top of the embankment, or 5 feet above high water level.

At the center of its length, and opposite the shaft 21 leading down to the new aqueduct, a large main gatehouse will be built, from which a short conduit will lead across to connect through this shaft with the new aqueduct below ground. To the south of the main gate house the new aqueduct is continued as a double barrel conduit, each barrel being 11 feet in diameter, and the old aqueduct is carried above these at its former elevation. as shown in Fig. 3. At a point 1,500 feet to the south of the gatehouse one conduit leads into the western and the other into the eastern half of the reservoir. By this arrangement three separate systems of distribution of the water are secured. The reservoir may be filled or the water distributed directly from either the old or the new surface aqueducts, or from the subterranean aqueduct through shaft 21, the operations being all controlled at the main gate house. The construction of the dividing wall of the reservoir is shown in the two cross sections, Figs. 2 and 3, and it will be seen that the arrangement is such as to afford two entirely independent reservoirs, each with its own separate system for feeding and distributing the water.

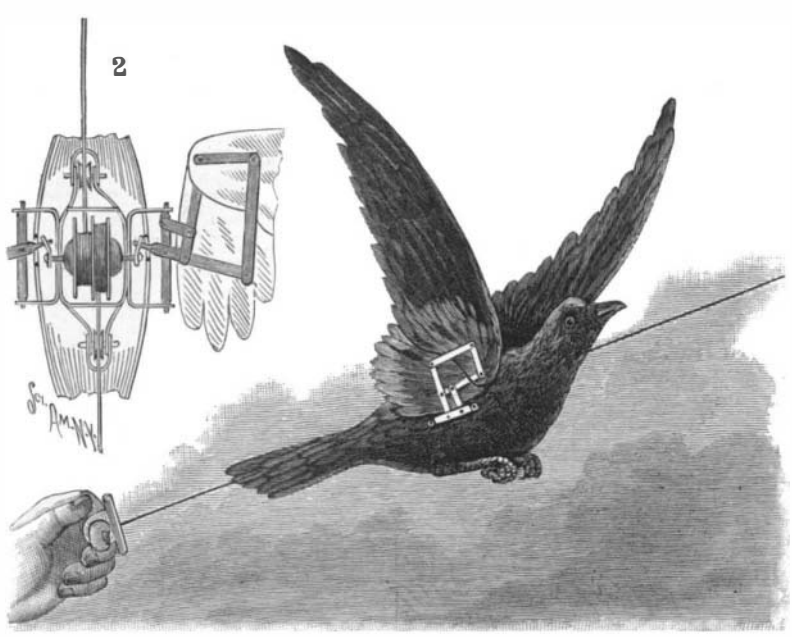
Six lines of 48 inch pipe will radiate from the main central gate house; two of which will leave the reservoir at Van Cortlandt Avenue to the northwest, two at Sedgewick Avenue to the west, and two at Jerome Avenue to the southeast, one of which will lead to a high service pumping station. A gate house will be built at each point of exit. The main gate house connections will be so arranged that these pipes may be supplied with water from either basin of the reservoir or directly from either the old or new aqueduct. The 48 inch pipes, with the aid of the proposed pumping stations, will serve the annexed district to the north of the Harlem River, and it is also proposed to carry a line from these pipes south across the Harlem River to connect directly with the city mains on Manhattan Island. This would give an independent source of supply in case of any accident to the present aqueducts where they cross the Harlem River.

When the Jerome Park reservoir is completed it will form an extensive lake of water over a mile and a quarter in length and more than half a mile in width; and the winding gravel walk on the top of the embankment will afford a continuous promenade fully three miles long. The contract calls for the completion of the work in 1901. A few years later than this the great Croton dam which is now building at a point a few miles below the old Croton dam will be completed, and the new lake thus formed will hold over 30,000,000,000 gallons. If we add to this the capacity of the various auxiliary storage reservoirs scattered throughout the Croton watershed, and that of the reservoirs at Jerome Park and Central Park, we reach a grand total of 75,000,000,000 gallons as the future available supply of New York City.

The work is being carried out under Mr. A. Fteley as chief engineer. Mr. A. Craven is in charge of construction at Jerome Park, and to these gentlemen, together with Mr. F. S. Cook, assistant engineer, we are indebted for valuable facilities in the preparation of the present article.

A TOY BIRD THAT FLIES.

The naturalness and easy movement of the wings of the little toy bird shown in the accompanying illustration, as the operator pulls gently on the end of the supporting string over which the bird moves, in accordance with the movement of the wings, always attracts observers when this toy is shown on the streets, as it has been by numerous venders within a few weeks past. The toy is one of the most recent of the many novelties which are constantly being exhibited by the sidewalk salesmen in the streets of New York and other large cities, and in the construction of some of which a surprising degree of skill and ingenuity are displayed. The cord leading from the aperture below the mouth of the bird is attached at its outer end to a hook in the wall or other support, while its inner portion passes over an idler and around a pulley, to which it is attached. This pulley is a little smaller than another at its side, as shown in Fig. 2, both pulleys being fast on the same shaft, and a cord from the larger pulley passes over an idler and out rearwardly, having at its end a finger piece, on which the operator pulls in manipulating the toy. The cords are wound in opposite directions on their pulleys, so that the unwinding of the cord from and rotating of the larger pulley winds up the cord on the smaller pulley, and causes the bird to move forward on what seems to be only a single length of cord, the backward movement taking place by gravity when the pull on the string is released. The movement of the wings is effected by a crank on each outer end of the pulley shaft, the crank being pivotally connected with an extension of a member of the inner one of two pairs of lazy tongs, and this member having also a pivotal bearing on a cross bar which turns in bearings on the outer side of the toy, just under where the wings are hinged to the body. The larger pair of lazy tongs is pivotally connected to the outer portion of the wing, giving a longer sweep thereto than to the inner portion of the wing, with which the smaller lazy tongs are connected, and the pivotal connection of the lazy tongs with the bearing in the cross bar gives an oscillatory movement to the wings which constitutes a very good simulation of the natural movement of the wings of a bird in flight. A high degree of mechanical skill is shown in the putting together of this little toy.



