and explained, and as illustrated in the drawing.

(Specification, 2s.; drawings, 1s.)

[NOTE.—The drawings in this case appeared in last *Gazette*.]

No. 16073.—11th March, 1903.—PER WILHELM LINDBERG, of Storgatan, 6, Eskilstuna, Sweden, Superintendent. Improvements in centrifugal separators.

Claims.—(1.) In a centrifugal separator, the combination of a series of separator vessels placed in each other, and each provided with separate cream and blue-milk outlets, which at the same time serve as inlets for the next separator vessel, the cream outlet or outlets of each separator vessel being arranged in such manner that the wall of cream will place itself at a distance from the wall of the next inner separator vessel. (2.) In a centrifugal separator, the combination of a number of concentrically arranged cylindrical mantles forming between themselves a number of ring-shaped separating-chambers, means such as rings for closing the upper and lower ends of said separating-chambers, cream-outlets in each of said separating-chambers arranged in such manner that the wall of cream will place itself at a distance from the inner wall of each separating-chamber, and blue-milk-outlets in each of said separating-chambers, the said outlets of the one vessel serving as inlets for the next vessel, substantially as and for the purpose set forth. (3.) In a centrifugal-separator drum, the combination of a number of concentrically arranged cylindrical mantles forming between themselves a number of ring-shaped separating-chambers, means such as rings for closing the upper and lower ends of said separating-chambers, wider parts on said mantles, blue-milk-outlets on the upper side of said wider parts, and cream-outlets in each of said separating-chambers, the inner ends of said cream-outlets being arranged at a smaller radial distance from the drum-shaft than the inner wall of each separating-chamber, the said outlets of the one chamber serving as inlets for the next chamber, substantially as and for the purpose set forth. (4.) The combination of a centrifugal-separator drum of well-known construction, having cream and blue-milk outlets, and a series of separator vessels placed in each other in the said drum, and each provided with cream and blue-milk outlets, which at the same time serve as inlets for another separator vessel, the cream outlet or outlets of each separator vessel being arranged in such manner that the wall of cream will place itself at a distance from the wall of the next inner separator vessel, and the cream outlet or outlets of said drum being arranged at a larger radial distance from the drum-shaft than the outermost of the said separator vessels, substantially as and for the purpose set forth.

(Specification, 7s.; drawings, 4s.)

No. 16077.—11th March, 1903.—FRANCIS EDWARD ELMORE, of 4, Bishopsgate Street Within, London, England, Electrometallurgist. Improvements in apparatus for generation and application of electric currents for electrolysis.

Claims.—(1.) Apparatus for the generation and application of electric currents for electrolysis, comprising an electrical conductor moving in a magnetic field and having electrodes attached to it on one side of the said field and extending into an electrolyte, while a part of the said conductor on the other side of the field is in electrical connection with other electrodes in the electrolyte, substantially as described,

(2.) Apparatus for the generation and application of electric currents for electrolysis, comprising an electrical conductor moving in a magnetic field and having electrodes attached to it on both sides of the said field and extending into an electrolyte, substantially as described. (3.) Apparatus for the generation and application of electric currents for electrolysis, comprising a circular electrical conductor having electrodes arranged concentrically upon it, which conductor rotates between magnetic poles situated between the electrodes, substantially as described. (4.) Apparatus of the kind referred to in claim 3 having four sets of electrodes, two sets directly connected with the circular electrical conductor and the other two connected electrically with each other, substantially as described. (5.) Apparatus of the kind referred to in claims 3 and 4, comprising a disc of conducting material rotated in a horizontal plane and extending through an air-gap in the inner wall of a closed annular box which is a magnet, concentric cylinders of suitable material depending from the said disc in two sets, one set on each side of the said air-gap, fixed concentric cylinders of suitable material also in two sets, one set on each side of the air-gap, contained in a separate vessel, there being a depending cylinder between each fixed cylinder and the next, and electrical connection between the two vessels, substantially as described. (6.) Connecting the fixed electrodes in the outer cell with the fixed electrodes in the inner cell by a conductor passing through the air-gap, substantially as described. (7.) Connecting the periphery of the armature by a rubbing contact with a conductor passing through the air-gap to the electrodes on the opposite side of the magnetic field, substantially as described. (8.) In apparatus such as is referred to in claim 5, one or more horizontal flanges on the inner surface of each depending cylinder, and a pipe passing from each depending cylinder of the inner set to a depending cylinder of the outer set, so that mercury delivered to the inner surface above the lower flange of each depending cylinder of the inner set may, after rising up the cylinder, pass through the said pipe to flow down the inner surface of a depending cylinder of the outer set, substantially as described. (9.) In electrolytic apparatus comprising two sets of cylindrical revolving electrodes faced with mercury by centrifugal action, an arrangement for transmitting the mercury from the one set of revolving electrodes to the other set, substantially as described. (10.) In electrolytic apparatus of the type described, an electrode consisting of mercury moving under centrifugal action, substantially as described.

(Specification, 9s. 6d.; drawings, 3s.)

No. 16081.—12th March, 1903.—JOHN WARDEN LATIMER, of 1141, Dunning Street, Chicago, Cook, Illinois, United States of America, Mechanic. Mowing-machines.

Claims.—(1.) In a mowing-machine, a gearing-frame, the coupling-frame pivoted thereto, the swivel hinge F, the cutting-apparatus pivotally connected thereto and having a reciprocating knife, a crank upon the gearing-frame, a pitman in two parts, and a vibrating hanger pivoted to said swivel hinge by means of which said pitman is controlled at the junction of its two parts, all combined substantially as described. (2.) In a mowing-machine, a gearing-frame having a crank-shaft journaled therein and provided with a crank, a coupling-frame pivoted to the said gearing-frame and adapted to rise and fall at its grassward end, a finger-bar secured to said coupling-frame by means permitting movement of two axes, whereby it may rock on a substantially horizontal axis transverse to the lateral advance of the machine and be folded upward at its outer end, a reciprocating knife, a jointed pitman connecting said crank to said reciprocating knife, and a down-hanger secured to a support upon the coupling-frame and connected to the joint of the said pitman, means for raising the cutting-apparatus simultaneously at both ends, and means for raising the outer end independently of the inner, all combined substantially as described. (3.) In a mowing-machine, a gearing-frame having a cranked shaft journaled therein, a coupling-frame, a swivel hinge pivoted to said coupling-frame, the finger-bar pivoted to said swivel hinge, said parts having combined therewith the support M secured to the said swivel hinge, a vibrating hanger pivoted in the said support, a reciprocating knife, said reciprocating knife connected to the crank of said crank-shaft by a two-part pitman, said two-part pitman connected to said vibrating hanger, substantially as described. (4.) In a mowing-machine, a gearing-frame, a coupling-frame pivoted thereto, a reciprocating cutting-device pivotally connected to said coupling-frame, lifting mechanism adapted to raise and sustain the cutting-apparatus at both inner and outer end simultaneously, combined with a separate lifting-lever and supplemental spring adapted to raise the outer end of the cutting-apparatus to a higher position at the will of the attendant, substantially as described. (5.) In a mowing-machine, a gearing-frame, a coupling-frame pivoted thereto,

a reciprocating cutting-device pivotally connected to said coupling-frame, lifting mechanism adapted to raise and sustain the cutting-apparatus to both inner and outer end simultaneously, combined with a spring adapted to raise the outer end of the cutting-apparatus to a higher position at the will of the attendant, and a pivoted arm, to which the spring is connected so that the line of draft of the spring shall cross the axis of movement of said arm and thus render the spring inoperative while the cutting-apparatus is in working position, substantially as described. (6.) In a mowing-machine, a gearing-frame, a coupling-frame pivoted thereto, a reciprocating cutting-device pivotally connected to said coupling-frame, lifting mechanism adapted to raise and sustain the cutting-apparatus at both inner and outer end simultaneously, combined with a spring adapted to raise the outer end of the cutting-apparatus to a higher position at the will of the attendant, and a pivoted arm to which the spring is connected so that the line of draft of the spring shall cross the axis of movement of said arm and thus render the spring inoperative while the cutting-apparatus is in working position, said arm having as one piece therewith a lever controllable by the operator, substantially as described. (7.) In a mowing-machine, the main gearing-carriage, a crank-shaft mounted therein, the coupling-frame pivoted thereto, the cutting mechanism pivoted to the said coupling-frame, a two-part pitman connecting said crank to said cutting-apparatus, a down-hanger controlling the said two-part pitman, said down-hanger clasping the two parts of said two-part pitman where joined, substantially as described. (8.) In a mowing-machine, a gearing-frame, a coupling-frame pivoted thereto, a swivel hinge F, a cutting-apparatus pivotally connecting thereto and having a reciprocating knife, a crank upon the gearing-frame, a pitman in two parts connecting the crank and reciprocating knife, and means supported by the swivel hinge for supporting and guiding the pitman at the junction of its two parts, substantially as described.

(Specification, 8s.; drawings, 4s.)

No. 16082.—12th March, 1903.—JAMES FINNEY MCELROY, of 413-423, North Pearl Street, Albany, New York, United States of America, Consulting Engineer. Improvements in electric-lighting systems.

Claims.—(1.) An electric system particularly designed for car-lighting from an axle, having a variable-speed dynamo, an automatic connection-switch, electric lamps and a storage battery, and a regulator for the dynamo compensating for variations in speed, variations in the number of lamps, and variations in the demand of the battery for charging-current, so as to maintain the potential of the dynamo constant, but of different values at the lamps and at the battery. (2.) In a system of the kind described, with a dynamo operating the lamps and simultaneously charging the battery, the employment of a magnet to measure the line potential and to set in action mechanism, such as an electric motor and field-magnet resistance controlled thereby, which will correct any departure from the normal potential delivered by the dynamo. (3.) In a system of the kind described, in which individual lamps are to be turned on or off, a main regulator for the dynamo responding to the battery-charging potential, and a secondary regulator that will measure the potential of the lamp circuit and adjust the potential-reducing resistance in series with the lamps. (4.) In a system of the kind described, a secondary regulator measuring and determining the potential of the lamp circuit, and adjusting-devices for dimming the lamps, substantially as described. (5.) In a system of the kind described, an automatic connection-switch for the dynamo having an operating magnet or motor and a potential-measuring magnet controlling the said magnet or motor. (6.) In a system of the kind described, a motor supplied from the battery instead of the dynamo, and operating the dynamo-regulator. (7.) In a system of the kind described, the employment of means, such as a coil in series with the battery, for limiting the flow of charging-current into the battery, and adjusting such current according to the condition of the battery-charge. (8.) In a system of the kind described, the use of a single magnet, in a shunt circuit bridging the dynamo terminals, to operate the connection-switch of the dynamo and also control the dynamo-regulator. (9.) In a system of the kind described, the arrangement of the lamps in groups with a resistance in each group, and automatic devices for regulating the dynamo and removing the said resistance when the dynamo is disconnected and the lamps are operated by the battery. (10.) In a system of the kind described, the means for gradually transferring the lamps from the battery to the dynamo, and raising the dynamo potential so that it will charge the battery with the simultaneous introduction of the lamp-resistance, substantially as set forth. (11.) In a system of the kind described, a speed-limiting device for the motor that works the regulator, substantially as set forth. (12.) The arrangement of

lamps for the vestibules or doors of the train, which are automatically lighted as the train comes to a standstill and extinguished as the train starts again. (13.) The means substantially as described for automatically reversing the connection of the dynamo with the main circuit while leaving the field-magnet of the dynamo unchanged, so that a reversal of direction will cause a reversal of the armature-current, which will be neutralised, however, by the reversal of connection. (14.) The extension of the aforesaid system to a train of cars, each provided with a battery, lamps, lamp-resistances, and controlling-devices, substantially as shown in Fig. 5. (15.) In a system of the kind described, means for maintaining a current from the battery through the commutator of the dynamo when the latter is at rest, to insure the restarting of the generating action of the dynamo. (16.) In a system of the kind described, a dynamo capable of simultaneously supplying the lamps and charging the battery in multiple with the lamps, a regulator for maintaining the potential of such dynamo constant, and means for reducing the potential of the lamp branch below that of the battery branch, whereby the system has the economy due to direct operation of the lamps from the dynamo, is independent of special battery-charging runs, and the current-volume is in exact ratio to the demands of the lamps and battery independently of the speed.

(Specification, £1 7s.; drawings, 7s.)

No. 16083.—13th March, 1903.—OSBORNE WALL, Gunsmith, and ROBERT CLINTON HUGHES, Lawyer, both of New Plymouth, New Zealand. Improvements in and relating to sash-locks.

Claims.—(1.) The combination with a bolt of a rotatable collar thereon adapted to be placed across the meeting edges of the parts locked, substantially as described. (2.) The combination with a spring-actuated bolt of a rotating bearing element held in its end and a collar loose on said bolt, substantially as described. (3.) The combination with the sheet-metal casing of a spring-urged bolt therein, a finger-grip on one end, a depending hasp on said finger-grip, a depending plate 19, a staple secured to said plate and passing through the hasp, a loose collar on the bolt and a bearing-wheel in the end of said bolt, substantially as described. (4.) The combination with a casing of a spring-urged bolt contained therein, a loose collar on and a wheel secured in the end of said bolt, and a supplementary bolt parallel therewith, substantially as described. (5.) The combination with a sheet-metal casing and a depending plate 19 of a staple secured to said plate, a spring-urged bolt in said casing, a depending hasp on one end of the bolt to take over said staple, a loose collar on and a wheel in the opposite end of the said bolt, a supplementary bolt parallel to the main bolt, and held-in straps forming one piece with the casing, substantially as described.

