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CONTENTS.

	Page
Complete Specifications accepted	69
Provisional Specifications accepted	80
Letters Patent sealed	81
Letters Patent on which Fees have been paid	81
Subsequent Proprietors of Letters Patent	81
Applications for Letters Patent abandoned	82
Applications for Letters Patent lapsed	82
Letters Patent void	82
Application for Letters Patent withdrawn	82
Applications for Registration of Trade Marks	82
Trade Marks registered	87
Subsequent Proprietors of Trade Marks	87
Trade Mark Renewal Fees paid	87
Request to correct Clerical Errors	87

the frame of the churn through the vessel, from the interior of which it is separated by means of a sleeve or bushing, is corrugated so as to form vertical or oblique, if preferred zigzag-shaped, grooves or channels, the inset being, moreover, set at such an inclination relatively to the axis of the vessel that the grooves or channels, which preferably have a sloping position relatively to the vertical, at the rotation of the vessel direct the liquid particles towards the centre of the vessel, and thus in a direction opposite to that in which the centrifugal force acts, in the same time as the liquid particles at the violent contact with the inset are brought into a vivid circulation, so that formation of butter is obtained.

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

Notice of Acceptance of Complete Specifications.

Patent Office,
Wellington, 7th January, 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. 14358.—19th December, 1901.—SVENSKA CENTRIFUG AKTIE BOLAGET, of Kungsträdgårdsgatan 4, Stockholm, Sweden (assignees of Carl Sigfrid Berghmark, of Birger Jarls gatan 11, Stockholm aforesaid, Engineer). A rotating or centrifugal churn.

Claim.—Rotating or centrifugal churn, provided with a stationary inset in the shape of a partition or wing, characterized thereby that the inset, which for instance by means of an arm is attached to vertical rod or pivot extending from

No. 14492.—31st January, 1902.—DAVID RANKEN SHIRREFF GALBRAITH, of Ladies' Mile, Remuera, Auckland, New Zealand, Analytical and Consulting Chemist. An improved method of utilising swamp and other deposits of kauri-gum dirt, and apparatus for use in connection therewith.*

[NOTE.—The title in this case has been altered. See List Provisional Specifications, *Gazette* No. 16, of the 20th February, 1902.]

Claims.—(1.) In the treatment of soil, clay, earth, and vegetable and other matter, called gum-dirt, containing kauri-gum in any form, and these bodies derived from kauri-gum by chemical change in the course of nature, the use of acetone for the purpose set forth, substantially as described. (2.) In the treatment of soil, clay, earth, and vegetable and other matter, called gum-dirt, containing kauri-gum in any form, and these bodies derived from kauri-gum by chemical change in the course of nature, in combination, the jacketed cylinder with cap adjustable thereon, extraction-rod and filter attached thereto within said cylinder, pipes leading therefrom to an upper tank or reservoir, and upper condensing-worm with ball and stem and ice-box, retort or still below cylinder with connecting-pipe between same, pipe leading from retort or still to condensing-worm, small ice-cooled worm with ball and stem adjusted to said tank or reservoir, pipe connecting lower tank to upper tank for pumping acetone from lower to higher tank, pipe connecting upper pipe leading to upper con-

densing-worm with lower tank, mechanism for raising and lowering cylinder, inlet and outlet pipes and taps and cocks, all for the purpose set forth, substantially as described. (3.) In the treatment of soil, clay, earth, and vegetable and other matter, called gum-dirt, containing kauri-gum in any form, and these bodies derived from kauri-gum by chemical change in the course of nature, the use of acetone in the manner specified in the cylinder-pipes, condensation-worms, retort or still, and the tanks or reservoirs, for the purpose set forth, substantially as described. (4.) In the treatment of soil, clay, earth, and vegetable and other matter, called gum-dirt, containing kauri-gum in any form, and these bodies derived from kauri-gum by chemical change in the course of nature, the arrangement, combination, and application of the various parts specified, together with the use of acetone therewith, for the purpose set forth, substantially as described.

(Specification, 11s. ; drawings, 1s.)

No. 14605.—8th March, 1902.—FRANK OAKDEN, of Dunedin, New Zealand, General Manager of the Milburn Lime and Cement Company, Limited. Improvements in the process of manufacturing Portland cement.*

Claims.—(1.) In the improved process described for manufacturing Portland cement, the use of quicklime and clay in alternate layers, substantially as and for the purposes set forth. (2.) In the improved process described of manufacturing Portland cement, the step which consists of first expelling the CO₂ from natural limestone, forming heaps of the resulting quicklime with clay in suitable proportions in alternate layers, and allowing said heaps to remain until the clay is dried and the quicklime is reduced to an impalpable powder, substantially as described. (3.) The process of manufacturing Portland cement which consists of expelling the CO₂ from the natural limestone, forming heaps of the resulting quicklime with clay in suitable proportions in alternate layers, allowing said heaps to remain until the clay is dried and the quicklime is reduced to an impalpable powder, grinding and intimately mixing the resulting mixture in a suitable mill, burning the ground and intimately mixed compound with coal-dust in a suitable kiln, and grinding the resulting clinker to powder by suitable machinery, substantially as described.

(Specification, 3s. 3d.)

No. 14609.—12th March, 1902.—THOMAS STANLEY PHILPOTT, of Mein Street, Newtown, Wellington, New Zealand, Saddler. An improved device for oiling axles of vehicles.*

Claims.—(1.) In combination with an axle-cap, a hollow plug screwed into the cap, a milled head upon the plug, a hole behind the head communicating with the interior of the plug, and a notch on the head of the plug to indicate the position of the said hole, substantially as set forth. (2.) In combination with an axle-cap, a hollow plug screwed into the cap, a milled head upon the plug, a hole behind the head communicating with the interior of the plug, a spiral spring in compression upon the plug, means for keeping the spring upon the plug, and a notch on the head of the plug to indicate the position of the said hole, substantially as set forth. (3.) The combination and arrangement of parts comprising my improved device for oiling axles of vehicles, substantially as and for the purposes set forth, and illustrated on the drawing.

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

No. 14625.—14th March, 1902.—WILLIAM MORLEY BARTLE, of Napier, New Zealand, Painter. An improved apparatus for flushing water-closets.*

Claims.—(1.) In apparatus for the purpose described, a valve controlled in its descent by a bucket within an air-pump, substantially as and for the purposes set forth. (2.) In apparatus for the purpose described, a tapered down-pipe, and a bell-mouth cistern to the said down-pipe whereby a rapid and free flow of water is obtained, substantially as and for the purposes set forth. (3.) In apparatus for the purpose described, in combination, a valve controlled in its descent by a bucket within an air-pump, the said bucket having a hollow piston-rod provided with a vent-hole and a tapered down-pipe, and a bell-mouth cistern to the said down-pipe whereby a rapid and free flow of water is obtained, substantially as and for the purposes set forth. (4.) In apparatus for the purpose described, in combination, a tapered down-pipe, and a valve at the foot of the said down-

pipe, a rod to operate the said valve and having its lower extremity passing through a bridge whereby the valve is guided to its seat, substantially as and for the purposes set forth. (5.) An apparatus for the purpose described, comprising, in combination, a tapered down-pipe having a valve at its foot, a rod to operate the said valve and having its lower extremity passing through a bridge whereby the valve is guided to its seat, a crosshead connecting the valve-rod to the piston-rod of an air-pump, a lever and chain for operating the valve-rod, a water-cock operated by a float-ball, and a pipe conducting water from the water-cock to the foot of the down-pipe, substantially as and for the purposes set forth. (6.) The combination and arrangement of parts comprising the improved apparatus for flushing water-closets, substantially as and for the purposes set forth, and illustrated on the drawing.

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

No. 14645.—20th March, 1902.—JAMES ROBERTS JEWELL, of 119, Lygon Street, East Brunswick, near Melbourne, Victoria, Butcher, and WILLIAM HENRY JEWELL, of 3, Bent Street, Northcote, near Melbourne aforesaid, Paper-bag Manufacturer. Improved means for locking the wheels of carts and other road-vehicles.*

Claims.—The described means for locking the wheels of carts and other road-vehicles, consisting essentially of spring bolts or catches mounted upon, against, or under the axle of the vehicle, and normally adapted to spring into engagement with one or other of a series of holes or recesses in discs or plates attached to the inner ends of the hubs of the wheels, said spring bolts or catches being connected with a lever or the like in the body of the vehicle, substantially as and for the purposes specified, and as illustrated in the drawings.

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

No. 14669.—22nd March, 1902.—RICHARD ARTHUR, of Wynyard Road, Mount Eden, Auckland, New Zealand, Engineer. A means for discharging the waste products of combustion of a marine oil-engine without noise or smell.*

Claims.—(1.) A metal bottle-shaped ejector with a folding valve to close its open and smaller end, and a funnel-shaped metal casting inserted into the ejector, as illustrated and substantially described. (2.) The combination of oil-engine, condenser, and ejector as substantially described.

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

No. 14677.—22nd March, 1902.—FRANK COOPER, of Invercargill, New Zealand, Agricultural-Implement Maker. An improved spring-tine cultivator.*

Claims.—(1.) In a spring-tine cultivator, a worm-wheel attached to an axle geared to a worm operated by a hand-wheel, said worm connected to a lever by means of a bracket for the purpose of revolving an axle to which travelling wheels are cranked for the purpose of regulating depth of work of tines, substantially as shown in drawings and described. (2.) A hand-lever on a cultivator to work in conjunction with a worm-wheel and worm for operating tines, substantially as shown on drawings and described. (3.) A tine-bar and clips loosely connecting two tine-levers, substantially as shown in drawings and described. (4.) A spring-tine cultivator with arrangement of frame, wheels, lever, and spring tines substantially as shown in drawings and described.

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

No. 14691.—1st April, 1903.—DAVID EBENEZER AMESBURY, of Denbigh Street, Feilding, New Zealand, Taxidermist. Improvements in castors.*

Claims.—(1.) The improvements in castors described and illustrated. (2.) In a castor, a crutch projecting vertically from the head, a cap adapted to receive the crutch and having its inner upper end shaped to approximately coincide with the upper end of the crutch, substantially as specified. (3.) In a castor, a crutch projecting vertically from the head, a portion of the crutch being recessed, a cap adapted to receive the crutch, and a screw passing through the cap and taking into said recess, substantially as specified. (4.) In a castor, a crutch projecting vertically from the head, a cap adapted to receive the crutch, a cup at the top of the crutch, a ball within the cup, the upper end of the cap being shaped to receive said ball, substantially as specified. (5.) In a castor, a crutch projecting vertically from the head, a cap adapted to receive the crutch, and a cup or socket integral

with said cap, substantially as specified. (6.) In a castor, a head having a vertically projecting crutch, horns integral with the head, a roller journaled in the horns, the roller being recessed and fitted with a tire of elastic material. (7.) In a castor, a roller having a recess receiving a tire of elastic material, substantially as indicated.
(Specification, 3s. 3d.; drawings, 1s.)

No. 14746.—14th April, 1902.—HUGH VICTOR MCKAY, of Yuille Street, Ballarat, Victoria, Machinery-manufacturer (assignee of Josiah Andrewartha and John Andrewartha, both of Fern Hollow Farm, near Moonta, South Australia, Farmers). Improvements in the boxes and feed-mechanism of seed and fertiliser drills.*

Claims.—(1.) A seed or fertiliser feed and delivery appliance consisting of a rotatable conveyor screw or worm feeding to a compartment over a delivery-hose, said screw or worm having a series of blades formed integral with it which lie within the compartment above the delivery-opening, substantially as described and shown. (2.) A seed or fertiliser box divided by means of upright partitions extending one-quarter to one-third the height of the box into a series of long and short compartments arranged in pairs, the short compartments being provided with covers, substantially as described. (3.) In a seed or fertiliser box, a series of long and short compartments arranged in pairs, said short compartments being provided with covers, in combination with a corresponding series of conveyor screws and blades attached to a rotatable shaft, said conveyor screws extending the length of the long compartments and just through the partitions into the short compartments, while the blades are wholly within the short compartments, substantially as described. (4.) In a seed or fertiliser discharge-device, a sleeve or body having upon the greater part of its length a conveyor screw, and upon the remainder of its length a number of blades, preferably ten in number, placed at equal distances around the sleeve and of gradually decreasing size, the one at the termination of the screw being the largest, substantially as described. (5.) In combination with a seed and fertiliser box having a series of compartments provided with conveyor screws for discharging the seed and fertiliser therefrom, a bevel gear-wheel secured upon one of the screw shafts at about its centre and gearing with a second bevel gear-wheel adapted to be rotated by suitable connections from some rotating portion of the implement, substantially as described more particularly with reference to Fig. 7. (6.) In a seed or fertiliser box, a series of long and short compartments arranged in pairs, said short compartments being provided with covers and with openings in the floors thereof, a rotatable shaft extending from end to end of the box through said compartments and supported in bearings in the partitions thereof, a series of sleeves secured upon said shaft within each pair of compartments, each of said sleeves having upon the greater part of its length a conveyor screw and upon the remainder a series of blades, the latter being within the smaller compartment and over the opening in the floor thereof, and the former extending the length of the longer compartment and just through the partition into the smaller compartment, all substantially as described and for the purpose set forth.
(Specification, 6s. 6d.; drawings, 2s.)

No. 14808.—26th April, 1902.—JAMES MURISON, of Dunedin, New Zealand, Engineer, and CHARLES LLEWELLYN WATT, of Dunedin aforesaid, Engineer. Improved means for securing the sleeve employed upon the lower tumbler shaft of a bucket dredge to the tumbler.*

Claims.—(1.) The combination for the purpose indicated of a bush fitting the tumbler-shaft and having a sided flange, and a tumbler having a recess adapted to receive said flange, substantially as described and illustrated. (2.) The combination for the purpose indicated of a bush fitting a tumbler-shaft, a collar fitting the bush, a pin through the collar, bush, and shaft, a sided flange integral with the bush, and a tumbler having a recess adapted to receive said flange, substantially as described and illustrated.
(Specification, 1s. 6d.; drawings, 1s.)

No. 14828.—2nd May, 1902.—WILLIAM HENRY FAHEY, of Royal Terrace, Kew, Caversham, New Zealand. Commercial Traveller, and WILLIAM WARDROP, of South Dunedin, New Zealand aforesaid, Chemist. Improvements in and relating to hair and hat pins and fastenings.*

Claims.—(1.) In combination, a guide-piece, means for securing the same upon the side of a hat, wire pins passing through the guide-piece and adapted to engage the hair of the wearer, said pins being curved in opposite directions, whereby they normally spread laterally apart when passed through the guide-piece. (2.) In combination, a guide-piece, means for securing same upon the side of a hat, wire pins passing through the guide-piece and adapted to engage in the hair of the wearer, and spring coils upon the pins which normally tend to spread them apart. (3.) In combination, a guide-piece, means for securing same upon the side of a hat, wire pins passing through the guide-piece and adapted to engage in the hair of the wearer, and a catch for preventing accidental return of the pins through the guide-piece, as specified.
(Specification, 3s. 9d.; drawings, 1s.)