A TOY BIRD THAT EFFECTIVELY SIMULATES A BIRD FLYING.

AN electric speed indicator which is designed specially for warships is described in the Revue Industrielle. The principle is that a tiny magneto, driven off the main shaft, gives a current which varies with the speed. A galvanometer introduced anywhere in the circuit, therefore, if properly graduated, gives the number of revolutions per minute, and the direction "ahead" or "astern."

RECENTLY PATENTED INVENTIONS.

Electrical.

VALVE GEAR.—William Engberg, St. Joseph, Mich. The gear provided by this patent is more especially designed for use in water supply pipes connecting a pumping station with a distant stand pipe. It is provided with a controlling device comprising an electric circuit containing two relays, an electric magnet for each relay and an armature lever, and two slidable bars adapted to be engaged and locked by the corresponding armature levers, the bars controlling the position of the valve. An alarm is sounded at the pumping station in case the valve is opened or closed accidentally.

AMALGAMATOR.—William Wright, New York City. This invention provides for an amalgamating plate over which the material is adapted to pass, water-distributing tubes being arranged to discharge water over the receiving surface of the plate, the tubes having carbon outlets, and the plate and tubes being in an electric circuit, while mechanism is provided for changing the direction of the current. When the amalgamating surface becomes clogged the current is reversed, in order to loosen the sediment and provide at all times for a clean surface to which the gold shall adhere.

Mechanical.

MOTOR REGULATOR.—John G. Ball, Chesterville, Ohio. A simple device, adjustable for various purposes, is provided by this invention, and consists of a frame in which is rotatably mounted a wheel having a series of weights secured to its periphery, arranged in such a way that the wheel is overbalanced on one side. An adjustable sweep rod connected to a crank arm or axle of the wheel is adapted to be engaged with mechanism having an attachment to a pump rod or similar device, a spring being adjustably connected to the sweep rod. The device is adapted for use with pumps for wells of different depths, churns of different sizes, and similar machinery where it is designed to operate a rod vertically and at varying rates of speed.

MOULD.—Robert H. Wilson, Boonton, N. J. This improvement consists of two plates having the mould formed in their opposing surfaces, and provided with automatic centering means by which they are made to register by simply sliding the cope upon the mould until stopped by the centering devices. There is also provided a removable and insertible pouring gate and riser, which is made in one piece of a refractory earthy material, and which protects the mould at the points where the heat of the metal is most likely to affect it, also enabling the gate to be easily removed.

JOURNAL BEARING.—Richard M. Melhuish, London, England. This bearing comprises a standard having an opening in which a bearing block is seated to move, a plate holding the bearing block in place, and the bearing block being longitudinally opened in its under side, whereby, when the slightly separated parts of the bearing block are drawn together to take up the internal wear around the journal, the outer lower edges of the block will be depressed to take up the external wear. The improvement affords a ready means of correcting both the internal and external wear of the bearing block.

MAKING CYCLE GEAR CASES.—Horace W. Dover, Northampton, England. For making gear cases of xylonite, celluloid, etc., this invention provides a finishing tool for bringing the roughly moulded article to its final form. The tool comprises a male die or plunger, a matrix formed of a middle member inclosing the bottom and ends, with two loosely pivoted side members, and means for forcing and holding the die in the matrix, and for closing the sides of the matrix upon the article on the die. The plunger is forced home and the sides of the matrix closed in with the aid of heat, preferably while the tool is immersed in water at a temperature to soften the material, the material being caused to set in the moulded form by cooling the mould in cold water.

Agricultural.

STOCK WATERING DEVICE. — Joseph Seiler, Maple River Junction, Iowa. A device adapted for attachment to a tank, barrel, reservoir, or other source of supply, is provided by this invention, for use in connection with a trough or tank, cutting off the supply from the latter when the water has reached a certain height. It has a T-shaped body, with a plug in its vertical member, the outlet nozzle having a valve adapted to be closed by a trip rod which extends beyond the outlet end and engages a float. When the water in the trough gets below a certain level, the float lifts the valve to allow more water to flow in from the reservoir. The device may also be attached to and used in connection with a hydrant.

SORTING MACHINE FOR PEACHES, ETC.—John P. Wilson, Hamburg, N. J. This machine has carriers adapted to move over the assorting table, but which may be stopped at any point to make sure that the fruit or vegetables are of a size adapted to find an exit. Means are provided for regulating the feed to the assorting table, and the basket, crate, or bag holder occupies at first an inclined position, gradually assuming an upright position as the bag, etc., becomes filled, thereby preventing the bruising of the fruit or vegetables. The carriers may be readily and easily set in motion, and their motion is preferably continuous.

Miscellaneous.

BICYCLE RACK. — George Hirschman, Sr., and George Hirschman, Jr., Morristown, N. J. A portable rack of simple and inexpensive construction, and adapted to support a number of bicycles, has been devised by these inventors. The device comprises vertical and base rack bars pivotally connected together by means of base blocks, transverse rods serving as stops for the wheels, the base racks being adapted to be held at right and acute angles to the vertical racks, and the whole device being adapted to be folded in comparatively small compass. A wide space between the wheel-supporting bars provides room for the handle bars of the several bicycles.

