

ENGINEERING INVENTIONS.

A grate bar for furnaces has been patented by Mr. James Burrell, of Bristol, Somerset Co., England. The invention consists in a series of rotating shafts provided with plates or bars, and fitted to work between the fixed bars, so as to insure an absolutely clean fire surface, and thus promote combustion.

A dumping car has been patented by Mr. David H. Valentine, of Brooklyn, N. Y. The car is adapted for dumping directly from the truck in the ordinary way, or may be lifted from the truck and swung by a crane to a distance, and then loaded or dumped, the body of the car being readily separable from the truck.

A hand car has been patented by Mr. David H. Beach, of Litchfield, Conn. This invention covers a special construction and arrangement of parts for a portable hand car for railroads, for the use of superintendents and others, in which lightness shall be combined with adequate strength, and a high rate of speed be readily attainable.

A dust guard for car platforms has been patented by Mr. Luther B. Wood, of Omaha, Neb. A curtain is secured on a roller at the corner of the car, with a spring for winding, and other novel features, making a new and improved device for closing the ends of car platforms and excluding wind and dust, the guard being held within a casing within car when not in use.

A regulating valve has been patented by Mr. Ebenezer Hill, of South Norwalk, Conn. The cylinder has an outlet slot and concave lug, the concave side having an elastic metal plate with its edge within the outlet slot, so the width of the outlet slot can be regulated by adjusting a fastening bolt, making a simple mechanism for controlling throttle valves, operating air compressors, controlling dampers, etc.

A car coupling has been patented by Mr. James L. Griffin, of Cusseta, Tex. The drawheads have stationary hooks and recesses in their sides, and pivoted hooks held in place by springs, with trip plate and lever and chains and lever, so the cars will couple themselves when run together, can be readily uncoupled, will uncouple themselves when thrown from the track, and can be prevented from coupling when run together.

A spike extractor has been patented by Mr. Albert W. McCaslin, of Pittsburg, Pa. It has a pivoted claw bar, whereby the extractor may be applied to the head of the spike and fulcrumed upon the rail or upon the tie for drawing the spike, and it is so made that the operator can stand in the middle of the track and draw all the spikes on both sides of the rails, being especially useful in working through tunnels and narrow cuts.

A railroad switch has been patented by Mr. Abraham Ayres, of New York City. This invention consists in the combination, with the stationary frame and the rocking frame of a railroad switch, of a spring attached to one of the parts and pressing against the other, whereby the rebounding of the rocking frame after being rocked is prevented, the invention relating to switches operated by the weight of the horses drawing the cars.

A car coupling has been patented by Mr. Hugh Graham, of Dartmouth, Nova Scotia, Canada. The coupling pin has its lower end curved downward toward the rear, and the pin has on its front an offset or shoulder; from the pin a rod also projects upward, the upper part of the rod being squared and passing through a corresponding aperture in a guide arm, with other novel features, so when the link passes the pin the latter drops and couples the cars.

AGRICULTURAL INVENTIONS.

A check row corn planter has been patented by Mr. Darius M. Culver, of Tipton, Iowa. This invention covers a novel construction and arrangement of parts in a machine to facilitate the planting of corn in accurate check row, constituting a corn planter whose operation is easily controlled to do its work with great exactness.

A harvester reel has been patented by Mr. Frederick Laqua, of Thielmantion, Minn. The reel shaft is made in two parts connected by a sleeve permanently attached to one part and with the other part by a bolt, the object being to secure the delivery of the cut grain upon the apron of the harvester in proper direction to be taken to the binder.

A cultivator has been patented by Mr. Mark T. McGee, of Chipley, Ga. This invention provides means whereby the sulky and plows may be guided to run at an angle with or to one side of the path of the team, and also to hang the plows so that the desired pitch may be given to each one independently of the other, so any plow may be held out of service, and the depth of plowing regulated, etc.

MISCELLANEOUS INVENTIONS.

A vaginal syringe has been patented by Mr. Theodore Kern, of Kokomo, Ind. This invention covers a special construction and combination of parts by which it is intended first to close the vaginal canal, and then to lave or medicate the parts beyond the inclosure by the same device.

A seat attachment for vehicles has been patented by Mr. Frank A. Mackie, of Ocean Grove, N. J. Combined with a tricycle frame, directly over the steering wheel, is a baby seat, whereby a baby may be carried in view of the rider, and without affecting the balance of the machine.

