

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

METALLIC TIE.—Samuel McElfatrick, Princeton, Ky. This is an improvement on a formerly patented invention of the same inventor, providing a tie with but little metal, so disposed as to make the tie very strong, and in such form that it can be rolled at little cost, and readily applied to the rails without the use of bolts or spikes. The tie consists of two parts, each of a general T shape in cross section, the flat or top portions of the parts being adapted to fit together, and one of the parts having its upper web portion cut away to receive and clamp the outer edges of the rail bases, while the other part has such web portion cut out to fit and clamp their inner edges, thus holding the rails securely.

CAR COUPLING.—Henry W. Dennis, Natick, Mass. In the head of the drawhead of this coupling is an opening having a spherical recess in its bottom, and the coupling link has a head with a segmental offset on its under side engaging this recess, thus forming a ball and socket joint between the drawbar and the link. The link is secured to a projecting arm from a shaft mounted on the end of the car, and engages the vertical slot of a dog pivoted in the drawhead, while there is a lifting device to lift the dog out of its normal position to uncouple the dog and link. The construction is simple and durable, the coupling being automatically effected as the cars come together, and it not being necessary to go between the cars to uncouple them.

CAR COUPLING.—William S. Campbell, Hamer, S. C. This invention covers an improvement in couplers of the side latching or Janney type, the device coupling automatically with another coupler of the same kind, and the uncoupling being effected from either side of the car. A latch block pivoted in a front enlargement of the drawhead has a lateral jaw and a rearwardly extending limb engaging a tumbler block pivoted in the drawhead chamber, a pivoted locking dog in this chamber having a lip interlocking with a lip on the tumbler block, while a looped plate spring in the drawhead bears on the tumbler block and locking dog.

CAR COUPLINGS.—James H. Swindell, Reidsville, Ga. Two patents have been issued to this inventor for couplers of comparatively simple and inexpensive construction, and easily operated, designed to facilitate the automatic coupling of cars as they come together, and permitting uncoupling without going between the cars. In one of the inventions there is combined with the drawhead a link lifter having crank arms or levers supported by plates pivotally secured to the drawhead, the supports being held to rock and slide on the drawhead, and projected and retracted to support and release the arms. By means of the link lifter the link is adjusted in position to couple with an approaching drawhead. To uncouple, the coupling pin may be raised by means of a cord or chain extended to any convenient position on the car, or by a transverse shaft having crank handles at the side of the car. In the other invention, besides the same general features of construction, the double-armed coupling pin has its guide arm provided with a shoulder engaged by a spring latch, there being automatically operating devices to release the latch.

STREET CAR FENDER.—William Leonard, Baltimore, Md. This is a device formed of pneumatic tubing and coiled springs, made into a framework projecting from the car just above the track, so as to travel over ordinary obstructions, but designed, on striking a person, to yield and become partially compressed, pushing the body forward, and thus preventing fatal accidents. It is of inexpensive construction and designed more especially for use on cable and electric cars.

Electrical.

CLOSED CONDUIT FOR ELECTRIC RAILWAYS.—Archibald J. Martin, Philadelphia, Pa. This invention provides a tube made in longitudinal sections, having its conducting section insulated from the other section, with conducting stems passing from the conducting section through the other section, and with metal track slips on the outside of the tube. The inclosing jacket of the conducting section has its edges caught and retained between the sections of the tube, and a filling of non-conducting material is placed between the jacket and conducting section. The conductor and its attachments are designed to be placed under ground in a conduit, though they may be otherwise used.

JUNCTION BOX.—James J. Powers and Robert Van Buren, Brooklyn, N. Y. This is a connection box and fitting for electrical conduits, to permit of laying the conduit without break, and at the same time allow of making connections without disturbing the conduit. A conduit section of clay or similar material is provided with longitudinal holes and a side opening, while a metallic fitting to the side of the conduit section has inwardly projecting, apertured ears, with eye bars entering the holes of the conduit section, and bolts passing through the eye bars and the ears of the fitting.

Agricultural.

CULTIVATOR.—Charles H. Harmon, Donald McRae and Alexander McRae, Milton, Oregon. This is a light weight and strongly built machine, designed more particularly to cultivate summer fallow ground, destroying the weeds by cutting them off below the surface and turning them up to die, while the shovels stirring up the ground clear themselves of all trash. The shovels are horizontally arranged, and have vertical standards held for vertical and rocking movement, a rocking movement being imparted to a front and rear series of standards in reverse direction. As the shovels are lowered into the soil they have a sidewise movement to cut off the weeds at a point below the surface, first presenting a cutting surface to the ground and then releasing.