BICYCLE TIRE.—James C. Cole, London, England. This invention provides a tire made of segments or balls or oblate or flattened spheroids or ovals, preferably made of India rubber and inflated, but with the balls partially lined with a strong textile or inextensible lining. There are flanges or ribs on the balls for their attachment to the wheel, and the lining of the ball is of such width that its extensible part is only about that which may be flattened by contact with the adjacent balls. It is designed that the balls so made shall be extensible only in or about the direction of the circumference of the wheel.

PRESERVING FOODS —Francois O. Jacob, Paris, France. To preserve solid organic alimentary substances from fermentation and decomposition, this inventor makes use in certain cases of an acid reaction and in others of a basic or neutral reaction. The process is especially designed to facilitate the preservation of meat, fish, fruit, vegetables, etc , and the substances to be preserved are treated with carbonic anhydrid and formaldehyde, under pressure, either successively or simultaneously. It is said that meat thus treated can be kept in the open air for more than a month, and is without smell and contains no toxic principle or anything contrary to the hygiene of alimentation.

WINDMILL.—Rudolph Bratka, Minnesota Lake, Minn. The wheel of this windmill is mounted on a vertical axis and turns in a horizontal plane, the blades of the wheel being pivoted on arms radiating from the axis, and swinging from a horizontal to a vertical position as the wheel turns. Each blade is actuated by a spring, and as the spokes or arms move toward or into the wind the force of the springs is overcome and the blades are thrown horizontally, but when the arms pass the line in which the wind is blowing, the springs change the position of the blades, allowing the wind to act with the greatest possible efficiency on the wheel.

CHIMNEY.—Le Roy C. Hedges, Elmwood, Ill. This is a metal-framed chimney which is light, strong, and ornamental, and designed to support and strengthen other portions of the building, while being fireproof, inexpensive, and easy to repair when necessary. The invention comprises a casing in which is a draught flue, brackets on the casing supporting the joists. etc., while there are tiles on the brackets between the casing and the ends of the joists and floor, There are openings near the floor and ceiling of each compartment, and heat radiators through which the products of combustion pass, the chimney being designed to be a fuel saver as well as an effective heat distributor for rooms directly connected with it.

LAMP LIGHTING DEVICE. — Carl F. Bergmann, Jersey City, N, J. For lighting the wicks of bicycle lamps, more particularly, this invention provides a novel attachment which will facilitate the easy and protected ignition of the match, and guide it into contact with the wick to be lighted. A guide tube penetrates the wall of the lamp near its burner, and near the inner end of the tube is a spring-pressed scratching device adapted to ignite an inserted match, the tube being completely closed when the match is withdrawn, and thus preventing air currents from flaring the flame of the lighted wick.

SEWER GAS TRAP.—Henry McEvoy, New York City. This invention provides a simple form of trap that will be sealed automatically by water or by a valve movable into a discharge pipe. This valve is mounted on a tubular arm which extends through the valve, and the tubular arm connects with a water inlet tube designed to communicate with a water supply pipe. The connection of the tubular arm and its valve is such that, as water evaporates from the elbow and bowl, a small amount of water is admitted to replenish the amount evaporated and maintain a liquid seal.

LADDER AND COT.—Leonard G. Fath, Springfield, Mo. This is a combination device to be used by a slight adjustment as a cot, a step ladder, or an extension ladder, a cot surface of woven wire, etc., being discarded when the device is used as a step ladder. The device is made of two principal parts, a step ladder portion and a pair of parallel bars, both the side pieces of the ladder portion and the parallel bars having three pivot holes one near the middle and one near each end, whereby adjustment as a cot may be effected by means of pivot bolts and link rods.

FIRE EXTINGUISHER.—Arthur H. Durand, Montreal, Canada. This is a portable fire extinguisher which operates by the admixture of an acid with a solution of bicarbonate of soda to generate carbonic acid gas. The invention provides an acid receptacle formed by a contraction of the vessel containing the alkaline solution, and so arranged that the acid can be slowly admitted, and not all at once, the pressure being thus so regulated as to avoid danger of bursting the extinguisher, which sometimes happens from the sudden generation of an enormous volume of carbonic acid gas. A small extinguisher is thus provided which will be perfectly safe and of sure operation, and the machine may be readily recharged at any drug store, as no pieces are broken or out of order after use.

BUSHING AND HOLDER FOR RUBBER GAS BAGS.—John Heavue and Elmer E. Cisco, Brooklyn, N. Y. This invention relates to flexible gas bags temporarily employed for plugging gas mains during repairs, and provides a bushing adapted to be inserted in the opening in the main and a cap for attachment to the bushing to close it, and with means to hold the neck of the gas bag, holding the latter in place when inflated in

the main. The device also protects the bag against being torn and damaged by contact with the rough and sharp edges of the opening in the main at which it is inserted or withdrawn.

LOCK.—Jacob C. Hollman, Carbon Black, Pa. A lock which may be readily and conveniently mortised into any door, without appreciably detracting from the strength of the door, is provided by this invention. The bolt and the latch, according to this improvement, are in separate cylindrical compartments or casings, to the outer end of which a face plate is secured, the upper cylinder being preferably the latch cylinder. In placing the lock it is only necessary to make spaced bearings for the cylindrical casings and a countersink for the face plate, in addition to the openings for the knob spindle and key.

NON-REFILLABLE BOTTLE.—William W. Doty and James J. Donnellan, New York City. This bottle has a stopper with an annular channel, the center piece being connected by wings with the outer portion of the stopper, while a cap has in its under side a screw entering the center piece, and a rod connected with the screw and extending through the center piece has an enlarged portion at its lower end on which a valve is guided. In manufacturing the bottle the stopper, with the cap and valve, are made separate from the neck, in which the stopper is cemented after the bottle is filled. The construction effectively prevents refilling a bottle after it has once been emptied.