A churn dasher has been patented by Mr. James F. Hale, of Stephenville, Texas. This invention relates to reciprocating churn dashers, concave on their under face, and covers certain special constructions of the several or main parts of such dasher, for giving improved effects to its action.

A fan has been patented by Mr. Max Rubin, of New York City. This invention relates to that class of fans that are closed by being drawn into a case, and opened by being withdrawn from the case,

and has for its object to simplify the construction of such fans and promote certainty in their action.

A clasp for purses has been patented by Mr. Ernst P. Hinkel, of Offenbach-on-the-Main, Germany. It consists of a ball mounted loosely to turn and slide on a tube, a pin projecting from the ball through a slot in the tube, and within the tube a spiral spring, the device being a simple one with positive action.

A refrigerator has been patented by Mr. Washington I. Hall, of Chester, Orange Co., N. Y. This invention covers a special construction and arrangement of parts in a refrigerator to economize ice, promote convenience in use, and allow a more regular temperature to be maintained than is practicable with refrigerators of ordinary construction.

A toy spring gun has been patented by Mr. Francis W. Goodyear, of Springfield, Mass. Combined with the barrel is a slide, an elastic cord being secured to the slide and passed over pulleys at the muzzle end of the barrel, and over a trigger pivoted in the barrel at the butt end, making an improved toy pistol or gun for throwing darts, arrows, etc.

A street lamp has been patented by Mr. H. George Schuette, of Manitowoc, Wis. This invention relates to devices for raising and lowering oil lamps in lamp posts, to allow the lamp being brought down within the post to an opening near the ground, and covers certain improvements on former patented devices of the same inventor.

A chicken brooder has been patented by Mr. Frank Rosebrook, of Elmira, N. Y. It is more especially intended for nursing young fowls hatched in an incubator, combining therefor a special arrangement of casing with heating pipes and fresh air pipes, with strips of flannel or analogous fabric, intended to keep the chicks properly warm.

An expansion fastening for screws and bolts has been patented by Mr. Frederic H. Evans, of Brooklyn, N. Y. The expansion jaws are formed in one piece, with a solid annular base or connection, and expanded by a wedge nut drawn between the jaws by a bolt, so the jaws will not be liable to get out of place or separated.

An improved thill coupling has been patented by Mr. Joseph A. Robison, of Everest, Kan. This invention consists in the combination, with an axle clip having a screw threaded aperture, of a bolt having a loosely mounted tubular nut, making a strong and durable coupling, which cannot work loose, and in which the bolt is prevented from turning.

A box fastener has been patented by Mr. Henry Krog, Sr., of Washington, Mo. Combined with a box having loops or eyes on the top edges of its sides at the ends is a cover with loops on its side edges at the ends, with rods adapted to be passed through the loops or eyes on the box and cover, and thus lock the cover in place, to form a hinge for the cover.

A soil pulverizer and leveler has been patented by Mr. Mr. A. A. A. Funk, of Monticello, Ill. A frame is supported adjustably on wheels, and has at its forward part twisted knives to cut the soil into strips or strips and turn the strips, and at its rear end a steel plate to cut in pieces clods and shave off projecting parts of the soil, to rapidly and thoroughly pulverize and level the soil.

An earth scraper has been patented by Mr. William H. C. Goode, of Sidney, Ohio. The object is to prevent the handles, when the scraper is inverted, from being caught under the single trees, and for this purpose elastic instead of rigid stops are provided, so the elasticity of the stops shall cause a rocking or bouncing of the scraper, and thus facilitate the turning of its back upon its bottom with little effort.

A belt fastening has been patented by Mr. Samuel Bretzfeld, of New York City. It is so made as to make belts conveniently adjustable for waists of any size, a plate being provided with studs and a slot, or a crosspiece forming a slot, one end of the belt being passed through the slot or under the crosspiece, and the studs passed through apertures in the end of the belt.

A two wheeled vehicle has been patented by Mr. Charles D. Adams, of Geneva, Ga. This invention consists in spring gear of novel construction and arrangement, so that a back spring absorbs the motion of the horse, and the suspension tugs of the seat being about midway between the springs, the motion of the seat will be vertical, and not affected by side jerks.