STUBBLE-LAND WORKER.—Edward Hovey, Devil's Lake, North Dakota. This is a strong and simple machine, having but few parts, by which stubble land may be worked without plowing or harrowing. Upon forward and rear frames pivoted upon the axle are shafts, the forward one carrying rigid teeth slightly curved, and the rear shaft having spring teeth with

greater curve, there being a sprocket operating chain connection between the forward and rear shafts, while upon the central axle are teeth, revolving between the teeth at the front and rear, to keep them clear from weeds, etc.

HORSE HAY RAKE.—Charles L. Dittmore, Post Falls, Idaho. An attachment whereby the rake head may be raised and lowered at the option of the driver is provided by this invention, the rake head being moved up and down in a steady and uniform manner. On the supporting axle to which the rake is pivotally attached are mounted ratchet wheels turning in opposite directions, and latches carried by the rake head are adapted for engagement with each ratchet wheel, there being trip devices with which the latches engage. A train of gearing utilized for raising and lowering the rake may be varied in combination, that the rake may be operated rapidly or slowly.

CHURN.—Daniel A. Fiske, Sioux City, Iowa. This churn has an outer water space, by means of which the cream may be kept at the desired uniform temperature, and an inner cream receptacle, the cover inclosing both the outer and inner vessels. In the cover is a vertical slot, in the center of which the dasher moves, and through which air is admitted to the cream while it is being churned. The churn may be conveniently operated and easily kept clean.

FRUIT PICKER.—George E. Hawes, Palatka, Fla. This is a hand device by means of which one can with one hand conveniently clip the stems of the fruit and allow the fruit to fall into a bag held below and attached to the cutters, without injuring the fruit, the other hand being left free. An open-ended case has a slot through its sides at the open end to receive the stem of the fruit, finger-operated cutting blades working in the case, and a spring controlling the movement of a sliding blade.

Miscellaneous.

AMALGAMATOR.—Nathan L. Raber, Corvallis, Oregon. This is an improvement in machines employing mercury, providing simple means whereby the pulp, sand, etc., are properly directed to the mercury, and for keeping the mercury constantly sensitive. The main frame has a series of steps upon which the mercury cups are independently supported in connection with devices to direct the material from each step into the mercury cup of the next lower step. The adjustments are independently effected, so that either the main frame or the mercury cups may be adjusted to different angles to the horizontal without necessitating a corresponding change in other parts.

REFRIGERATING SHIP.—John McIntyre, Jersey City, N. J. The main body of the hull of the vessel consists of a storage compartment in which may be placed fruit, meat and other perishable freight, the compartment having a false perforated bottom forming an air distributing chamber to which air is admitted under pressure from a chamber supplied by a blower, there being in the latter chamber a coil of pipe through which a cooling fluid is forced.

FLUE BRUSH.—Joseph H. Davis, Sewickley, Pa. This brush is composed of a tube with rows of apertures for the passage of the bristles, which are bent in the middle and passed through the apertures, a wire back of each row of apertures passing inside the loop of each bunch of bristles, while a tubular lining forms a cover for the wires and bent-over portions of the bristles. Each bunch of bristles is thus completely protected by the lining, and the brush will last until the bristles are worn off at their outer ends.

LIFTING JACK.—Herman Reichwein, New York City. An upper lifting section of this device has a sliding movement in the divided upper end of the base section, and the lift lever comprises a handle and a segmental toothed head fulcrumed between the upper members of the lower section, while a segmental gear eccentrically pivoted in the lifting section meshes with the teeth of the head of the lift lever. The device is very strong and simple and may be used as a wagon jack or wherever a jack is required.

MEAT WEIGHING APPARATUS.—John T. Tavener, Parkersburg, W. Va. This is an apparatus for weighing bacon or other meat, where it is desired to weigh and cut off a part of an undivided whole, allowing one, two, or more pounds to be cut off, as desired, without cutting pieces too large or too small. The scale platform consists of a box or frame having a series of adjacent independently compressible counterbalanced supports. The meat is adjusted along the supports until the desired quantity to be cut off is ascertained, when a division line between the supports of different sections indicates the line of cut to divide the weighed from the unweighed quantity.

