RECENTLY PATENTED INVENTIONS.

Engineering.

ROTARY ENGINE. — Lincoln Hausmann, New York City. This engine has a slotted annular steam chest, an annular disk to which the piston head is attached, fitting in the slot, with a cut-off valve, in combination with levers, connecting rods, and a cam formed on the disk adapted to operate the valve mechanism, with various other novel features.

Railway Appliances.

SHIP RAILWAY CAR.—William Smith, Aberdeen, Scotland. This is a car whereon the ship is designed to be practically water-borne in such a way as to admit of the necessary flexibility of the car to enable it to accommodate itself to changes of gradient without causing undue strain on the vessel, with lateral flexibility of wheel base to admit of the car following curves of the line.

Mechanical.

AUGER.—Francis I. Hoefle, Wilmington, Ohio. The spiral body of this auger is concavo-convex wedge shape in cross section throughout its length, and formed exteriorly to a straight line through the longitudinal axis of the shank, the point of the wedge being outermost and forming the continuous knife edge, whereby the tool will pass through the article to be bored with the least possible friction, and a center will not be needed.

SCREW CUTTING DEVICE. — Henry Westbrook and Robert Burns, Woodstock, Ontario, Canada. This invention provides a new and improved screw-cutting head, which can be made in two segmental parts and hinged together to permit of opening the head for removing the bolt after the desired length of thread is cut, the device being adapted to cut a short, clean and solid thread and requiring very little driving power.

METAL ROLLING MACHINE. — Lyman White, Waterbury, Conn. This is a machine for rolling cylindrical forms of metal, providing a novel and practical manner of housing two pairs of rolls within one frame or head for rolling cylindrical forms either hollow or solid, to reduce their thickness through the entire length or at any point, or to figure, neck, flange, form joints, point or cut the same.

GIN SAW GUMMER.—Joseph E. Booker, and John O. Phillips, Raleigh, N. C. This is an improvement adapted for use in filing gin and linter saws, and designed to leave the teeth of the saw of full length and with keen points, similar to the teeth first formed upon the saw, the machine being capable of adjustment to saws of different diameters and having a steady and positive feed.

BRAIDING MACHINE.—Henry Lauferty, New York City. Combined with the race plate, carriers and braid guide, is a tubular or grooved needle supported from the center of a terminal circle of the race plate, extending at its tip into proximity to the guide, and adapted for the passage of an edge or purling thread, to form purled or raised edges in flat braided fabrics at the time of braiding the body of the fabric.

Agricultural.

GRAIN SEPARATOR. — James H. Calkins, Owosso, Mich. This is an improvement in separators having a vibratory sieve, supported by elastic arms or bars and operated by suitable connections with a crankshaft, the improvement consisting in the means for connection and adjusting the pivoted bars or frame and in adjustable stops for coacting with fixed bumper plates on the sieve frame.

Miscellaneous.

TANK.—Richard A. L. Blondel, No. 60 Hudson Street, Boston, Mass. This invention covers an improvement in discharging devices especially intended for water closet tanks, whereby the discharge or flushing valve, when opened and released, will close slowly or be retarded in its closing movement, with various other novel features and combinations of parts.

HORSE DETACHER. — George W. Harrison, Santa Anna, Texas. The whiffletree is so hinged at its rear end to the whiffletree support that the draught on the whiffletree will tend to hold it in normal position, while the whiffletree may be turned forcibly backward to reverse its trace hooks and release the traces, whereby, in case of a runaway, the horse or team may be quickly released from the whiffletree.

MILK COOLER. — Frederick Stiles, Burnet, Texas. This cooler consists of a main vessel with its upper end open and its walls drawn or inclined, a water vessel being held on such main vessel, with a space between, while an enveloping sheet is arranged to be wet by the water and extended past the space between the vessels, keeping out dust, insects, etc.

PAPER BOX.—John H. Riedell, Brooklyn, N. Y. This is a knock-down box made of two separate parts adapted to be folded and fitted together to form a complete box, the parts of the box to be folded and shipped in a flat state.

FOLDING TARGET. — Charles O. McBride, Muscatine, Iowa. The target provided by this invention is preferably made of a soft, light wood, strengthened by battens, and is designed for parlor use, with darts or javelins, the target being adjustable for height and having legs which may be compactly folded when it is not in service.