CLOTHES LINE CONVEYER.—Alexander G. Molteni, Hoboken, N. J. This invention relates to sheaves or pulleys to be attached to a window frame, etc., by which a clothes line may be drawn in and out, to hang out or take in the clothes, and provides a pulley frame which may be clamped or secured at any desired angle, and which can be cheaply made. Bridge pieces prevent the line from slipping off the sheave or pulley, and the device may be used either side up, bringing the handle on the right or the left hand side.

SPONGE GATHERER.—John Peacon, Key West, Fla. A novel grappling device has been devised by this inventor, having a metal frame adapted to rest on the sea bottom, a cross bar with eyes on the top of the frame, two bails hinged to the frame and having inwardly projecting tines, while ropes passing through the eyes of the cross bar are attached to the bails. The device is designed to facilitate the gathering of sponges in deep water, where the ordinary pole with grappling hooks cannot be used. It is operated by two ropes, the slacking of one of which, when the grappling device is on the bottom, allows the bails with their tines to engage the sponge, when the grapple with its sponge may be drawn up by the other rope.

ROPE OR CLOTHES LINE TIE.—Louis Keller, Brooklyn, N. Y. To facilitate fastening the loose end of a rope, cable or clothes line in place, or automatically releasing it when desired, this inventor has devised a casing having means of attaching one end of a rope and a guide for the other or loose end, while a horn pivoted on the casing is adapted to receive and hold the loop formed by the loose end of the rope. There is a locking and releasing device for the horn to hold it in a locked position on the casing or release it to throw off the loop.

CORSET COVER.—Max Galland, Wilkesbarre, Pa. This cover has a back with forwardly extending side flaps arranged to be fastened together at the front to form a low cut waist, while a loose front has a shoulder connection with the back, and forms with the latter arm holes, the front being held in place by the side flaps. The cover readily adjusts itself to the form of the wearer's body or corset, insuring a perfect fitting, and at the same time giving entire freedom to the arms of the wearer.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(7159) B. G. M. asks: 1. How much current is required in nickel plating through 30 gallon solution with anodes hung 8 inches from articles to be plated? A. It depends on the area which is to receive the deposit. On copper allow 0·4 to 0·8 ampere per 15½ square inches. For copper on zinc use 1·3 to 15 amperes. The first deposit should be given with a strong current; then follow with a lighter current. 2. In nickel-plating cast iron what is used to fill the blow holes to make an even surface to plate on? A. Lead may be used. It is a good plan to have the article galvanized before nickeling and to give that a thin copper coating. The zinc will fill up small holes.

(7160) J. W. W. writes: What is the greatest amount of electro-motive force that has ever been successfully used in a telephone? A. In a Bell telephone the E.M.F. may be quite high momentarily, but there is no record of it that we know of. In condenser telephones it may be very high.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Marine Iron Works. Chicago. Catalogue free.

"U. S." Metal Polish. Indianapolis. Samples free.

Yankee Notions. Waterbury Button Co., Waterb'y, Ct.

Handle & Spoke Mchy. Ober Lathe Co., Chagrin F'alls, O.

Try us for your wire or sheet metal specialties. The Enterprise Manufacturing Co., Akron, Ohio.

Improved Bicycle Machinery of every description. The Garvin Machine Co., Spring and Varick Sts., N. Y.

Concrete Houses — cheaper than brick, superior to stone. "Ransome," 757 Monadnock Block, Chicago.

The Norwich Line—Inside route between New York, Boston, and Worcester. Leave Pier 40, North River, 5:30 P. M., week days only.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, $4. Munn & Co., publishers, 361 Broadway, N. Y.

The Temperly Transporter.

See illustration, front page of SCIENTIFIC AMERICAN, April 24. It is manufactured by the Lidgerwood Mfg. Co., 96 Liberty Street, New York. Write for particulars.