No. 15527.—25th October, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, County of Cuyahoga, State of Ohio, United States of America, Photographer. Means for loading automatic photographic apparatus.*

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

Claims.—(1.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and means embodied in said receptacle for removing such closure. (2.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and means embodied in said receptacle for moving said column of plates in said receptacle, whereby said closure may be removed. (3.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and a movable cap at its opposite end whereby said closure may be removed by the movement of said cap when a column of plates is in said receptacle. (4.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle having a flexible peripheral portion, and means embodied in said receptacle for removing said closure. (5.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, and a movable cap at its other end whereby said column may be removed by the movement of said cap when a column of plates is in said receptacle. (6.) Means for loading photographic apparatus comprising the combination of a receptacle adapted to carry a column of photographic plates, a removable closure at one end of said receptacle, a movable cap at its other end, and a separator adapted to rest intermediately of said cap and said column of plates, whereby said closure may be removed by the movement of said cap when a column of plates is in said receptacle. (7.) In means for loading photographic apparatus, the combination of a receptacle adapted to carry a column of photographic plates, a movable cap at one end of said receptacle, and a detached member adapted to rest intermediately of said cap and a column of plates, and adapted to pass through said receptacle. (8.) In means for loading photographic apparatus, a receptacle adapted to carry a column of photographic plates, a removable light-tight closure adapted to fit within the interior of one end of said receptacle, a movable cap at the other end of said receptacle, and means embodied in said receptacle for removing said closure.
(Specification, 5s. 6d.; drawings, 1s.)

No. 15528.—25th October, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, County of Cuyahoga, State of Ohio, United States of America, Photographer. A photographic plate.*

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

Claims.—(1.) A photographic sensitive plate having a mount permanently confined thereto, and flanged so as to overlap the edge of the plate both in front and rear, substantially as specified. (2.) A photographic sensitive plate having a mount consisting of a backing-plate with edge flange lapped around the edge of the sensitive plate and permanently confined thereto, substantially as specified. (3.) A photographic sensitive plate having a mount permanently secured thereto and forming at the edge of the plate flanges projecting both forwardly and rearwardly therefrom, substantially as specified. (4.) A photographic sensitive plate

having a mount permanently secured thereto and forming flanges projecting beyond the plate both in front and rear, and an attaching-device secured to said mount and projecting therefrom to a less extent than the rear flange, substantially as specified. (5.) A photographic sensitive plate having a mount permanently secured thereto and consisting of a sunken back plate with edge flange overlapping the edge of the sensitive plate, and an attaching-device secured to said back plate and contained within the sunken portion of the same, substantially as specified.

(Specification, 5s.; drawings, 1s.)

No. 15570.—30th October, 1902.—ALEXANDER HARRISON BROWNLEY, of Onehunga, New Zealand, Watchmaker and Jeweller. An improved advertising parcel-grip.

Claim.—An improved advertising parcel-grip having a grip or handle divided into two parts, in one of which is a recess for holding an advertisement, each half of the handle having sides or legs provided with hooks at their ends, the said sides or legs being jointed so as to move around the rivet by which they are joined, substantially as described and illustrated.

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

No. 15595.—4th November, 1902.—FRANCIS ANTONIO BURDETT-STUART, of Chertsey, Canterbury, New Zealand, Water Ranger. An improved trap for small birds and the like.*

Claims.—(1.) In traps for small birds and the like, the general arrangement, construction, and combination of parts as specified and illustrated. (2.) The combination with a shallow rectangular frame of cross and distance pieces to form openings in its roof when the frame is covered with wire netting save over the openings so formed, as described, and for the purposes specified. (3.) In a receiving-chamber as described, in combination with a trap having external openings, a funnel tapering into said chamber and connecting the trap with the same, and a sleeve upon the outside of the chamber, for the purposes set forth. (4.) In a receiving-chamber as described, in combination with a trap having external openings, a loosely mounted screen of wire adapted to open into the chamber, and a sleeve upon the outside of the chamber, as specified, and for the purposes set forth.

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

No. 15681.—26th November, 1902.—ERNEST SMITH BALDWIN and HENRIE HAMPTON RAYWARD, carrying on business as Baldwin and Rayward, Patent Agents, of National Chambers, Grey Street, Wellington, New Zealand (nominees of Guillaume Daniel Delprat, of Broken Hill, New South Wales, Australia, Miner). Improved process for extracting zinc and other sulphides from their ores.*

Claims.—(1.) In extracting zinc and other sulphides from their ores, subjecting such ores to the action of a heated bath consisting of a solution of salt-cake, substantially as described and explained. (2.) In extracting zinc and other sulphides from their ores, subjecting such ores to the action of a heated bath consisting of a solution of sodium-sulphate and sulphuric acid, substantially as described and explained.

(Specification, 1s. 6d.)

No. 15694.—27th November, 1902.—THOMAS SMITH, of 20, Great Davis Street, South Yarra, Melbourne, Victoria, Engineer, and GEORGE BOARDMAN, of Redfern Coffee Palace, Elizabeth Street, Redfern, Sydney, New South Wales. A new or improved flushing-cistern.

Claims.—(1.) The combination and arrangement of a double trap, tube *e*, valve *g*, and mouth *c*¹ of supply-pipe *c*, when used in conjunction with a flushing-cistern, for the purpose of re-supplying air to air-lock should the air in said air-lock have been allowed to escape too slowly to start and maintain siphonic action. (2.) The combination and arrangement of a double trap, with pipe *d*, tube *e*, valve *g*, and orifice *l*, for the purpose of starting, maintaining, and stopping siphonic action in a flushing-cistern. (3.) The combination and arrangement of supply-pipe *c*, tube *e*, valve *g*, pipe *d*, and double trap *d*¹, *d*², *d*³, with orifice *l*, for the purpose of filling the cistern, and starting and maintaining and stopping siphonic action. (4.) The combination and arrangement of a double trap, mouth *c*¹, supply-pipe *c*, with orifice *c*², orifice *l*, tube *e*, valves *g* and *h*, with cistern *a*, substantially as and for the purposes described.

(Specification, 5s.; drawings, 1s.)

No. 15711.—29th November, 1902.—IDA JACOB (*geborene Kohl*), of 1, Anger, Rudolstadt, Fürstentum Schwarzburg-Rudolstadt, Germany, Married Woman, and WILHELM PRITZKOW, of Rathsgasse, Salzung, Sachsen-Meiningen, Germany aforesaid, Chemist. Manufacture of fibre suitable for spinning from New Zealand flax.

Claim.—The described manufacture of fibre for spinning from New Zealand flax, by first boiling the fresh green leaves, from which the brown edges have been removed, in a solution of an alkaline salt, such as borax, soda, or sodium-bicarbonate, then beating the leaves while warm and moist, then washing in warm soap-and-water, and finally heckling the fibre thus obtained.

(Specification, 1s. 6d.)

No. 15724.—1st December, 1902.—GEORGE WILLIAM BASLEY, of Vulcan Chambers, Queen Street, Auckland, New Zealand, Patent Agent (nominee of Harry Smith, of Meteor Works, Garfield Road, Coventry, Warwickshire, England, General Manager of the Rover Cycle Company, Limited). Improvements in or relating to motion-transmitting mechanism of the kind known as the Bowden mechanism.

Claims.—(1.) In flexible shafts for operating the brakes of cycles, severing the flexible cables and then uniting the severed ends in such a way that a direct pull may be transmitted from the source of power, such as the brake-lever, to the brake, as set forth. (2.) In flexible shafts for operating the brakes of cycles, severing the flexible cables and then uniting the severed ends together by hooks, blocks, or other suitable appliances, so that the cable (notwithstanding that it has been severed) shall exert a direct pull when operated upon the brake-mechanism, as specified. (3.) In flexible shafts for operating the brakes of cycles, severing the flexible cables and then uniting the severed ends in any suitable manner, such as by means of hooks or blocks, whereby a direct pull may be transmitted through the cable to the brake mechanism, in combination with a covering-sleeve which shall cover the severed and reunited ends of the cables, as and for the purposes set forth. (4.) The general arrangement, construction, and combination of parts in the appliances relating to motion-transmitting mechanism of the kind known as the Bowden mechanism, as set forth, and for the purposes specified.

(Specification, 5s.; drawings, 1s.)

No. 15728.—5th June, 1902.—EVAN HENRY HOPKINS, of 32, Redcliffe Square, South Kensington, Middlesex, England, Clerk in Holy Orders. An improved process for obtaining zinc.

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in Great Britain.]

Claim.—Obtaining zinc from zinc-compounds by heating the zinc-compounds in a retort or other vessel from which air is excluded, and condensing the zinc-vapours in a receptacle filled with heated carbon from which air is excluded, substantially as described.

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

No. 15731.—13th December, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, Ohio, United States of America, Photographer. Coin-controlled machines for automatically producing a photographic likeness.*

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

Claims.—(1.) Automatic photographic apparatus in which a spring or gravity motor is energized by a toothed segment operated by an external handle, said segment also operating directly through a crank and connecting-rod a plate-feeding slide so that a plate is brought into the focal position by the energizing stroke, substantially as described. (2.) In automatic photographic apparatus in which a motor is energized and a sensitised plate simultaneously fed from a magazine to be focussed in the camera by mechanism operatively connected, plate exposing and finishing mechanism controlled by an electric circuit, one or more gaps in which are adapted to be closed by the operating lever which energizes the motor and effects the feeding of the plate from the magazine, substantially as described. (3.) In an automatic photographic apparatus as claimed in claim 2, an electric circuit controlled by the operating lever and adapted to electro-magnetically release the motor, substantially as described. (4.) In an

automatic photographic apparatus as claimed in claim 3, means for opening the shutter, substantially as described. (5.) Automatic photographic apparatus in which a series of receptacles for holding material for finishing a photographic plate are provided with means for transferring the plate from one receptacle to another, consisting of perforated tilting-plate carriers operated by cranks and connecting-rods actuated in succession from the motor by projections, some of which are relatively adjustable, whereby the finishing operations can be arranged to act for predetermined periods, substantially as described. (6.) In automatic photographic apparatus, the tubular discharging-duct, having its receiving end located in the lateral wall of the upper-tube portion, its lower end being removed from and projecting transversely from the tube portion and provided with a drain passage, substantially as described. (7.) In connection with the bath for developing the plate, and the operating-wheel, an angularly adjustable arm on said wheel for actuating the transferring mechanism from said bath, provided with a pointer co-operating with marks on the wheel indicating angular intervals of wheel-travel, substantially as described. (8.) In magazine plate-feeding apparatus for automatic photographic apparatus, a slide having an opening to receive a plate and operating in a slide-way beneath the magazine to carry the plate to a semi-circular discharge-opening in the floor of said slide-way, whereby discharge takes place at a definite point of the travel of the plate, which falls with its face towards the lens, substantially as described. (9.) In connection with the subject-matter of claim 8, an aperture beneath the magazine and slide of such dimensions as to prevent plates from the magazine from passing therethrough, for the purpose described. (10.) A movable closure for the magazine removable from the magazine through the aperture beneath said magazine, which aperture at the same time bars the passage of the plate. (11.) In connection with a motor-operated wheel and a shutter, an angularly adjustable arm on said wheel for timing the exposure and closing the shutter, the angularly adjustable arm being arranged in such manner that one end closes the shutter and the other end engages and operates the mechanism for discharging the plate from the focal plane. (12.) In automatic photographic apparatus, an exterior element movable to control the motor, and movable also to accommodate the operator, and an actinic-light-producing circuit also controlled by one of the movements of the said movable element. (13.) In automatic photographic apparatus having an operating-wheel and a motor therefor, a spring-actuated shaft connected with and opening the shutter, a sleeve in which it has bearing and which engages the shaft when moved in one direction and disengages it when moved in the other, a stop-arm mounted on said sleeve to control the operating-wheel, and means upon the wheel for engaging the said shaft to close the shutter independently of the position of the stop-arm. (14.) In automatic photographic apparatus, a shutter connected with a spring-actuated arm, an armature arranged to hold said arm in a depressed position and the shutter closed, an electro-magnet, and an electric circuit whereby said magnet may be energized and the armature disengaged from said arm to permit the spring to open the shutter. (15.) In coin-controlled automatic photographic apparatus having a motor and a coin-duct, an operating lever for energizing the motor, an electrical circuit with accessories for controlling the operation of said motor, and two pairs of electrical contacts for opening and closing such circuit, a member of one pair being located in the coin-path of said duct and a member of the other pair in the lever-path. (16.) In connection with the subject-matter of claim 15, locating the last-stated contact member at the end of the energizing stroke of the lever. (17.) In connection with the subject-matter of claim 15, making one member of the pair of contacts associated with the coin-path movable to hold the other while in contact therewith in said coin-path, and providing means for actuating the movable contact to disengage the other so that it may be removed from the coin-path. (18.) In connection with the subject-matter of claim 15, providing the electric circuit with a third pair of contacts, one member of which is capable of being manually operated.

(Specification, £1 4s.; drawings, 9s.)

No. 15732.—9th December, 1902.—RALPH BENJAMIN JACKSON, of Examiner Road, Nelson, New Zealand, Book-seller, and JOHN SHARP, Jun., of Nelson aforesaid, Share-broker. An improved razor-strop.

Claim.—A razor-strop consisting of a blade having one end formed into a handle, and strips cut from the flower-stalk of *Phormium tenax* secured upon said blade, the strips having a surface upon which a razor may be sharpened, and being secured to the blade with their fibres disposed longitudinally.

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

No. 15739.—10th December, 1902.—JULIUS ANTONIUS LANDSBERGER, of Alameda, California, United States of America, Merchant (assignee of Ewald Goltstein, of Cologne, Kingdom of Prussia, Germany, Gentleman). Improvements in jar-closures.

Claims.—(1.) A sheet metal cover adapted to fit and close a receptacle, and having permanently secured to it by adhesion a compressible washer or gasket. (2.) A sheet-metal cover having a plain substantially flat seat, in combination with a compressible washer or gasket adhesively secured to said seat and forming a permanent part of said covering. (3.) A sheet-metal cover having a composition washer or gasket secured to it by adhesion. (4.) The combination with a receptacle and cover of a washer or gasket in permanent adhesion to said cover, and a protective liner between said receptacle and cover. (5.) The combination with a receptacle having a peripheral seat forming substantially a right angle with its rim, of a cover having a body fitting the outside of the rim, a shoulder above said seat, a flange depending from the shoulder, and a compressible gasket adhesively secured beneath and to said shoulder so as to be confined vertically between the seat and shoulder, and horizontally between the rim and the flange of the shoulder.

