

RECENTLY PATENTED INVENTIONS.

Electrical.

DYNAMO ELECTRIC MACHINE.—Charles P. Scheuritzel and John L. Hess, Brooklyn, N. Y. According to this invention, the armature is formed of coils of equal length made separately and applied to the armature to overlap each other and form a regular series around the armature core, there being a novel arrangement of commutator brushes, whereby the current may be given from the coils singly in succession or from two or more coils in parallel, and the generator and motor being operated upon an open or closed circuit plan.

Mechanical.

CAN MAKING MACHINE.—Mathias Jensen, Astoria, Oregon. This invention covers improvements on formerly patented machinery for similar purposes by the same inventor, to increase capacity and insure certainty in capping and crimping cans after they are filled, without spilling the contents, the invention covering various novel features and combinations of parts.

HORSESHOE HAMMER.—George T. Peters, Butte City, Montana. The face of this hammer has two sides extending at an obtuse angle and both having a roughened surface, the apex of the face being flattened and left blank, making a hammer specially adapted for quickly and conveniently sharpening calks and toes for horseshoes, and fitted for use from either side of the anvil.

TOOL FOR POINTING MASONRY.—Jesse A. Blanchard, Duluth, Minn. This tool has two opposed plates loosely connected, between one edge of which the wedge-shaped member of a handle is adapted to enter, a heart being inserted at the opposite edge, making a tool especially adapted for masons' and bricklayers' use, and which may be employed to face the mortar between the courses as desired.

BOOK-LETTERING MACHINE.—George H. Reynolds, New York City. Mounted on the frame is a vertically reciprocating head block, with a central slot and front and rear guide ribs, pallet-carrying loops engaging the ribs, and other novel features, forming a machine designed to facilitate book finishers' work.

Agricultural.

SEED DROPPER.—Albert J. Helvern and William B. Schwalm, Walton, Ind. Combined with the seed drop bar, lever, and actuating mechanism, is an endless chain belt, an adjustable weight connected with the lever, friction rollers carried by the belt engaging the weight, making an attachment for planters with which is connected a marking device to effectually check the rows.

SAFETY CLEVIS.—James F. Forrest, Poyntette, Wis. This device has two members, of which one is pivotally connected by an ordinary clevis with the end of the plow beam, and the other to the whiffletree to which the team is hitched, forming a simple and durable device by which the team will be detached from the plow when the latter strikes a rock, root, or other obstruction.

Miscellaneous.

CLOTHES LINE PROP.—William B. Adams, Greenfield, Ohio. This is an extensible prop stick for the support of stretched and filled clothes lines, whereby the line may be held at the desired elevation, while the stick may be closed together to reduce its height, affording a light and compact device.

VENT BOX.—Walter E. Warner, Brooklyn, N. Y. This box has ventilating surfaces, a bottom outlet, an aperture in one side surrounded by a coupling, and means for attaching the body to a support, being designed for use in connection with the plumbing system of buildings, the boxes discharging any foreign matter entering and providing at all times for a perfect circulation of air.

BEDSTEAD ATTACHMENT.—James B. Hill and William D. Gohn, Zilwaukee, Mich. This is an outrigger device consisting of a mattress frame having at one end a hook adapted to drop over and grasp the top edge of the bed rail, with a hinge connection at the other end to permit the mattress frame to be swung around and folded behind the head board, the device being designed to take the place of a cradle or crib for accommodating a baby at the side of the bed.

CAMERA STOP.—Lyman G. Bigelow, Chattanooga, Tenn. By this invention the stop or diaphragm for a photographic camera is made with a central opening surrounded by an annular network, or a translucent or transparent film, tinted or lined or stippled, to cut off only a portion of the marginal rays, the light passing freely through the center, the design being to soften the image while retaining its clearness of definition.

PALATE PLATES.—Ludwig Pritzius, Ludwigshafen-on-the-Rhine, Germany. This invention relates to the making of caoutchouc plates for artificial teeth, and provides an apparatus by means of which the plates may be accurately moulded and rendered hard and dense, the apparatus being free from danger of explosion during the manufacture.