☞ Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

MAY 4, 1897,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Air brakes for cars, drain cup and strainer for, T. B. Hunt 581,912
Alarm. See Fire alarm.
Armor plate, manufacture of face hardened, J. H. Dickinson 581,903
Back band hook, D. P. & R. S. Skelton 581,782
Bag fastener, L. Landreth 581,827
Bails, clamping attachment for kettle, F. A. Morris 582,076
Ballot box and register, combination, F. M. Bennett 582,153
Barrel filling apparatus, J. E. J. Goodlett (reissue) 11,600
Barrel heading machine, W. Glader 581,712
Bearing block for screw shafts, composite, R. M. Melhuish 582,074
Bearing, carriage ball, C. E. Roberts 581,772
Bearing retaining device, ball, R. M. Keating 581,730
Bearing, wheel, J. F. Pope 581,918
Bell, W. E. Hammond 581,987
Bell, J. Shaaber 581,780
Bell, bicycle, R. M. Beatty 581,841
Bell clip, bicycle, Lucas and Steeley 581,743
Bellows, J. P. Johnson 582,139
Belt, M. O. Reeves 581,770
Belt tightener, G. E. Travis 581,709
Belts, wire lacing for, J. Gregory 582,054
Bench. See Work bench.
Bicycle, R. Fritz 581,985
Bicycle, W. J. Pine 581,766
Bicycle, L. S. Powers 581,767
Bicycle, P. H. York 581,973
Bicycle attachment, T. W. Davis 581,880
Bicycle attachment, J. S. Lester 582,070
Bicycle brake, automatic, M. A. Keller 581,885
Bicycle coupling, T. & H. T. H. Coldwell 581,953
Bicycle handle, P. C. Peterson 582,084
Bicycle handle bar adjusting mechanism, J. A. Little 582,071
Bicycle hanger, P. Forg 581,907
Bicycle holder, Poole & Risdon 582,086
Bicycle rear fork end, Beecher & Cornforth 581,842
Bicycle saddle, L. M. Devore 581,881
Bicycle saddle, W. N. Moore 582,144
Bicycle training device, S. A. Sturgis 581,835
Bicycle wheel, G. Hayes 582,126
Boiler. See Steam boiler.
Book cover, T. Mauriello 582,020
Book holder, T. F. Nolan 582,140
Bottle, G. Corbion, Jr 581,978
Bottle, M. E. Donally 582,011
Bottle, Durkin & Fritze 581,814
Bottle, G. C. Phillips 581,765
Bottle and appliance for preventing refilling of same, F. De Garis 581,711
Bottle, antirefilling, H. G. Butt 582,113
Bottle, mucilage or other liquid adhesive, L. C. Sawin 582,100
Bottle, non-refillable, J. S. Clinton 582,042
Bottle, non-refilling, J. H. Doerr 582,116
Bottle stopper, J. F. Wittemann 581,898
Bottle washer, M. E. Donally 582,012
Bottles, device for preventing fraudulent refilling of, L. H. Broome 581,845
Bottles, valve for preventing refilling of, W. C. Schmidt 581,774
Bottling apparatus, A. J. Donally 581,700
Box. See Ballot box. Letter box. Paper box.
Bracket. See Lamp bracket. Shelf bracket.
Brake. See Bicycle brake. Wagon brake.
Brake beam, metallic bar, C. Hoyle 581,726
Brake mechanisms, fluid pressure recorder for, S. L. Terry 581,965
Bread or crackers, machine for grinding, E. Taylor 581,836
Breweries, method of and apparatus for collecting waste gases in, O. Zwietusch 582,151
Brush, M. Proskauer 581,919
Buildings, construction of, J. C. Pelton 581,940
Burner. See Gas burner.
Button, E. Foster 581,933
Button, T. R. Hyde, Jr 582,065
Button making machine, W. A. Pendry 581,830
Button, swivel, T. R. Hyde, Jr 582,066
Calendar, pencil, Bradshaw & Wood 582,007
Can. See Jacketed can. Key opening can.
Canopy for vehicles, etc., Buchanan & Tisdal 581,691
Capsule machine, L. K. Eastman 581,703
Capsule, wafer, K. Morstadt 582,021
Car and air brake coupling, combined, J. B. Thomas 581,890, 581,891
Car controller, electric, Schmid & Davis 582,102
Car coupling, C. F. Flowers 581,906
Car coupling, J. F. Harris, Jr 582,058
Car coupling, J. W. T. Riley 582,147
Car coupling, Ward & Richar 581,895
Car fender, street, D. Leib 581,741
Car roof, J. L. Honhorst 582,160
Card clothing attaching device, Mills & Hunton 581,752
Card clothing, machine for attaching clips to, C. Mills 581,751
Card clothing, machine for making flat fastening clips for, Mills & Penney 581,753
Card clothing preparing device, C. Mills 581,748
Card clothing to flats, device for attaching, C. Mills 581,749
Card clothing to flats, machine for fastening, C. Mills 581,750
Cartridge loading implement, E. O. Carvin 581,847
Case. See Toilet case. Tool case.
Cash register, J. W. Rehill 581,771
Catalogue card assorting device, W. L. Boyden 582,035
Cattle guard, A. Howard 582,061
Cattle guard, J. D. Sullivan 582 002
Cement, hydraulic, R. W. Lesley 582,068
Cereals, degerminating, J. F. & R. T. Gent 581,908
Chain and chain link, R. A. Breul 581,844
Chain and wheel, sprocket, J. A. Brown 581,689
Chain guard, dust proof, J. Salisbury 582,099
Chain, sprocket, A. T. Dowden 581,852
Chain, sprocket, J. C. Hauger 581,988
Chair. See Dental chair. Folding chair. Reclining chair.
Chair fan attachment, rocking, E. Davey 581,902
Checkrein attachment, E. A. Sweet 582,003
Checkrein holder, C. H. Scheermesser 582,134
Check row wire, P. Baxendale 581,805
Cheese safe, H. E. Beerling 582,005
Chopper. See Cotton chopper.
Christmas tree candle holder, A. W. Hoffmann 581,725