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

No. 15740.—10th December, 1902.—EDWARD LLOYD PEASE, of Hurworth Moor, Darlington, Durham, England, Engineer. Improvements in structural arrangements in a manner applicable to roofing, walling, or other purposes, such as large packing-cases and the like.

Claims.—(1.) The combination with slotted tubes, panels interlocked therewith by inset edges and with or without stiffeners between the said slotted tubes, of channel irons extending along the eave of the roof and adapted to serve as stiffeners to the said eaves and as a means for draining the water into the tubular rafters, substantially as described with reference to Figs. 1 and 2 of the drawings. (2.) In the combination of slotted tubes with panels interlocked therewith, the means for gauging and securing each panel in exact position by means of a notch such as *a*¹ in the slotted tube and a clip or tongue cut at the corner of the panel to be pressed into the said notch, substantially as described with reference to Figs. 4 and 5 of the drawings. (3.) The use, in combination with slotted tubes and panels interlocked therewith, whether in suitable combination separately or as alternate arrangements, of the several details described and illustrated in Figs. 6 to 16 inclusive of the drawings. In roofs, walls, or the like structural work, in substitution of slotted tubes and panels interlocked therewith by inset flanges,—(4.) The use of beams or bearers recessed laterally for the reception of the panel-edge, which is interlocked therewith by a metal strip or rib *e* driven down in lengths, the panel being otherwise secured by a tight fit between the flange and a second flange or tenon, or between said flange and a metal strip *e*¹ taking the place of a tenon, the several parts being arranged and fitted together substantially as and for the purpose as described with reference to Figs. 17 to 25 inclusive of the drawings. (5.) In the beam-and-panel arrangement set forth in claim 4, the use of specially constructed short metal strips *e*¹ as a means of wedging up the panel more closely to the beam, substantially in the manner described with reference to Figs. 18, 21, 22, 23, and 24 of the drawings. (6.) In flooring and the like structural work, the use of boards extending across the joists and tapered at their ends to form an angular trough into which fits a wedge-piece fixed to and forming a dovetailed ridge to the joists by screws, substantially as and for the purpose as described with reference to Fig. 26 of the drawings. (7.) In roofs and the like structural work, the use of beams or bearers furnished with a dovetailed ridge to which the panels are interlocked by packing with or without short metal strips, substantially as and for the purpose as described with reference to Figs. 27 and 28 of the drawings. (8.) In walling and the like structural work, the use of a corner piece in which panels are interlocked to the post by short metal strips, the whole being secured by a corner cap and screws, substantially as and for the purpose as described with reference to Fig. 29 of the drawings. (9.) In roofs and the like structural work, the combination with slotted tubes and steel purlins or stretchers of a made-up panel consisting of a series of boards fixed to the underside of two or more metal strips extending across the bay and interlocked by inset edges with the slotted tubes, with or without a felt or metal covering or brown-paper lining, substantially as and for the purpose as described with reference to Figs. 30 to 33 inclusive of the drawings.

(Specification, 13s.; drawings, 7s.)

No. 15741.—10th December, 1902.—JOHN THOMPSON STEELE, of 60, Oakfield Road, West Croydon, Surrey, England, Secretary to a Public Company. Improvements in means or devices for binding and holding sheets of paper and the like, and in sheets for use therewith.

Claims.—(1.) A binder constructed and operating as set forth, and as shown in the drawings. (2.) In a binder such as described, the construction of the covers A and B set forth and shown in Figs. 1, 2, 2^a, and 3 of the drawings. (3.) In a binder such as described, the combination of a rack attached to the top cover, another rack forming part of a detachable locking device, and a lock and key adapted to operate in conjunction with the said racks, as set forth and shown in Figs. 1, 2, 3, 4, 5, 5^a, and 6 of the drawings. (4.) The detachable locking-piece H shown in Fig. 4, adapted to engage with a lock forming part of one cover of the binder, constructed and operating as specified. (5.) In a binder as described, an upright H² surrounded by a spring I and enclosing a spring H³, constructed and operating as set forth, and illustrated in the drawings. (6.) In a binder such as described, the combination of one or more uprights engaging with the sheets by apertures such as L¹, with an upright or uprights engaging with such sheet by a perforation such as L, substantially as set forth and shown in the drawings. (7.) A sheet constructed with open and close holes L and L¹, and operating substantially as and for the purpose set forth, and as illustrated in Figs. 2 and 7 of the drawings. (8.) In a binder such as described, a top sheet strengthened by a bar for springs to bear against, such top sheet being constructed substantially as shown in Figs. 8 and 8^a. (Specification, 8s.; drawings, 4s.)

No. 15746.—11th December, 1902.—ERNST FRIEDRICH WILHELM WIEDA, of 212, Market Street, Paterson, New Jersey, United States of America, Candy-manufacturer. Improvements in kneading and mixing machines.

Claims.—(1.) The combination, with a frame, of a vessel for receiving the material to be operated upon, agitating-mechanism adapted to be received by said vessel, supporting-means for said vessel, said vessel being pivotally arranged in said supporting-means, and means for raising and lowering said supporting-means and by it said vessel, substantially as described. (2.) The combination, with a frame, of a vessel for receiving the material to be operated upon, supporting-means for said vessel, agitators, a shaft carrying said agitators and journaled in said frame, said vessel being adapted to receive the agitators and being pivotally arranged in said supporting-means for actuating said agitators, and means for raising and lowering said supporting-means and by it said vessel, substantially as described. (3.) The combination, with a frame, of a vessel for receiving and mechanism for agitating the material to be operated upon, said mechanism being adapted to be received by the vessel, and said vessel being movable into and out of operative position relatively to the mechanism, and being also pivotally mounted, and a trip adapted to engage said vessel eccentrically to turn the same on its pivot, substantially as described. (4.) The combination, with a frame, of a vessel for receiving the material to be operated upon, sets of agitators adapted to oscillate in reverse directions and arranged in said vessel, segmental members, an intermediate rotary part engaging said members and revoluble in opposite directions to oscillate the same, and operative connecting-means between each member and one of the sets of agitators, substantially as described. (5.) The combination, with a frame, of a vessel for receiving the material to be operated upon, sets of agitators adapted to oscillate in reverse directions and arranged in said vessel, toothed segments, an intermediate pinion engaging said segments, and operative connecting-means between each segment and one of the sets of agitators, substantially as described. (6.) In a mixing or other similar machine adapted in operation to maintain a constant circulation in the material being operated upon in a given direction, a set of oscillatory agitators arranged in different radial planes and having their acting faces set obliquely, those in the one plane oppositely to those in the other, substantially as described. (7.) In a mixing or other similar machine adapted in operation to maintain a constant circulation in the material being operated upon in a given direction, a set of oscillatory agitators arranged in different radial planes and having their acting faces set obliquely, those in one plane oppositely to those in the other, and said agitators having their rear faces convergent, substantially as described. (8.) The combination, with a frame, of a vessel for receiving the material to be operated upon, sets of agitators adapted to oscillate in reverse directions about a common axis and arranged in said vessel radially relatively to said axis, and means for actuating said agitators, substantially as de-

scribed. (9.) The combination, with a frame, of a vessel for receiving the material to be operated upon, sets of agitators adapted to oscillate in reverse directions about a common axis and arranged in said vessel radially relatively to said axis, the agitators of one set projecting from said axis and the other toward the same, and means for actuating said agitators, substantially as described. (Specification, 7s.; drawings, 3s.)

No. 15748.—11th December, 1902.—MAURICE TAYLOR, of 16, Rue Grange, Batelière, Paris, France, Engineer. Improvements in and relating to gas-engines, and to gas-producers for use therewith.

Claims.—(1.) A gas-engine or explosion motor arranged to draw its charge directly from the producer without the intermediary of a pump or gasometer, substantially in the manner described. (2.) The arrangement of a variable-capacity suction-chamber between the gas-producer and the motor, which chamber contracts during the suction stroke of the motor, and during the remaining three strokes of the cycle re-expands and sets up an even or continuous suction in the pipes leading from the producer, substantially as and for the purpose described. (3.) The method of increasing the effect of the arrangement mentioned in the preceding claim by allowing the pressure in the exhaust-box to act on the suction-chamber, substantially as described. (4.) The arrangement of annular escape-passage, formed by a funnel extending below the gas-outlet and into the fuel-chamber of the producer, substantially as and for the purpose described. (5.) The combination with the funnel arrangement referred to in the preceding claim, of the special charging hopper and slide arranged and operating substantially as described. (6.) The arrangement for permitting the easy renewal of the refractory linings and their associated parts which consists in forming the producer and its linings in sections, the linings being supported by a flanged ring surrounded by passages for heating the air and steam blast, substantially as described. (7.) The special arrangement for supporting the lower section of the refractory material, comprising the annular disc resting on the stays or bolts extending across the lower section of the producer, substantially as set forth. (8.) The modification of the arrangements set forth in claims 6 and 7, in which the producer has a removable bottom faced with refractory material and supported by pressure-levers, and in which the lower section of the lining is supported by a dished piece whose edges serve as walls for the passage through which the blast is conducted, substantially as described. (9.) The means for readily proportioning the amount of steam in the air blast, in which the steam discharges itself in the opposite direction to the incoming air, and the action is regulated by a cock controlling a by-pass or side inlet for air, substantially as described. (10.) The various arrangements mentioned for use in connection with gas-engines and gas-producers, substantially as described with reference to the drawings, and for the purposes set forth. (Specification, 13s.; drawings, 4s.)

No. 15749.—11th December, 1902.—THE ECONOMIC HOISTING AND BALLAST COMPANY, of San Francisco, California, United States of America, a corporation organized under and by virtue of the laws of the State of California, Contractors (assignees of Arthur Mullan, of 17, De Boom Street, San Francisco aforesaid, Foreman of Coal-mining Company). An improved apparatus for unloading cargoes from vessels.

Claims.—(1.) In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-ropes attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end of the chute, and means for supporting said chute from the upper end of the frame, substantially as described. (2.) In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-ropes attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end of the chute, means for supporting said chute from the upper end of the frame, and means for adjusting the elevation and inclination of said chute, substantially as described. (3.) In an apparatus of the character described, the combination of a frame, means for supporting the lower end of the frame, guy-ropes attached to the upper portion of the frame for maintaining said frame in an upright position, a chute, an operating-platform secured to the upper end of the chute, means for supporting said chute from the upper end of the frame, and wheels attached to said frame, substantially as described. (4.) In an apparatus of the character described,

the combination of a frame, means for removably supporting the frame in an upright position, a chute, means for suspending the chute from the upper end of the frame, and a platform secured beneath the upper end of the chute and projecting beyond the side of the chute to form a support for an operator, substantially as described. (5.) In an apparatus of the character described, the combination of a frame comprising side pieces, a top piece, and a connection between the lower portions of said side pieces, a chute extending through the frame in the space between said top piece and connection, means for adjusting the position of said chute in said space, and a wheel-axle secured upon said frame at one end of said space, said axle having wheels freely revoluble on its ends, substantially as described. (6.) In combination, a frame, a chute adjustably supported in the frame, and a laterally extending operating-platform attached directly to the upper end of the chute, substantially as described. (7.) In combination, a frame having wheels thereon, a chute having directly attached to its upper end a platform extending on each side of the chute laterally therefrom, means for adjustably supporting the upper end of the chute upon said frame, and means for independently supporting the lower end of the chute, substantially as described. (8.) In combination, a chute having a platform extending laterally from each side of its upper end, a support, ropes for suspending said upper end and platforms from said support, a rope for independently suspending the lower or forward end of the chute, and a rope attached to the upper or rear edge of the platform and leading forwards and downwards and suitably connected under tension to draw the rear end of said chute forwards, substantially as described.

(Specification, 5s. 6d. ; drawings, 1s.)

No. 15750.—11th December, 1902.—AUGUSTE GAULIN, of 170, Michel Bizot Street, Paris, France, Constructor. System for intimately mixing milk.

Claims.—(1.) An apparatus combined with a process for mixing liquids of heterogeneous composition, such as milk and the like, characterized by the passage of the liquid under strong pressure between surfaces pressed elastically one against the other and adjusting themselves exactly together, so as to secure the disintegration of the smallest particles of the liquid, substantially as set forth. (2.) The mechanical process for mixing liquids of heterogeneous composition which consists in causing the liquid to pass under heavy pressure, firstly through capillary orifices of invariable diameter, then between the terminal surface of the capillary apparatus and the surface of a valve of agate or other hard material pressed strongly by means of a spring against the said capillary apparatus, and adjusted in such a manner as to apply itself exactly thereto, substantially as set forth, in combination with the apparatus specified. (3.) The improved mechanical process for mixing milk and the like as set forth, which consists in exposing the milk under heavy pressure as set forth to a temperature of about 85° C. between surfaces pressed elastically one against the other and capable of adjusting themselves exactly together, substantially as set forth, in combination with the apparatus specified. (4.) An apparatus for the carrying-out of the process set forth, comprising pumps actuated alternately, and a capillary apparatus through which the liquid is forced by the said pumps, in combination with a valve of hard material pressed by an adjustable spring against the outer face of the capillary apparatus, the contact faces of the valve and the apparatus respectively being exactly adjusted one to the other. (5.) In the improved apparatus combined with the process set forth, the actuation of the pumps, and of the eccentric shaft which operates them, in combination with a motor shaft having a fly-wheel and gearing connecting the said motor shaft to the said eccentric shaft, transmitting to this latter rotary motion at a reduced speed, substantially as and for the purpose set forth. (6.) In an improved apparatus combined with the process as set forth, the use of a filter in the aspiration-tube of the pumps, substantially as described. (7.) In an improved apparatus combined with the process as set forth, the filter with hermetic closure constructed and operating substantially as described with reference to the drawings. (8.) In an improved apparatus combined with the process substantially as above set forth, the arrangement of an air-escape valve at the upper part of the pressure-tube for the liquid, for the purpose of assisting the operation of the pumps, substantially as set forth.

(Specification, 7s. 6d. ; drawings, 1s.)

No. 15751.—9th December, 1902.—GEORGE JOHN HOSKINS, of Wattle Street, Ultimo, Sydney, New South Wales, Engineer. Apparatus for regulating the intermittent squeeze and intermittent feed in machines for closing the locking-bar joints of wrought-iron pipes.

