

## ENGINEERING INVENTIONS.

A steam engine has been patented by Mr. Peter S. Rush, of Atlanta, Texas. It has three cylinders, the pistons of which are connected in the usual way with the main shaft, steam being supplied by rotary valves as their ports are uncovered in such way as to obviate a dead center position, while the pressure of the live steam will be advantageously utilized.

A car step has been patented by Mr. Lewis W. Sheldon, of New York City. Combined with a lower main step having vertical slots in its riser is an auxiliary step with side pieces to pass through the slots when the step is folded, a strap hinge connecting the top of the riser of the auxiliary step with the lower main step, with other novel features, making a convenient folding step.

A pinch bar has been patented by Mr. John S. Yinger, of Manchester, Pa. The bit has a shank bearing against the under side of the bar proper, and a point or prong extended at approximately a right angle from the forward end of the shank, with guide lugs and fastenings, the device being very simple, and intended to act without slipping when ice, snow, oil, etc., may be on the rail.

An injector has been patented by Mr. Ferdinand Brunbauer, of Vienna, Austria-Hungary. It has two concentric steam tubes, the inner one endwise movable, forming a steam way of ring shaped section, adapted to operate a cut-off valve by the movement of the inner tube, in combination with a fixed conical valve for the inner tube, a valve seat on the tube, and means for adjustment of the tube, with other novel features.

A car truck has been patented by Mr. Ferdinand E. Canda, of New York City. It is more especially for use in mounting street car bodies, and is so designed that the car body is mounted upon and supported by posts that are free to tilt upon their connections with the car trucks, providing for the more easy passage of the car around curves, and for mounting the two pairs of wheels farther apart, with other advantages.

## AGRICULTURAL INVENTION.

A hay stack binder has been patented by Messrs. David F. Laughlin and Charles F. Leslie, of Clyde, Kansas. It is a cord or wire tightening device, adapted to be conveniently carried around, and to be readily attached to the binding cords or wires and take up the slack until they are securely tied around the stack, to prevent hay from being blown away or scattered by high winds.

## MISCELLANEOUS INVENTIONS.

A trunk harness has been patented by Mr. Charles H. Van Orden, of Catskill, N. Y. It is a binding device for trunks, boxes, etc., so made as to go around and have a tightening strap or rope applied for easily drawing the harness tightly.

The manufacture of emery forms the subject of a patent issued to Mr. William Ihne. It consists in first burning, then cooling and afterward reducing, iron ore or raw iron outcroppings, or material composed mainly of silica and aluminum, and subsequently separating and sifting it into different grades.

A lubricator has been patented by Mr. George Rupley, of Duluth, Minn. It is a novel form of lubricator applicable for use in connection with fixed bearings, having a cup and piston with threaded stem so arranged that by turning a nut the lubricating material will be forced out to the bearing.

A mantel cabinet has been patented by Mr. William C. Doscher, of New York City. The base is provided with sliding blocks in combination with ornamental corner pieces adjustably attached, whereby the cabinet may be made to fit a mantel of any width and always present a handsome appearance.

A refrigerating device has been patented by Mr. Henry W. Speight, of Brooklyn, N. Y. It consists of an inner receptacle around which the cold waste water from an ice box is made to circulate, being especially adapted for butchers' use in keeping meats cool at small cost.

A sand box for street cars has been patented by Mr. Charles Clark, of Brooklyn, N. Y. It is held beneath the seat, over an opening in the floor of the car, in combination with a vertical and horizontal tube, and a valve under the control of the driver, for supplying the track when needed, as in the case of freezing weather or when the tracks are slippery.

A paper box has been patented by Mr. John F. Diemer, of Elizabeth, N. J. The box body has flaps which are locked in place on a metallic plate of peculiar construction, the box opening at one end so that it can be used single or with a sliding box for various purposes, especially for storing letters and other documents.