CORRUGATED STRUCTURE. — John Mitchell, Auckland, New Zealand. This invention provides a peculiar construction and arrangement of corrugated sheets upon corrugated battens to provide a solid support for the sheets to give them firmness and strength and lessen the liability of their spreading, being depressed, dinted, or shaken with the wind.

BRUSH MAKING MACHINE. — Charles D. Hughes, Brooklyn, N. Y. This is a machine designed to make a complete brush from a single block of wood, the bristles being cut out of the solid block, on which is also formed the handle, the invention consisting of a reciprocating tool holder and a block holder held beneath it and mounted to turn in conjunction with the stroke of the reciprocating tool holder.

SASH FASTENER.—Abraham C. Gandee, Racine, Ohio. This is a device by means of which the upper or lower sash can be raised or lowered to any desired position, and locked therein, or the upper sash alone can be conveniently raised or lowered, the device being simple and durable in construction and very effective.

COMBINED BELT AND SASH. — Adolph Hellenberg, New York City. This belt has a buckle to secure it around the waist, and a fastening device at each side, in combination with a sash of less length than the belt, and having at its ends complemental fastening devices to engage the fastening devices of the belt, the device to be worn in warm weather when the vest and suspenders are discarded, the sash then concealing the waistband of the pantaloons.

ROOFING FABRIC. — William H. H. Childs, Brooklyn, N. Y. This fabric consists of an upper and lower layer of paper or other material between which is interposed a layer of bituminous or other similar material, such material being unwoven, and held in place by cords, ribbons, or other filamentous material, of a thickness uniformly equal to the central layer

BED COVERING.—William T. Doremus, Flatbush, N. Y. This invention provides a bed cover having tubular parallel weighting pockets, in combination with substantially continuous flexible masses or fillings of weighting material applied to the pockets, thereby better protecting the occupant and making the covers less liable to displacement.

SAUSAGE STUFFER. — William B. Allyn, Baldwin, Wis. This is a tying attachment designed to be readily and quickly applied to any sausage stuffing machine, whereby the outer end of the skin may be held in position to retain the filling without being tied, and when the skin has been completely filled, both ends of the sausage may be tied with one knot.

COMBINATION LOCK. — Isaac Livingston, Adolph Blum, August Wollenweber, Leopold Westheimer, and Harry Cohn, of New York City. This is a keyless lock especially adapted for use with traveling bags, etc., and has a latch or keeper with a combination capable of being variously set, with idle knobs corresponding in contour with the operative knobs to puzzle those not acquainted with the lock.

STORE SERVICE RAILWAY. — Edward A. Rorke, Brooklyn, N. Y. According to this invention a horizontally swinging track is employed in connection with the dispatch track and return track, whereby a carrier may be received from the dispatch track and transferred or switched to the return track without lifting the carrier off one track and placing it on the other.

HOISTING APPARATUS. — George H. Warren, West Superior, Mich. This is a device designed to be expeditiously dropped from the shore or dock over a vessel's hatchway, and not be affected by the rise and fall of the tide, being especially adapted for use in removing merchandise and other articles from the hold of a vessel and delivering the same upon the dock or into a vehicle.

BALING PRESS. — James A. Reeder, Corinth, Miss. This is a portable press for baling hay or similar material by pressure from the front end of the press to the rear, where the compacted bale is tied and discharged, the invention providing mechanical devices whereby the follower is forced rearwardly through the hay-receiving chamber into the baling chamber, the bale being discharged through a downwardly swinging rear door.

ELEVATOR. — Charles J. Dudley, Mobile, Ala. Combined with a screw shaft having a right hand thread at one end and a left hand thread at the opposite end are pulleys or drums whose supports are engaged by the screw on opposite sides of the screw shaft, with a driving gear arranged midway between the opposite pulley supports, the arrangement facilitating a compact disposition of the parts.

OPERATING EXCAVATOR BUCKETS.—Frederick B. Barrows, Duluth, Minn. This invention consists of a carriage provided with a tail carriage, a bucket being held on a rope supported therefrom, and a bucket boom with an adjustable fulcrum, making a hoisting bucket specially designed to conveniently and automatically transfer coal, grain, and other articles from one place to another.

EGG TESTER.—Frederick and Charles Buehrig, Minier, Ill. This is a box with a cover having a series of openings to receive the eggs sidewise, a movable egg turner having openings corresponding with the cover openings, and a slight opening leading into the box, through which all of the eggs may be viewed at once as they are simultaneously turned, a tally device automatically registering the number of eggs tested.