Claims.—(1.) In machines for closing the locking-bar joints of wrought-iron pipes, a main shaft on which is keyed a cam, the cam surface of which is divided into approximately two semicircumferential concentric segmental surfaces of different radii and connected by drops, in combination with appliances for alternately, intermittently, and successively operating (a) the hydraulic gear for squeezing the locking-bar joint, and (b) the gear for feeding the pipe forward in order to bring the locking-bar joint intermittently under the operation of the squeezing-ram as specified. (2.) In machines for closing the locking-bar joints of wrought-iron pipes, a cam such as that referred to in claim 1, in combination with a pendant rod adapted to rise and fall synchronously with the rotation of the cam, such rod carrying at its lower end, and acting as fulcrum to, a swivelling-arm adapted to engage with a slot in the spindle of the hydraulic valve gear for working the ram, as and for the purposes specified. (3.) In machines for closing the locking-bar joints of wrought-iron pipes, a cam such as that referred to in claim 1, in combination with a crank-pin from which depends a rod the lower end of which is connected to a bell-crank lever adapted to operate suitable appliances for feeding forward the carriage upon which is placed the pipe, the locking-bar joints of which have to be closed, as specified. (4.) In machines for closing the locking-bar joints of wrought-iron pipes, the cam D, pendant rod J, swivelling-arm m, slotted valve spindle O, and hand-lever N connected to one end of the swivelling-arm m, and adapted to throw the same in and out of engagement with the valve-spindle, as and for the purposes set forth. (5.) In machines for closing the locking-bar joints of wrought-iron pipes, in combination, the cam D, pendant rod J, swivelling-arm m, hand-lever N, bell-crank arms p, p', bent lever q, link r for the purpose of releasing the hauling-gear of the feed, as specified. (6.) In machines for closing the locking-bar joints of wrought-iron pipes, the actuating and releasing-gear referred to in claim 4, in combination with hand appliances for applying additional hydraulic pressure to the locking-bar joint, as and for the purposes set forth. (7.) The general arrangement, construction, and combination of parts in the apparatus for regulating the intermittent squeeze and the intermittent feed in machines for closing the locking-bar joints of wrought-iron pipes, as and for the several purposes specified.

(Specification, 7s. ; drawings, 3s.)

No. 15753.—10th December, 1902.—JOHN JOSEPH HILL, of Denver, Arapahoe, Colorado, United States of America, Mining Engineer. Amalgamating-apparatus.

Claims.—(1.) An amalgamating-apparatus of the class having an inclined series of ribbed quicksilver-coated copper cylinders, journaled to be rotated by the power of the pulp-flow in basins containing quicksilver, and forming intercommunicating pulp-passages between the cylinders and the bodies of quicksilver in the basins, characterized by having the passage under each cylinder constricted towards its overflow end. (2.) An amalgamating-apparatus according to claim 1 characterized by having each of the series of cylinders eccentrically journaled with relation to the longitudinal centre of its supporting basin to produce the pulp-passage under it of gradually tapering form from its inlet to its overflow side. (3.) An amalgamating-apparatus according to claim 1 characterized by having the journals of the cylinders retained by removable plates bearing on the basin-ends and carrying between opposite plates removable amalgamating-curtains. (4.) An amalgamating-apparatus characterized by having at its tailings-discharging end an inclined stationary copper plate coated on its upper side with quicksilver, and a similar plate coated on its under side with quicksilver and hinged to bear at its lower end yieldingly against the surface of the stationary plate and form therewith a gold-intercepting tailings-passage. (5.) The amalgamating-apparatus shown and described.

(Specification, 7s. ; drawings, 2s.)

No. 15755.—13th December, 1902.—THOMAS DICK CUMMINS, of Wanganui, New Zealand, Merchant, and WILLIAM THOMAS NUTTALL, of Wanganui aforesaid, Gunsmith. An improved dropper or standard for wire fences.

Claim.—A standard or dropper for wire fencing consisting of a flat bar of metal provided with slots therein that extend upwards and inwards from one edge and then vertically upwards, thus forming tongues upon the outer sides of the slots, such standard being adapted to be secured upon the wires of the fence by passing the wires into the top ends of the slots and closing the tongues upon them, as specified.

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

No. 15759.—15th December, 1902.—STEPHEN HENRY MANNERS, of 164, Parade, Norwood, South Australia, Agricultural Engineer. An improved stump-and-root-grubbing machine.

Claims.—(1.) In an improved stump-and-root-grubbing machine, a fulcrum arranged between fulcrum-shields, and a main lever mounted thereon, said lever having a lifting-arm extending below and in front of the fulcrum, substantially as described and as illustrated. (2.) In an improved stump-and-root-grubbing machine, the combination of fulcrum-shields rigidly attached to the body of the machine, a fulcrum-pin and a main lifting-lever having a pointed and curved lifting-arm integral therewith, said lifting-arm arranged to operate with an upward radial movement. (3.) In an improved stump-and-root-grubbing machine, purchase-bars rigidly fastened to and extending upwards from the body, and provided with pulley-wheels or sheaves. (4.) In an improved stump-and-root-grubbing machine, the combination of a body mounted upon traction-wheels by intermediate mechanism, fulcrum-shields, a fulcrum, and a main lifting-lever, together with purchase-bars and a system of ropes and pulleys arranged to operate between the main lifting-lever and the purchase-bars as a combination of parts. (5.) In an improved stump-and-root-grubbing machine, radial guide-bars mounted on the body for guiding, supporting, and steadying the movements of the main lifting-lever. (6.) In an improved stump-and-root-grubbing machine, the construction and arrangement of parts for supporting the back portion of the body, consisting of a back axle for the traction-wheels mounted upon and in combination with bearing-links keyed to or otherwise fastened to the shaft, which is revolvably set in bearings directly or indirectly connected with the body of the machine. (7.) In an improved stump-and-root-grubbing machine, the combination of an adjustment-lever and a revolvably mounted shaft to which links are rigidly fastened and an axle for the back traction-wheels, said adjustment-lever being rigidly attached to the shaft by a wedge-bolt key or other equivalent device, the whole being arranged to form a built-up or compound crank-axle for elevating or lowering the back portion of the body of the machine, substantially as described and as illustrated. (8.) In an improved stump-and-root-grubbing machine, an adjustment-lever so arranged as to bear upon the axle of the back traction-wheels, and to act conjointly upon said axle and the shaft which is connected thereto by links, for the purpose of elevating the back portion of the body of the machine, substantially as described. (9.) In an improved stump-and-root-grubbing machine, the combination of an adjustment-lever and catch and a notched quadrant and purchase-bars attached to the body, arranged substantially as described and as illustrated. (10.) In an improved stump-and-root-grubbing machine, the combination of a king-bolt mounted upon the axle of the front driving-wheels and revolvably arranged within the headstock of the machine, a locking-pin for the retention of same, a draft hook, and a spring link, arranged together substantially as described and illustrated. (11.) In an improved stump-and-root-grubbing machine, a hauling-rope arranged to pass from the front of the machine over or round pulley-blocks and sheaves connected respectively with the purchase-bars and the main lifting-lever, as and for the purposes set forth. (12.) In an improved stump-and-root-grubbing machine, the combination of a draft gear and a hauling-rope, arranged substantially as described and as illustrated. (13.) In an improved stump-and-root-grubbing machine, a spring link for automatically disengaging the draft hook whereby the strain on the draft gear is transferred directly to the hauling-rope, as and for the purposes set forth. (14.) In an improved stump-and-root-grubbing machine, the combination of a hauling-rope, purchase-bars, and main lifting-lever, which is mounted upon a fulcrum, and arranged substantially as described. (15.) The general construction of a stump-and-root-grubbing machine, characterized by a main lifting-lever mounted upon traction-wheels (by intermediate mechanism), and having a lifting-arm or lifting-lever arranged so as to penetrate the ground when in operation for stump-extracting purposes. (16.) The general construction of a stump-and-root-grubbing machine, characterized by a main lifting-lever mounted upon traction-wheels (by intermediate mechanism), and having a lifting arm or lifting-lever arranged so as to be elevated above the ground when the machine is in transit. (17.) The specified improved stump-and-root-grubbing machine, comprising the parts above described, and as illustrated in the drawings, as and for the purposes set forth as a combination of parts.

(Specification, 7s. 6d. ; drawings, 1s.)

No. 15760.—15th December, 1902.—WILLIAM MCKENZIE, of Isla Bank, New Zealand, Farmer, and JOHN R. BELL, of Groper's Bush, New Zealand aforesaid, Farmer. Attachment to lever lifting-jacks.

Claim.—In lever lifting-jacks, a link surrounding the standard and connected by means of a rigid rod to the handle end of the lever, in combination with a series of transverse teeth or serrations upon the front face of the standard with which the link is adapted to engage, as specified.

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

No. 15762.—12th December, 1902.—FREDERIC MOORE, of Lynwood, Marrickville Road, Marrickville, New South Wales, Draughtsman. Oil and grease separator.

Claims.—(1.) In apparatus for separating oil or grease from water, a tank provided with partitions alternately starting from the top and the bottom of the tank, those partitions starting from the top not reaching to the bottom of the tank, and those starting from the bottom not extending much beyond a point midway between the top and bottom, whereby the mixture of oil and water passing between these pairs of partitions shall receive a "send" upwards to a point where most of the oleaginous particles will remain, as set forth. (2.) In apparatus for separating oil or grease from water, a tank provided with alternate baffle-plates extending from the top to near the bottom of the tank and from the bottom to a point approximately midway to the top of the tank, in combination with a spreader-plate to meet the inflow of water and adapted to spread such water in a film over the plate, as specified. (3.) In apparatus for separating oil or grease from water, a tank provided with alternate baffle-plates extending from the top to near the bottom of the tank and from the bottom to a point approximately midway to the top of the tank, in combination with side cocks placed at or about the normal level of the water within the tank and adapted to draw off the superfluous oil or liquid grease which may be separated and lie on the surface of the water, as set forth. (4.) In apparatus for separating oil or grease from water where the inflow is intermittent and comes with a rush, a series of baffle-plates extending from the top of the tank, the preceding plate having a larger aperture beneath it than the next plate in the series, and so on to the last plate, in combination with a series of baffle-plates projecting from the bottom of the tank, but not reaching much beyond the mediate line of the tank, as specified. (5.) In apparatus for separating oil or grease from water where the inflow is intermittent and comes with a rush, a series of baffle-plates extending from the top of the tank, but not to the bottom, and an alternate series of baffle-plates extending upwards from the bottom of the tank to a point midway between the bottom and the top, in combination with a siphon in the last division of the tank, such siphon being adapted to siphon the water, but not the oleaginous matter, from the tank into the outflow-pipe, as and for the purposes specified.

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

No. 15768.—15th December, 1902.—THE DOLTER ELECTRIC TRACTION, LIMITED, of 3 and 4, Great Winchester Street, London, England (assignees of Henri Dolter, of 12, Rue Lafayette, Paris, France, Electrical Engineer). Improvements in connection with surface-contact electric-traction systems working with magnetically operated switches.

Claims.—(1.) A surface-contact electric-traction system, working with magnetically operated switches as set forth, wherein there is used in conjunction with the magnetic contact-studs arranged in the roadway a magnetized collecting-bar or skate that is carried by the electrically propelled vehicle, and is magnetized in such a way that the longer and forward portion thereof is magnetized in the usual manner, whilst the shorter and rear portion is magnetized either oppositely to the forward portion or not at all, the two portions of the said bar or skate being electrically connected together, substantially as described for the purpose set forth. (2.) A magnetized collecting-bar or skate, according to the preceding claim, divided into separate lengths magnetically for the purpose set forth, in combination with a switching arrangement whereby the connections of the magnetizing windings can be changed to suit the direction of running of the vehicle, substantially as described. (3.) A surface-contact electric-traction system of the kind referred to wherein each of the contact-boxes in the roadway is provided with means for producing a magnetic field across the breaking-space between the fixed and movable contacts within such box for the purpose of blowing out any arc that may be set up between such contacts, substantially as described. (4.) In a surface-contact electric-traction system of the kind referred to, a contact-box wherein the magnetic field referred to in the preceding claim is produced by means of a winding arranged to be included in the electric circuit passing through the con-

tact-box, substantially as described. (5.) In a surface-contact electric-traction system of the kind referred to, a divided magnetized collecting-bar or skate with switching arrangement for the magnetizing windings thereof, constructed, arranged, and operating substantially as described with reference to Figs. 3 to 6 inclusive of the drawings. (6.) In a surface-contact electric-traction system of the kind referred to, the combination with the switch carrying the movable contact in each contact-box of a blow-out electro-magnet constructed, arranged, and operating substantially as described with reference to Fig. 7.

(Specification, 10s. ; drawings, 4s.)

No. 15769.—17th December, 1902.—RICHARD FREDERICK BRADSHAW and WILLIAM EDWARD HARDING, both of Boulder, Western Australia, Engineer and Engine-driver respectively. An improved high-pressure tap for filter-presses and other purposes.

Claims.—(1.) The described high-pressure tap, consisting of the various parts constructed, arranged, and operating substantially as and for the purposes described, and as illustrated in the drawings. (2.) In a tap as described, the use of a plug as C, having a vent as C1, and working within a cylinder as A, and provided with a resilient cushioned end or seal joint as D, substantially as set forth, and as illustrated in the drawings. (3.) In a tap as described, the operative means consisting of a locking-can as F and F1, and arranged with a fixed pivot as E1, and a movable pivot as G1, and carried by links as B2, trunnioned as at B1, and worked by a handle as G, substantially as set forth, and as illustrated in the drawings.

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

No. 15770.—17th December, 1902.—JAMES HOLDEN BRAITHWAITE, of St. Mary's Villa, Gawber Road, Barnsley, Yorkshire, England, Gentleman. A new or improved free-wheel and variable-speed gearing for use in connection with velocipedes, motor-cars, and the like, and for other purposes.

Claims.—(1.) A new or improved free-wheel and variable-speed gear, comprising a driven part preferably taking the form of a circular plate or disc, furnished with radial slots or recesses, a driving-part which may take the form of a chain ring, carried against the driven part and furnished with an annular groove or channel containing clutch-blocks corresponding in number to the radial grooves in the driven part, and each engaging one of the said slots or grooves by means of a lateral pin, stud, or extension, in combination with means for raising and lowering the driving-part against the face of the driven part, so that it may be more or less eccentric thereto, substantially as set forth. (2.) A new or improved free-wheel and variable-speed gear, consisting of a disc such as *a* formed integrally with or secured to a hub such as *a*¹, or other part or mechanism required to be driven, and formed with radial slots or grooves such as *a*², a chain ring such as *b*, furnished with an annular channel or groove formed with a strengthening-flange such as *b*², carried against the face of the plate or disc *a*, and supported on ball bearings by a circular disc *d* carried on a broad ring *d*¹ mounted upon the hub or the like *a*¹, and furnished with a broad flanged opening *d*² to allow of the disc *d* and chain ring *b* sliding up and down against the face of the plate or disc *a*, in combination with the mechanism for raising and lowering the disc *d* and chain ring *b*, substantially as described and shown with reference to the drawings, and for the purposes specified. (3.) The combination with a free-wheel and variable-speed gear such as above claimed of the mechanism for raising and lowering the chain ring or driving-member, substantially as described and shown, with more particular reference to Figs. 1, 7, and 15 to 17 of the drawings. (4.) The modified arrangement for rendering the variation in gear automatic, substantially as described and shown, with more particular reference to Figs. 18 to 20 of the drawings.