FORMING GLASS DOMES.—Hugo Heckert, Halle-on-the-Saale, Germany. Flanged glass domes may be conveniently and rapidly formed from flat glass plates, for optical and other purposes, by a method patented by this inventor, which consists in clamping a flat glass plate at its edge between rings, and then subjecting the clamped plate to heat, to permit the middle part of the plate to sag to form a dome-shaped glass or bowl, a larger or smaller dome being thus formed, according as the heat is more or less intense. This method may be utilized for making concave and convex mirrors, lenses, and other articles for optical purposes.

DOOR LOCK.—Bradford S. Miles, Gray's Summit, Mo. This is a combined lock and latch of durable and inexpensive construction, and designed to be as reliable as others which are more expensive and complicated. A pivoted swinging latch bolt is arranged to normally project from the lock case and engage a beveled hasp or hasp plate, in combination with rotatable operating devices and pivoted locking devices of novel character, the parts of the lock falling to their places by gravity alone, thus avoiding the friction of springs.

BREAST STRAP ATTACHMENT.—Horace B. Forbes, Ogden, Utah Ter. Two overlapping and detachably connected plates are adapted to be secured upon a breast plate, one of the plates being provided with a projecting staple or loop for connecting with a pole strap. The attachment, applied to the breast plate of an ordinary single harness, adapts the harness for use as a dou-

ble harness, thus in many cases obviating the necessity of keeping two sets of harness, and enabling two horses, when provided with single harness, to be hitched into a double rig.

COMPOSITION FUEL.—Harriet Carter, Brooklyn, N. Y. According to this invention the following named ingredients are mixed to form a composition for saving fuel: Powdered and sifted hard coal ashes, granulated hard coal, sand, fire clay, and salt, in specified proportions, water being added and the composition being formed into balls and baked. After the balls have become incandescent in a fire they add largely to its heat, and are designed to retain their form for a continued use of more than a week.

HOISTING DEVICE.—John Motheral, Mendon, near North McGregor, Iowa. This is an improved derrick, which is also capable of use for grubbing or stump pulling, the invention being an improvement on a formerly patented invention of the same inventor. The device may be mounted on a post for use as a derrick, or on a stump or grub for grubbing, and the construction is such that the derrick arm may be removed from the body and quickly stepped in it, either before or after the body of the machine has been mounted on its support.

SPONGE OR BREAD-RAISING OVEN.—William O. Silvey and Lemuel Shiftet, Middleport, Ohio. This device comprises a shell having an opening at the bottom, perforations near the top, and a removable cover, a bread pan being supported in the top and a lamp for heating purposes in the bottom, there being also a central horizontal partition with an air space around its edge. The device provides a simple means for maintaining an even temperature in the pan, and is an improvement on a former patented invention of the same inventor.

BOOT CLEANER AND POLISHER.—Sigmund Bonne, Nuremberg, Germany. This is a machine in which a revolving cleaning brush, a revolving dauber, and a revolving polishing brush are all loosely, independently, and adjustably mounted, to be operated by steam or foot power as the operator holds the boot or shoe, which is first cleaned, the blacking being then applied, followed by the usual brushing to produce a polish.

ANIMAL GUN.—Breese Riggs, Crowley, Oregon, deceased (Seth Riggs, executor). This is a device for use in extermination of gophers, moles, etc., being operated by the animal approaching the muzzle, the gun having been placed in advantageous position. The barrel is connected by a sleeve with a detachable breech tube, facilitating the introduction of the cartridge, and the firing pin is locked in set position by means of a trigger connected with a tripping rod placed in the path of the animal.

WATCH CHARM.—Benjamin G. Stauffer, Bachmanville, Pa. This is a calendar device, with a box-like body, adapted to receive a series of calendar cards, a transparent cover being hinged to the body, the hinge having an eye for attachment to a watch chain. A bezel overlying the edges of the cards forms a follower to retain compactly the remaining cards as their number is reduced.

Designs.

TABLE KNIFE.—Peter McGuigan, Ashland, Wis. According to this design the knife blade, a short distance from the handle, is broadened and concaved, the lines of the blade at the back narrowing in front of and behind the concaved part.

HEATING STOVE.—Rodney F. Schermerhorn and Ferdinand S. Weller, Quincy, Ill. In the ornamentation of this stove its doors are framed by a band having ornamental figures, there being also scroll figures and volutes above the doors and around the base. The cap or top piece also has foliate scrolls, and the latch represents a scroll.