(Specification, 3s. 6d.; drawings, 1s.)

No. 16084.—10th March, 1903.—JOHN OUTRED, Gentleman, and JAMES McQUEEN, Importer, both of Dunedin, New Zealand. Improvements in the pedal action and speed of cycles.

Claims.—(1.) In cycles driven by endless chains with pedals, either for motive or auxiliary power, the combination of a free-wheel action in the hub of each pedal with a spring capable of adjustment for returning pedals to the highest or normal position, said pedals working with a reciprocating motion and acting independently, all substantially as shown and described, and as illustrated in the drawing. (2.) In cycles driven by an endless chain and pedals, in combination, a set of bevel wheels arranged to double the speed given to the small sprocket wheel, with reciprocating pedals furnished with free-wheel action to each so that any length of stroke short of the maximum arranged for can be adopted, and each pedal arranged to act independently of the other, all substantially as shown and described. (3.) In combination, in cycles, independent pedals capable of varying strokes at will, furnished with adjusting springs to bring same to normal position, with bevel gearing arranged to double the speed given to the sprocket wheel by the chain, substantially as described and explained, and as illustrated in the drawing.

(Specification, 3s. 9d.; drawings, 1s.)

No. 16088.—13th March, 1903.—WILLIAM NEWTON DUMARESQ, of 12, Rylett Crescent, Shepherd's Bush, London, Middlesex, England, Electrical Engineer. Improvements in variable-speed gearing.

Claims.—(1.) The improved variable-speed gearing for enabling the speed transmitted from the actuating me-

chanism to the driven shaft to be varied at will, consisting in a drum mounted upon the latter and composed of a series of arms capable of sliding radially towards and away from the centre of such shaft, and each carrying a grooved wheel (over which grooved wheels a transmission-cord passes) or a chain pinion (over which a transmission-chain passes), substantially as specified. (2.) The improved variable-speed gearing for enabling the speed transmitted from the driving to the driven shaft to be varied at will, consisting in a drum mounted upon each of such shafts, and either or both of such drums being composed of a series of arms capable of sliding radially towards and away from the centre of such shaft, and each carrying a grooved wheel (over which grooved wheels a transmission-cord passes) or a chain pinion (over which a transmission-chain passes), substantially as specified. (3.) In drums constructed as set forth in claims 1 and 2, mounting each of the pulleys or pinions upon its axis by means of a roller clutch which permits same to rotate thereon in one direction and causes it to remain locked so as to prevent its rotation in the opposite direction, substantially as and for the purposes specified. (4.) In the arrangement set forth in the preceding claims, the means for simultaneously expanding or contracting the sections of one drum, or of simultaneously expanding those of one drum and contracting those of the other drum, consisting in a scroll thread connected to the part carrying the expanding arms, projections on which latter engage such scroll thread, in combination with means for rotating the latter in either direction independently of the driving or driven shaft, substantially as specified. (5.) In the arrangement set forth in claims 1, 2, and 3, the means for simultaneously expanding or contracting the sections of one drum, or of simultaneously expanding those of one drum and contracting those of the other drum, consisting in two scroll threads connected to the part carrying the expanding arms and arranged one on each side of such arms, projections on which latter engage respectively with the two scroll threads, in combination with means for rotating the latter in either direction independently of the driving or driven shaft, substantially as specified. (6.) In the arrangement set forth in the preceding claims, the means for simultaneously expanding or contracting the sections of one drum, or of simultaneously expanding those of one drum and contracting those of the other drum, consisting in a scroll thread connected to the part carrying the expanding arms, projections on which latter engage such scroll thread, in combination with means for rotating the latter in either direction independently of the driving or driven shaft, such means consisting in a bevel wheel secured to the shaft of the drum and a second bevel wheel connected to the scroll-thread plate, in combination with a pinion capable of being brought into gear with the two bevel wheels, and with a roller capable of being brought into contact with two cylindrical surfaces connected respectively with each of the bevel wheels, substantially as specified. (7.) In the arrangement set forth in claims 1 and 2, the means for simultaneously expanding or contracting the sections of one drum, or of simultaneously expanding those of one drum and contracting those of the other drum, consisting in a set of screws respectively engaging a projection on each of the expanding arms, in combination with means for simultaneously rotating such screws in either direction, substantially as specified. (8.) In the arrangement set forth in claims 1 and 2, the means for simultaneously expanding or contracting the sections of one drum, or of simultaneously expanding those of one drum and contracting those of the other drum, consisting in a set of screws respectively engaging a projection on each of the expanding arms, in combination with means for simultaneously rotating such screws in either direction, such means consisting in a bevel wheel secured to the shaft of the drum, a second bevel wheel formed with a crown, wheel-engaging pinions mounted upon each of such screws, and a pinion capable of being brought into gear with the two bevel wheels, and also of a roller capable of being brought into contact with two cylindrical surfaces connected respectively with each of the bevel wheels, substantially as specified. (9.) In the arrangement set forth in claim 2, the means for simultaneously expanding the sections of one drum and contracting the sections of the other drum, consisting in longitudinal racks mounted to slide in slots in the shaft of each of such drums, and engaging teeth formed in the boss of the plate, in relation to which the arms carrying such sections are capable of moving inwards and outwards radially, in combination with means for simultaneously moving the racks in the same direction, substantially as specified. (10.) In the arrangement set forth in claim 2, the means for simultaneously expanding the sections of one drum and contracting the sections of the other drum, consisting in longitudinal racks mounted to slide in slots in the shaft of each of such drums, and engaging teeth formed in the boss of the plate, in relation to which the arms carrying such sections are capable of moving inwards and outwards radially, in combination with means for simultaneously

moving the racks in the same direction, such means consisting in a screw either engaging a nut which is capable of being rotated in both directions or which is itself capable of being rotated in both directions so as to work through nuts formed in a bar or bars with which such screw is connected, and the opposite ends of which bar or bars bear respectively on the opposite ends of the racks, substantially as specified. (11.) In the arrangement set forth in claim 2, the means for simultaneously expanding the sections of one drum and contracting the sections of the other drum, consisting in a longitudinal shaft or rod carrying two pinions near each end, such rod being capable of sliding in its bearings so as to bring one or other of the pinions respectively into gear with two face wheels secured respectively to the parts of the drums serving to expand and contract the sections thereof, in combination with means for connecting such sliding rod or shaft to and disconnecting it from the actuating mechanism and enable it to be rotated in either direction, substantially as specified. (12.) The combination with the arrangement set forth in claims 1 and 2 of means for imparting the required movement to the arms carrying the pulleys or sprockets so as to expand or contract the drum or drums automatically, substantially as described.

(Specification, 17s.; drawings, 5s.)

No. 16089.—12th March, 1903.—Dr. MAX HENIUS, of 294, South Water Street, Chicago, Cook, Illinois, United States of America. Improvements in or relating to mash-tuns and wort-separators.

Claims.—(1.) A convertible mash-tun and wort-separator characterized by a rotatably supported vessel having in its otherwise closed wall a strainer-covered opening normally uppermost whereby to retain the contents during the mashing operation, said vessel being invertible to bring the strainer-covered opening lowermost whereby to strain the wort, and a stirrer for the contents of the vessel mounted therein. (2.) The convertible mash-tun and wort-separator characterized by claim 1, having an inlet-opening in the vessel-wall for connection with a supply-pipe. (3.) The convertible mash-tun and wort-separator according to claim 1, in which the stirrer is a hollow shaft rotatably mounted in the vessel, and having a series of blade-carrying hollow stirrer-arms. (4.) The convertible mash-tun and wort-separator according to claims 1 and 3, in which the hollow stirrer-arms are equipped with check-valves. (5.) The convertible mash-tun and wort-separator shown and described. (Specification, 6s. 6d.; drawings, 2s.)

No. 16099.—18th March, 1903.—CORYDON WILLARD MUNSON, of 338, Huron Street, Toledo, Lucas, Ohio, United States of America, Manufacturer. Improvements in or relating to compressors for gaseous fluids.

Claims.—(1.) A compressor including in its construction a casing and a rotary carrier within the casing, and having hinged wings adapted to be closed by contact with the inner wall of the casing, and means for supplying oil to and through the compressor for sealing the joints between relatively movable parts of said compressor. (2.) A compressor including in its construction a casing and a rotary carrier within the casing, and having hinged wings adapted to be closed by contact with the inner wall of the casing, combined with an oil-reservoir having a valve-connection with the said casing, a reservoir for compressed fluid, an oil-cooler having a connection with said reservoir, a pressure-reducing valve in the last-named connection, and means for delivering oil from the cooler to the oil-reservoir. (3.) A compressor including in its construction a casing and a rotary carrier within the casing, and having hinged wings adapted to be closed by contact with the inner wall of the casing, combined with an oil-reservoir having a valve-connection with the casing, a reservoir for compressed fluid, an oil-cooler having a connection with said reservoir, a pressure-reducing valve in the last-named connection, and means for delivering oil from the cooler to the oil-reservoir, and a float-controlled valve for regulating the supply of cool oil to the oil-reservoir according to the flow of oil from the oil-reservoir to the compressor. (4.) A compressor comprising in its construction a wing-carrier and an enclosing casing, one being rotatable relatively to the other, said carrier having an internal conduit and valved openings communicating therewith, a plurality of wings hinged to the carrier over said valved openings, said casing having an internal shape to cause the wings to successively close toward the carrier during the relative rotation of the casing and carrier, means for continuously admitting gaseous fluid to the casing, and means for continuously circulating oil through the compressor and cooling the oil outside of the compressor. (5.) A compressor comprising in its construction a wing-carrier and an enclosing casing, one being rotatable relatively to the other,

said carrier having an internal conduit and valved openings communicating therewith, a plurality of wings hinged to the carrier over said valved openings, said casing having an internal shape to cause the wings to successively close toward the carrier during the relative rotation of the casing and carrier, means for continuously admitting gaseous fluid to the casing, combined with a reservoir for receiving the compressed gaseous fluid, means for continuously supplying oil to the compressor-casing, means for permitting the escape of oil from said reservoir, means for cooling the oil, and connections for returning the oil to the compressor-casing. (6.) A compressor comprising in its construction a wing-carrier and an enclosing casing, one being rotatable relatively to the other, said carrier having an internal conduit and valved openings communicating therewith, a plurality of wings hinged to the carrier over said valved openings, said casing having an internal shape to cause the wings to successively close toward the carrier during the relative rotation of the casing and carrier, means for continuously admitting gaseous fluid to the casing, combined with a reservoir for receiving the compressed gaseous fluid, means for continuously supplying oil to the compressor-casing, means for permitting the escape of oil from said reservoir, means for cooling the oil, and connections for returning the oil to the compressor-casing, the compressor being provided with conduits for a cooling-fluid.

(Specification, 6s.; drawings, 2s.)

No. 16100.—18th March, 1903.—COOLEY DEVELOPMENT COMPANY, a corporation organized under the laws of the State of Maine, and doing business at 83, Braintree Street, Boston, Suffolk, Massachusetts, United States of America (assignee of John Francis Cooley, of 667, Cambridge Street, Boston aforesaid, Mechanical Engineer.) Improvements in and relating to rotary fluid engines.

Claims.—(1.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, and entrance and exit ports for fluids. (2.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, and entrance and exit ports for fluids laterally situated in the bore of said cylinder to be opened and closed by said spacer. (3.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, and ports in the cylinder for the admission and exhaust of fluids. (4.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, and ports in the cylinder controlled by said spacer for admitting and exhausting the fluids to and from the piston between said contact-points. (5.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer open between said piston and said bore and in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, and ports in the cylinder controlled by said spacer for admitting and exhausting the fluids to and from the piston between said contact-points. (6.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore and mounted on a shaft eccentric to said bore, cylinder-heads provided with eccentric bearings for said piston-shaft, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, and entrance and exit ports for the fluids between said contact-points. (7.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore and mounted on a shaft eccentric to said bore, cylinder-heads provided with eccentric bearings for said piston-shaft, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston

concentric bearings for the spacer, discs provided with bearing-surfaces for supporting said spacer upon said concentric bearings, and entrance and exit ports in the cylinder controlled by said spacer for admitting and exhausting fluids to and from the piston between said contact-points. (8.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer having ports between said piston and said bore and in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, and ports in the cylinder controlled by said spacer for admitting and exhausting the fluids to and from the piston between said contact-points. (9.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore and mounted on a shaft eccentric to said bore, cylinder-heads provided with eccentric bearings for said piston-shaft, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, concentric bearings for the spacer, discs provided with bearing-surfaces for supporting said spacer upon said concentric bearings, and entrance and exit ports for the fluids in said cylinder. (10.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore and mounted on a shaft eccentric to said bore, cylinder-heads provided with eccentric bearings for said piston-shaft, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, concentric bearings for said spacer, discs provided with bearing-surfaces for supporting said spacer upon said concentric bearings, and entrance and exit ports in the cylinder controlled by said spacer for admitting and exhausting fluids to and from the piston between said contact-points. (11.) In a rotary fluid machine, a cylinder having an internal bore, a rotary epicycloidal cam piston therein out of contact therewith and whose axis is eccentric to but parallel with the axis of said bore, a like-directionally rotating spacer between said piston and said bore composed of two or more equiangularly located and connected radial partitions of equal radial height whose outward edges are in continuous contact with said bore and whose inner edges are in continuous contact with said piston, and entrance and exit ports for fluids through said bore. (12.) In a rotary fluid machine, a cylinder having an internal circular bore, a rotary epicycloidal cam piston therein out of contact therewith whose axis is eccentric to but parallel with the axis of said bore, a like-directionally rotating spacer between said piston and said bore composed of two or more equiangularly located and connected radial partitions of equal radial height whose outward edges are in continuous contact with said bore and whose inner edges are in continuous contact with said piston, and entrance and exit ports laterally situated in the bore of said cylinder to be opened and closed by said spacer. (13.) In a rotary fluid machine, a cylinder having an internal circular bore, a rotary cam piston therein out of contact therewith having a shaft extending through its axis which is eccentric to but parallel with the axis of said bore, a like-directionally rotating spacer between said piston and said bore composed of two or more equiangularly situated and connected radial partitions of equal radial height whose outward edges are in continuous contact with said bore and whose inner edges are in continuous contact with said piston, end plates provided with bearings to support said shaft, and entrance and exit ports for fluids through said bore. (14.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore and mounted on a shaft eccentric to said bore cylinder-heads provided with eccentric bearings for said piston-shaft, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant

but different rates of speed, concentric bearings for said spacer, discs provided with bearing-surfaces for supporting said spacer upon said concentric bearings, and entrance and exit ports in the cylinder controlled by said spacer for admitting and exhausting fluids to and from the piston between said contact-points, and intermeshing gearing on said piston-shaft and spacer. (16.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, entrance and exit ports for fluids, and intermeshing gearing on said piston-shaft and spacer. (17.) In a rotary fluid machine, a cylinder having an internal bore, a rotary cam piston therein whose axis is parallel to the axis of said bore, a like-directionally rotating spacer between said piston and said bore in continuous contact at radially coincident and equiangularly spaced intervals with both bore and piston, entrance and exit ports for fluids, and reversible valves for controlling the admission and exhaust of fluids to and from the machine.