A curtain shade fixture has been patented by Mr. Robert P. Trimble, of Oregon, Mo. It is for sustaining the curtain shade roller and lambrquin rod at the upper part of the window in such a manner as to permit the same to be quickly applied or removed and adjusted higher or lower, as may be required for purposes of better ventilation.

A railway spike and method of making it has been patented by Mr. Thomas A. Davies, of New York City. It is a plate spike, with a general taper for its entire length, and formed with a diagonal head, a tapering plate being first formed with a flange at one edge, and the blank then being cut into narrow strips diagonally across from edge to edge.

A brick kiln has been patented by Mr. Lawrence Manning, of Nokomis, Ill. The invention consists of a draught pipe leading from the outside to the pit, so as to concentrate the heat either in the center of the arch part or on both sides of the kiln simultaneously, for burning the bricks quickly in the centers as well as at the sides of the kiln.

A chemical fire kindler has been patented by Mr. Nils Johanson, of Muskegon, Mich. It

is made by pressing in a conical mould a small quantity of "excelsior," such as used in the furniture trade, inclosing it in a binder of zinc, then immersing the pointed half in liquid paraffine and the base half in resin.

A weighing scale has been patented by Mr. George W. Craig, of Grimm's Landing, West Va. This invention provides a framework and weighing apparatus designed more particularly for weighing heavy bodies, as railway cars and locomotives, loaded wagons, live stock, etc., and one which is of simple and cheap construction and accurate means for adjustment.

A composition to be used as a non-conductor of heat has been patented by Mr. Nicholas J. Clayton, of Galveston, Texas. It consists of cottonseed hulls or waste treated with a solution of alum or its equivalent, combined with plaster of Paris and comminuted materials, and prepared for use in a manner specially described.

A pie holder has been patented by Mary Jory, of Salem, Oregon. It consists of trays within a specially devised frame for holding them one above the other, the frame being composed of a strip of metal bent twice at right angles, with its extremities parallel with each other and its central part forming a handle.

A wire cloth delivering reel has been patented by Mr. Silas E. Ratekin, of Kansas City, Mo. It consists of a vertical post to which is pivoted a roll holder capable of being turned from a vertical to a horizontal position, making a reel for properly supporting such rolls for exhibition, and for delivering portions of the fabric therefrom.

A camera stand has been patented by Mr. Thomas Powers, of Perryville, Mo. The bed is made capable of being raised or lowered and of being adjusted to occupy different angular positions, the invention covering a novel construction, with certain automatic stops for operating the bed or platform and for holding it at its different adjustments.

A grater cylinder has been patented by Mr. Sidney E. Smith, of Brooklyn, N. Y. It is designed for grating cocoon, vegetables, and other substances, the cylinder being formed with numerous passages in which are inserted short plates of metal to form teeth, the device being cheaply made and very effective.

A fire escape has been patented by Mr. Edward Sutton, of Brooklyn, N. Y. It consists of a frame provided with cleats and holding a ladder, together with rods, a pulley, shaft and drum, with ratchet wheel, ropes, and various other features, which can be easily placed in readiness for firemen to ascend or to lower persons from a burning building.

An amalgamator has been patented by Mr. Carl M. Stolle, of Bellevue, Idaho Ter. It has tapering cylinders, to facilitate the passage or tailings from one end to the other, and they are of polygonal form, to cause the tailings to be thrown from one plane surface to another with a force which promotes separation of the gold and its adherence to the plates.

A fastener for envelopes, etc., has been patented by Mr. Paul E. Gonon, of New York City. The fastener consists principally of three parts, an elastic band, a clamp provided with prongs and longitudinal slits, and a hook or button, the clamp being secured to the flap of the envelope by pressing the prongs through the material and then bending them flat on the inner side.

A pocket book clasp has been patented by Mr. Louis B. Prahár, of Brooklyn, N. Y. It has an outer sliding plate and an inner plate, in combination with an intermediate plate formed with an opening and with integral tongues set out from the face of the plate to form friction springs at the side of the opening, the device being cheap, practical, and not liable to get out of order.