Chuck, screw cutting, S. C. Hills 581,900
Churn, W. C. Blundell 581,687
Churn, C. H. Linney 581,742
Churn, J. P. Rogers 582,095
Cigar attachment, H. De Haas 581,849
Cigar lighter, electric, H. M. Handsby 581,718
Cigar machine, J. Bunn 581,692
Clip. See Bell clip. Paper clip.
Clothes drier, H. E. Buck 581,931
Clothes pounder, W. Swenson 581,964
Clothes rack, W. C. Baker 582,152
Coating with tin, lead, or other metals, etc., apparatus for, H. F. Taylor 581,791
Cock for air brake pipes, angle, M. C. Glenn 582,053
Coffee mill, H. Kalmbach 581,729
Commutators of dynamos, electric machines, etc., tool or appliance for use in truing up, W. P. Adams 581,840
Confectionery coating machine, H. W. Becht 581,685
Conveyers, machine for forming rods for endless, A. T. Dowden 581,851
Copper from its ores, extracting, G. W. Goetz 581,910
Corset waist, G. H. Schneebeli 581,832
Cotton chopper, J. N. Moore 582,075
Coupling. See Bicycle coupling. Car coupling. Car and air brake coupling. Ladder coupling. Pipe coupling. Rod coupling.
Cradle and crib, combined, J. W. Campbell 581,975
Crane, S. T. & C. H. Wellman 582,101
Creel, bank, G. J. Torrance 581,926
Crusher. See Fruit or grape crusher. Ore crusher.
Cultivator, E. M. Heylman 581,722
Cultivator, W. H. Traphagen 581,968
Cultivator shovel, W. H. Traphagen 581,967
Cultivator, sulky, N. McLean 581,996
Current motor, alternating, B. G. Lamme 582,132
Current motor, submerged, J. J. Smith 582,000
Current regulation and distribution, alternating, B. G. Lamme 582,131
Curtain holder, S. E. Capen 581,693
Cutter. See Paper cutter. Potato cutter. Thread cutter.
Cyclometer, C. S. Labofish 581,865
Cylinder, forming, M. D. Keeney 581,732
Davit, boat's, F. H. Storm 581,925
Dental chair, A. P. Gould 581,886
Dental plate, W. S. Depew 582,045
Desk, window, W. A. Roos 582,097
Display rack, J. & W. Bardsley 582,135
Display rack, hat, R. Szczys 582,004
Display stand, F. H. Hoboff 581,959
Door closer, G. W. Wright 581,972
Door hanger, J. A. Haggerman 582,055
Door hanger and supporting track, G. C. Gardner 581,710
Door operating mechanism, E. A. Haldeman 581,821
Doweling jig, J. Coyle 581,811
Drier. See Clothes drier. Grain drier.
Drying apparatus, yarn, C. G. V. Sjostrom 581,948
Drill. See Rock drill.
Dust pan, F. W. Carpenter 581,846
Dyeing machine, rotary yarn, T. Wolstenholme 581,801
Electric cable, M. Guilleaume 581,715
Electric circuit switch, A. J. Wurts 582,111
Electric motor controller, H. P. Davis 582,114
Electric motors, method of and means for controlling, H. P. Davis 582,115
Electric switch, G. T. Eyanson 581,706
Electric transformer, E. Thomson 581,873
Electrical fuse cutout, W. C. Bryant 582,036
Electrical switch, J. A. Spiker 582,149
Elevator limitation stop, T. Hill 581,958
Elevator lock, R. W. Hare 581,860
Elevator safety lock, F. A. Edmonds 581,704
Engine. See Explosive engine. Fluid pressure engine. Gas engine. Gas or oil engine. Traction engine.
Engine tenders, fuel loader for, J. K. McKinnon 582,080
Explosive engine, A. Winton 582,108
Eyeletting machine, P. R. Glass 581,854, 581,855
Eyeletting machine, Glass & Whittemore 581,856
Eyelets, die for manufacturing plastic covered, A. Latham 581,914
Fan, car, J. Ungvary 581,969
Fastening device for shoes, etc., W. Dickten 581,904
Faucet, A. Hurst 582,062
Faucet, liquid, J. H. Beare 581,877
Fence rails, device for securing pickets in metal, T. W. Brown 581,690
Fence stay, L. J. Woolsey 582,110
Fertilizer distributer, S. H. Jones 582,162
Fifth wheel, J. Grundler 581,858
Fifth wheel, L. L. Hitt 581,724
File, spring actuated letter, C. E. Jewell 581,864
Filter, cistern, J. H. Kolthoff 581,740
Finger ring, T. Schrader 581,922
Fire alarm, automatic, G. B. Riley 582,093
Fishing device, W. Quinn 581,768
Flue beader, W. F. Hutchinson 582,064
Fluid pressure engine, W. H. Knight 581,826
Folding apparatus, L. C. Crowell 582,009
Folding chair, C. C. Comfort 582,136
Folding table, G. E. Lord 581,915
Form, bust, N. Schell 582,101
Fringe machine, J. G. Rehfuss et al 581,999
Fruit or grape crusher, F. J. Moons 581,994
Furnace. See Smokeless economizer furnace.
Furnace grate, W. M. Barber 581,804
Gage. See Micrometer gage.
Galvanometer, astatic, A. Franke 582,120
Game register for pool tables, B. A. Holmes 582,128
Garbage crematory, traveling, C. J. De Berard 581,686
Gas apparatus air holder, J. M. Bois 581,843
Gas burner, incandescent, J. B. De Lery 581,867
Gas engine, T. Small 581,783, 581,784
Gas generating apparatus, acetylene, A. F. Doddridge 581,699
Gas igniter, electric, F. N. Pike 582,085
Gas lighting device, automatic, A. Franke 581,707
Gas manufacturing apparatus, A. S. Cooper 582,044
Gas, method of and apparatus for carbureting water, Glasgow & Humphreys 581,909
Gas mixer, G. Alderson 581,930
Gas or oil engine, F. S. Mead 582,073
Gas, process of and apparatus for making carbureted water, Humphreys & Glasgow 581,911
Gate. See Lattice gate.
Gate, J. S. Hillman 581,723