(Specification, 15s. 6d.; drawings, 3s.)

No. 16102.—18th March, 1903.—WILLIAM ALEXANDER JUSTICE DUTCH, Brassfounder, and CHARLES HENRY BARTON, Brassfinisher, both of Wellington, New Zealand. An improved ball valve for water-cisterns.

Claims.—(1.) A ball valve constructed in two parts secured together, with a flexible watertight diaphragm between them, one of the parts being formed with a water-chamber on its face, and with an inlet-opening leading into the chamber and covered by the diaphragm, while the other part has mounted in it a plug adapted to be pressed against the diaphragm so as to force it against the inlet-opening, and to be moved away from contact therewith, by the up-and-down movement of a float-lever, in combination with an outlet-opening leading from the edge of the water-chamber, as set forth. (2.) A ball valve constructed in two parts with flat adjacent surfaces, an annular recess formed in the face of one of the parts, a water-inlet leading into the recess by means of an opening projecting outwards into the centre thereof, an outlet leading downwards from the edge of the recess, a sliding chamber passing longitudinally through the other part of the valve, a plug loosely fitting within such chamber, and a pivoted float-lever adapted to move such plug to and fro within the chamber as it rises and falls, in combination with a diaphragm of leather, rubber, or other flexible material secured between the two parts of the valve and between the inlet-opening and the inner end of the plug, all as and for the several purposes specified. (3.) The general arrangement, construction, and combination of parts in our improved ball valve for water-cisterns, as described and explained, as illustrated in the sheet of drawings, and for the several purposes set forth.

(Specification, 3s. 6d.; drawing, 1s.)

No. 16107.—19th March, 1903.—THOMAS ROOKE, of Enmore Road, Newtown, New South Wales, Engineer; JOHN THURSH, of Silver Hill, New Canterbury Road, Dulwich Hill, New South Wales, Miner; and THOMAS FRANCIS WADE EARLY, of 171, Stanmore Road, Petersham, New South Wales, Commercial Traveller. Garbage-destroyer.

Claims.—(1.) In garbage-destroyers, a fire-space, above which is a roasting-plate, that is overlaid at a short distance above it by a grating which forms the bottom of the garbage-chamber, the space between the roasting-plate and the grate above it being in communication with the fire-space, so that the products of combustion from the fuel can enter such space, as set forth. (2.) In garbage-destroyers, a fire-space, air-passages giving direct communication between the fire-space and the external atmosphere, a roasting-plate above the fire-space, flues or passages for allowing the products of combustion from the fuel in the fire-space to directly enter the space above the roasting-plate, and a grating a short distance above the roasting-plate, as set forth. (3.) In garbage-destroyers, a fire-space, a roasting-plate above the fire-space, a grating a little distance above the roasting-plate, passages for conveying the products of combustion from the fire-space to the space above the roasting-plate, an air-chamber behind the fire-space, such chamber being in open communication with the external atmosphere, passages or flues for allowing the products of combustion from the fire-space to enter the air-chamber, and flues or passages from the air-chamber to the space between the roasting-plate and the overlying grating, and flues or passages from the air-chamber to the garbage chamber or cell above the grating, as specified. (4.) In garbage-destroyers, a fire-space, a roasting-plate

above the fire-space, a grating a short distance above the roasting-plate, a garbage chamber or cell above the grating, a garbage-hopper above the garbage chamber or cell, the bottom of such hopper being closed by doors, which may be worked automatically or otherwise, an air-chamber behind the fire-space, such air-chamber being in communication by flues or passages with the fire-space, and also with the space above the roasting-plate, and with the space, or garbage-cell, above the grating, as set forth. (5.) In garbage-destructors, a fire-space, a roasting-plate above the fire-space, a grating above the roasting-plate, a garbage-cell above the grating, an air-space behind the fire-space, suitable flues or passages for conveying the products of combustion to the air-chamber and from thence to the garbage-spaces, a rectangular flue between the garbage-cell and the hopper, such flue being in communication on one side with the garbage-cell and on the other with an uptake-flue, as specified. (6.) The general arrangement, construction, and combination of parts in the garbage-destroyer as set forth, and for the purposes specified.

(Specification, 5s. 6d. ; drawings, 3s.)

No. 16108.—19th March, 1903.—UNITED SHOE MACHINERY COMPANY, of Paterson, State of New Jersey, United States of America, a corporation duly organized under the laws of said State of New Jersey, and having a place of business at 205, Lincoln Street, Boston, Massachusetts, United States of America (assignees of Harrison Henry Eaton, of Winchester, Middlesex, Massachusetts aforesaid, Inventor). Improvements in machines for fastening lacing-hooks in shoes.

Claims.—(1.) In a machine for fastening lacing-hooks, a die provided with a surface for supporting the flange or base portion of the hook, and with means engaging the body portion of either a right or left hook to hold it in required position, substantially as described. (2.) In a machine for fastening lacing-hooks, a die provided with a surface for supporting the flange or base portion of a hook, and a recess shaped to receive the body portion of both right and left hooks, substantially as described. (3.) In a machine for fastening lacing-hooks, a die having a raised projection with an open channel at one side and a channel at the base of said projection to accommodate the body portion of the hook, substantially as described. (4.) A machine for fastening lacing-hooks, having, in combination, a pair of dies constructed for setting right and left hooks, means for separately holding supplies of right and left hooks, and means for feeding a hook from either of said supplies between the dies, substantially as described. (5.) A machine for fastening lacing-hooks, having, in combination, a pair of dies constructed for setting right and left hooks, two chutes for holding right and left hooks respectively, and means for moving one of the dies to and from either chute to feed a hook between the dies, substantially as described. (6.) A machine for fastening lacing-hooks, having, in combination, a pair of dies, two chutes located upon opposite sides of said dies for holding right and left hooks respectively, and means for moving one of the dies to and from either chute to feed a hook between the dies, substantially as described. (7.) A machine for fastening lacing-hooks, having, in combination, upper and lower dies, two chutes for holding right and left hooks respectively, said lower die being arranged to move horizontally from a middle position between said chutes to either chute to receive a hook, and means to actuate said lower die, substantially as described. (8.) A machine for fastening lacing-hooks, having, in combination, an upper die, a lower die pivotally mounted to swing horizontally, two chutes, located upon opposite sides of said dies, for holding right and left hooks respectively, and means to swing said lower die to and from either of said chutes to feed a hook between the dies, substantially as described. (9.) A machine for fastening lacing-hooks, having, in combination, an upper die, an oscillating lower die, a rock shaft carrying the lower die, two chutes located upon opposite sides of said dies, and means for actuating the shaft to move the lower die to and from either chute, substantially as described. (10.) A machine for fastening lacing-hooks, having, in combination, upper and lower dies, a reciprocating plunger and actuating-means therefor, the lower die being supported on the plunger, a pivot for said die substantially parallel with the axis of the plunger, and means for imparting to the die an oscillating movement on the plunger, substantially as described. (11.) A machine for fastening lacing-hooks, having, in combination, upper and lower dies, a reciprocating plunger upon which the lower die is supported, means for actuating the plunger, means for oscillating the lower die comprising a shaft, independent of the plunger, to which the die is secured, and means for oscillating the shaft, substantially as described. (12.) A machine for fastening lacing-hooks, having, in combination, upper and lower dies, the lower die being constructed to receive both right- and left-hand hooks, and means to move

said die laterally to either side of its position directly beneath the upper die, substantially as described. (13.) A machine for fastening lacing-hooks, having, in combination, an upper die, a lower die pivotally mounted to swing horizontally, a pivot therefor, arms to engage the pivot of the die on opposite sides, and means for actuating the arms to oscillate the die on either side of its position directly beneath the upper die, substantially as described. (14.) A machine for fastening lacing-hooks, having, in combination, a hopper provided with a discharge-opening for the hooks, a carrier-plate arranged to reciprocate vertically in said hopper having an inclined upper edge, a hook-lifting plate carried by said carrier-plate, means for reciprocating said plates to and from the discharge-opening, and means for oscillating the hook-lifting plate to bring its upper edge parallel with the inclined upper edge of the carrier-plate when the upper edges of the plates are opposite the discharge-opening, the upper edge of the carrier-plate acting to support the body portion of the hooks, substantially as described. (15.) A machine for fastening lacing-hooks, having, in combination, a hopper provided with a discharge-opening for the hooks, a hook-lifting plate for selecting the hooks and discharging them through said opening, means for actuating the plate, and a support for the body portion of the hooks in their passage along the edge of the hook-lifting plate to said opening, substantially as described. (16.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting dies to fasten the hooks thereto, means for imparting a step-by-step movement to the feed-table, and means for adjusting the extent of such movement, substantially as described. (17.) A machine for fastening lacing-hooks, having, in combination, setting dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting-dies to fasten the hooks thereto, means for imparting a step-by-step movement to the feed-table, and means for returning the table to its initial position, substantially as described. (18.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting-dies to fasten the hooks thereto, and means for imparting a step-by-step movement to the feed-table, arranged to allow the table to be moved manually in the direction of feed, substantially as described. (19.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting-dies to fasten the hooks thereto, means for imparting a step-by-step movement to the feed-table arranged to allow the table to be moved manually, and means under the control of the operator for returning the table to its initial position, substantially as described. (20.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, feeding-mechanism arranged to feed the material step by step, and means for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation after a predetermined number of feeding-movements, substantially as described. (21.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, feeding-mechanism arranged to feed the material step by step, means for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation after a predetermined number of feeding-movements, and means for varying said predetermined number of feeding-movements, substantially as described. (22.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, feeding-mechanism arranged to feed the material step by step, having provision for varying the extent of the feed-movements, means for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation at the end of a predetermined number of feeding-movements, and means for varying said predetermined number of feeding-movements, substantially as described. (23.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, feeding-mechanism arranged to feed the material step by step, means under the control of the operator for throwing the feeding and die-actuating mechanisms out of operation at the end of any feed-movement, and means for automatically throwing said mechanisms out of operation at the end of a predetermined number of feed-movements, substantially as described. (24.) A machine for fastening lacing-hooks, having, in combination, setting dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting-dies to fasten the hooks thereto, means for imparting a step-by-step movement to the feed-table, a driving-shaft, a