DIE FOR MAKING JEWELRY.—Henry B. Veit, New York City. A longitudinally channeled steel stock is provided, adapted to receive a series of independently engraved or embossed dies, to form different combinations, clamping plates and screw bolts being secured to the ends of the die stock to hold the dies in place, the composite die being as efficient as a solid die, and accomplishing a saving of expense in a factory manufacturing jewelry.

CANNON PINION FOR WATCHES.—Frank P. Allen, Fort Gaines, Ga. This invention provides means for adjusting the cannon pinion to the arbor of the center wheel with a constant frictional contact, a concave spring being interposed between a shoulder on the arbor and the inner end of the cannon

pinion, while a concentric countersunk screw holds down the pinion on the arbor and compresses the screw.

SEWING MACHINE.—Clarence Harman, Omaha, Neb. This invention covers improvements in the shuttle-carrying mechanism, the stop motion, and the feed mechanism and regulator, designed to make a simple, strong and inexpensive machine which will be as efficient in operation as more complicated machines.

FIRE ESCAPE.—George W. Bowman, Red Cliff, Col. This escape is made in the form of an easy chair, so constructed that in its descent a guy tape or rope will be so wound as to return the chair from the ground to the elevation it had descended from, a simple form of brake being provided whereby the occupant of the chair may regulate the rapidity of its descent.

SASH BALANCE.—William Cashner, Pleasant Hill, Mo. By this invention the upper and lower sashes are supported by suspension cords secured to pulleys actuated by springs contained in them, the pulleys being on a shaft journaled in bearings in uprights to turn in either direction, and both the springs being called into play by the lowering of either sash.

BELL CORD ATTACHMENT.—George A. La Fever, Selkirk, N. Y. In connection with a clamping device for holding the cord is held a knife or chisel and operating mechanism to cut the cord, the device being designed for attachment to railway cars, to cut the bell cord when the cars separate accidentally.

SPRING HINGE.—Herman A. J. Rieckert, New York City. The hinge casing has one closed end in which is a helical spring against which rests a sliding ring having a cam-shaped opposite face and means to prevent its rotation, a pivot or pintle entering the open end of the casing and having the face of its inner extremity shaped to correspond with the cam face of the ring, the hinge being adapted to support heavy doors and render them self-closing.

BOLT.—Frank W. Wallace, Utica, Miss. This invention relates to double bolts arranged at the top and bottom for half doors which meet in the middle, divided window shutters, etc., and provides for simultaneously operating or drawing such bolts, instead of pulling on a hanging chain for the upper bolt and drawing the lower one by hand, etc.

LAWN SPRINKLER.—Robert Franken, Pomona, Cal. This is a sprinkler in which the force of the water automatically revolves the discharge pipe to distribute a fine spray of water around, the stand pipe having an air chamber thereon, and a joint sleeve extending throughout the length of the guide tube, with other novel features, whereby the head joint is made water-tight, and any leakage is avoided.

POULTRY DRINKING FOUNTAIN.—Glenn C. Burrell and Edwin H. Roblee, Canisteo, N. Y. This fountain has a reservoir and trough fitted in a heater receptacle, whereby the water supplied is heated while in both the reservoir and trough, and the water will be kept in a clean and wholesome condition and furnished in sufficient quantities for the poultry.

COMBINED BED AND LOUNGE.—Henry Burgess, Chicago, Ill. Combined with the frame is a folding back adapted to be let down into the frame into a horizontal position to complete the bed, the article having the ordinary appearance of a lounge, and being capable of use as a lounge and as a receptacle for bed clothing.

HAT OR BONNET BOX.—Andrew C. Mack, Portland, Oregon. This box is made of triangular shape in cross section, of card board or other suitable material, and preferably foldable, the construction being specially designed for the packing of millinery, hats or bonnets for shipment, so that the hat will be held stationary and the trimming cannot be crushed.

WAIST AND SKIRT.—Camille Caen, New York City. This is a combination garment so made that all the under garments may be attached to a single waist, to which the skirts and other underwear are so connected that their weight is sustained mainly by the hips, leaving the waist and adjacent parts of the body untrammelled.