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.

SOAP MANUFACTURE. By W. Lawrence Gadd. London: George Bell & Sons. 1893. Pp. x, 244. Price \$1.50.

We again have a book intended to meet the requirements of students of the City and Guilds Institute of London, one therefore, to a certain extent, restricted in its scope and conforming to statutory requirements. Nevertheless the little work, which is well illustrated and has a satisfactory index of contents, will be found of value to soap makers, especially as revealing approved English methods of conducting the art.

A MANUAL OF DYEING: FOR THE USE OF PRACTICAL DYERS, MANUFACTURERS, STUDENTS, AND ALL INTERESTED IN THE ART OF DYEING. By Edmund Knecht, Christopher Rawson, and Richard Loewenthal. London: Charles Griffin & Company, Limited. Philadelphia: J. B. Lippincott Company. 1893. Pp. x, 907. Two volumes of text. One volume pattern sheets. Price \$15.

This work, although its text is in two volumes, is consecutively pagged. The second volume contains an independent title page, so that the purchaser may keep it in two volumes or not, as he chooses. The third volume contains a great number of samples of dyed goods pasted six to a page, with the dye used and its mordant or developer stated in each case. A total of 144 samples are contained in the book, covering, largely, of course, the coal tar colors, but also many of the natural colors. The scope of the work is excellently set forth in its very complete table of contents. The textile fibers, water, washing and bleaching acids, alkalies, mordants, etc., are the matter treated of in the first five parts, making up the greater part of the first volume. The rest of the first volume is devoted to natural coloring matters, running from indigo and logwood down the list to madder, cochineal and gambler. The second volume is devoted to artificial organic coloring matters, mineral colors,

machinery used in dyeing, the tinctorial properties of coloring matters and the analyses and valuation of materials used in the art. A short appendix contains useful tables, while a very excellent index for both volumes of text in one ends the work. To artificial organic coloring matters all of part 7 is devoted, this portion alone making some 263 pages of text. The work seems exceedingly complete, and the eminently practical as well as scientific treatment of the subject will, we are sure, commend itself to all advanced technologists, as well as to the dyer.

STATISTICAL SUPPLEMENT OF THE ENGINEERING AND MINING JOURNAL. The mineral industry, its statistics, technology and trade, in the United States and other countries. Vol. 1. Edited by Richard P. Rothwell. New York: The Scientific Publishing Company. 1893. Pp. xxiii, 623. Price in paper \$2, cloth \$2.50.

This work is the annual statistical supplement of the *Engineering and Mining Journal*, of this city. It includes the statistics of technology and trade from the earliest times to the close of 1892. Under each metal is given its different occurrences, its metallurgy, assaying and trade figures, as may be required in each case. Another section of the work is devoted to the different countries and mining regions, the markets and a vast amount of details whose summarization cannot even be given here. The work reminds one of the government reports published under the Department of the Interior, except that it is naturally fuller and more satisfactory in the matter of markets and finances of the subjects. Besides ores and metals, many other mineral products are treated, so that the work will be found an invaluable one. A double-column solid-set index of nearly 30 pages is the best testimony we can offer to the thoroughness of the work and its value to all.

KNOTS, SPLICES, HITCHES, BENDS, AND LASHINGS. Illustrated and described. By F. R. Brainard, Ensign, United States Navy. New York: Practical Publishing Co. 1893. Pp. 76. Price \$1. No index, no contents.

The illustrations and descriptions contained in this little work make clear the ways of making a reasonable variety of such knots as are most in use by the sailor. The subject is an interesting and a popular one and will, as far as the work goes, be found satisfactorily treated by Ensign Brainard.

Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & CO., 361 Broadway, New York.

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3. A handsome dwelling at Plainfield, N. J. Perspective views and floor plans. A model design. Messrs. Hartwell & Richardson, architects, Boston, Mass.
4. A dwelling at Utica, N. Y., erected at a cost of \$4,700 complete. Floor plans, perspective view, etc. Mr. W. H. Symonds, architect, New York. An Old Colonial style of architecture.
5. Engravings and floor plan of the Fairfield Congregational Church at Fairfield, Conn., erected at a cost of \$52,000. Messrs. J. C. Cady & Co., architects, New York City.
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