clutch thereon, and means for automatically disengaging the clutch when a predetermined number of movements have been imparted to the feed-table, substantially as described. (25.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for separately holding supplies of right and left hooks, mechanism for moving one of the dies to and from either holding-means to feed a hook between the dies, means for connecting the die with such mechanism so as to be moved to and from either holding-means, and simultaneously throwing the die-actuating mechanism into operation, substantially as described. (26.) A machine for fastening lacing-hooks, having, in combination, means for separately holding supplies of right and left hooks, setting-dies and actuating-mechanism therefor, said mechanism comprising a driving-shaft and intermediate connections, connections from said shaft to one of the dies for moving it to and from either hook-holding means to feed a hook between the dies, a clutch on the driving shaft, a clutch-actuating member, a member for shifting the connections between the shaft and die to cause it to be moved to and from either hook-holding means, means for actuating said member to shift said connections to either position and for simultaneously actuating the clutch-actuating member, substantially as described. (27.) A machine for fastening lacing-hooks, having, in combination, upper and lower dies, a shaft for the lower die, and arms to turn said shaft in opposite directions and oscillate the lower die, clutch-operating mechanism, and a lever operatively connected with said mechanism and said arms, and a chute to deliver the hooks to the lower die, substantially as described. (28.) In a machine for fastening lacing-hooks, a die having a projection for supporting the flange or base portion of the hook provided at one side with an open channel to receive the body portion of the hook and hold it in required position, substantially as described. (29.) A machine for fastening lacing-hooks, having, in combination, a pair of co-operating dies, one of said dies being provided with a surface for supporting the flange or base portion of a hook and a recess shaped to receive the body portion of a hook, a feed-chute arranged to feed a hook with its body portion in position to be received by said die, and means for actuating said die to take a hook from said chute and carry it to a position to be acted upon by the other die, substantially as described. (30.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating mechanism therefor, feeding-mechanism arranged to feed the material step by step, having provision for varying the extent of the feed-movements, and means for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation at the end of a predetermined number of feeding-movements, substantially as described. (31.) A machine for fastening lacing-hooks, having, in combination, a feed-table, a carriage, means for imparting to the carriage a step-by-step movement arranged to allow the carriage to be moved manually, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table, means under the control of the operator for holding the carriage from a return movement, and a spring for returning the carriage, substantially as described. (32.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, a feed-table, a carriage, means for imparting a step-by-step movement to the carriage, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table provided with means of adjustment for varying the extent of such movement, substantially as described. (33.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, a feed-table, a carriage, means for imparting to the carriage a step-by-step movement, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table, means for holding the carriage from a return movement, means for automatically disengaging said holding-means after a predetermined number of feeding-movements, and a spring for returning the carriage to its initial position, substantially as described. (34.) In a machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, a feed-table, a carriage, means for imparting to the carriage a step-by-step movement, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table provided with means of adjustment for varying the extent of such movement, means for holding the carriage from a return movement, means for automatically disengaging said holding-means after a predetermined number of feeding-movements, and a spring for returning the carriage to its initial position, substantially as described. (35.) In a machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, a feed-table, a carriage, means for imparting to the carriage a step-by-step movement, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table provided with means of adjustment for varying the

extent of such movement, means for holding the carriage from a return movement, means for automatically disengaging said holding-means after a predetermined number of feeding-movements, means for varying said predetermined number of feeding-movements, and a spring for returning the carriage to its initial position, substantially as described. (36.) In a machine for fastening lacing-hooks, having, in combination, setting-dies and actuating mechanism therefor, a feed-table, a carriage, means for imparting to the carriage a step-by-step movement, connections between the feed-table and carriage for imparting a step-by-step movement to the feed-table, means for holding the carriage from a return movement, means for automatically disengaging said holding-means after a predetermined number of feeding-movements, means for varying said predetermined number of feeding-movements, and a spring for returning the carriage to its initial position, substantially as described. (37.) A machine for fastening lacing-hooks, having, in combination, an upper die, a lower die provided with a surface for supporting the flange or base portion of a hook and a recess to receive the body portion of the hook, a feed-chute arranged to feed a hook with its body portion in position to be received by the lower die, said lower die being movable to a position to bring the recess in line with the hook, then to a position to receive the hook in said recess, and then to a position to co-operate with the upper die in setting the hook, and means for actuating the lower die, substantially as described. (38.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, means for feeding the lacing-hooks to the dies, feeding-mechanism arranged to feed the material step by step, and means operating independently of the length of the individual feed-movements for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation after a predetermined number of feeding-movements, substantially as described. (39.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating mechanism therefor, means for feeding the lacing-hooks to the dies, feeding-mechanism arranged to feed the material step by step, means operating independently of the length of the individual feed-movements for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation after a predetermined number of feeding-movements, and means for varying said predetermined number of feeding-movements, substantially as described. (40.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, feeding-mechanism arranged to feed the material step by step, having provision for varying the extent of the feed-movements, means operating independently of the length of the individual feed-movements for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation at the end of a predetermined number of feeding-movements, and means for varying said predetermined number of feeding-movements, substantially as described. (41.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, feeding-mechanism arranged to feed the material step by step, means under the control of the operator for throwing the feeding and die-actuating mechanisms out of operation at the end of any feed-movement, and means operating independently of the length of the individual feed-movements for automatically throwing said mechanisms out of operation at the end of a predetermined number of feed-movements, substantially as described. (42.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating mechanism therefor, means for feeding the lacing-hooks to the dies, a feed-table arranged to support the material in position for the setting-dies to fasten the hooks thereto, means for imparting a step-by-step movement to the feed-table, a driving-shaft, a clutch thereon, and means operating independently of the length of the individual movements for automatically disengaging the clutch when a predetermined number of movements have been imparted to the feed-table, substantially as described. (43.) A machine for fastening lacing-hooks, having, in combination, setting-dies and actuating-mechanism therefor, feeding-mechanism arranged to feed the material step by step having provision for varying the extent of the feed-movements, and means operating independently of the length of the individual feed-movements for automatically throwing the feeding-mechanism and die-actuating mechanism out of operation at the end of a predetermined number of feeding-movements, substantially as described.

(Specification, £1 10s.; drawings, 7s.)

No. 16113.—20th March, 1903.—CHARLES CRAWFORD NEAL, of Cambridge, Auckland, New Zealand, Settler. A device for holding the tails of cows while being milked.

Claim.—A device for holding the tails of cows while they are being milked, such device consisting of a flat bar of

metal or other springy material, one end of which is secured to a post or board while the other end is adapted to be sprung into and held by clips secured also to the post or board, as specified.

(Specification, 2s. ; drawings, 1s.)

No. 16131.—25th March, 1903.—LEWIS PETER FORD, of 32, Victoria Street, Westminster, London, England, Gentleman. Mould for the manufacture of large blocks of artificial stone.

Claims.—(1.) In the manufacture of artificial stone, where use is made of the expanding property of lime or cement to obtain compression, the use of a cylindrical mould. (2.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical body, means for rigidly closing the same, detachable ends, and fine perforations in the body and ends, substantially as set forth. (3.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, means for rigidly closing the same, perforations in said shell, detachable ends, an inner lining made of thin metal, and finer perforations in said inner lining, substantially as set forth. (4.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, means for rigidly closing the same, perforations in said shell, detachable ends, means for securing the ends to the cylindrical shell, perforations in said ends, a lining made of thin metal, and finer perforations in said lining, substantially as set forth. (5.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, means for rigidly closing the same, perforations in said shell, detachable ends, means for securing the ends to the cylindrical shell, perforations in said ends, a thin metal lining, finer perforations in said lining arranged more closely than those in the shell, and flanges on said lining adapted to be closed by the butt-joint of the shell, substantially as set forth. (6.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, a butt-joint in said shell, means for rigidly closing said butt-joint, perforations in said shell, detachable ends, a thin metal lining, finer perforations in said lining arranged more closely than those in the shell, and flanges on said lining adapted to be closed by the butt-joint of the shell, substantially as set forth. (7.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, a butt-joint in said shell, fastening-means attached to the meeting edges of the shell, bolt-holes in the fastening-means in close proximity to the shell, bolts and nuts by which such fastening-means are secured together, a recess in said fastening-means adjacent to the said butt-joint, projections and recesses formed on or in said fastening-means, perforations in said shell, detachable ends, a thin metal lining, and finer perforations arranged more closely together in said lining, substantially as set forth. (8.) In a mould for the manufacture of blocks of artificial stone, where use is made of the expanding property of lime or cement to obtain compression to solidify the blocks, the combination of a cylindrical shell, a butt-joint in said shell, fastening-means attached to the meeting edges of the shell, bolt-holes in the fastening-means in close proximity to the shell, bolts and nuts by which such fastening-means are secured together, means for opening said shell, a recess in said fastening-means adjacent to the said butt-joint, projections and recesses formed on or in said fastening-means, screwed studs fixed in the ends of said fastening-means, perforated portions attached to each end of the cylindrical shell, perforations in said shell, detachable ends, perforations in said ends, holes in the edges of said ends, nuts and bolts for securing the ends to the cylindrical shell, a thin metal lining, and finer perforations in said lining, substantially as set forth. (9.) The improved mould for the manufacture of blocks of artificial stone, substantially as set forth.

(Specification, 6s. 6d. ; drawings, 2s.)

No. 16132.—25th March, 1903.—ROBERT HARVEY, of 17, London Street, Newtown, near Sydney, New South Wales, Master Plumber, and CHARLES JOHN BRUCE, of "Blink Bonnie," Torrens Street, Blakehurst, New South Wales, Plumber. A self-tilting table adapted to receive moving liquid or matter so as to automatically direct the flow, divert and discharge the same.

Claims.—(1.) A tilting tray or table consisting of a receiver having tubular parts for enclosing fluid metal or the like, arranged to pass from corner to corner to serve as a counterpoise during the tilting operations of said tray, substantially as set forth. (2.) In a tilting tray or table adapted to discharge in two or more directions, the openings formed at the discharging-points adjacent to the resting-places for holding

the liquid metal or the like, as and for the purposes set forth. (3.) In a tilting-tray poised upon a central pivot, tubular parts attached to said tray arranged for the intermittent flow of liquid metal or the like, the combination therewith of floats, as and for the purposes set forth. (4.) In a poised tilting-tray operated by rising and falling floats, and counterpoised in the manner set forth, the combination therewith of outlet-valves, as and for the purposes set forth. (5.) The general combination and arrangement of the parts, consisting of a tilting tray or table, a pivot supporting same, tubular parts enclosing liquid metal or the like attached to said tray, the floats suspended therefrom, the valves and attachments therefor operated by the said table, as described and shown, and for the purposes set forth.

(Specification, 5s. ; drawings, 2s.)

No. 16133.—25th March, 1903.—Sir W. G. ARMSTRONG, WHITWORTH AND COMPANY, LIMITED, of Elswick Works, Newcastle-on-Tyne, England, Manufacturing Engineers (assignee of Robert Wright, of Elswick Works aforesaid, Engineer). Improvements in stops or buffers for holding wagons while being tipped for discharging their contents.

Claims.—(1.) The combination with a tipping-platform of stops or buffers carried by curved brackets supported from the sides of the platform, substantially as described. (2.) The arrangement of stops or buffers, substantially as described, and illustrated in the drawings.

(Specification, 1s. 9d. ; drawings, 1s.)

No. 16138.—26th March, 1903.—LEVI ZEIGLER LEITER, of Dupont Circle, Washington, United States of America, Capitalist (assignee of Robert Moss, of Chicago, Illinois, United States of America, Chemist). Improvement in coking-ovens.

Claims.—(1.) In a coking-oven, the combination with the coking-chamber of a series of air-discharging apertures or openings in the wall of the oven, each aperture or opening having a lateral inclination tangential to the horizontal plane of the side wall of the oven for projecting air into the coking-chamber at a lateral angle, and giving a circulation thereto circumferentially around and within the coking-chamber, substantially as described. (2.) In a coking-oven, the combination with a coking-chamber of a series of air-discharging apertures or openings located in the wall of the oven in the same horizontal plane in relation one to the other, a discharge pipe or nozzle entered into each aperture or opening, and having a lateral inclination tangential to the horizontal plane of the side wall of the oven, for projecting air into the coking-chamber at a lateral angle and giving a circulation thereto circumferentially around within the coking-chamber, and an air-supply pipe common to all the discharge pipes or nozzles for supplying air under pressure to the discharge pipes or nozzles, substantially as described. (3.) In a coking-oven, the combination with the coking-chamber of a bottom therefor, an air-supply chamber throughout the bottom, a flooring or covering for the air-supply chamber having perforations or slits therein gradually increasing in width from the point of admission to the side farthest removed from the admission of the air, for discharging air throughout the surface of the bottom of the oven in proportionate ratio of quantity and supply into the coking-chamber, substantially as described. (4.) In a coking-oven, the combination with the coking-chamber of a series of air-discharging apertures or openings in the wall of the oven, each aperture or opening having a lateral inclination for projecting air into the coking-chamber at an angle and giving a circulation thereto around and within the coking-chamber, a bottom for the coking-chamber, an air-supply chamber in the bottom, and a flooring or covering for the air-supply chamber having perforations or slits therein gradually increasing in width from the point of admission to the side farthest removed from the admission of the air, substantially as described. (5.) In a coking-oven, the combination with the coking-chamber of a bottom therefor having heat imparted thereto from highly heated gases drawn from the upper portion of the chamber and conducted through and in direct contact with the surface of the bottom, an air-supply chamber in the bottom, and a flooring or covering for the air-supply chamber extending throughout the bottom and having perforations or slits therein for projecting air into the lower portion of the coking-chamber, substantially as described. (6.) In a coking-oven, the combination with the coking-chamber of an eduction-flue opening into the coking-chamber at the upper portion thereof, a bottom for the coking-chamber, a passage or channel extending throughout the bottom and having communication with the eduction-flue, an air-supply chamber throughout the bottom above the heat-conducting passage or channel, and a covering or flooring for the air-supply chamber extending throughout the surface

of the bottom and having perforations or slits therein for supplying heat to the bottom and projecting air into the lower portion of the coking-chamber, substantially as described. (7.) In a coking-oven, the combination with the coking-chamber of an eduction-flue opening into the coking-chamber at the upper portion thereof, a bottom for the coking-chamber, a sinuous or zig-zag passage or channel extending throughout the bottom and having communication with the eduction-flue, an air-supply chamber in the bottom above the sinuous or zig-zag passage or channel, and a covering or flooring for the air-supply chamber throughout the surface of the bottom and having perforations or slits therein for supplying heat to the bottom and projecting air into the lower portion of the coking-chamber, substantially as described. (8.) In a coking-oven, the combination with the coking-chamber of an eduction-flue opening into the coking-chamber at the upper portion thereof, a bottom for the coking-chamber, a sinuous or zig-zag passage or channel extending throughout the bottom and having communication with the eduction-flue, an air-supply chamber in the bottom above the sinuous or zig-zag passage or channel, and a covering or flooring for the chamber throughout the surface of the bottom, and having perforations or slits of a gradually increasing width from the point of admission to the side farthest removed from the admission of air, for supplying heat to the bottom and projecting air into and throughout the surface of the lower portion of the coking-chamber, substantially as described.