A knockdown crate has been patented by Mr. John T. Aikin, of Purdy, Mo. The invention covers certain novel features of construction and the combination of parts in a crate adapted for the shipment of produce or general merchandise, which shall be simple and inexpensive, and may be knocked down into comparatively small space for return to the shipper.

A support for electric conductors has been patented by Mr. Maurice J. Hart, of New Orleans, La. The invention contemplates the erection of towers at the intersection of streets of sufficient height to support all electric conductors above the top of the highest buildings, with intermediate posts supporting girders, the construction being also adapted for supporting water pipes and for use as a fire escape.

An improved boot top and method of forming it have been patented by Mr. John T. Gray, of Gray, Dakota Ter. The invention consists principally in forming the front section with a fold or swell adjacent to the lower ends of its edges at the rear of the vamp, whereby the vamp may be quickly fitted to the concave waist of a last without straining the leather.

A bridle blind has been patented by Mr. William W. Ross, of Saratoga, Kansas. Its side leathers have extensions for attachment to the check straps, in combination with a stiffening wire bent in a curve and interposed between the leathers, in such way that the wire acts to stiffen the blind and thus dispense with the necessity of a stiffening plate in the body of the blind.

A tension regulating attachment for loom shuttles has been patented by Mr. Pierre Ashby, of Central Falls, R. I. It is of metal, and consists mainly of a U-shaped case in which is mounted a tongue, apertures adjustable relatively in the case and tongue affording means of varying the tension from the bobbin as desired, making greater uniformity in the weaving of the cloth, especially at the side edges.

A nut lock has been patented by Mr. George W. Roberts, of Walla Walla, Washington Ter. Combined with a slotted bolt and nut is a locking piece

consisting of a short heavy shank, formed on its end with an oblong eye, the interior surface of which flares at the ends to correspond with the taper of the upper side of the conical section of the bolt, and at the sides to correspond with the taper of the sides of said conical section, with other novel features.

A machine for drawing metals has been patented by Mr. Henry R. Kennedy, of Ithaca, N. Y. Combined with a revolving cup having a central aperture and a central annular recess are balls held in the recess and placed alongside of each other, a die having a central aperture and serving to hold the balls in place, and a fixed stripping plate having a central aperture located above the die, with other novel features, making an improved machine for drawing sheet metal, tubing, or wire.

An anti-freezing device for water pipes has been patented by Mr. Donald McDonald, of Louisville, Ky. Combined with a stationary case and attached hollow base with valves connecting with the water pipes, a floating weight is arranged to act on a lever, while an air pipe connects with the top of the case with means for automatically admitting air on a fall of temperature, together with other novel features, the invention being an improvement on a former temperature alarm device of the same inventor.

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ELECTRICITY TREATED EXPERIMENTALLY. By Linnaeus Cumming, A.M. New York, 1887. D. Van Nostrand. Pp. xiii., 389.

This work, designed for use in instruction in high schools, is to be highly recommended. It gives an extremely clear view of the subject matter, with a number of illustrations. The cuts are many of them old friends, as is necessarily the case, but others are new, and all are apposite and appropriate. After treating of magnetism, static and dynamic electricity, a concluding chapter is devoted to absolute units in the C. G. S. system. A table of contents is provided, but no index accompanies the work.

CHOIX DE METHODES ANALYTIQUES DES SUBSTANCES QUE SE RENCONTRENT LE PLUS FREQUEMMENT DANS L'INDUSTRIE. Par Georges Krechel. Paris, 1887. George Carre. Pp. 477.

In this book the author proposes to furnish to practical manufacturers methods for analysis of the general class of commercial products. His work is hardly intended for professional chemists. It gives one method which the author has selected as the best for each analysis, so that the user has not to choose from a variety, but has a suitable process at once presented. The objects to be analyzed are treated under the general divisions of inorganic and organic, and a great deal of ground is thus covered. Though the modesty of the author is discernible in his preface, where his tendency is to restrict the