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

No. 15773.—17th December, 1902.—PERCY JOHN WHITFIELD, of 37, Maud Street, Geelong, Victoria, Engineer. Improved apparatus for compressing forage, wool, and like substances into bales.

Claims.—(1.) In apparatus for compressing forage, wool, and like substances into bales, two vertical boxes adapted to revolve on a vertical pillar alternately beneath a low-compression rammer or stamper and a high-compression ram, substantially as and for the purposes set forth and as illustrated. (2.) In apparatus for compressing forage, wool, and

like substances into bales, a reciprocating low-compression rammer mounted upon a crank-shaft, the head or monkey plate of said rammer being constructed so as to collapse on the up stroke and allow the material fed from above to pass beneath it and ram or press on the down stroke, substantially as and for the purposes specified and as illustrated. (3.) In apparatus for compressing forage, wool, and like substances into bales, a low-compression rammer or stamper having a monkey plate or head constructed in two pivoted or hinged parts and operated by a connecting-link pivotally mounted on a vertical rod, having a roller working in a cam-race on the crank-pin, substantially as and for the purposes set forth and as illustrated. (4.) In apparatus for compressing forage, wool, and like substances into bales, a high-compression ram whose head is fitted with two bevelled pivoted depending pieces and slotted, in combination with a base plate having corresponding pivoted pieces and slots for the reception of the binding-hoops, substantially as set forth and illustrated. (5.) In apparatus for compressing forage, wool, and like substances into bales, a high-compression ram the head of which is detachably secured to a flange on the bottom of the rod, and is provided on two opposite sides with a depending piece suitably pivoted within the head and bevelled on its inner and outer edges, and provided with a lug so arranged that when in its normal position within the box an approximately triangular-shaped slot is formed, through which the hoops are threaded, substantially as and for the purposes set forth and as illustrated. (6.) In apparatus for compressing forage, wool, and like substances into bales, a bottom box made in two angular parts adapted to be locked together and released at diagonally opposite joints, and slid up above the compressed bale and over the top box, substantially as set forth and illustrated. (7.) In apparatus for compressing forage, wool, and like substances into bales, a bottom box made in two angular parts, having an angular extension at each end adapted to form a pocket, within which is a laterally movable block, in combination with a cam-rod or eccentric bearing against said block on one side and a plate secured to said angular parts on the other side, substantially as and for the purposes set forth and as illustrated.

(Specification, 8s. 6d. ; drawings, 4s.)

No. 15774.—17th December, 1902.—CYRIL FREDERICK DUNN, of 18, Gordon Avenue, Kew, Victoria, Accountant (assignee of Joseph Bartlett Davies, of "Elouera," Wheatland Road, Malvern, Victoria, Accountant). An improved nail or screw for securing corrugated iron.

Claims.—(1.) A nail or screw for the purpose specified, having a soft-metal bearing-part or surface under the solid head, secured by being made to overlap the periphery of head without covering the head and by fitting above projections on or into indentations formed in the shank of the blank nail, such projections being either left as existing before attachment of soft-metal part or forced upward during attachment of said soft-metal part, substantially as described and shown. (2.) A nail or screw for the purpose specified, having a soft-metal bearing-part or surface as B secured under the solid head by fitting about the periphery of head, and by being clamped under the head by burrs formed from webs on the nail-shank, substantially as described and shown. (3.) A nail or screw for the purpose specified, having a soft-metal bearing-part, sheathing, or ring secured under the head by its fitting about the periphery of head, substantially as described and shown. (4.) A nail or screw for the purpose specified, having a soft-metal bearing-part or sheathing secured under the head by the inner edge of the soft-metal part passing to above burrs or projections formed about the shank of nail, substantially as described and shown. (5.) A nail or screw for the purpose specified, having a soft-metal bearing-part or sheathing secured under the head by portions of the inner edge of the soft-metal part passing into indentation formed in the shank, substantially as described and shown. (6.) A nail or screw for the purpose specified, composed of a hard-metal solid-head nail or screw combined, with a soft-metal bearing-part or surface-sheathing or ring secured and affixed to the hard-metal head and shank of nail without the aid of a washer or washers, substantially in the manner described, and as shown in the drawings.

(Specification, 5s. ; drawings, 1s.)

No. 15778.—18th December, 1902.—THOMAS ROBERTSON, of Mount Mitchell, Ballarat, Victoria, Grazier. An improved method of and means for killing rabbits by poisoning.

Claims.—(1.) As a means for killing rabbits, a mat or strip of flexible skin or fabric coated with a poisonous, moist, pasty compound placed in the mouth or opening of rabbit-burrows and like rabbit-resorts in such manner that a portion of such poisonous matter must adhere to the paws and possibly the

body of the rabbit when passing in and out of the burrow over such mat, to induce the rabbit to remove such adhering matter by licking it off with the tongue, as described. (2.) As a means for killing rabbits, the combination of a mat or skin of flexible fabric with a poisonous pasty compound to be coated on such mat, to be used in and when advisable near the mouth or opening of rabbit-burrows and like rabbit-resorts, prepared, applied, and used in bringing about the destruction of rabbits by poisoning and in manner described. (Specification, 2s. 6d.)

No. 15779.—18th December, 1902.—JENS GABRIEL FREDRIK LUND, of Bjorn Farmandsgade 2, Christiania, Norway, Engineer. Improvements in walls.

Claims.—(1.) An improved wall of artificial stones or the like, characterized by the arrangement that each stone possesses a tongue on the one side, and is provided on the other side parallel to the tongue with the corresponding groove, and the stones are so built in horizontal rows between the side supports that in each row a continuously consecutive horizontal tongue is formed, which engages in the continuous groove or the row of stones above it, and the adjacent surfaces of the stones are doubly sloped so that each layer acts by itself as an arch against vertical pressure, and at the same time alternately as an arch against horizontal pressure from both sides alternately; that, moreover, the adjacent surfaces of the stones in two courses lying one upon another are alternated against one another, so that the alternate bonding is obtained in the vertical direction, whereby the wall operates as an elastic arch against horizontal pressure and the tongues of each row of stones engaged direct with the grooves of the following course, without intermediate material and in firm connection therewith, substantially as set forth. (2.) In combination in a wall, the improved building-blocks, constructed and operating substantially as set forth with reference to the drawings. (Specification, 3s.; drawings, 1s.)

No. 15781.—18th December, 1902.—WILLIAM ERNEST HUGHES, of Queen's Chambers, Wellington, New Zealand, Patent Agent (nominee of George Gibbs, care of Rapid Transit Subway Construction Company, of Park Row Building, New York, United States of America, Electrical Engineer). Improvements in or relating to electric railways.

Claims.—(1.) An electric railway in which the vehicles are furnished with air-brakes, and having devices located in the track adapted to engage with the air-brake apparatus for the purpose of applying the brakes, such application of the brakes causing directly or indirectly an interruption of the electric-power circuit. (2.) An electrically propelled vehicle furnished with air-brakes, and having a pneumatically operated motor-controller in which the application of pneumatic power is governed by electro-magnets, the circuits of which magnets are regulated by a manually operated master switch or controller, said manually operated switch being connected to the air-brake apparatus in such a manner that when the brakes are applied the said switch is caused to break the governing circuit, and thereby insure the return of the motor-controller to the zero or "off" position in which the power circuit is interrupted. (3.) The modification of the invention in which the governing circuit of the electro-pneumatically operated controller is provided with a switch adapted to engage with a device in the track, and thereby open said governing circuit and cause an interruption of the supply of electric power when said device is moved to an operative position. (4.) The modification of the invention in which a switch in the governing circuit of an electro-pneumatically operated controller is arranged to be operated by a part of the brake apparatus so as to break the governing circuit whenever the brakes are applied. (5.) An electrically propelled vehicle in which the power circuit is provided with a circuit-breaker of the kind in which the movable member is operatively connected with the piston of a cylinder to which air under pressure can be admitted, in such a manner that when the cylinder is open to the atmosphere the movable member is caused to break the circuit, said cylinder being provided with a cock adapted to engage with a device in the track so as to be opened, and thereby cause an interruption of the power-circuit when said device is moved to an operative position. (6.) An operating and controlling system for electrically propelled railway vehicles and trains furnished with air-brakes arranged so that when the track signals are at "Danger" the brakes are automatically applied and the power circuit simultaneously interrupted, substantially in the manner described with reference to the drawings. (Specification, 10s. 6d.; drawings, 2s.)

No. 15782.—18th December, 1902.—NELSON HISS, of 27, Washington Square, New York, United States of America, Gentleman. Improvements in or relating to traction machinery or apparatus.

Claims.—(1.) In traction apparatus comprising a carrier and one or more driving-cables, one or both ends of which are anchored, the employment of a stationary tension-device the effort of which is transmitted to the driving-cable on both sides of the driving-pulley, substantially as described. (2.) In traction apparatus, the combination with a carrier provided with pulleys or sheaves, of a driving-cable having one or both ends anchored and passing around fixed pulleys on opposite sides of the carrier, and also around the pulleys on the carrier, in such a manner that one part of the cable is supported by or tends to move the carrier in one direction and another part tends to support or move the carrier in the opposite direction. (3.) In traction apparatus, the combination with a carrier of a driving-cable fixed at one end and at its other end connected to a stationary tension weight, and passing around fixed pulleys at each side of the carrier and pulleys on the carrier in such a manner that one part of the cable is supported by or tends to move the carrier in one direction and another part tends to support or move the carrier in the opposite direction, the whole effort of the tension weight being transmitted to the cable on both sides of the driving-pulley. (4.) In traction apparatus, the combination with a carrier of a driving-cable 7, anchored at one end and passing around fixed pulleys 8 and 11 on opposite sides of the carrier, and a stationary tension-device at the other end of the cable, the whole effort of which is transmitted to the cable on both sides of the driving-pulley. (5.) In traction apparatus, the combination with a carrier of a driving-cable 7, which passes around the fixed pulleys 8 and 11 on opposite sides of the carrier to sheaves 2 and 3 thereon, and having one end anchored at 10, the other end being provided with a stationary tension weight, the whole effort of which is transmitted to the cable on both sides of the driving-pulley. (6.) In traction apparatus, the combination with a carrier of a driving-cable having a fast and a loose end, and formed with two bights in which sheaves 2 and 3 on the carrier rest, and a stationary tension weight attached to the loose end of the cable to keep it taut. (7.) In traction apparatus, the combination with a carrier provided with sheaves 2 and 3, of supplemental cables 18 and 21 embracing the sheaves and having one of their ends anchored and their other ends connected to pulleys 20 and 23, which are embraced by a driving-cable 7, which is connected at 10, and carrying at its other end a stationary tension weight. (8.) In traction apparatus, the combination with a carrier having two double pulleys of a driving-cable anchored at one end, and thereafter passing under the double pulleys, then around fixed pulleys 11 and 8 and over the double pulleys, and a stationary tension weight attached to the free end of the cable. (9.) In traction apparatus, the combination with a carrier of a series of driving-cables anchored at one side of the carrier and embracing sheaves thereon, and each provided with a separate stationary tension-device at their free ends. (10.) In traction apparatus, the combination with a car such as 1 of a weighted carrier such as 24 connected thereto, and having pulleys 2 and 3 around which a driving-cable 7 passes, so that one part of the cable tends to support or move the carrier in one direction and the other part is supported by or tends to move the carrier in the opposite direction, said cable being fixed at one point at least. (11.) In traction apparatus, a carrier, two movable sheaves connected thereto, a driving-pulley, a driving-cable fixed at one point and carried over said sheaves and said driving-pulley so as to pass when operated from one movable sheave to the driving-pulley and thence to the other sheave, and a tension-device applied to said cable. (12.) The complete apparatus substantially as described or illustrated in Fig. 1, or Fig. 2, or Fig. 3, or Fig. 4, or Figs. 5 and 6, or Fig. 7, or Fig. 8 of the drawings. (Specification, 7s. 6d.; drawings, 4s.)

No. 15783.—18th December, 1902.—JOHN WILLIAM KINCARD, of Cincinnati, Hamilton, Ohio, United States of America, Locomotive Engineer. Mechanical stokers.

Extract from Specification.—The object of my invention is a mechanical stoker for feeding fuel into furnaces, in which the fuel is fed above the grate-bars by a plunger which is actuated by the acceleration of steam expanding in a cylinder, in which the plunger is advanced automatically at varying rates of speed to throw the fuel to all parts of the furnace, and in which the conveyor for feeding fuel in front of the plunger is coupled to the plunger, to keep the amount of fuel in proportion to the rate of reciprocation of the plunger.

[NOTE.—The number and length of the claims in this case preclude them from being printed, and the foregoing extract from the specification is inserted instead.]

(Specification, 10s.; drawings, 3s.)

No. 15784.—18th December, 1902.—COOLEY DEVELOPMENT COMPANY, a corporation organized under the laws of the State of Maine, and doing business at 83, Braintree Street, Boston, Suffolk, State of 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.

Extract from Specification.—The essence of this invention lies in the correlative construction and functional operation of a slowly rotating cylindrical equiradially partitioned abutment element, whose divisional limitations bear upon a like directionally faster-rotating cylindrical cam-surface-piston element, the curves of which they describe in their movement around their common axis set eccentrically to the axis of rotation of the cam-surface element, when caused to move at correlative speed-rates that reckoned in complete revolutions of both elements differ by unity, and the number of bearing-points of the one are to the number of cam-rises of the other as the converse of their speed-rates.

[NOTE.—The number and length of the claims in this case preclude them from being printed, and the foregoing extract from the specification is inserted instead.]

(Specification, 12s.; drawings, 1s.)

No. 15785.—18th December, 1902.—JAMES PALMER CAMPBELL, of Wellington, New Zealand, Solicitor (nominee of Harve Reed Stuart, of 524, Wallace Avenue, Pittsburg, Pennsylvania, United States of America, Electrical Engineer). Improvements in controllers for electric motors.

Claims.—(1.) A controller for varying the electro-motive force supplied to polyphase electric motors in which a single resistance for each phase of current is cut in before each successive change in the circuit connections, and cut out directly after each such change, substantially as described. (2.) For varying the electro-motive force supplied to polyphase electric motors through auto-transformers, a controller of the drum type, having sets of fingers and co-operating movable contact fingers so arranged as to gradually vary the lengths of the secondary portions of the auto-transformer windings and connect a resistance in the circuit of each phase of current as each variation in length is effected, substantially as described. (3.) For polyphase electric motors, a controller constructed substantially as described with reference to the drawings.

(Specification, 8s.; drawings, 2s.)

No. 15786.—18th December, 1902.—JAMES PALMER CAMPBELL, of Wellington, New Zealand, Solicitor (nominee of Hugo Bremer, of Neheim-on-the-Ruhr, Westphalia, Germany, Manufacturer). Improvements in or relating to electric arc lamps.