(Specification, 19s. ; drawings, 2s.)

No. 16140.—26th March, 1903.—PHILIP MAGNUS, of 52, Harmsworth Street, Collingwood, Victoria, Collector. Improvements in pneumatic tires.

Claims.—(1.) The improved pneumatic tire consisting of a rim and one or more concentric air-tubes, in combination with a liner each single or reinforced edge of which is turned back upon the main portion and stitched thereto, and encloses an endless wire or band or a series of balls, or both, a leather cover treated as described secured or unsecured to the said liner, with or without an inner or an outer tread-ring, said cover having meeting ends united from the interior by blind stitches, the edges of the said cover being wedge-sectioned and bearing against one side of the wire bands and the rim or series of balls, or against one side of the same and the back surface of the rim, all as and for the purposes described, and as illustrated in the drawings. (2.) The improved pneumatic tire consisting of a rim and one or more concentric air-tubes, and surrounding the outer one a casing of leather treated as described, having a tongue therein one edge of which is stitched inside the said casing, eyelet-holes around the edges of said casing, a draw lace or laces therein, a liner each single or reinforced edge of which is turned back upon the main portion, stitched thereto, and encloses an endless wire or band, or a series of balls, or both, a cover of leather treated as described and secured or unsecured to the said liner, said cover having meeting ends united by blind stitches from the interior, the edges of the said cover being wedge-sectioned and bearing against one side of the wire bands or series of balls, or both, or against one side of the same and the back surface of the rim, all as and for the purposes described, and as illustrated in the drawings. (3.) In pneumatic tires, a cover surrounding the liner outside the air tube or tubes, a tread-ring or a casing of leather, said leather being first dried, naturally or artificially, then immersed for thirty minutes, more or less, in a bath consisting approximately of benzine eighty-five parts, benzol ten parts, naphtha three parts, kerosene five parts, then removed and the body side brushed with steel bristles, again immersed, again brushed, once more immersed and then again brushed and hung for dripping and evaporation, then immersed in baths formed approximately of para-rubber twenty parts, benzine eighty parts, benzol ten parts, naphtha two parts, isinglass four drachms, after each bath the skin and body side being well brushed with wire bristles, then hung, and finally the following mixture in the following approximate quantities is worked in by a stiff brush—benzine seventy-five parts, benzol twenty parts, naphtha one part, kerosene five parts—all as and for the purposes described, and as illustrated in the drawings.

(Specification, 6s. 6d. ; drawings, 1s.)

No. 16141.—26th March, 1903.—CHARLES ANDERSON, of 30, Oxford Street, and 207, Albion Street, Sydney, New South Wales, Tailor and Hat-manufacturer. Improvements in machines for dressing the fur on rabbit and other skins.

Claims.—(1.) In machines for dressing the fur on rabbit and other skins, a stationary liner such as C, cut away as indicated at D opposite the revolving knife or knives, and fitted inside the perforated revolving cylinder or drum, sub-

stantially as and for the purposes described and explained, and as illustrated in the drawings. (2.) In machines for dressing the fur on rabbit and other skins, a perforated drum or cylinder such as A mounted in sliding bearings or slides such as F, in combination with a rocking spindle such as H having arms projecting into engagement with said bearings or slides and actuated by a screw-threaded rod, substantially as and for the purposes described and explained, and as illustrated in the drawings. (3.) In machines for dressing fur on rabbit and other skins, a rotating knife or knives having part thereof spaced out or cut away backwardly of the edge, substantially as described and explained, and as illustrated in the drawings. (4.) In machines for dressing fur on rabbit and other skins, a rotating knife formed of a series of knives set into or affixed to a series of discs, substantially as described and explained, and as illustrated in the drawings.

(Specification, 4s. 6d. ; drawings, 1s.)

An asterisk (*) denotes the complete specification of an invention for which a provisional specification has been already lodged.

NOTE.—The cost of copying the specification and drawings has been inserted after the notice of each application. An order for a copy or copies should be accompanied by a post-office order or postal note for the cost of copying.

The date of acceptance of each application is given after the number.

Extracts from the drawings accompanying the foregoing complete specifications appear at the end of this *Gazette*.

The notice and claims in respect of drawing 16050 appeared in last *Gazette*.

F. WALDEGRAVE,
Registrar.

Provisional Specifications.

Patent Office,
Wellington, 1st April, 1903.

APPLICATIONS for Letters Patent, with provisional specifications, have been accepted as under:—

No. 16018.—23rd February, 1903.—HARRY HAM, of Palmerston North, New Zealand, Chainsman for Survey. An improved cover for hay and other stacks.

No. 16078.—10th March, 1903.—ALFRED GEORGE BARTON, of Christchurch, New Zealand, Salesman. An improved combined trouser press and stretcher.

No. 16079.—10th March, 1903.—HUGH FERGUSON NELSON, of Christchurch, New Zealand, Carpenter. Improved apparatus for supporting clothes-lines.

No. 16080.—12th March, 1903.—CHARLES DOUGLAS HAMILTON, of Salisbury Street, Christchurch, New Zealand, Clerk and Salesman. Improved apparatus for turning over the leaves of music and the like.

No. 16085.—11th March, 1903.—ANDREW MCLEOD, of Arch Hill, Auckland, New Zealand, Commission Agent. An improved marking or branding stamp.

No. 16086.—14th March, 1903.—JOHN DAVID REGAN, of Tokatea Range, Coromandel, Auckland, New Zealand, Miner. An improved match.

No. 16087.—14th March, 1903.—JOHN COOP, of Kaituna, Canterbury, New Zealand, Farmer. Improvements in bridle-bits.

No. 16090.—12th March, 1903.—JANE STEWART, of Tyne Street, Invercargill, New Zealand, Married Woman. Machine for spreading polish on floors and the like.

No. 16091.—12th March, 1903.—RICHARD WILLIAMS, of East Taieri, New Zealand, Gardener. Improved wire-strainer.

No. 16092.—12th March, 1903.—RICHARD POTTER, of Auckland, New Zealand, Gentleman. An improved bottle-neck, shaped to minimise pressure on cork fitted therein.

No. 16093.—12th March, 1903.—WILLIAM HORACE STEBBING, of Northcote, Auckland, New Zealand, Accountant, and JOHN HENRY COLWILL, of Auckland aforesaid, Typewriter Agent. An improved roller or platen for typewriting-machines.

No. 16094.—12th March, 1903.—STANLEY FALCONER CLARE, of Campbelltown, New Zealand, Sheep-farmer. Improvements in rabbit-traps.

No. 16095.—16th March, 1903.—ROBERT WALKER ASHCROFT, Tinsmith, WILLIAM JOHN MADDREN, Mechanic, both of Palmerston North, New Zealand, and SEPTIMUS ASHCROFT, of Dannevirke, New Zealand, Store-manager. Improvements in the method of preserving eggs, meat, and fruits, &c.

No. 16096.—16th March, 1903.—DAVID CALDER GROVES, of Forbury Road, St. Clair, Dunedin, New Zealand, Engineer, and ALBERT ROBERT STANTON, of Victoria Terrace, Anderson's Bay Road, Dunedin aforesaid, Water-gas Manufacturer. Improved method and apparatus for raising sunken vessels and the like.

No. 16097.—16th March, 1903.—ALEXANDER REID, of 13, Lichfield Street, Christchurch, New Zealand, Electrical Fitter. Improved apparatus for smelting ironsand.

No. 16101.—18th March, 1903.—HEBER BROWN, of 10, Tory Place, Wellington, New Zealand, Seaman. An improvement in or relating to cranes.

No. 16103.—14th March, 1903.—DAVID RANKEN SHIRREFF GALBRAITH, of Ladies' Mile, Remuera, Auckland, New Zealand, Analytical and Consulting Chemist. Improvements in the construction of distillatory apparatus such as vacuum pans, retorts, or other vessels used in evaporation and condensation.

No. 16104.—14th March, 1903.—ELIJAH SPRAGG, of Mount Albert, near Auckland, New Zealand, Engineer. A perforating attachment to be fixed to and used with sewing and other self-feeding machines.

No. 16105.—16th March, 1903.—JOHN FRIEND, of Brooklynn, Auckland, New Zealand, Marine Engineer, and EDWARD HENRY FRIEND, of 105, Victoria Arcade, Auckland aforesaid, Draftsman. An improved steam turbine motor.

No. 16106.—19th March, 1903.—ROBERT MCKNIGHT, of 2837, Boudinot Street, Philadelphia, Pennsylvania, United States of America, Metallurgist. Improvements in electro-magnetic separators.

No. 16109.—19th March, 1903.—JOHN HARTNETT, of Yering Street, Balwyn, Victoria, Engineer, and DAVID MOFFATT ROBISON, of "Lauriston," Church Square, Auckland Street, St. Kilda, Victoria, Engineer. Improvements in cow-milking apparatus.

No. 16110.—18th March, 1903.—JOHN RYAN, of Ross, New Zealand, Engineer. An improved ear-marking appliance.

No. 16111.—20th March, 1903.—PHILIP EDMOND SOUTHWARD, of *Evening Post*, Wellington, New Zealand, Engineer. An improved candle-guard.

No. 16112.—20th March, 1903.—THOMAS HYDE IBBOTSON, of Gore, New Zealand, Miner. An improved device for drawing off liquids from containers.

No. 16115.—21st March, 1903.—WALTER GREENSHIELDS, of Cobden Street, Auckland, New Zealand, Bracist. Improvements in braces or suspenders.

No. 16118.—21st March, 1903.—JOHN RICHARD FLANAGAN, of Christchurch, New Zealand, Salvation Army Officer. An improved rocker for children and others.

No. 16120.—19th March, 1903.—JAMES DIGNAN, of Hobson Street, Auckland, New Zealand, Settler. An instrument for castrating, docking, and ear-marking lambs.

No. 16122.—24th March, 1903.—GEORGE ROBERT HAMILTON, Engine-fitter, and ROTA TE RANGI, Carpenter, both of Awapuni, Palmerston North, New Zealand. An improvement in saw-setting instruments.

No. 16123.—24th March, 1903.—JAMES SHEPHERD, of 14, Crawford Street, Dunedin, New Zealand, Engineer. Improved apparatus for recovering gold from black sand and the like.

No. 16124.—24th March, 1903.—JAMES SHEPHERD, of Invercargill, New Zealand, Engineer. Improved means for driving log-hauling and other tramway wagons.

No. 16125.—24th March, 1903.—JOHN BOWER DANIELS, of Wellington, New Zealand, Specialist. An improved method of and means for preventing the accumulation of explosive matters in mine-workings and other enclosures.

No. 16126.—25th March, 1903.—JOHN HEINRICH GATTSCHKE, of Rangitikei Line, Palmerston North, New Zealand, Brewer. Improvements in boilers or boiler-pans used in breweries, soapworks, and other places.

No. 16128.—21st March, 1903.—JOSEPH GEORGE BARTLETT, of Main Road, Caversham, Dunedin, New Zealand, Bootmaker. Improved candle-extinguisher.

No. 16130.—21st March, 1903.—JAMES GLOSSOP, of Dunedin, New Zealand, Commission Agent. Improvements in hose and the like.

NOTE.—Provisional specifications cannot be inspected, or their contents made known by this office in any way, until the complete specifications in connection therewith have been accepted.

The date of acceptance of each application is given after the number.

F. WALDEGRAVE,
Registrar.

Letters Patent sealed.

LIST of Letters Patent sealed from the 19th to the 27th March, 1903, inclusive:—

No. 14333.—F. Haar, sewing-palm.
No. 14338.—J. Chambers and Son, Limited, boiler-furnace. (Babcock and Wilcox—C. A. Knight.)

No. 14351.—W. A. E. Henrici, rotary engine.
No. 14358.—Svenska Centrifug Aktiebolaget, churn. (C. S. Berghmark.)

No. 14366.—T. M. B. Muir and G. Moodie, playing-cards.
No. 14395.—C. Ray, pneumatic tire.
No. 14396.—W. H. Boyens, siphon pump.
No. 14408.—J. R. Brunt and R. C. Pitt, pneumatic tire.

No. 14645.—J. R. and W. H. Jewell, locking cart, &c., wheels.

No. 15417.—E. S. Baldwin and H. H. Rayward, spreading sewage over filter-bed. (G. E. Ridgway.)

No. 15418.—E. S. Baldwin and H. H. Rayward, self-flushing time valve for sewage-distribution. (G. E. Ridgway.)

No. 15527.—G. N. Pifer, loading photographic apparatus.
No. 15528.—G. N. Pifer, photographic plate.

No. 15570.—A. H. Brownley, advertising parcel-grip.
No. 15595.—F. A. Burdett-Stuart, small-bird trap.

No. 15681.—E. S. Baldwin and H. H. Rayward, extracting zinc, &c., from ore. (G. D. Delprat.)

