

RECENTLY PATENTED INVENTIONS.

Engineering.

**HEATING FEED WATER.**—Gregory M. Mullen, Baltimore, Md. This is an improvement in devices by which the feed water is heated by steam and water from the boiler, the water supplied from the pump or other feeder being discharged into the heater, where it circulates and is heated by steam and water fed to the steam and water spaces of the heater, passing to the boiler at a comparatively high temperature. A pipe conducts the condensations in the steam space of the heater back into the boiler in such manner as to partially heat the feed water before it reaches the heater proper.

Railway Appliances.

**CAR VENTILATOR.**—Alexander A. Miller, Goldsborough, N. C. This improvement not only supplies fresh air to the cars, but also carries off the smoke and cinders from the stack and discharges them at the rear of the train. Near the smoke stack is arranged a fan chamber, from which a pipe leads to cooling chambers in each car, from which valved discharge pipes lead to hooded discharge ends near the car seats. A damper in the smoke stack is arranged to overcome the exhaust blast and cause all the escaping products of combustion to pass into a pipe extending rearward over the cars to the rear end of the train.

**FREIGHT CAR DOOR.**—John J. Mulligan, Vicksburg, Miss. This is a metallic door which, when closed, will closely hug an extension of the door opening, and when opened slightly will hang perpendicularly free from the extension of the door casing, having wheeled and guided action upon the outer surface of the car in such manner as to enable the freight handler to readily expose the entire door opening. Devices are also provided whereby the door, when closed, will be automatically carried to a binding engagement with the extension of the door frame.

**CAR DOOR PACKING.**—Ferdinand E. Canda, New York City. A novel arrangement of packing tubes and bearing edges, in conjunction with the door frame and door of a car, are made, according to this improvement, to form a durable packing for hermetically sealing the doors of refrigerator cars. When the door is closed the meeting corners of the door and frame present only a narrow edge or ridge to the exposed surface of the packing tubes, and only a slight effort is required to force the door onto its seat, compressing the tubes. The several tubes for one joint are made in the shape of a frame having at one of its sides an inlet opening suitable for connection with an air pump.

Electrical.

**COMMUTATOR.**—Harry Lee Fee, New Orleans, La. An improved means is provided by this inventor for preventing the short circuiting of coils of armatures where the terminals of the coils are connected with flexible arms extending radially from the commutator wires. The improvement consists in slipping over the free ends of the commutator wires insulating thimbles, preventing contact between the outer ends of the bars, the form of the thimble varying to adapt it to machines of different sizes and kinds.

**ANNUNCIATOR SYSTEM.**—Alonzo L. Vogt, Delaware, Ohio. This system is based upon the plan of arranging a code of signals for the parties between whom communication is to be held, there being electrical connection, so that the signals may be made by a push button, and is more especially designed for expediting communication between physicians and their patrons, and to insure accuracy in the reception and transmission of written messages and electric calls and signals, as well as to facilitate the filling and prompt delivery of prescriptions for patients.

**SUBMARINE MINE FIRING APPARATUS.**—Giulio Bertolini, Venice, Italy. This apparatus is designed principally to prevent vessels entering harbors and similar warlike purposes, by the electrical explosion of submarine mines or torpedoes at the required time. It is also adapted for use for the firing of guns on board ship or in a shore battery. The main part of the apparatus consists of an instrument for closing an electrical circuit through any one of several torpedoes or guns with which it is connected by suitable conductors.

**COIN-OPERATED TELEPHONE SWITCH.**—Charles F. Brown, Yarmouth, Canada. The coin chute, according to this improvement, forms part of the local circuit, as does also a spring stop arm held normally in the path of coin dropped in the chute, and there is a mechanical connection between the stop arm and the gravity switch. On calling the central station and removing the receiver from the gravity switch, a coin dropped in the slot rests against the spring arm, permitting conversation over the line, but when the receiver is replaced on the gravity switch it moves the spring arm and drops the coin into a receiver, leaving the circuit open.

**PRECIPITATING METAL SULPHIDES.**—Henry Hirsching, Salt Lake City, Utah. This invention relates to precipitating metal sulphide out of a hyposulphite solution, such as hyposulphite of sodium, hyposulphite of calcium, etc., containing precious and other metals, from being in contact with compounds of ores, chloridized, calcined, or raw, by subjecting the insulated hypo solution to the action of an electric current from an external and independent source. The precipitate settles rapidly and the clear hypo solution is used over again in the leaching vats for further dissolution of precious and other metals.

Mechanical.