SHIRT AND SUSPENDERS.—Herman Peiter, Norwalk, Conn. According to this invention, two endless bands are secured to the shoulder portions of the shirt around the armholes, on the interior, and pendant suspender pieces are extended through slits in the shirt to the rights of the endless bands, there being adjustable button straps on the suspender pieces.

PAINT.—John H. Baker, Chicago, Ill. This paint is composed of linseed oil, white lead, water, plaster of Paris, a drier, and other ingredients, in specified proportions, designed to make a paint that will be thoroughly water and weather proof, and will not crack, blister, or become sticky with exposure to the sun or weather, while also being a non-conductor and not affected by frost.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

THE CHEMISTRY OF IRON AND STEEL MAKING AND OF THEIR PRACTICAL USES. By W. Mattieu Williams, F.C.S., F.R.A.S. London: Chatto & Windus. 1890. Pp. ix, 420. Price, \$3.00.

The well known author of this book, having been formerly chemist in the works of Sir John Brown & Co., of Sheffield, may be considered as speaking *ex cathedra* in treating of iron and steel. The subject is one of never-ceasing interest to the modern scientific reader, and Mr. Williams' distribution of material exhibits peculiarly good judgment. Starting with the ores of iron, their reduction and dissociation, the blast furnace, puddling, manipulation, and physico-chemical changes of iron and steel are treated. Impurities and their effect, the Bessemer process, and a theory of steel are suggestive titles. Under fluxing, the author gives

his theory of soldering, to which, however, full adherence can hardly be given. It is exceedingly doubtful if resin used as a flux in soldering reduces the oxide of tin, as the heat is so low. This is the theory proposed by the author. In treating of sal-ammoniac as a flux he curiously omits the analogous effect produced at ordinary temperatures on mercury by an aqueous solution of mercuric chloride. Any one who has worked with the blowpipe will also be inclined to doubt his theory of the volatilization of borax carrying with it a dissolved oxide in the brazing process.

THE CENTURY DICTIONARY. Vol. 4. M to P, inclusive. Pp. 1323, 1,500 illustrations. The Century Company, New York.

The fourth volume of this monument of American scholarship does as much as its predecessors to establish the character of the book. It is really of dual character. It is in the first place a dictionary. As an instance of this the editors cite the word *put*, which is treated etymologically and lexicographically in seven columns, including 17 definitions and 149 special phrases. But to keep abreast of the times a quantity of special words, trade and scientific terms, had to be given. These in many cases are illustrated with cuts in the text. From these the work acquires an encyclopedic cast. Thus its possessor will have at once a dictionary of about 225,000 words and an encyclopedia. Our space, it is evident, is quite insufficient for a review of this really magnificent work. We trust in the future to notice the successive volumes, of which two are yet to come.

SCIENTIFIC AMERICAN BUILDING EDITION.

JANUARY NUMBER.—(No. 63.)

TABLE OF CONTENTS.