No. 15731.—G. N. Pifer, producing photographic likeness automatically.

No. 15739.—J. A. Landsberger, jar closure. (E. Goltstein.)

No. 15741.—J. T. Steele, binding, &c., sheets of paper.
No. 15746.—E. F. W. Wieda, kneading and mixing machine.

No. 15748.—M. Taylor, gas-engine.
No. 15750.—A. Gaulin, mixing milk.

No. 15755.—T. D. Cummins and W. T. Nuttall, standard for wire fence.

No. 15759.—S. H. Manners, stump-grubbing machine.
No. 15769.—R. F. Bradshaw and W. E. Harding, pressure-tap for filter-press.

No. 15770.—J. H. Braithwaite, free wheel, &c., for velocipede, &c.

No. 15773.—P. J. Whitfield, compressing forage, &c.
No. 15774.—C. F. Dunn, nail for corrugated iron. (J. B. Davies.)

No. 15778.—T. Robertson, poisoning rabbits.
No. 15779.—J. G. F. Lund, walls.

No. 15781.—W. E. Hughes, electric railway. (G. Gibbs.)
No. 15782.—N. Hiss, traction machinery.

No. 15783.—J. W. Kincaid, mechanical stokers.
No. 15809.—J. Ewing, junior, marine life-preserver.

F. WALDEGRAVE,
Registrar.

Letters Patent on which Fees have been paid.

[NOTE.—The dates are those of the payments.]

SECOND-TERM FEES.

NO. 11057.—L. Hooker, incandescent illuminating apparatus. 13th January, 1903.

No. 11265.—E. Kingscote, a material to take place of wood, &c. 24th March, 1903.

No. 11426.—G. Fischer, concentrating, &c., crushed ore. 24th March, 1903.

No. 11491.—C. B. von Bechtolsheim, milking-apparatus. 19th March, 1903.

No. 11545.—D. Reid, stereo and electro plates. 26th March, 1903.

No. 11608.—E. B. Koopman, exhibiting pictures. 26th March, 1903.

No. 11621.—Actieselskabet Burmeister & Wains Maskin-og Skibbyggeri, centrifugal cream-separator. (O. Anderson.) 26th March, 1903.

No. 11650.—F. Krupp (trading as "F. K. Grusonwerk"), ball grinding-mill. (W. Stamm—H. L. Sulman.) 26th March, 1903.

THIRD-TERM FEES.

Nil.

F. WALDEGRAVE,
Registrar.

Subsequent Proprietors of Letters Patent registered.

[NOTE.—The name of the patentee is given in brackets; the date is that of registration.]

NO. 10538.—The Welsbach Incandescent Gaslight Company, Limited, whose registered office is situated at 78, York Street, in the City of Westminster, England. Incandescence gas-burner. [The Kern Burner Company, Limited—O. Kern.] 23rd March, 1903.

No. 11900.—Gesellschaft für tropensichere Verpackung mit beschränkter Haftung, of Holzbrücke, 5, Hamburg, Germany. Preserving food. [W. Lanwer and E. Ruping.] 23rd March, 1903.

No. 12834.—The Welsbach Incandescent Gaslight Company, Limited, whose registered office is situated at 78, York Street, in the City of Westminster, England. Gas stove. [C. Clamond.] 23rd March, 1903.

No. 14546.—The Welsbach Incandescent Gaslight Company, Limited, whose registered office is situated at 78, York Street, in the City of Westminster, England. Incandescence mantle. [The Kern Burner Company, Limited—C. Clamond.] 23rd March, 1903.

F. WALDEGRAVE,
Registrar.

Applications for Letters Patent abandoned.

LIST of applications for Letters Patent (with which provisional specifications only have been filed) abandoned from the 19th March to the 1st April, 1903, inclusive:—

- No. 14885.—R. Chambers, milk cooler and aerator.
 No. 14889.—T. S. Philpott and R. Hutchinson, fire alarm and escape.
 No. 14894.—J. McIntosh and P. Scoringe, vehicle-brake.
 No. 14906.—K. Raymond, laces for boots, &c.
 No. 14908.—M. J. Lister, target.
 No. 14909.—G. Pulman, textile letter-tracing.
 No. 14910.—C. G. Lee, guttering for building.
 No. 14911.—T. Ussher, table bowls.
 No. 14912.—A. M. Legge, safety catch for brooch-pin.
 No. 14913.—F. Matthews, preventing horse running away with vehicle.
 No. 14914.—N. E. and K. C. Jackson, target.
 No. 14915.—J. Burns, standard for table tennis.
 No. 14919.—J. F. Steenberg, butter-moulder.
 No. 14924.—F. A. Miller, knife-cleaner.
 No. 14927.—J. E. A. Frost, spindle attachment for door-knob.
 No. 14936.—H. M. Inglis, index-file, &c.
 No. 14937.—F. L. Ryan, table-tennis apparatus.
 No. 14938.—H. Nichol, shears.
 No. 14941.—R. Caldwell, flap attachment to vehicle.
 No. 14944.—E. Milsom and J. Stewart, venetian-blind.
 No. 14945.—G. F. Dale, scoring apparatus for ping-pong, &c.
 No. 14946.—C. M. Cruickshank, cock for water-tank.
 No. 14947.—J. Pomeroy, lacing articles.
 No. 14948.—G. E. Pruden, flooring-cramp.
 No. 14949.—F. L. Ryan, table-tennis apparatus.
 No. 14977.—J. Macalister, seed-sower.

F. WALDEGRAVE,
Registrar.

Applications for Letters Patent lapsed.

LIST of applications for Letters Patent (with which complete specifications have been lodged) lapsed from the 19th March to the 1st April, 1903, inclusive:—

- No. 14018.—G. Nairn, timber-grip.
 No. 14025.—H. L. Mainland, transportation of dredge-hulls.
 No. 14035.—J. H. Pledger, force-draught fire-screen.
 No. 14068.—H. Reynolds, race-starting machine.
 No. 14069.—C. A. Dunn, milk-strainer.
 No. 14074.—J. C. McGeorge, attachment to dredge.

F. WALDEGRAVE,
Registrar.

Letters Patent void.

LIST of Letters Patent void through non-payment of renewal fees from the 19th March to the 1st April, 1903, inclusive:—

THROUGH NON-PAYMENT OF SECOND-TERM FEES.

- No. 11254.—A. Howard, motive engine.
 No. 11255.—A. Howard, induction-valve for engine.
 No. 11256.—A. Howard, shearing-implement.
 No. 11257.—A. Howard, propeller.
 No. 11258.—A. Howard and W. R. Green, converting energy of fuel into power.
 No. 11262.—A. Potter, dressing New Zealand flax.
 No. 11263.—The Gem Needle-threader Company, Limited, needle-threader. (J. Darling.)
 No. 11264.—J. L. Hawliczek and H. L. Snape, gold-extraction.
 No. 11269.—R. Pearson, telegraph fire-alarm apparatus.
 No. 11272.—J. Dey and A. Dey, time-recorder.
 No. 11274.—The "Era" Incandescent Oil-lamp Company, Limited, burner for incandescence oil-lamp. (T. J. Cranston.)
 No. 11276.—W. H. C. Harrison, attaching bit to brace.
 No. 11279.—J. Hutcheson, fire-escape ladder.

THROUGH NON-PAYMENT OF THIRD-TERM FEES.

- No. 8157.—The Niagara Pulveriser, Limited, crushing-mill. (W. H. Coward.)
 No. 8167.—J. Lemichel, raising liquids.

F. WALDEGRAVE,
Registrar.

Designs registered.

DESIGNS have been registered in the following names on the dates mentioned:—

- No. 175.—Volkman and Tucker, of 5, Cuba Street, Wellington, New Zealand. Class 2. 20th March, 1903.
 No. 176.—St. Hilda's Collegiate School (Sister Etheleen, Sister of the Church), of Dunedin, New Zealand. Class 13. 30th March, 1903.

F. WALDEGRAVE,
Registrar.

Applications for Registration of Trade Marks.

Patent Office,
Wellington, 1st April, 1903.

APPLICATIONS for registration of the following trade marks have been received. Notice of opposition to the registration of any of these applications may be lodged at this office within two months of the date of this *Gazette*. Such notice must be in duplicate, and accompanied by a fee of £1.

No. of application: 3800.

Date: 28th May, 1902.

TRADE MARK.



The essential particulars of this trade mark are the device and the word "Eddystone"; and any right to the exclusive use of the added matter is disclaimed.

The applicants claim that the said trade mark has been in use by them in respect of the articles mentioned since before the 1st day of January, 1890.

NAME.

I. P. CLARKE AND Co., of Belgrave Thread-mills, Leicester, England.

No. of class: 23.

Description of goods: Cotton-yarn, sewing-cotton, and other thread not wound on reels or spools; sewing-cotton and other thread wound on reels or spools.

No. of application: 4102.

Date: 21st February, 1903.

TRADE MARK.

The word

PROOFINE.

NAME.

THE IMPERIAL LEATHER-PRESERVER MANUFACTURING COMPANY, of 212, South Third Street, Philadelphia, United States of America.

No. of class: 50.

Description of goods: A leather-dressing.

No. of application : 4126.
Date : 16th March, 1903.

The word

TRADE MARK.

NOSMAT

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 38.

Description of goods : Corsets and all articles of clothing under Class 38.

No. of application : 4127.
Date : 16th March, 1903.

TRADE MARK.



NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 50.

Description of goods : All miscellaneous goods as specified in sections 1 to 10 inclusive.

[NOTE.—Class 50 is for — Miscellaneous, including (1) goods manufactured from ivory, bone, or wood, not included in other classes; (2) goods manufactured from straw or grass, not included in other classes; (3) goods manufactured from animal and vegetable substances, not included in other classes; (4) tobacco-pipes; (5) umbrellas, walking-sticks, brushes, and combs; (6) furniture-cream, plate-powder; (7) tarpaulins, tents, rick cloths, rope, twine; (8) buttons of all kinds other than of precious metal or imitations thereof; (9) packing and hose of all kind; (10) goods not included in foregoing classes, such as coopers' wares.]

No. of application : 4128.
Date : 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.
THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 40.

Description of goods : Goods manufactured from india-rubber and guttapercha.

No. of application : 4129.
Date : 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 38.

Description of goods : Articles of clothing and oilskins, excepting such as corsets.

No. of application : 4130.
Date : 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 33.

Description of goods : Yarns of wool, worsted, or hair.

No. of application : 4131.
Date : 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class : 26.

Description of goods : Linen and hemp yarn and thread.

No. of application : 4132.
Date : 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 23.

Description of goods: Cotton yarn and thread.

No. of application: 4133.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 13.

Description of goods: Metal smallwares not included in other classes.

No. of application: 4134.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 14.

Description of goods: Goods of precious metals, and imitations thereof.

No. of application: 4135.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 32.

Description of goods: Other silk goods not included in Classes 30 and 31.

No. of application: 4137.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 30.

Description of goods: Silk—spun, thrown, or sewing.

No. of application: 4138.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 24.

Description of goods: Cotton piece-goods of all kinds.

No. of application: 4139.

Date: 16th March, 1903.

TRADE MARK.

(The mark as in preceding notice, No. 4127.)

NAME.

THOS. COLLIER AND Co. (FOREIGN), LIMITED, of High Street, Manchester, England.

No. of class: 25.

Description of goods: All cotton goods not included in Classes 23, 24, or 38.

No. of application: 4140.

Date: 19th March, 1903.

TRADE MARK.

The words

LA FIGURINE.

NAME.

CHAPPELL, ALLEN, AND Co., LIMITED, of Patriotic Corset-works, Bristol, England, Corset-manufacturers.

No. of class: 38.

Description of goods: Articles of clothing.

No. of application: 4141.

Date: 19th March, 1903.

TRADE MARK.



The above trade mark consists of or contains the following essential particulars—the device or representation of the head, shoulder, and arm of a man, with the arm turned back to the forehead; and applicant disclaims any right to the exclusive use of the added matter, in so far as it does not consist of the name.

NAME.

The person or persons trading as SANDOW'S OWN COMBINED DEVELOPER, at Nos. 17 and 18, Basinghall Street, London, E.C., England.

No. of class: 49.

Description of goods: Instruments, apparatus, and contrivances for physical and athletic exercises.

No. of application: 4143.

Date: 20th March, 1903.

TRADE MARK.

The word

YOK.

EDWIN CHARLES BATKIN, of 51, Lambton Quay, Wellington, New Zealand, Tobacconist.

No. of class: 45.

Description of goods: Tobacco manufactured and unmanufactured.

No. of application: 4144.

Date: 24th March, 1903.

TRADE MARK.

The word

KILORL.

NAME.

FREDERICK ROBERT SIMS, of 146, Cashel Street, Christchurch, in the Colony of New Zealand, Commission Merchant.

No. of class: 2.

Description of goods: Powder for destroying insect-life.

C

No. of application: 4148.

Date: 20th March, 1903.

TRADE MARK.



The essential particulars of this trade mark are the device of a flashlight and the word "Flashlight"; and the applicant disclaims any right to the exclusive use of the added matter, except his name and address.

NAME.

WILLIAM EDWARD LEVERETT, of Christchurch, in the Colony of New Zealand, Grocer.

No. of class: 50.

Description of goods: Preparation for polishing plate, &c.

No. of application: 4147.

Date: 26th March, 1903.

TRADE MARK.

The word

DANDROLEINE.

NAME.