**SCREW CUTTING MACHINE.**—Casper W. Mettler, Boonton, N. J. This machine is designed to completely form slotted head screws from a rod or piece of wire in a very rapid and economical manner. The whole operation is automatic, the rod being fed forward and turned down to form a shank, which is then threaded, the head is measured off and the screw grasped by a special device, cut from the rod, and delivered to the slotting device, which cuts the slot in the head and delivers the finished screw to one side of the machine.

**WRENCH.**—Lewis P. Davidson, Owen, Wyoming. This is a tool of very strong, simple, and inexpensive construction, which may be quickly and conveniently adjusted, and which has shoulders on the lock-nut by which the distance that the nut must turn cannot be miscalculated.

**CONSTRUCTION OF LATHES.**—Carl A. Windmuller, Chemnitz, Germany. According to this improvement the slide rest has a guided movement on the bed of the lathe and is provided with a slotted lateral extension to which is hinged a socket, a screw secured to the socket passing through a slot in the extension, and there being a nut for locking the socket in relation to the slide rest. The invention also embraces other novel features connected with machinery or tools for turning shafts, flanges, spheres, cones, wheels, hollow channels, screw cutting, etc., as well as for cutting tooth wheels, planing and shaping.

**PORTABLE BORING AND MORTISING MACHINE.**—Edward K. Thoden, Brooklyn, N. Y. This is a wood-working machine to be operated by hand power, and adapted for connection to any suitable firm support, the machine being readily separated into parts which may be conveniently packed and carried by a workman. It has a frame plate with attachable and adjustable support for material and a slidable carrier plate, with means of moving and locking it, in combination with an upright reciprocating and inclinable slide bar, with a rocking support therefor, and on which is a rotatable wood-boring device. Connected also with the slide bar is an adjustable arm with rack teeth, operated by a gear wheel and handle lever, there being an adjustable chisel stock on the slide bar.

**AIR CUSHION FOR SAW MILL HEAD BLOCKS.**—William E. Dean, Ruddock, La. A spring-pressed lever is, according to this invention, pivoted on the head block and a link pivotally connected with the lever, while a dash pot in which works a piston is pivotally connected with the link, a valve controlling the air inlet to the dash pot. The device is simple and not liable to get out of order, but is very effective for relieving the head block carriage and other parts of the mill from the blows or concussions incidental to the canting of the logs toward the knees.

Agricultural.

**PLOW.**—Frederick S. Moore, Hanford, Cal. This is an improvement upon a formerly patented invention of the same inventor, providing means whereby a shifting device may be quickly and easily applied to a single plow, to shift the beam laterally either to the right or left at the handle end of the plow. With this improvement the line of draught may be instantly changed, and the plowshare made to travel closer to or farther from whatever plants may be under cultivation. The device is very simple and inexpensive.

**CIRCLE HARROW.**—Hermann Jaenisch, Tschirnau, near Guhrau, Prussia, Germany. Upon the stationary rear crank axle of this machine is mounted a mechanism by which the harrow may be raised and lowered and also inclined relatively to the ground, or the harrow may be held in raised position when being taken from place to place. The driving mechanism is also arranged to alternately raise and lower the harrow while it rotates, any desired inclination being given to the harrow to bring only one part into action when desired, the machine being operated with great facility.

Miscellaneous.

**MINCING MACHINE.**—Arnold Scheithauer, Berlin, Germany. In this machine the material to be disintegrated is fed along in a casing by a worm or spiral and pressed through a perforated disk. A cross-shaped knife is always pressed evenly against the disk, whether the latter be oblique to the feed screw or not, the boss of the knife being conical or ball shaped, and fitting a recess in the worm around the round pin of the latter, on which the knife and the disks are arranged to give a certain amount of play. The casing is formed in halves, so that the perforated disks may be readily removed to facilitate cleaning.

**GATE.**—William E. Wieland, Los Pinos, Cal. This is a self-closing gate, which is also automatically opened by approaching it, a depressible platform forming the approach. It also has a lock which prevents its being opened except when a certain part of the mechanism is touched. The gate is made without springs, and has provision for excluding snow or rain from the operating mechanism. The gate and its mechanism are sustained by a suitable frame resting upon foundation beams, but without posts entering the ground.

**INVALID BED.**—Joachim Eggert, Berg, Island of Fehmarn, Prussia, Germany. The head and foot boards and side rails of this bedstead may be of the ordinary form, but in the bed bottom or support is a central opening in which is arranged a sliding bottom section, facilitating the giving of needed attention to an invalid, and the patient having substantial support without changing the natural position.