1. Handsome colored plate of an elegant residence on Riverside Avenue, New York City. Cost \$60,000 complete. Floor plans, two perspective elevations, etc. Mr. Frank Freeman, New York, architect.
2. Plate in colors showing an attractive cottage at Maplewood, Chicago. Estimated cost \$3,000. Perspective view and two floor plans.
3. A cottage at Rutherford, N. J., erected at a cost of \$6,000 complete. Perspective elevation, floor plans, etc.
4. An elegant residence at Chestnut Hill, Pa., recently erected for Mr. Alfred C. Rex. Cost \$30,000 complete. Floor plans, perspective elevation, etc.
5. Sketch and floor plans of a residence at Stockton, Cal. Estimated cost \$10,000.
6. Cottage at Englewood, Chicago. Perspective view and floor plans. Cost \$4,200.
7. Residence on Powelton Avenue, Philadelphia, Pa. Cost \$30,000 complete. Architect Thos. P. Lonsdale, Philadelphia. Floor plans, perspective elevation, etc.
8. A cottage at Jackson Park, Chicago. Estimated cost \$4,000. Floor plans, perspective elevation, etc.
9. Cottage on Munroe Avenue, Chicago. Two floor plans and perspective view. Cost \$900.
10. Residence at Wayne, Pa., from plans prepared by W. L. Price, architect, Philadelphia. Cost \$7,000 complete. Floor plans, perspective view, etc.
11. An attractive country church of moderate size recently erected at Glen Ridge, N. J. Estimated cost about \$15,000. Perspective view and floor plan.
12. Cottage at Lakeview, Chicago. Floor plans and perspective view. Cost \$3,000.
13. A stable combining both beauty and convenience, erected for Mr. A. C. Rex, at Chestnut Hill, Pa. Cost \$1,800. Plans and perspective.
14. A cottage at Austri, Chicago, Ill. Cost \$4,300. Two floor plans and photographic view.
15. Sketches of park entrance lodges.
16. Engraving of the Woman's Temperance Temple, Chicago, Ill., as it will appear when finished. Estimated cost of the Temple \$1,100,000.
17. View of Whitworth Memorial Hospital.
18. Miscellaneous contents: The marble industry.—Lighting streets of London.—Mahogany ties and marble bridges.—Staining floors.—The Peruvian temple of Pachacamac.—How to catch contracts.—Black birch.—Some of the merits.—Improve your property.—The Scientific American a help to builders.—An improved article for plastering, tiling, and cement work, illustrated.—The Sinclair double rocker, illustrated.—An improved veneer press, illustrated.—Our last year's volume.—The Albany Venetian blinds, illustrated.—A convenience for hospitals, families, etc., illustrated.—The education of customers.—The Buffalo hot blast heating system, illustrated.—The "Willer" sliding blinds, illustrated.—Mueller's water pressure regulator.—Artistic wall decorations.

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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.

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(2672) Optician writes: 1. It happens quite often in my business that I receive rubber eye-glass frames as well as zylonite eye-glass frames, broken, for repair. I do not know of any method by which such broken frames could be successfully rejoined without the use of wires, etc., and you would greatly oblige me by explaining to me the method required to accomplish it. A. You cannot satisfactorily mend these articles. A special cement is sold for zylonite, but there is little chance of your securing a good joint without riveting. 2. I would also like to know if there is a fluid or chemical compound that will make old steel frames for eye-glasses blue again, or if there is any way to blue any steel frame outside of the heating process. A. After polishing, lacquer with shellac and alcohol colored with aniline or Prussian blue. 3. How to polish or rather repolish the brass parts of a telescope or microscope if they are shop work, so as to look like new again, possessing that goldish, fine appearance? A. For polishing use putz pomade, followed by the finest rouge. The lacquered parts must be coated while warm. The smallest trace of oil will injure the work. 4. How is the gold finish put on opera glasses? A. By electroplating. 5. How can I figure out the power of a telescope, microscope, or field glass? A. As a practical test for small telescopes, etc., look at a brick wall with one eye looking through the glass and the other looking directly at the wall. Count the divisions between the bricks as seen through the glass corresponding to a single brick as seen directly. This gives the magnifying power. For a microscope the following is a practical rule: A stage micrometer is placed in the field, and the instrument is focused on it; with a camera lucida a convenient number of divisions of the micrometer is drawn upon a piece of paper. The divisions are measured and their relation to the true size of the scale gives the magnifying power in diameters. A camera lucida can be improvised from a cover glass fixed at an angle of 45 degrees to the eye piece by a lump of bees-wax.

(2673) W. G. M. asks: 1. What is the cheapest known freezing mixture and how is it used? A. 1 part salt and 2 parts ice, or 1 part nitrate of ammonia and 2 parts water. The latter can be used and then the salt can be recovered by evaporation. 2. What is the least expensive to liquefy sulphurous acid, after it has been converted into a gas? A. Pressure. 3. About what will be the cost per year of operating an electric light plant of eight incandescent lights, the lights to burn about ten hours per day, and not considering the cost of power? A. Four lamps will represent 80 lamp hours per day or 29,800 lamp hours per year, representing