Gear wheel, P. Davies 581,812
Glass blowing machine, N. W. Hartman 582,158
Glazier's point setter, W. S. Mallard 581,960
Glazier's triangle set, W. S. Mallard 581,961
Gold saving apparatus, J. Marshall 581,886
Grain drier, J. E. Turney 581,794
Graining device, P. Olsson 582,083
Graphophones, etc., record cylinder for, W. Kaisling 581,728
Grate, fireplace, E. Finch 582,049
Grate, water heating fire, Phillips & Gerber 582,023
Grater, E. Gilmore 582,014
Grinding machine, O. S. Walker 581,838
Gun, magazine, E. J. Cashmore 582,040
Guns, single trigger mechanism for dropdown, J. Robertson 582,094
Hammer or tool, magazine, T. S. Smith 582,103
Handle or grip for ropes or cords, J. Eakins 581,853
Harness cockeye, J. R. Cameron 581,807
Harvester, J. Macphail 581,916
Harvesting machine, E. G. Watrous 581,797
Hat brim pouncing machine, C. S. Peck 581,870
Hat, ventilated, J. E. Goodman 581,857
Hay loader, O. & W. Swenson 581,963
Hay rake, folding, A. Stanton 581,786
Hay raking and loading machine, combined, M. A. Keller 581,735
Hoist, air, W. H. Ridgway 582,092
Hoisting bucket, J. E. Gibbs 582,052
Hoisting machine, W. S. Mock 581,754
Hoisting pole, H. H. McClintic 582,079
Hook. See Back band hook.
Hook and eye, Schoeppl & Heeren 581,921
Horse detacher, Griffith & Manes 581,714
Horseshoe blank finishing machine, C. T. Starbuck 581,924
Hose gate, C. H. Smith 582,027
Hose nozzle spraying attachment, A. L. Hatch 582,125
Hose supporter, P. Mullane 581,868
Hot water system for buildings, Q. N. Evans 581,705
Hydraulic lift, Wincqz & Machepy 581,799
Incandescence, support for mantles used in lighting by, J. B. De Lery 581,866
Inclinometer, W. M. Morton 581,938
Index for books, W. D. Kerr 582,130
Indicator. See Station indicator.
Inhaler, E. S. Grigsby 582,124
Iron, purifying, E. H. Saniter 581,942, 581,943
Ironing board, R. C. A. Jones 582,129
Ironing table, ladder and bench, combination, R. V. Inglish 581,727
Jacketed can, W. A. Sexton 581,947
Joint. See Tube joint.
Journal bearing, E. S. Daugherty 581,955
Key and permutation lock, combined, C. Wichert 581,971
Key opening can, F. Kinsey 581,937
Kitchen cabinet, J. M. Curtice 581,697
Knitting machine, J. E. Rowe 581,887
Ladder coupling or lock, extension, F. S. Seagrave 581,776
Ladling device, R. T. Walker 581,949
Lamp, F. A. Curtis 581,879
Lamp bracket, W. C. Homan 581,991
Lamp burner, H. Haab 581,957
Lamp, electric arc, M. S. Okun 581,997
Lamp hood, incandescent gas, W. L. Voelker 581,894
Lamp overflow protector, E. A. Clingman 581,977
Lap or game board, W. White 581,897
Last graduator, C. B. Hatfield 581,721
Latch, gate, S. O. Campbell 582,039
Lath, metallic, M. Hegbom 582,016
Lath, metallic, J. Wock 582,150
Lattice gate, Ruemmler & Kuechle 582,098
Lawn or garden sprinkler, H. Hoch 582,017
Lawn sprinkler, H. L. Aulls 581,876
Lawn sprinkler, J. H. Smith 581,785
Letter box, Tibbits & Heberling 581,892
Liquid applying device, E. R. Bathrick 581,899
Loading or unloading apparatus, H. C. Domeyer 582,117
Loading or unloading articles into vessels, apparatus for, B. J. Harris 582,057
Lobsters' claws, device for holding, J. B. Clauser 581,976
Maps, manufacture and mounting of relief, D. M. Haines 581,716
Measuring instrument, astatic electrical, A. Raps 582,090
Mechanical movement, L. Goddu 581,818
Mechanical movement, H. A. W. Wood 581,839
Metal, machine for making expanded, J. F. Golding 581,713
Micrometer gage, E. C. Clapp 582,154
Mill. See Coffee mill. Rolling mill.
Milling machine, C. C. Newton 582,081
Miner's tool, J. W. Bray 582,112
Moulding apparatus, N. Shaw 581,781
Mop wringer, W. H. Dixon 581,698
Music leaf turner, J. Fletcher 582,050
Musical instrument, J. E. Walker 582,030
Musical instrument blowing device, R. W. Pain 581,764
Musical instrument, mechanical, A. J. Cuendet 581,961
Musical stringed instrument, O. Breiby 581,688
Napping machine gearing, E. McCreary 581,759
Napping machines, friction gearing for driving, E. McCreary 581,760
Net fastening, fly, J. D. Duncan 582,156
Nipple, C. S. Heller 582,159
Nozzle, spray, P. Fuerbringer 582,051
Nut lock, D. F. Allerton 582,032
Nut lock, A. P. Dwiggins 581,702
Nuts, machine for making lock, J. C. Richardson 582,146
Ore crusher, W. L. Morris 581,756
Oyster tongs, E. Cubel 581,696
Paint, metal, W. S. Depew 582,046
Pants guard, C. A. Rominger 582,096
Paper box, R. P. Brown 581,900
Paper clip, W. W. Cole 581,901
Paper cutter, C. Seybold 581,779
Paper feeding and folding mechanism, E. P. Sheldon 582,026
Paper making machine suction box, M. D. Keeney 581,731
Pen cleaning attachment for inkstands, P. Higgins 582,127
Penholder, E. A. Kinley 581,738
Penholder, W. C. Mulder 581,757
Pencil leads and manufacturing same, F. W. Musson 582,133
Pencil sharpener, S. F. Gibson 581,883
Pencil sharpener, C. McCarrick 582,078
Photographic printing frame, T. B. Perkins 581,831
Photographic shutter, W. V. Esmond 581,864
Photographing machine, automatic, J. F. Radders 581,938