Claims.—(1.) An arc lamp having downwardly pointing electrodes arranged to be fed forward through the same distance, and provided with masses of metal in proximity to the points of the carbon or metal sleeves surrounding said points, substantially as and for the purpose specified. (2.) An arc lamp having downwardly pointing electrodes, and provided with both downward and horizontal feed mechanism so arranged that a certain amount of operating of the horizontal feed mechanism takes place before the downward feed mechanism is permitted to operate. (3.) The combination with an enclosed arc lamp of a depositing-chamber, connected with the arc-enclosing globe in such a manner that a circulation of the vapours of combustion takes place from the arc-enclosing chamber through the depositing-chamber and back to the arc-enclosing chamber again, for the purpose specified. (4.) Arc lamps having either inclined or aligned electrodes, and provided with regulating mechanism constructed and operating substantially as described with reference to any of the forms shown in Figs. 1 to 9 of the drawings. (5.) An arc lamp having downwardly pointing electrodes inclined to each other, said electrodes being formed with a cross-section, substantially as described with reference to Figs. 10 and 11 of the drawings.

(Specification, 12s.; drawings, 2s.)

No. 15790.—16th December, 1902.—WILLIAM LOUIS IWAN and JOHN HENRY IWAN, of Sreator, Illinois, United States of America, Manufacturers of Earth-augers. Improvements in earth-augers.

Claims.—(1.) In an earth-auger, the combination of suitable permanent blades and a removable blade-section serving when employed to close a portion of the space between adjacent edges of the permanent blades. (2.) In an earth-auger, the combination of a handle, longitudinally concavo-convex blades attached thereto, and longitudinally concavo-convex blade-sections removably connected with said blades and closing a portion of the space between their edges. (3.) In an earth-auger, the combination of suitable permanent blades, and blade-sections adjustably and removably connected with said blades and serving when employed to close a portion of the spaces between the edges of the permanent blades. (4.) In an earth-auger, the combination of a handle, longitudinally concavo-convex blades attached thereto and provided with vertical cutting-edges, downwardly projecting incurved bits and sharply curved inwardly projecting bits, and longitudinally concavo-convex blade-sections removably connected with the blunt vertical edge-portion of the blades. (5.) In an earth-auger, the combination of a handle, longitudinally concavo-convex blades attached thereto and provided with vertical cutting-edges, downwardly projecting incurved bits and sharply curved inwardly projecting bits, and a downwardly extending auger-point carried by said last-named bits. (6.) In an earth-auger, the combination of a handle, longitudinally concavo-convex blades attached thereto and provided with vertical cutting edges, downwardly projecting incurved bits, and sharply curved inwardly projecting bits having overlapping end-portions, and an auger-point with an attaching head bearing on the inner surfaces of said last-named bits and secured to said bits. (7.) In an earth-auger, the combination of a suitable boring-head, a handle-stem bearing the same, handle-bars with a vertical perforation receiving said stem, and means for securing the handle-bars adjustably on said stem. (8.) An earth-auger having concavo-convex blades provided at their lower portions with downwardly projecting incurved bits and abruptly curved inwardly projecting, overlapping, and mutually supporting bits, for the purpose set forth. (9.) An earth-auger having concavo-convex blades terminating in downwardly projecting incurved bits, and having abruptly curved inwardly projecting, overlapping, and interlocking bits, for the purpose set forth.

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

No. 15808.—20th December, 1902.—MAYLEAN BJORNSTAD (wife of Gustave Bjornstad), of College Road, Auckland, New Zealand, Civil Engineer, and JOSEPH STACEY, of Mount Street, Auckland aforesaid, Confectioner. A medicated sweetmeat and sugar confection to cure and relieve consumption, bronchitis, asthma, and other pulmonary, chest, and throat diseases.

Claims.—(1.) The described medication and sugar confection in combination, consisting of sugar, malt, butter, cream of tartar or the alternative of vinegar, and beechwood creasote, in the proportions given, for the purpose specified, substantially as described. (2.) The described medication and sugar confection in combination, consisting of sugar, malt, butter, cream of tartar or the alternative of vinegar, and beechwood creasote, and extract of ginger or ground ginger, grendille robustia, quebracho, and yerba santa, in the proportions given, for the purpose specified, substantially as described. (3.) The described medication and sugar confection in combination for the cure and relief of consumption, bronchitis, and other pulmonary, chest, and throat diseases, consisting of sugar in weight 1 lb., extract of malt 4 oz., butter 2 oz., cream of tartar 2 gr. or as an alternative vinegar 2 oz., and beechwood creasote from 140 minim drops to 280 minim drops, substantially as described. (4.) The described medication and sugar confection in combination for the cure and relief of asthma, consisting of sugar in weight 1 lb., extract of malt 4 oz., butter 2 oz., cream of tartar 2 gr. or as an alternative vinegar 2 oz., beechwood creasote from 140 minim drops to 280 minim drops, extract of ginger or ground ginger 1 oz., grendille robustia 1 dram, quebracho 1 dram, and yerba santa 1 dram, substantially as described. (5.) In combination with any suitable form of confectionery for the purposes set forth, the use and mixture of beechwood creasote in the proportions specified, substantially as described.

(Specification, 8s.)

No. 15809.—24th December, 1902.—JOHN EWING, Jun., of Richmond, Quebec, Canada, Registrar. Improvements in marine life-preservers.

Extract from Specification.—The invention relates to improvements in marine life-preservers, and the object of the invention is to provide a life-saving device which shall be collapsible, and therefore easily portable, and inflatable either by gas on being suddenly submerged

in the water, or by air before the water is reached, and whereby the constituent or constituents for the generation of the gas are enclosed in such a manner as to be readily removable; and it consists essentially of a tube or bag made of rubber or other suitable material, and preferably divided into two or more chambers, one of the said chambers having an opening from the outside, and further opening or openings into the other chamber or chambers, a stopper preferably in the form of a cap having an orifice therethrough provided with a valve or porous covering, suitable means of fastening the life-preserver around the wearer, a bag or tube of porous material closed at each end and designed to contain the powdered or solidified constituents, and having securely attached to one end thereof a string or wire, the said string being connected at the other end to the cap closing the entrance to the generating-chamber, and an impervious covering for the aforesaid bag or tube and the length of string when not attached to the cap, the various parts being constructed in detail as more particularly described.

[NOTE.—The number and length of the claims in this case preclude them from being printed, and the foregoing extract from the specification is inserted instead.]

(Specification, 14s. 6d.; drawings, 2s.)

F. WALDEGRAVE,
Registrar.

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.

Provisional Specifications.

Patent Office,
Wellington, 7th January, 1903.

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

No. 15527.—25th October, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, Cuyahoga, Ohio, United States of America, Photographer. Means for loading automatic photographic apparatus.

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

No. 15528.—25th October, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, Cuyahoga, Ohio, United States of America, Photographer. A photographic plate.

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

No. 15627.—13th November, 1902.—ARTHUR CECIL WHITNEY, of Remuera, Auckland, New Zealand, Manager. An improved alarm gun.

No. 15659.—20th November, 1902.—SAMUEL NICOLSON, of Medway Street, Gore, New Zealand, Sailmaker. An improved appliance for removing the tires of bicycles or other vehicles.

No. 15701.—28th November, 1902.—JOHN FREE, of New Brighton, Canterbury, New Zealand, Carpenter. Improvements in or relating to artesian water-pipes.

No. 15715.—4th December, 1902.—JOHN CHARLES BOWRING, of 90, Pitt Street, Sydney, New South Wales, Engineer. An improved spark-arrester for locomotive and other boilers, with apparatus for controlling and arranging the draught thereto.

No. 15723.—2nd December, 1902.—ROBERT WILLIAM AYSON, of Kaihiku, New Zealand, Farmer. Appliance for adapting drills to sow seed and manure broadcast.

No. 15725.—8th December, 1902.—WILLIAM HATTON, of Cheltenham, Feilding, New Zealand, Blacksmith. An improved means or appliance for holding and plumbing targets for the purpose of rifle-shooting.

No. 15726.—5th December, 1902.—JOHN RAMSAY, of Round Hill, Invercargill, New Zealand, Mine-manager. Improvements in tables for saving gold.

No. 15729.—8th December, 1902.—JAMES AUGUSTUS BOYD, of 15, Barker Street, Wellington, New Zealand, Painter and Paperhanger. Improved knife-cleaner.

No. 15730.—8th December, 1902.—RICHARD S. HAUGHTON, of Island Bay, Wellington, New Zealand, Manufacturer. An automatic stop-cock.

No. 15731.—13th December, 1901.—GEORGE NICHOLAS PIFER, of 94, Lindus Street, Cleveland, Ohio, United States of America, Photographer. Coin-controlled machines for automatically producing a photographic likeness.

[NOTE.—This is an application under section 106 of the Act, the date given being the official date of the application in the United States of America.]

No. 15733.—9th December, 1902.—WILLIAM JAMES PALLANT, of Palmerston North, New Zealand, Shoemaker. Improvements in or relating to brooms and brushes.

No. 15734.—9th December, 1902.—WILLIAM JAMES PALLANT, of Palmerston North, New Zealand, Shoemaker. An improved cramping-tool for use in building and other like operations.

No. 15735.—6th December, 1902.—WILLIAM BORLASE, of North-east Valley, Dunedin, New Zealand, Cycle Mechanic. Improved animal-trap.

No. 15736.—6th December, 1902.—EDWARD HASSELBACH, of Wandsworth Road, Surrey Hills, Victoria, Australia, Electrical Engineer. An improved game called "roulette billiards," and appliances for same.

No. 15737.—24th November, 1902.—FRANK COOPER, of Colombo Street, Christchurch, New Zealand, Agricultural-Implement Maker. A potato-planter.

No. 15738.—24th November, 1902.—FRANK COOPER, of Colombo Street, Christchurch, New Zealand. An improved clod crusher and pulveriser.

No. 15742.—10th December, 1902.—LAWRENCE COOGAN, of Rongotea, New Zealand, Labourer. Improvements in or relating to flax and other drays.

No. 15743.—10th December, 1902.—DANIEL GASCOYNE, of Wellington Street, Auckland, New Zealand, Settler. An improved lamp-wick.

No. 15744.—11th December, 1902.—EDWARD SPREY, of New Brighton, Canterbury, New Zealand, Hawker. Improved fastening for boots, shoes, and the like.

No. 15745.—11th December, 1902.—GEORGE HENRY CLAPHAM, of 47, Blenheim Street, East St. Kilda, Victoria, Ironworker. Improved apparatus for the manufacture of inflammable gas from volatile hydro-carbons.

No. 15747.—11th December, 1902.—ARTHUR SELDON PIKE, of 168, Tinakori Road, Wellington, New Zealand, Engineer. Driving belt and rope tightener.

No. 15752.—10th December, 1902.—WILLIAM WEBSTER, of 10, Royal Arcade, Melbourne, Victoria, Umbrella-maker. Improved automatic carbide-feeder for acetylene-generators.

No. 15754.—12th December, 1902.—HENRY ANSTICE, of Levin, New Zealand, Blacksmith. Improved means for fastening the tail-boards of carts.

No. 15757.—11th December, 1902.—HENRY LEADBEATER, the Younger, of Mount Eden Road, Auckland, New Zealand, Cutler. An improved adjustable hair-clipping machine.

No. 15758.—15th December, 1902.—THOMAS FIRTH, of 5, Martin Street, Wellington, New Zealand, Labourer. Improvements in combined vehicle-wheel lock and horse-stopper.

No. 15763.—16th December, 1902.—THOMAS ROBERTS, of Nelson, New Zealand, Civil Engineer. Face pivot hinges.

No. 15764.—15th December, 1902.—WILLIAM BAIN, of Christchurch, New Zealand, Ironmonger. An improved ball-bearing castor for furniture.

No. 15765.—16th December, 1902.—KENNETH YOUNG, of Timaru, New Zealand. Brand-protector bottle.

No. 15772.—17th December, 1902.—HENRY ASHWORTH, of Wadestown, Wellington, New Zealand, Engineer. An improved method of and means for cleaning and watering streets.

No. 15775.—17th December, 1902.—LORENZ KORTLANG, the Elder, of 67, Undercliffe Street, Neutral Bay, Sydney, New South Wales, Cabinetmaker, and ALBERT KORTLANG, of 67, Undercliffe Street, aforesaid, Warehouseman. An improved extension table.

No. 15776.—17th December, 1902.—GEORGE ALLMAN, of Wellington, New Zealand, Master Mariner, FRANK CLENNELL, of Wellington aforesaid, Marine Engineer, and HARRY LOUIS MOFFATT, of Motueka, New Zealand, Wharfinger. Appliances for automatically signalling the state of the tides.

No. 15780.—18th December, 1902.—WILLIAM ERNEST HUGHES, of Queen's Chambers, Wellington, New Zealand, Patent Agent (nominee of Edward Holl Miller, Fellow of the Chemical Society, of 81, Chardmore Road, Clapton Common, and Cecil Quennell, Gentleman, of 7, Angel Court, Throgmorton Street, both of London, England). A method for the treatment of refractory ores.

No. 15787.—18th December, 1902.—RICHARD WHITTINGHAM, of Gore, New Zealand, Brewer. Flying-machine, or aerial car.

No. 15788.—17th December, 1902.—JAMES PATERSON, of Gisborne, New Zealand, Carpenter. A bicycle attachment for the safe carrying of a child or parcel, &c.

No. 15789.—16th December, 1902.—ROBERT NOBLE ADAMS, of Dunedin, New Zealand, Publisher. Improved fastener for umbrellas.

No. 15791.—16th December, 1902.—ALEXANDER CAMPBELL, of Sutton, New Zealand, Gold-miner. Improved animal-trap.

No. 15792.—19th December, 1902.—FRED MATTHEWS, of 8, Rintoul Street, Wellington, New Zealand, Dairyman. Improvements in apparatus for locking and applying the brake to the wheels of vehicles.

No. 15793.—17th December, 1902.—WILLIAM DUNCAN ROSS McCURDIE, of Dunedin, New Zealand, Road-surveyor. Improved means for corking bottles.

No. 15794.—17th December, 1902.—WILLIAM DUNCAN ROSS McCURDIE, of Dunedin, New Zealand, Road-surveyor. Means for marking survey-pegs and the like.

No. 15795.—18th December, 1902.—WILLIAM FAIRWEATHER, JOHN FAIRWEATHER, and WILLIAM FAIRWEATHER, Junior, of Blenheim, New Zealand, Engineers. Selvedge-stripping flax-drum.

No. 15797.—19th December, 1902.—WILLIAM BEAMISH, of Cromwell, Central Otago, New Zealand, Occupied in the Dredging Industry. Improved button-hole for collars and the like.