**BILLIARD TABLE, BOOKCASE AND DESK.**—Sterne A. Faribault, Elsdon, Ill. This is a combination article of furniture, of such design that it can be afforded at a very moderate cost. When the bookcase is erect, the case and desk may be used in the ordinary way, but by tipping the case downward and leveling it in a manner provided its back may be used as an ordinary billiard table, being made perfectly smooth and covered in the usual way.

**FOLDING STAND.**—Thomas A. Clarke, Chicago, Ill. A stand which may be readily set up or knocked down and folded to be packed in small space has been designed by this inventor. It is more especially designed for use in hotels or stores for exhibition purposes.

**FOLDING FOOT BENCH.**—Albert Epstein, Breslau, Germany. This is a simple article of furniture comprising a board composed of hinged sections and detachable tapered legs which may be slid one into the other, the board having on its under side means for securing the upper ends of the legs, and leg-receiving re-

cesses which entirely inclose the legs in folded position, so that in the folded state the exterior surfaces of the bench will be substantially smooth.

**PAPER FILE.**—Moritz Krage, Berlin, Germany. In the filing case or portfolio provided by this inventor there is in the back or cover a pad having a penetrable facing and an impenetrable under layer, the latter being held between the facing and under layer, and so that they cannot penetrate the back or cover.

**ATTACHMENT FOR MUSICAL INSTRUMENTS.**—Michael J. Betz, Philadelphia, Pa. This device comprises a sliding button engaged by the free end of a flat spring secured on the under side of the bridge, and on which is pivoted a finger piece, the latter carrying a flexible finger adapted to pick a single string or a number of strings forming the desired chord. The improvement is applicable to zithers and similar instruments, permitting the performer to sound the chords for accompaniments, etc., without striking the individual strings with the several fingers of the hand.

**GOODS EXHIBITOR.**—Daniel B. English and Stephen H. Hinnant, Way Cross, Ga. A suitable case is arranged with drawers one above the other, there being rollers journaled in the drawers and outlets at their front, where display racks are provided, each projecting slightly farther from the front of the drawer than the next upper rack, the racks being composed of inner and outer rods or bars. The case is especially designed for keeping and exhibiting dry and fancy goods, as lace, edgings, embroideries, ribbons, etc.

**COLLAR AND COLLAR STIFFENER.**—Stephen D. McElroy, New York City. A shell made of linen or other fabric is made the desired shape of the collar, according to this invention, and the lower edge of the shell is left open, forming a compartment to receive a stiffening plate of sheet metal, cardboard, celluloid, or other material to retain the shell in proper shape. When the collar is to be washed the stiffening plate is removed, the shell only being washed.

**REFLECTING PROPERTIES IN JEWELRY, ETC.**—Joseph Esser, Barmen, Germany. To produce light-reflecting properties, according to this invention, a pattern is produced on a reflecting foundation plate, different parts of which differently reflect the light, while a transparent cover plate is likewise provided with a pattern and placed on the reflecting surface. The base plates may be made of aluminum, silver, etc., and the cover plates of celluloid, horn, tortoise shell, amber or tracing cloth. The invention is particularly adapted for the production of buttons and articles of bijouterie.

**ATTACHABLE FILTER.**—Thomas C. Andrews, New York City. Whether a hydrant nozzle or water tap is exteriorly threaded or is smooth, this filter is readily attachable thereto, and is designed to effectively cleanse and deodorize water passing through it. It has a removable cover, a central screen cup, and concentric porous cup filled with silex, there being a perforated disk above the porous cup, while the case is packed with granulated charcoal. Connection is made with the water faucet by a yielding ferrule insertible in the neck of the filter cover.

**OPENING LEVER FOR BAIL STOPPERS.**—William Noe, Marconner, N. J. This lever has a forked outer end to receive the bottle neck, and loop-receiving recesses in the arms. It is a very simple device for application to the ball of a stopper to force the latter from a bottle without applying the fingers or hand to the ball.

**VENT PEG FOR BEER CASKS, ETC.**—John P. Harding, London, England. A rotary plug valve is combined with this peg, the valve being normally turned to closed position by a spring, and being tapered and held to a tapered seat by another spring which permits the plug to be raised by excessive internal pressure, the self-closing and self-opening motions being quite distinct, the latter taking place only to relieve too high gaseous pressure generated in the cask by continued fermentation.