Piano action, R. E. Cobb 582,155
Piling bars, apparatus for, S. V. Huber 581,934
Pin card, F. Neuss 581,763
Pincers, gem, E. Clarkson 581,810
Pipe coupling, T. C. Nixon 582,022
Pipe coupling, combination soft and hard metal, J. B. Dockery 582,137
Pipe wrench, J. P. Kennedy 581,737
Planter, peppermint, A. M. Todd 581,966
Planting machine, corn, A. J. White 581,798
Planting machine, seed, W. Jarrell 582,067
Plaster, cement, etc., machinery for making slabs of, R. W. Hitchins 582,060
Pliers, J. T. Smith 582,001
Plow, A. Cayatte 582,041
Plow, J. H. Jones 582,018
Plumbing attachment, C. H. Rollins 582,148
Potato cutter, A. T. Dowden 581,850
Precious metals, apparatus for extracting, E. Motz 582,077
Printing carpet yarns, apparatus for, W. Shaw 582,025
Printing machine, S. C. Hurlbut 582,161
Printing machine, A. F. Tuttle 581,795
Projectile, J. B. Semple 581,946
Pulverizer, ball, W. L. Morris 581,755
Pump, H. C. Hansen 581,719
Pump, J. H. Kester 581,936
Pump operating mechanism, R. H. Drought 581,853
Punch, Woods & Brown 581,875
Railway, R. C. Sayer 581,773
Railway, electric, H. C. Reagan, Jr 581,769
Railway switch, G. W. McGee 581,761
Railway switch operating device, G. W. Downes 581,701
Raisin seeder, F. H. Chase 581,809
Rake. See Hay rake.
Ratchet wrench, J. Ellebrecht 582,013
Ratchet wrench, E. T. Evans 581,905
Reclining chair, self-adjusting, G. Stoermer 581,888
Reeling machine, W. H. Haslam 582,059
Refrigerator or cooler, H. M. Burt 582,037
Rock drill, W. Wood 582,109
Rocker, spring, M. W. Neuens 581,762
Rod coupling, T. C. Munz 581,917
Rolling mill, T. L. James 581,993
Rolling mill catcher's table, S. V. Huber 581,935
Rolling mill for rolling out file blanks, etc., W. Gross 581,820
Roof leader, etc., R. C. Tucker 581,893
Rubber overshoe, J. F. O'Brien 582,082
Sad iron stand and heater, G. J. Raiser 581,941
Saddletree, harness, R. Miller 581,747
Salicin compound and making same, L. Sell 581,833
Sandpapering wheel, G. Stickley 581,787
Sash lock, window, F. Severio 581,778
Sawmill set works attachment, Downey & Burns 582,047
Sawing machine, portable, L. J. Voisard 581,796
Screen. See Window screen.
Scythe snath fastener, M. Smith 581,923
Seat. See Vehicle jump seat.
Sewer trap, T. F. Macdonald 581,744
Sewing looped fabrics, machine for, J. H. Musgrove 581,758
Sewing machine, T. A. Macaulay 581,828
Sewing machine, carpet, H. Eschweiler 582,118
Sewing machine, sole, L. Goddu 581,817, 581,819
Sewing machine, two-needle, E. H. Harris 581,822
Shearing machine, animal, S. F. Allen 582,031
Shelf bracket, T. Corscaden 581,979
Shelf bracket, sheet metal, T. Corscaden 581,980
Shell and fuse, high explosive, H. P. Hurst 582,063
Ships' boats, apparatus for raising or lowering, B. Leslie 582,069
Shirt, W. Michelfelder 581,746
Shirt, E. Oppenheim 582,145
Shoe, R. C. Secker 581,777
Shoe, J. Walden 581,927
Shutter fastener and bower, combined, Sharp & Congezer 581,871
Sifter, E. A. Shaw 581,872
Signal wire carrier, J. Chalmers, Jr 581,932
Signaling circuit apparatus and system, selective, G. W. Whittemore, et al 582,107
Silver coatings, depositing metals on, C. Schwabe 581,775
Skein silk, yarn, thread or similar strands, holder for, Eichhorn & Evans 581,983
Skirt adjuster, bicycle, H. B. Rennie 582,091
Skirt elevator, J. L. Gourley 581,884
Skirt supporter, M. Gair 581,709
Sled attachment for wagons, P. Henseler 581,989
Smokeless economizer furnace, H. A. Wheeler 581,970
Soap article, L. S. Samuel 581,920
Sole leveling or beating out machine, J. J. Heys 581,825
Spanner for cyclists, etc., adjustable, J. Harrison 581,823
Spindle for slubbing, roving or similar machines, A. Kirschner 581,913
Spinning and twisting frame, Martin & Tolman 581,745
Spoke socket, H. A. Kendall 581,736
Sprayer or sprinkler, regulating, R. P. White 581,874
Sprinkler. See Lawn sprinkler. Lawn or garden sprinkler.
Stand. See Display stand. Sad iron stand. Tripod stand.
Station indicator, B. E. Byrd 582,038
Steam boiler, W. H. Drake (reissue) 11,599
Steam boiler, H. L. Freeman 582,121
Steam boiler, S. E. Light 582,019
Steamer and temperer, wheat, H. D. Pratt 582,087
Steering gear, vessel, H. A. Spiller 582,104
Step, extension, S. R. Hamilton 582,056
Stethoscope, W. H. Wigmore 581,929
Stone sawing machine, Wincqz & Machepy 581,800
Stone, templet and clamp for forming and dressing, D. Mann 582,072
Stopper. See Bottle stopper.
Storage apparatus, C. G. Armstrong 581,803
Stove, C. M. Allen 581,974
Suction box, M. D. Keeney 581,733
Switch. See Electric switch. Electric circuit switch. Railway switch.
Table. See Folding table. Ironing table.
Table slide, extension, H. J. Durgin 581,956
Tack driver, A. E. Kuhns 582,142
Tack puller, G. L. Donovan 581,982
Telegraphic apparatus, C. F. Eaton, Jr 582,157
Telegraphy, C. F. Eaton, Jr 581,815
Thermometer, recording, Comey & Parker 582,043
Thread cutter, L. C. Hathaway 581,720
Thread cutter and holder, combination, A. Holm 581,862

(*Continued on page 318.*)