JAMES NEIL, of 74, George Street, Dunedin, New Zealand.

No. of class: 48.

Description of goods: Toilet articles.

No. of application: 4149.

Date: 27th March, 1903.

TRADE MARK.

The word

NOVEL.

NAME.

WILSON AND WOOD, of 222, Cashel Street West, Christchurch, New Zealand, Grocers and Provision Merchants.

No. of class: 42.

Description of goods: Tea.

F. WALDEGRAVE,
Registrar.

Trade Marks registered.

LIST of Trade Marks registered from the 19th to the 31st March, 1903, inclusive:—

No. 3147; 3284.—Havana Commercial Company. Class 45. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3148; 3286.—Havana Commercial Company. Class 45. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3149; 3997.—The American Tobacco Company. Class 45. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3150; 3998.—The American Tobacco Company. Class 45. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3151; 4027.—R. Porter and Company, Limited. Class 43. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3152; 4032.—N. Greening and Sons, Limited. Class 42. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3153; 4033.—Blyth and Platt. Class 50. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3154; 4039.—S. B. Hartman. Class 3. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3155; 4047.—Paris Medicine Company. Class 3. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3156; 4048.—Griffiths Bros. and Co. Class 1. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3157; 4050.—R. W. Cameron and Company. Class 42. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3158; 4029.—M. Allan. Class 2. (*Gazette* No. 2, of the 8th January, 1903.)

No. 3159; 3720.—T. M. Hardy. Class 1. (*Gazette* No. 27, of the 3rd April, 1902.)

No. 3160; 3871.—J. D. Wormald. Class 6. (*Gazette* No. 63, of the 7th August, 1902.)

No. 3161; 3933.—W. Pretty and Sons, Limited. Class 13. (*Gazette* No. 75, of the 18th September, 1902.)

No. 3162; 3966.—F. M. Clements. Class 3. (*Gazette* No. 102, of the 11th December, 1902.)

No. 3163; 4053.—G. H. Catt. Class 6. (*Gazette* No. 6, of the 23rd January, 1903.)

F. WALDEGRAVE,
Registrar.

Subsequent Proprietors of Trade Marks registered.

[NOTE.—The name of the former proprietor is given in brackets; the date is that of registration.]

NO. 83/4064.—Walkers, Parker, and Company, Limited, of Belvedere Road, Lambeth, in the County of London, England. [Newcastle Chilled Shot Company, Limited.] 18th March, 1903.

No. 88/825.—St. Jacob's Oil, Limited, of 45, Farringdon Road, London, E.C., England, Manufacturers of and Dealers in Proprietary Medicines. [The Chas. A. Vogeler Company.] 28th March, 1903.

No. 1872/1499.—St. Jacob's Oil, Limited, of 45, Farringdon Road, London, E.C., England, Manufacturers of and Dealers in Proprietary Medicines. [The Chas. A. Vogeler Company.] 28th March, 1903.

F. WALDEGRAVE,
Registrar.

Trade Mark Renewal Fees paid.

FEEES paid for renewal of undermentioned Trade Marks for fourteen years from the 1st January, 1904:—

No. 85/953.—H. H. Warner, of Rochester, United States of America. 19th March, 1903.

No. 86/2614.—C. J. van Houten and Zoon, of Weesp, Holland (two marks). 26th March, 1903.

No. 88/1098.—Lever Bros., Limited, of Balmain, Sydney, New South Wales. 19th March, 1903.

No. 88/2900.—Lever Bros., Limited, of Balmain, Sydney, New South Wales. 19th March, 1903.

No. 88/3976.—Lever Bros., Limited, of Balmain, Sydney, New South Wales (two trade marks). 19th March, 1903.

No. 89/421.—Hiram Walker and Sons, of Walkerville, Ontario, Canada (two trade marks). 19th March, 1903.

F. WALDEGRAVE,
Registrar.

Clerical Error in Trade Mark Application corrected.

THE request for correction of the clerical error in the name in M. Allan's application for trade mark (No. 4029) (advertised in Supplement to *New Zealand Gazette*, No. 9, of the 5th February, 1903) has been allowed.

F. WALDEGRAVE,
Registrar.

Trade Mark Application withdrawn.

THE following application for Trade Mark has been withdrawn, viz.:—

No. 4037.—S. Hoffnung and Co., Limited. (Advertised in Supplement to *New Zealand Gazette*, No. 21, of the 19th March, 1903.)

F. WALDEGRAVE,
Registrar.

Alteration of Address of Proprietor of Trade Mark on Register.

NO. 89/1782.—Henry Kent, trading as "H. and C. Kent," of 8, Gresham Street, London, England, Silk Agent and Merchant. Address altered to "1, Jewin Street, London."

F. WALDEGRAVE,
Registrar.

By Authority: JOHN MACRAE, Government Printer, Wellington.

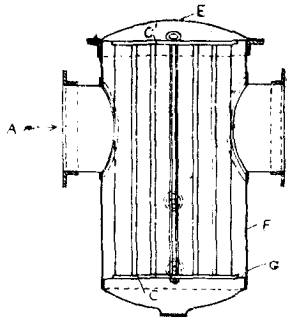


FIG. 1.

14670

Chambers. Oil-separator. (Arndt)

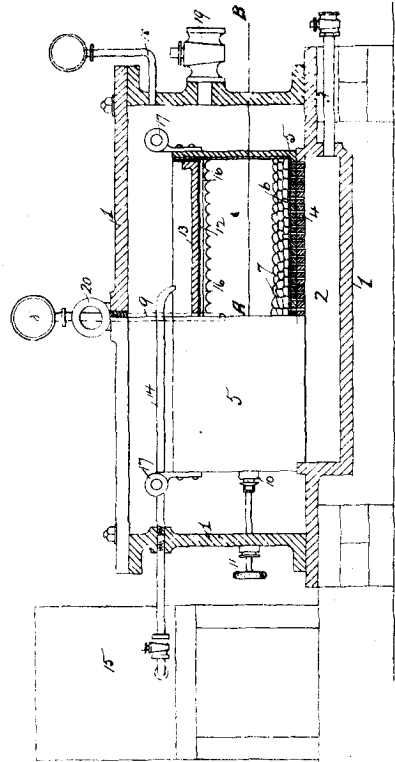


Fig. 3

14866

Parrott. Slaking Lime.

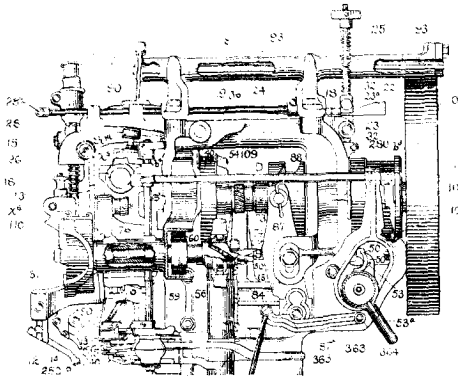


FIG. 1.

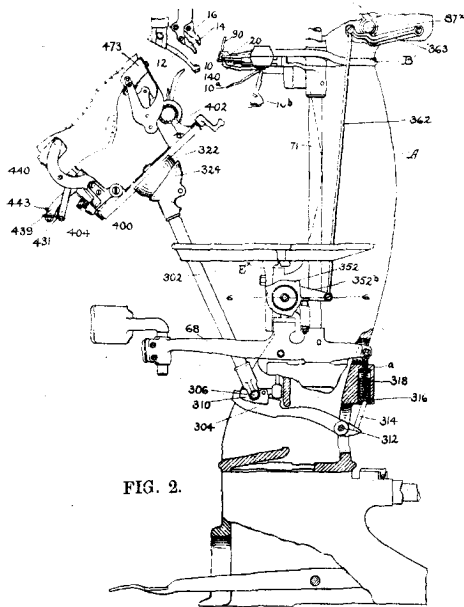


FIG. 2.

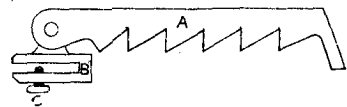
14882

United Shoe Machinery Co. Lasting-machine. (Stiggins.)



14943

Geary Martingale.



15025

Bonnington. Damper-regulator.

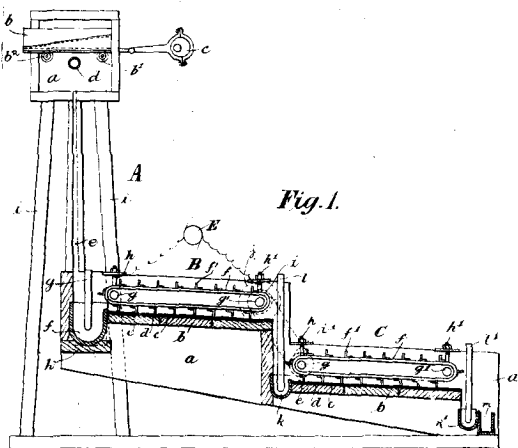


Fig. 1.

15000

Richardson. Amalgamator.

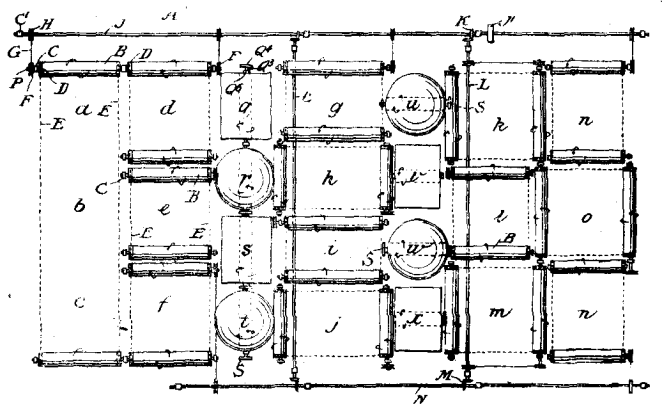


FIG. 2.

15049

Darrell. Advertising.

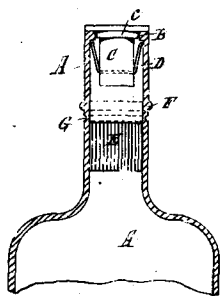


Fig. 1

15053

Morgan and Johnston. Bottle.

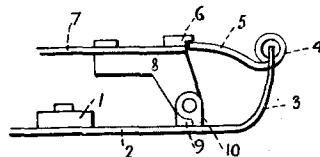


FIG. 2

15735

Borlase. Rabbit-trap.

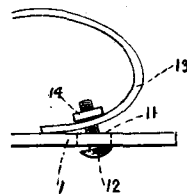
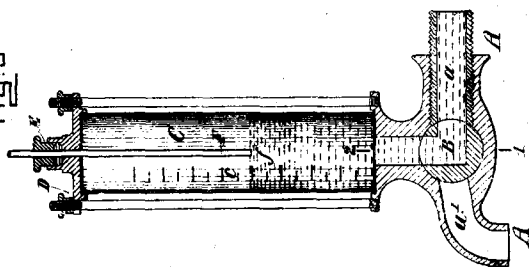
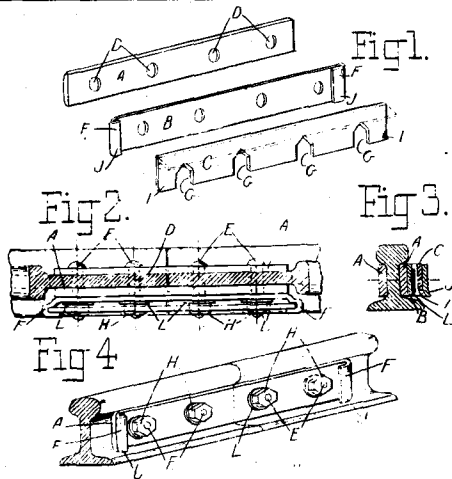


FIG. 5



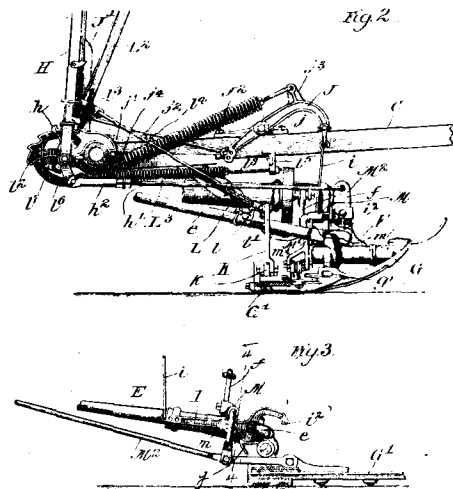
16050

Watson and Crane. Measuring-tap.



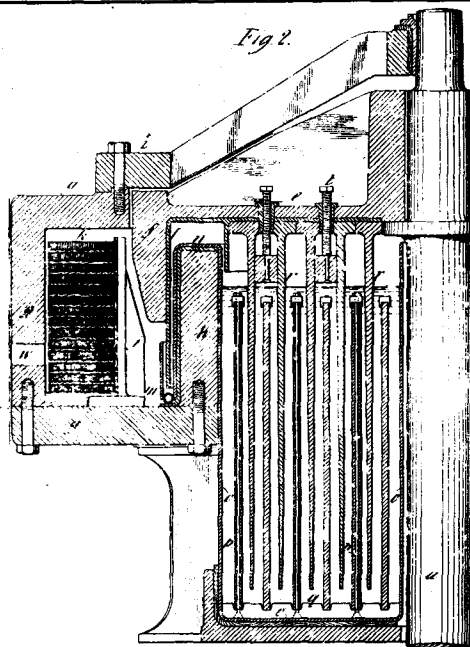
15995

Tonkin, Ames, and Nicolle. Rail-fastener.