**BUILDING BLOCK.**—Octavius B. Schmall, Cincinnati, Ohio. These blocks are interlocking and have each a longitudinal series of ducts and parallel key slots across their ends between the ducts, keys being fitted in such ways to interlock the adjoining ends of the blocks and form partitions between the ducts. These blocks are adapted to form walls of buildings, underground conduits, pavements, etc., when used in buildings, improving their sanitation and increasing the lateral strength of the walls, as well as affording ready means of forming electrical or other conduits.

**MAGIC TOY.**—Ross Armstrong, Onawa, Iowa. To magically illustrate the coining of money from blanks, as a source of amusement, is the object of this toy, which consists of a die in the form of a drop bottom adapted to receive the blank, there being a coin receptacle over the die to trip it, remove the blank and deposit a coin in its place.

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.

**STANDARD TABLES FOR ELECTRIC WIREMEN, WITH INSTRUCTIONS FOR WIREMEN AND LINEMEN, UNDERWRITERS' RULES, AND USEFUL FORMULÆ AND DATA.** By Charles M. Davis. Fourth edition, thoroughly revised and edited by W. D. Weaver. New York: The W. J. Johnston Company, Ltd. 1893. Pp. 128. Price \$1.

This book is altogether a practical one. The fourth edition having been reached, in spite of the lamented death of the author, indicates its value. To make it still better in the future, suggestions from those using it are cordially invited by the publishers. A short index and a number of very clear diagrams of different elements of electric lighting are given.

**THE CORLISS ENGINE** (by John T. Henthorn) AND ITS MANAGEMENT (by Charles D. Thurber). Edited by Egbert P. Watson. Third edition, enlarged. With an appendix. By Emil Herter. New York: Spon & Chamberlain. London: E. & F. N. Spon. 1894. Pp. 95. Price \$1. No index.

The fact that this little work has reached its third edition and is enlarged speaks well for its acceptability to engineers. It is a short, concise work, quite practical, and while its title would indicate its limitation of subject, much that is in it will be found applicable to general engineering practice. Its value would be greatly enhanced by an index.

**BOOKKEEPING AT A GLANCE.** By J. T. Brierley, A.C.A. New York: Excelsior Publishing House. Pp. 141. Price 75 cents.

We quote from the title page an abstract of what this work contains: "Instructions for the correct keeping of books of accounts, and numerous explanations and forms used in a commercial business, showing an entire set of books based upon actual transactions, how to take off a trial balance sheet, and finally close and balance accounts." This shows that the author claims to have produced what must be a very serviceable little work, and we are convinced that it will be found such. A peculiar thumb index is supplied to enable instant reference to the desired parts, whose titles are stamped on the cover. This is a most excellent and useful feature.

**PIGMENTS, PAINT, AND PAINTING.** By George Terry. London: E. & F. N. Spon. New York: Spon & Chamberlain. 1893. Pp. xi, 392. Price \$3.

The composition of the different paints in use by painters, embracing the consideration of a large variety of the same, their examination for quality, the subjects of vehicles and driers for paint, of machinery and painting proper, are the topics treated by our author. The result being the production of a very satisfactory and useful book, telling one what the different trade colors are made of, how they are made and what uses and qualities are the result. Such a work written up to day and date and in a scientific manner has, to a certain extent, been needed, and we believe that Mr. Terry has done technology a service in his compilation.

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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2. Plate in colors showing the residence of Thomas C. Wordin, Esq., at Bridgeport, Conn. Two perspective views and floor plans. Cost \$3,600 complete. Mr. Joseph W. Northrop, architect, Bridgeport, Conn.
3. A colonial dwelling erected for Philip Lucas, Esq., at Mount Vernon, N. Y. Perspective and floor plans. An excellent design. Cost \$7,000 complete. Mr. Louis H. Lucas, architect, Mount Vernon, N. Y.
4. A cottage at Cranford, N. J., erected at a cost of \$5,000. Floor plans, perspective view, etc.
5. Engravings and floor plans of a suburban residence erected at Brookline, Mass. Mr. E. L. Rodgers, architect, Boston, Mass. A very attractive design.
6. A dwelling recently erected at Elizabeth, N. J., at a cost of \$5,500. Floor plans and perspective elevation. Mr. J. E. Baker, architect, Newark, N. J.
7. A new frame schoolhouse at Elizabeth, N. J., erected at a cost of \$16,000 complete. Elevation and floor plans. Messrs. Charlock & Howard, Elizabeth, N. J., architects.
8. A dwelling recently erected for W. E. Clow, Esq., at Buena Park, Chicago, Ill. A picturesque design. Two perspective views and floor plans. Mr. Greg Vigeant, architect, Chicago.
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