BINDING CLIP FOR PAPERS, ETC.—Harlan H. Ballard, Pittsfield, Mass. This is a spring binding clip having no attached handles for opening it, but with apertures adapted to receive independent handles or levers, of a nippers-like construction, and by the use of which papers or documents thus held can be placed on a book shelf like an ordinary book with no objectionable protrusion from their backs.

EMBROIDERED FLOUNCED FABRIC.—Louis Loeb, Jr., Rorschach, Switzerland. This is a new article of manufacture, wherein one or more flounces are formed with an embroidered free edge and may be produced without requiring the main piece of material to be longer or wider than the finished flounced fabric, while the flounces will be safe against detachment or ripping off by wear or washing.

NEW BOOKS AND PUBLICATIONS.

ALUMINUM. Its history, occurrence, properties, metallurgy, and applications, including its alloys. By Joseph W. Richards. Second edition. Henry Carey Baird & Co. Philadelphia. Pp. xxxi, 511 (494). Price $5.

While this figures as the second edition of a well known work on aluminum already published and is due to the same author, it is really, to a great extent, a new book. It is greatly enlarged, and with a very full index forms an admirable repertory of what is known to the present day about the metal. Numerous illustrations are used where necessary, and an excellent index closes the work. Whether much or little can be predicted of the future uses of aluminum, this work may, at least, be said to give all that is known of its nature, preparation, and manipulation to the present day. The success attained by the previous much smaller edition of this work, an edition now exhausted, moved the anxiety of the public to know more about the "metal of the future." Mr. Richards in bringing up to date his original work, and his publishers in putting it into its present attractive shape, have undoubtedly ministered to a popular demand. We commend it to all interested in its subject in its many bearings, whether as regards production in the metallurgical works or general uses in the mechanical arts.

CAWKER'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY. Milwaukee, Wis.: Riverside Printing Company.

This is a compilation by the well known editor of the *United States Miller and Milling Engineer*, and is a book likely to prove extremely valuable for all who wish to reach and communicate directly with those engaged in the American flour and grain trade.

POOR RICHARD'S ALMANAC. G. P. Putnam's Sons. New York. Price $1.

In addition to the quaint sayings of Poor Richard, consisting of the prefaces, proverbs, and poems of Benjamin Franklin, as originally printed in Poor Richard's Almanacs, from 1733 to 1758, it contains a facsimile of the front page of one of the quaint old almanacs and a portrait of Benjamin Franklin "printer, Philadelphia, near the market."

Received.

BELLA'S BLUE BOOK. The story of an ugly woman. By Marie Calen. Translated from the German by Mrs. J. W. Davis. Illustrated. Worthington Co. publishers.

THE MORTGAGE FORECLOSED. A story of the farm. By E. H. Thayer. Belford, Clarke Co. publishers.

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 next issue.

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.
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.

(2301) Pasadena asks how to crystallize small fruits of all kinds. A. The following process may meet your requirements. Make a sirup from a pound of sugar and a half pint of water, stir until the sugar is dissolved, then boil quickly about three or four minutes. Try by dipping a little in cold water. If it forms a small ball when rolled between the thumb and finger, it has attained the desired degree, known as the "ball." Throw the fruit to be conserved a little at a time into this sirup, let it simmer for a moment, lift with a skimmer, draining free from all sirup. Sprinkle sugar thickly over boards or tin pans, place the fruit over it in a single layer, sprinkle over thickly with granulated sugar and place in the oven or sun to dry. When dry, make a sirup as before, and just before it reaches the "ball" degree add the fruit, stir with a wooden spoon until it begins to grain and sticks to the fruit. When cold, sift off the sugar and put out again to dry. When dry, place in boxes in layers between sheets of waxed paper. Keep in a cool, dry place.

(2302) J. M. A. writes: I made a large plunge battery described in Hopkins' "Experimental Science," and I used bichromate of soda for exciting fluid, and the current it produced became so hot as to burn the wire and insulation. I then tried bichromate of potash, with no better results. Please tell me the cause of its getting hot and how I can remedy it. I made the battery according to directions, and also the solution. Does the size of wire have anything to do with it heating, if so let me know the kind to use. A. Your trouble lies in your wire. It is too small. Use No. 12 or 14. The heating of the wire and burning of the insulation indicates that your battery is a success.