No. 15798.—19th December, 1902.—ARCHIBALD GLEN KIDSTON HUNTER, of Dunedin, New Zealand, Analytical Chemist. Improved process for manufacturing soluble extract of meat.

No. 15799.—17th December, 1902.—JOHN THOMSON, of Invercargill, New Zealand, Draper. An improved method of treating washdirt so as to concentrate the gold it contains in a small portion of it.

No. 15800.—18th December, 1902.—JOHN THOMSON, of Invercargill, New Zealand, Draper. An improved method of treating washdirt so as to concentrate the gold it contains.

No. 15801.—18th December, 1902.—JAMES THOMSON, of Invercargill, New Zealand, Draper. An improvement in plates for separating fine material from coarse in washdirt.

No. 15802.—22nd December, 1902.—JAMES McLEAN, of Seatoun, Wellington, New Zealand, Marine Engineer. Improved controlling-gear for steering engines or other reversing engines.

No. 15803.—22nd December, 1902.—JOHN HARCOURT GARDNER, of 200, Worcester Street, Christchurch, New Zealand, Analytical Chemist. Improved process for washing wool and saving the potash salts and wool-grease.

No. 15804.—23rd December, 1902.—ELLIOTT L'ESTRANGE BARTON, of Hawera, New Zealand, Solicitor. Improvements in or relating to electric conductors.

No. 15805.—20th December, 1902.—HANS PETER KNUTZEN, of Oliphant Street, Ponsonby, Auckland, New Zealand, Sawmillier. A safety racing-hurdle.

No. 15807.—22nd December, 1902.—SIDNEY McDUGALL, of 10, Mark Lane, London, and 68, Port Street, Manchester, both in England, Manufacturer. A new or improved lavatory requisite.

No. 15811.—24th December, 1902.—JOHN ELLIS, of Victoria Street, Warragul, Victoria, Storekeeper's Assistant. Improved attachments for securing horse and other animal rugs.

F. WALDEGRAVE,
Registrar.

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.

Letters Patent sealed.

LIST of Letters Patent sealed from the 11th December, 1902, to the 7th January, 1903, inclusive:—

No. 13841.—F. Clifford, cover for frying-pan.

No. 14026.—W. Aggers, easy chair, &c.

No. 14038.—L. N. Dyhrberg and G. K. Askin, belt or brace.

No. 14076.—J. C. McGeorge, stripping-attachment to dredge.

No. 14081.—A. McFarlane and W. Cook, machine for cleaning water-race.

No. 14097.—J. Gell, perforating tape of telegraph instrument.

No. 14264.—W. H. Lawrence, bench for pot-plants.

No. 14349.—F. Smith, dredging machinery.

No. 14373.—F. Winter, water-cycle.

No. 14564.—H. G. Hankin, gold-saving apparatus.

No. 14654.—H. W. G. Henderson, water-gas.

No. 14831.—H. Thomas and A. C. Mitchell, feed-water heater for boiler.

No. 15033.—R. Curtis, suspender.

No. 15091.—J. K. Stewart, shearing-tool.

No. 15145.—A. F. W. Lorie, sash-fastener.

No. 15268.—A. Grönberg, furnace.

No. 15286.—W. H. Humble, valve for gas-compressor.

No. 15385.—E. O. Risstrom, show-stand for axes.

No. 15422.—The Strowger Automatic Telephone Exchange, telephone exchange (A. E. Keith—J. Erickson and C. J. Erickson).

No. 15423.—H. L. Wallace, valves (J. W. Nethery).

No. 15424.—G. Mitchell and L. D. Copeland, utilising heat of slag for generating steam.

No. 15456.—E. S. Burman, canning butter.

F. WALDEGRAVE,
Registrar.

Letters Patent on which Fees have been paid.

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

SECOND-TERM FEES.

NO. 10983.—D. R. S. Galbraith, butter-making. 11th December, 1902.

No. 11127.—P. H. Dixon, freezing meat (G. J. A. Richardson). 15th December, 1902.

No. 11229.—W. J. Brewer and J. E. Cooper, auto-motor carriage. 18th December, 1902.

No. 11246.—J. Wright, tilt for casks (W. N. E. Mason). 17th December, 1902.

No. 11248.—H. E. D'Albites, medicated aperient edible. 19th December, 1902.

No. 11253.—H. A. Ross, supply and ejector cistern. 18th December, 1902.

No. 11278.—E. Osborne, hoe (J. King). 16th December, 1902.

No. 11284.—J. Marchbank and N. P. Bidstrup, supplying liquids in predetermined quantities. 30th December, 1902.

No. 11285.—C. C. Worthington, steam-pump. 5th January, 1903.

No. 11302.—A. and J. Allison, preparation for sheep, &c. 24th December, 1902.

No. 11305.—L. M. Calvert, potato-digger (A. Sell). 5th January, 1903.

No. 11306.—Ma-sey-Harris Company, Limited, seed and manure drill (C. McLeod). 31st December, 1902.

No. 11311.—Metallurgische Gesellschaft A.G., magnetic separator (J. P. Wetherill). 30th December, 1902.

No. 11321.—J. Leather, ventilating-appliance. 30th December, 1902.

No. 11322.—Nernst Electric Light, Limited, electric lamp (W. Nernst). 17th December, 1902.

No. 11417.—E. Norton, hermetically sealing cans. 30th December, 1902.

No. 11615.—The British Westinghouse Electric and Manufacturing Company, Limited, electrical distribution (C. F. Scott). 17th December, 1902.

No. 11617.—The British Westinghouse Electric and Manufacturing Company, Limited, electric motor (R. H. Hassler). 17th December, 1902.

No. 11618.—The British Westinghouse Electric and Manufacturing Company, Limited, controlling electric motors (H. P. Davis). 17th December, 1902.

No. 11659.—G. Westinghouse and E. E. Nolan, securing core-plates in dynamo electric machinery. 17th December, 1902.

No. 11698.—The Automatic Telephone Company, Limited, telephone exchange (G. Seligmann-Lui). 17th December, 1902.

No. 12014.—W. Hildesheim, manufacture of cocoa. 17th December, 1902.

THIRD-TERM FEES.

No. 8152.—J. Mitchell, foundation pile. 17th December, 1902.

No. 8189.—The American Tobacco Company of New Zealand, Limited, removing superfluous molten paraffine from articles (J. S. Beeman). 6th January, 1903.

No. 8201.—W. F. Owen and T. Thatcher, railway composition. 15th December, 1902.

No. 8215.—Moore Electrical Company, phosphorescent electric illumination (D. M. Moore). 5th January, 1903.

No. 8217.—F. W. Petre and A. W. Scully, automatic railway instructor. 29th December, 1902.

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. 8134.—The Free Wheel Company, Limited, of Palmerston North, New Zealand. Pedal action for cycle. Registered as licensees for one year from the 27th September, 1902. [J. and H. M. Copeland.] 11th December, 1902.

No. 13123.—Ellen Matilda Bradley, of Ascot Street, Ascot Vale, Dulwich, in the State of South Australia, Commonwealth of Australia. Acetylene gas generator. [W. Bradley.] 13th December, 1902.

No. 13218.—The Royal Bank of Australia, Limited, of Melbourne, in the State of Victoria. Roasting-furnace. [T. D. Merton.] 13th December, 1902.

No. 13785.—Allen Thomas Nye, of 49, Queen Victoria Street, London, England. Graphophone, &c. [W. C. Runge.] 31st December, 1902.

No. 13785.—The Universal Microphone Company, Limited, of 49, Queen Victoria Street, London, England. Graphophone, &c. [W. C. Runge.] 31st December, 1902.

No. 14790.—The British Westinghouse Electric and Manufacturing Company, Limited, of Westinghouse Building, Norfolk Street, in the City of Westminster, England, Manufacturers. Controller for electric motor. [J. T. Hunter—T. S. Perkins.] 11th December, 1902.

No. 14879.—The British Westinghouse Electric and Manufacturing Company, Limited, of Westinghouse Building, Norfolk Street, in the City of Westminster, England, Manufacturers. Track construction for electric railway. [J. T. Hunter—W. Chapman.] 11th December, 1902.

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 11th December, 1902, to the 7th January, 1903, inclusive:—

- No. 14458.—O. Sorensen, concentrator.
- No. 14513.—A. Lyell, railway cycle-carrier.
- No. 14524.—C. D. Pike, fastening for mats, &c.
- No. 14526.—D. L. Cochrane, drain-excavator, &c.
- No. 14527.—J. C. Corbett, framing pictures.
- No. 14528.—G. Claydon, spark-arrester.
- No. 14529.—A. F. W. Lorie, sash-fastener.
- No. 14530.—H. A. Cooper, spark-catcher.
- No. 14532.—G. H. Bigelow, hairpins.
- No. 14534.—C. Bristow, hat-fastener.
- No. 14535.—M. A. Johnson, lowering, &c., window-sash.
- No. 14537.—J. H. Marple, holding books, &c., for reading.
- No. 14538.—J. Mackie and T. J. Drumm, fire-extinguisher.
- No. 14539.—G. H. Bigelow, hairpins.
- No. 14542.—J. J. Macky, shirt neck and collar fastening.
- No. 14551.—R. F. Wells, sheep-shears.
- No. 14552.—E. Moss, rotary motor or turbine.
- No. 14558.—G. Davidson, tripping-block for log-hauling.
- No. 14560.—J. Ford, tap.
- No. 14561.—J. B. Waters and G. F. S. MacLean, conveyor for lowering merchandise, &c.
- No. 14566.—W. V. Hosking, bailing cows.
- No. 14570.—F. R. Young, saddle-cloth, ambulance stretcher, or camp-bed.
- No. 14578.—D. L. Cochrane, dray and scoop.
- No. 14579.—H. Allan, safety tap.
- No. 14581.—E. Richardson, attachment to steam-boiler.
- No. 14582.—N. E. Jackson, wire-strainer, &c.
- No. 14584.—E. Waters, jun., soap (W. F. Haywood).
- No. 14585.—H. Tas, chair-silencer.
- No. 14593.—H. A. Hudson, staple, &c., for wire fencing.
- No. 14594.—C. J. Cooze, fire-escape.
- No. 14596.—J. Hancock and G. Ramage, non-refill bottle.
- No. 14597.—A. McFarlane, fire-escape.
- No. 15168.—E. J. Restorck, wire mattress.

F. WALDEGRAVE,
Registrar.

Applications for Letters Patent lapsed.

LIST of applications for Letters Patent (with which complete specifications have been lodged) lapsed from the 11th December, 1902, to the 7th January, 1903, inclusive:—

- No. 13724.—J. Speight, marine governor.
- No. 13728.—C. B. Smith, fire-escape.
- No. 13731.—W. C. Kerr, animal trap.
- No. 13747.—R. Cockerell, prospecting, &c., dredge.
- No. 13750.—D. M. Middleton, tumbler for dredge.
- No. 13755.—A. H. Brownley and W. T. Davidge, candle-holder.

No. 13760.—E. Toms and A. C. Pocock, acetylene-gas generator.

No. 13764.—G. Nairn, thimble for wire rope.

No. 13795.—D. McDougall, fencing dropper and clip (E. Smethurst).

F. WALDEGRAVE,
Registrar.

Letters Patent void.

LIST of Letters Patent void through non-payment of renewal fees from the 11th December, 1902, to the 7th January, 1903, inclusive:—

THROUGH NON-PAYMENT OF SECOND-TERM FEES.

- No. 10968.—T. B. Walker, collapsible cardboard box.
 - No. 10974.—The South African and Australasian "Sunlight" Gas Syndicate, Limited, gas-manufacturing plant (R. Goodwin).
 - No. 10975.—J. Cockerell and W. C. Harper, potato-plough.
 - No. 10979.—M. J. Allan, checking cash payments.
 - No. 10987.—J. J. Marshall, barrel-racking apparatus.
 - No. 10990.—J. S. Scarr, paperhangings.
 - No. 10991.—Parke and Lacy Company, ore-feeding machine (U. S. James).
 - No. 10993.—The Vegetable Textile Fibre Syndicate, Limited, removing gum from fibre (C. Wetherwax).
 - No. 10998.—The Wapshare Tube Company, Limited, pneumatic tire (E. T. D. Bell—R. Wapshare).
 - No. 11006.—R. U. Golding, amalgamating-apparatus.
 - No. 11010.—J. A. Gilmour and H. S. Young, treating auriferous ores.
 - No. 11014.—J. L. Brown, jun., horseshoe attachment.
 - No. 11015.—J. L. Brown, jun., measuring limited lengths.
 - No. 11016.—Lanosoap, Limited, treating grease, &c. (J. Hopkinson).
 - No. 11017.—S. O. Cowper-Coles, treating zinc-ores.
 - No. 11020.—The Prétot Motor Syndicate, Limited, gear for motor-carriage (V. E. Prétot).
 - No. 11021.—The Prétot Motor Syndicate, Limited, motor road-vehicle (V. E. Prétot).
 - No. 11026.—F. A. Macdonald, castrating, &c., instrument.
 - No. 11036.—A. Coubrough, extracting titanium from iron-sand.
 - No. 11040.—W. C. Greig and J. H. Gardner, candle.
 - No. 11052.—D. G. Lane, wire whaling-net.
 - *No. 11076.—C. K. Welch, metallic wheel-rim.
- * Omitted from *Gazette* No. 83, of the 16th October, 1902.

THROUGH NON-PAYMENT OF THIRD-TERM FEES.

- No. 7894.—C. J. Yarnold, manufacture of ozone.
- No. 7904.—Gas-Selbstzündiger Export Gesellschaft, Gesellschaft mit beschränkter Haftung, medium for igniting gas by its own action (J. F. Duke).
- No. 7918.—W. Wratten, iron post and standard (G. and G. Wratten).
- No. 7934.—J. A. Fairbanks, bell buoy.
- No. 7936.—J. W. McDougall, window frame and sash.
- No. 7944.—W. H. Marsden, trousers.
- No. 7947.—G. T. Booth, plough-wheel bearing.

F. WALDEGRAVE,
Registrar.

Application for Letters Patent withdrawn.

NO. 15027.—R. F. Smith, window-sash fastener. (Advertised in *New Zealand Gazette* No. 78, of the 2nd October, 1902.)

F. WALDEGRAVE,
Registrar.

Applications for Registration of Trade Marks.

Patent Office,
Wellington, 7th January, 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 : 3284.
Date : 30th January, 1901.

TRADE MARK.



The essential particulars of the above trade mark are, (1) that it consists of or contains a distinctive brand; (2) the words or name "La Carolina," having no reference to the character or quality of the goods, and not being a geographical name; and (3) the name of the firm "Bances y Suarez" printed within an oval: and applicants disclaim any right to the exclusive use of the added matter. The applicants claim that the said trade mark has been in use by them and their predecessors in business in respect of the articles mentioned since before the 1st January, 1890.