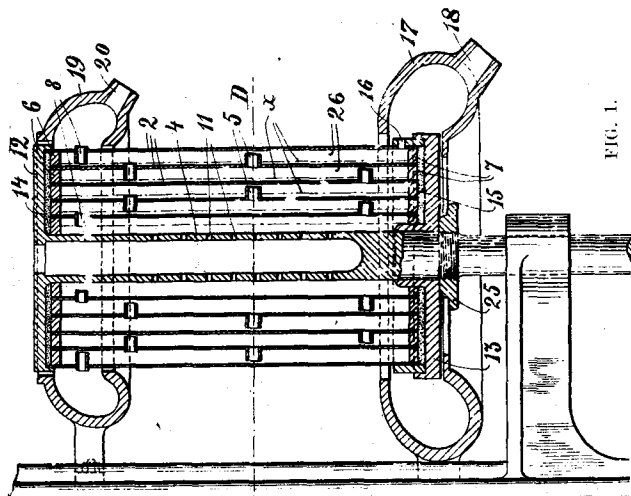
16081

Latimer. Mowing-machine.



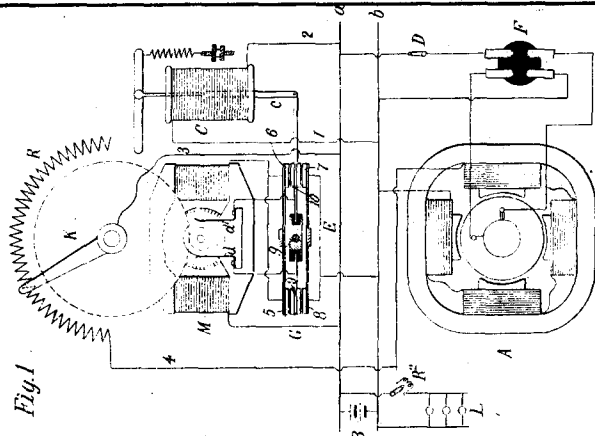
16077

Elmore. Generation of Electric Currents.



16073

Lindberg. Separator.



16092

McElroy. Electric-lighting System.

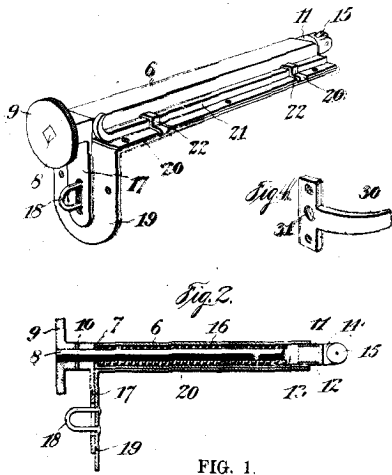


FIG. 1.

16083

Wall and Hague. Sash-lock.

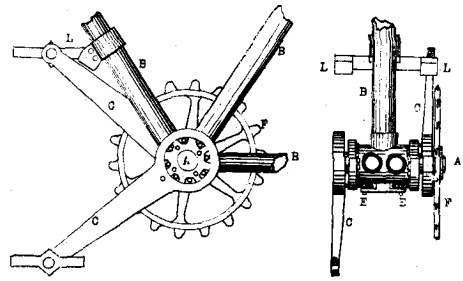


FIG. 1.

FIG. 2.

16084

Cutred and McQueen. Cycle-pedal Action.

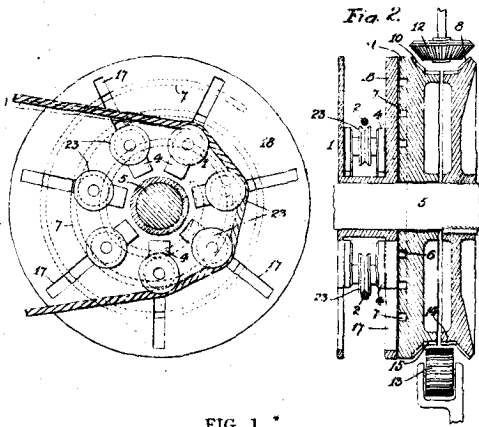


FIG. 1.

16088

Dumaresq. Variable Speed-gearing.

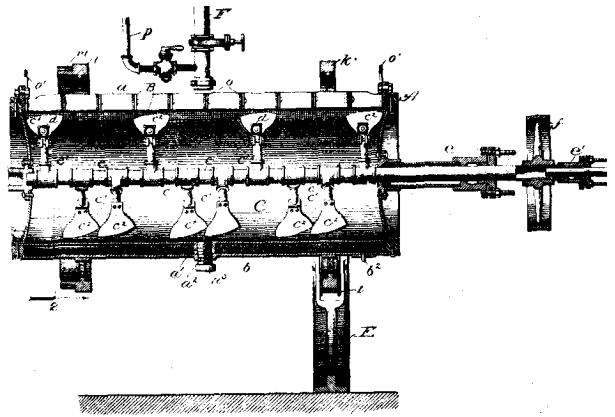


FIG. 1.

16089

Heufus. Mash-Tau, and Wort-Separator.

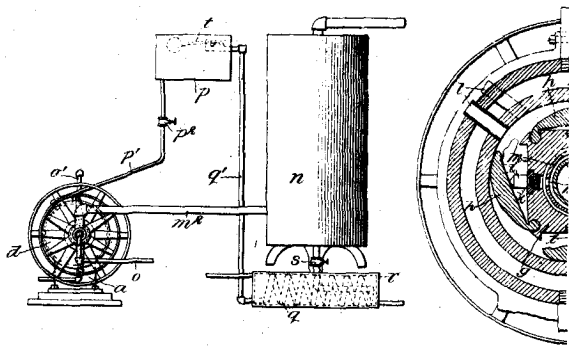
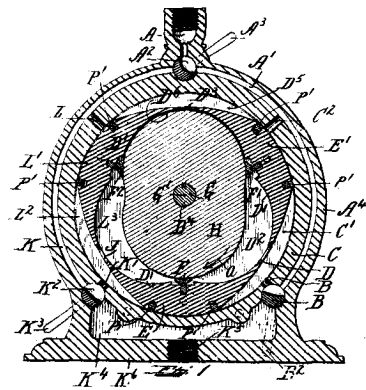


FIG. 1.

FIG. 4.

16099

Munson. Gaseous-fluid Compressor.



16100

Cooley Development Co. Rotary Fluid-engine. (Cooley.)

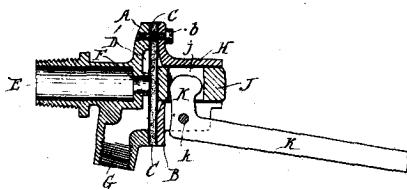
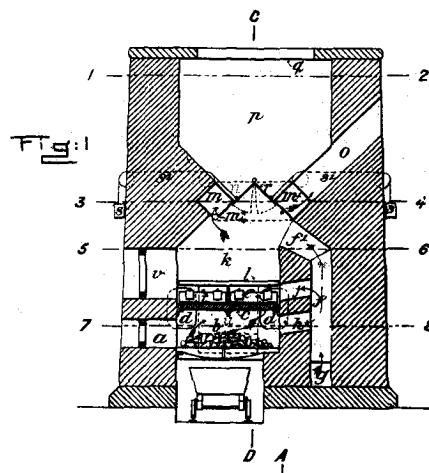


FIG. 2.

16102

Dutch and Barton. Water-cistern.



16107

Rooke, Thrush, and Early. Garbage-destructor.

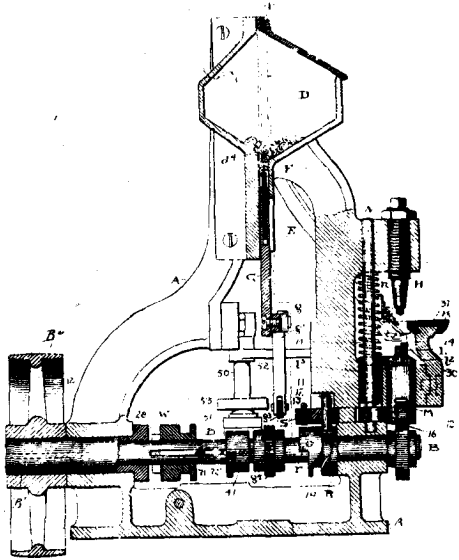


FIG. 3.

16108 United Shoe Machinery Co. Fastening Lacing-hooks. (Eaton.)

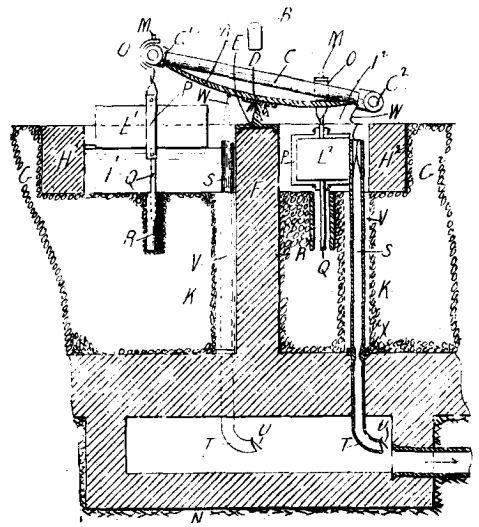
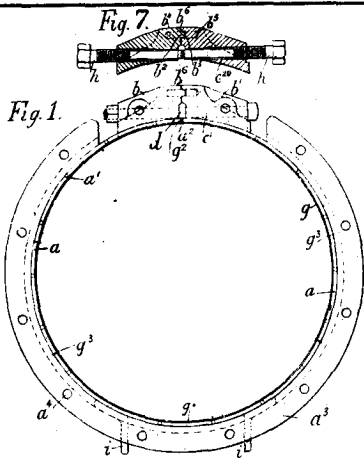


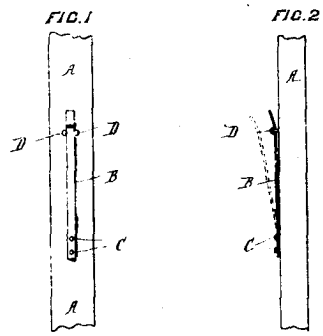
FIG. 3.

16132 Harvey and Bruce. Tilting Table.



Ford. Artificial-stone Mould.

16131



Neal. Cow's-tail Holder.

16113

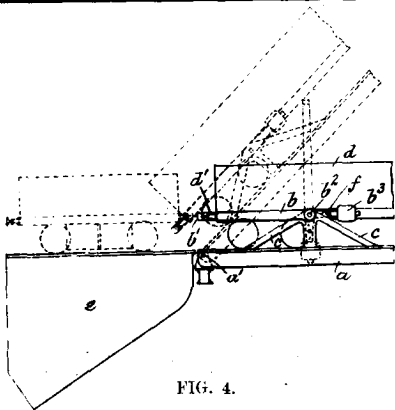


FIG. 4.

16133 Armstrong, Whitworth, and Co. (Limited). Wagon-tipping Stop. (Wright.)

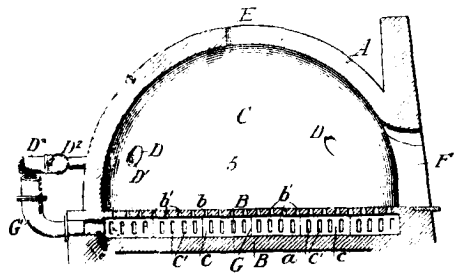


FIG. 2.

16138 Leiter. Coking-oven. (Moss.)

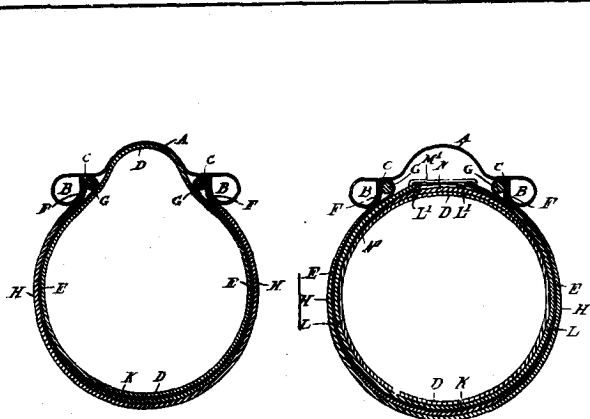


FIG. 1.

FIG. 4.

Magnus. Tire.

16140

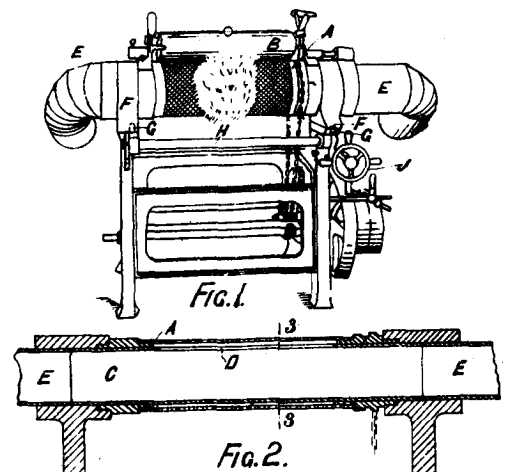


FIG. 1.

FIG. 2.

Anderson. Machine for dressing Rabbit, &c., Fur.

16141