NAME.

HAVANA COMMERCIAL COMPANY, of 102, Galiano Street, Havana, in the Isle of Cuba, and of 135, Broadway, New York, in the United States of America, Cigar-manufacturers (successors in business to and owners of the factory of the persons lately trading under the firm name or style of "Bances y Suarez," in Havana aforesaid).

No. of class : 45.

Description of goods : Cigars and cognate substances and articles.

No. of application : 3286.
Date : 30th January, 1901.

TRADE MARK.



The essential particulars of the above trade mark are, (1) that it consists of or contains a distinctive brand; (2) the letters and words or name "A. De Villar y Villar," having no reference to the character or quality of the goods, and not being a geographical name; and (3) the distinctive device or monogram "A.V. y V." The applicants claim that the said trade mark has been in use by them and their predecessors in business in respect of the articles mentioned since before the 1st January, 1890.

NAME.

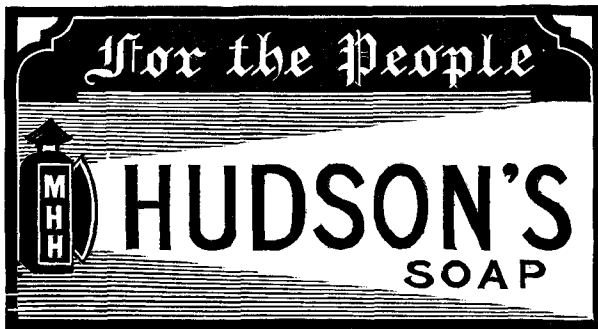
HAVANA COMMERCIAL COMPANY, of 102, Galiano Street, Havana, in the Isle of Cuba, and of 135, Broadway, New York, in the United States of America, Cigar-manufacturers (successors in business to and owners of the factory of the persons lately trading under the firm name or style of "Manuel Moreno (S. en C.)," in Havana aforesaid).

No. of class : 45.

Description of goods : Cigars and cognate substances and articles.

No. of application : 3943.
Date : 19th September, 1902.

TRADE MARK.



The essential particular of this trade mark is the distinctive label; and the applicant disclaims any right to the exclusive use of the added matter.

NAME.

ROBERT WILLIAM HUDSON, trading as "R. S. Hudson," of Bank Hall, Liverpool, in the County of Lancaster, and West Bromwich, in the County of Stafford, both in England, Chemical-manufacturer.

No. of class : 47.

Description of goods : Soap, soap-powders, and other preparations of soap for laundry purposes.

No. of application : 3997.
Date : 13th November, 1902.

TRADE MARK.



NAME.

THE AMERICAN TOBACCO COMPANY, a New Jersey corporation having a place of business at 111, Fifth Avenue, City, County, and State of New York, United States of America.

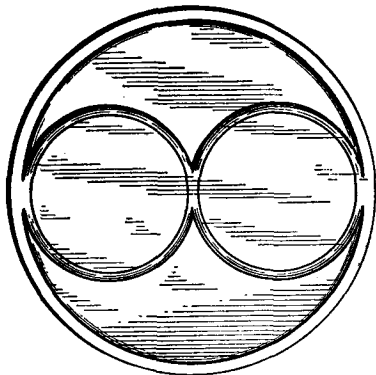
No. of class : 45.

Description of goods : Tobacco, whether manufactured or unmanufactured.

No. of application: 3998.

Date: 13th November, 1902.

TRADE MARK.



NAME.

THE AMERICAN TOBACCO COMPANY, a New Jersey corporation having a place of business at 111, Fifth Avenue, City, County, and State of New York, United States of America.

No. of class: 45.

Description of goods: Tobacco, either manufactured or unmanufactured.

No. of application: 4025.

Date: 11th December, 1902.

TRADE MARK.

PRESERVLINE

This trade mark has been continuously used by said corporation and those from whom it derived its title since the 6th May, 1881.

NAME.

THE PRESERVLINE MANUFACTURING COMPANY, a corporation created under and existing by virtue of the laws of the State of New York, United States of America, and doing business at 41-45, Warren Street, in the City of New York, State of New York, United States of America, Manufacturers.

No. of class: 2.

Description of goods: Preservatives, including antiseptics, bactericides, antiferments, insecticides, antizymotics, disinfectants, and the like.

No. of application: 4026.

Date: 11th December, 1902.

TRADE MARK.



This trade mark has been continuously used by said corporation and those from whom it derived its title since the 6th May, 1881.

NAME.

THE PRESERVLINE MANUFACTURING COMPANY, a corporation created under and existing by virtue of the laws of the State

of New York, United States of America, and doing business at 41-45, Warren Street, in the City of New York, State of New York, United States of America, Manufacturers.

No. of class: 2.

Description of goods: Preservatives, including antiseptics, bactericides, antiferments, insecticides, antizymotics, disinfectants, and the like.

No. of application: 4027.

Date: 17th December, 1902.

TRADE MARK.



The essential particulars of this trade mark are as follow—the device of a bulldog, the copy of the written signature "Robt. Porter & Co.," and the distinctive label; and the applicant company disclaims any right to the exclusive use of the added matter, save and except its name and address.

NAME.

ROBERT PORTER AND COMPANY, LIMITED, of Nos. 39-47, Pancras Road, London, in England, Bottlers of Ale, Stout, Cider, and Mineral and Aerated Waters.

No. of class: 43.

Description of goods: Beer of all kinds.

No. of application: 4028.

Date: 17th December, 1902.

TRADE MARK.

The word

CAPILLARYNE.

NAME.

IVAN TCHERNEGOVSKI, trading as "Ivan Black," Hair-dresser, of 5, Riddiford Street, Wellington, New Zealand.

No. of class: 48.

Description of goods: Hair-tonic.

No. of application: 4029.

Date: 17th December, 1902.

TRADE MARK.

The word

NONETTE.

NAME.

MALCOLM ALLEN, of Church Street, Mosgiel, New Zealand, Horse-trainer.

No. of class: 2.

Description of goods: Ointment for veterinary purposes.

No. of application : 3944.
Date : 19th September, 1902.

TRADE MARK.



The essential particular of this trade mark is the distinctive label; and the applicant disclaims any right to the exclusive use of the added matter except his name.

NAME.

ROBERT WILLIAM HUDSON, trading as "R. S. Hudson," of Bank Hall, Liverpool, in the County of Lancaster, and West Bromwich, in the County of Stafford, both in England, Chemical-manufacturer.

No. of class : 47.

Description of goods : Soap, soap-powders, and other preparations of soap for laundry purposes.

No. of application : 4081.
Date : 17th December, 1902.

TRADE MARK.



The essential particular of this trade mark is the distinctive label, consisting of the word "Aurora" written above the design of a rising sun; and any right to the exclusive use of the added matter is disclaimed, with the exception of the name "Pacific Polish and Compound Co. Inc., Successors to the Rea Company, San Francisco, Cal."

NAME.

THE PACIFIC POLISH AND COMPOUND CO. INC., of San Francisco, California, U.S.A.

No. of class : 50.

Description of goods : Metal-polish.

No. of application: 4032.
Date: 18th December, 1902.

The word

TRADE MARK.

RANDIA.

NAME.

N. GREENING AND SONS, LIMITED, of Crown Street, Warrington, in the County of Lancaster, England, Wire-manufacturers and Metal-perforators.

No. of class: 13.

Description of goods: Sieving and screening plates, being metal goods not included in other classes.

No. of application: 4033.
Date: 18th December, 1902.

The word

TRADE MARK.

COBRA.

NAME.

BLYTH AND PLATT, of the Solar Works, Watford, in the County of Hertford, England, Manufacturers.

No. of class: 50.

Description of goods: Polishing-pastes, polishing-creams, polishing-soaps, polishing-liquids, and polishing-powders.

No. of application: 4039.
Date: 24th December, 1902.

The word

TRADE MARK.

PE-RU-NA.

NAME.

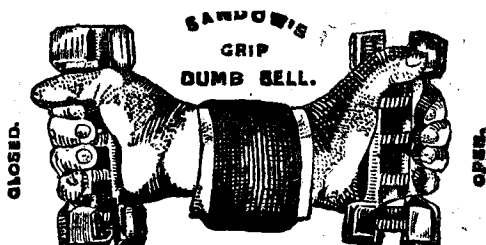
SAMUEL BRUBAKER HARTMAN, of Columbus, Ohio, United States of America.

No. of class: 3.

Description of goods: A medicinal compound.

No. of application: 4042.
Date: 24th December, 1902.

TRADE MARK.



The above trade mark consists of or contains the following essential particular—the distinctive device; and applicant disclaims any right to the exclusive use of the added matter, except in so far as it consists of its name.

NAME.

The persons trading as "SANDOW'S GRIP DUMB-BELL COMPANY," of Victoria Embankment, Savoy Corner, London, England, Manufacturers.

No. of class: 49.

Description of goods: Dumb-bells.

No. of application: 4043.
Date: 29th December, 1902.

TRADE MARK.



THE LANCER.

NAME.

KEMPTHORNE, PROSSER, AND Co.'s N.Z. DRUG COMPANY, LIMITED, of Christchurch, Wellington, Dunedin, and Auckland, New Zealand.

No. of class: 3.

Description of goods: Medicinal preparations.

No. of application: 4047.
Date: 30th December, 1902.

The word

TRADE MARK.

PAZO.

NAME.

PARIS MEDICINE COMPANY, of 2622, Pine Street, St. Louis, United States of America, and 28, Shoe Lane, London, England, Manufacturing Chemists.

No. of class: 3.

Description of goods: Chemical substances prepared for use in medicine and pharmacy.

No. of application: 4048.
Date: 30th December, 1902.

The word

TRADE MARK.

FERRODOR.

NAME.

GRIFFITHS BROS. AND Co., of 29, Macks Road, Bermondsey, London, England, Paint, Colour, and Varnish Manufacturers.

No. of class: 1.

Description of goods: Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives.

No. of application: 4049.

Date: 30th December, 1902.

TRADE MARK.

PEACOCK BRAND.



NAME.

GRIFFITHS BROS. AND Co., of 29, Macks Road, Bermondsey, London, England, Paint, Colour, and Varnish Manufacturers.

No. of class: 1.

Description of goods: Paints, colours, and varnishes, except insulating varnishes.

No. of application: 4050.

Date: 30th December, 1902.

TRADE MARK.

The word

NOREMAC.

NAME.

R. W. CAMERON AND COMPANY, of 256, George Street, Sydney, in the State of New South Wales and Commonwealth of Australia, and elsewhere, Merchants.

No. of class: 42.

Description of goods: Flour, and goods of a similar description.

Trade Marks registered.

LIST of Trade Marks registered from the 11th December, 1902, to the 7th January, 1903, inclusive:—
 No. 3079; 3949.—J. R. Chapman. Class 39. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3080; 3926.—J. Nathan and Co., Limited. Class 5. (*Gazette* No. 75, of the 18th September, 1902.)

No. 3081; 3890.—H. E. Partridge. Class 45. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3082; 3891.—H. E. Partridge. Class 45. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3083; 3892.—H. E. Partridge. Class 45. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3084; 3894.—H. E. Partridge. Class 45. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3085; 3945.—H. E. Partridge. Class 45. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3086; 3865.—Warnock Bros. Class 47. (*Gazette* No. 67, of the 21st August, 1902.)
 No. 3087; 3887.—J. G. Ward and Co. Class 42. (*Gazette* No. 71, of the 4th September, 1902.)
 No. 3088; 3940.—T. E. Taylor. Class 42. (*Gazette* No. 78, of the 2nd October, 1902.)
 No. 3089; 3963.—G. E. Wharton. Class 3. (*Gazette* No. 83, of the 16th October, 1902.)
 No. 3090; 3954.—W. F. Tucker. Class 3. (*Gazette* No. 83, of the 16th October, 1902.)
 No. 3091; 3965.—W. F. Tucker. Class 42. (*Gazette* No. 83, of the 16th October, 1902.)
 No. 3092; 3909.—The Ross Antidote Company, Limited. Class 2. (*Gazette* No. 75, of the 18th September, 1902.)
 No. 3094; 3958.—Marriner and Co. Class 39. (*Gazette* No. 83, of the 16th October, 1902.)
 No. 3095; 3940.—Beath, Schiess, and Co. Class 38. (*Gazette* No. 87, of the 30th October, 1902.)

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.]

N O. 3296/3001.—Carr Bros. and Ash, Limited, a company duly registered under the Companies Acts, 1862–1900, whose registered office is at 6, Laurence Pountney Hill, London, England, Merchants. [Peck, Frean, and Co.] 31st December, 1902.

F. WALDEGRAVE,
 Registrar.

Trade Mark Renewal Fees paid.

F EES paid for renewal of undermentioned Trade Marks for fourteen years from the 1st January, 1904:—
 No. 81/4630.—E. Rowlands. 24th December, 1902.
 No. 84/2641.—Allecock Manufacturing Company (Porous Plaster Company). 19th December, 1902.
 No. 85/2321.—E. Rowlands. 24th December, 1902.
 No. 88/1732.—J. Service and Co. (two trade marks). 17th December, 1902.
 No. 89/86.—Offley, Forrester, and Co. (two trade marks). 18th December, 1902.

WALDEGRAVE,
 Registrar.

Request to correct Clerical Errors in Trade Mark Applications.

A PPLICATIONS Nos. 3947 and 3948 (advertised in Supplement to *New Zealand Gazette*, No. 83, of the 16th October, 1902): The goods in respect of which the mark is to apply have been inadvertently inserted in each case in the wrong application. It is desired that the statement of goods at present in application No. 3947 be altered to the statement of goods in application No. 3948, and that the statement of goods in the latter application be altered to the statement of goods in application No. 3947, thus making the mark "Okitu Meat-preserving Factory, Gisborne, N.Z.," to be in respect of "Preserved tinned meats of all descriptions, and generally the products of meat-preserving works used as food or as ingredients in food," and the mark "Okitu Bacon Factory, Gisborne, N.Z.," in respect of "Bacon, hams, and generally the products of a bacon-factory used as food or as ingredients in food."

F. WALDEGRAVE,
 Registrar.

The first part of the paper is devoted to a general discussion of the problem of the distribution of the roots of a polynomial equation. It is shown that the roots of a polynomial equation of degree n are distributed in a certain way in the complex plane. The distribution is determined by the coefficients of the polynomial. The roots of a polynomial equation of degree n are distributed in a certain way in the complex plane. The distribution is determined by the coefficients of the polynomial.

In the second part of the paper, the author considers the case of a polynomial equation of degree n with real coefficients. It is shown that the roots of such a polynomial equation are distributed in a certain way in the complex plane. The distribution is determined by the coefficients of the polynomial. The roots of a polynomial equation of degree n are distributed in a certain way in the complex plane. The distribution is determined by the coefficients of the polynomial.

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