A folding reading desk has been patented by Mr. David D. Bowman, of Eureka, Cal. This invention covers a contrivance of a number of hinged leaves and jointed braces on the upper side and edges of a fixed central top of a pedestal, so that a number of books may be conveniently arranged, the pedestal allowing the desk to revolve freely, and the leaves being arranged to fold into the form of a simple plain table top.

A vehicle brake has been patented by Messrs. John L. McIntosh, Edward H. Bacon, and Theron Vail, of San Antonio, Tex. This invention consists in the attachment of the end of the friction band which connects directly to the shaft to an eccentric pin on the shaft, whereby the band is tightened on the friction drum with a vise-like grip when the brake is fully applied.

A saw mill set works has been patented by Mr. Benjamin E. Sergeant, of Greensborough, N. C. This invention covers a special construction and arrangement of parts designed to accurately and easily advance the log on the head block a definite distance for each cut, the feed mechanism being adapted to be disconnected to permit the knees to be quickly pushed back by direct pressure, thus saving much time.

A strap attaching device has been patented by Mr. John T. Shannon, of Carlisle, Ind. This invention consists of a peculiar form of hook plate having a side plate to which the strap is attached, the hook plate having one or more hooks which are adapted to receive the ring or other object, the device being more especially for use upon harness for attaching straps to rings, buckles, etc., without sewing the straps to the rings.

A flood and sluice gate has been patented by Mr. James S. Brown, of Eureka, Cal. It is vertically movable, having the central guide on one side and additional guides on the opposite side at its vertical edges, the bearing faces of the guides being parallel, in combination with inclined beams to guide the gate in its movement, the construction being such that the gate will not cramp in the ways, and can be easily raised and lowered.

A rain water escape has been patented by Mr. Orion De Kay Townsend, of Isle St. George, O. Combined with a rain water pipe is a hinged gate for closing the pipe or an opening in its side, and a water wheel arranged in the pipe and connected with the lever of the hinged gate, so the water that first flows down the pipe and washes off the roof is conducted out of the pipe, and then the side opening is closed automatically.

A process for refining oils and other hydrocarbons has been patented by Mr. Adolphe Rock, of Parral, Estado de Chihuahua, Mexico. It consists in treating them with lime or other alkaline earth and a body rich in oxygen and deoxidizable in the presence of the alkali, such as manganic and chromic combinations of potash, chromic acid, etc., the process being also applicable for the treatment of tallow, lard, rancid butter, and other solid hydrocarbons.

An electric burglar alarm has been patented by Messrs. John H. Hill, of Long Island City, N. Y., and Joseph E. Babcock, of New York City. The object of this invention is to reduce the resistance when the bell is being sounded, and also to keep the bell ringing if the circuit has been broken by closing the door or window that caused the sounding of the alarm, the armature of an electro-magnet being held in a spring, the tension of which is less than the force of the residual magnetism in the magnet.

Combined shafts and pole for vehicles form the subject of a patent issued to Mr. John Pettinger, of Carpinteria, Cal. A bent bar or hounds has saddles to receive the shafts and fastening springs and links to secure the shafts in place, a cross bar with sockets to receive the ends of the shafts, and the shafts pivoted in the sockets, so that, without being detached, they can be arranged at such distance from each other as to receive a horse between them, or close together to serve as a pole.

A knife for harvesting tobacco has been patented by Mr. Frederick Viesscher, of Mount Sterling, Ky. This invention consists in forming a wedge at or near the juncture of the handle and cutting blade of a tobacco knife, so the wedge will engage and force its way into the pith of the stalk, to guide the knife in its descent and keep it from slipping sideways from the stalk, and cause the split stalk to separate, so as to let the hand of the operator pass between the split stalk without touching it.

A combined heater and ventilator has been patented by Mr. Frank R. Henry, of Murfreesborough, Tenn. This invention relates to fireplace heaters for heating two adjoining rooms on the same floor with one fire, and is more particularly designed as an improvement on a former patented invention in this line, providing that the heat may be shut off from either room if desired, and also that either room may be simply ventilated; it is also intended, by heating one room direct, by the fire from the grate, and the other by radiation from the exposed fire back, to make the fire do double service, and utilize all the heat in the fuel.

NEW BOOKS AND PUBLICATIONS.

THE BOUND VOLUME OF "THE LOCOMOTIVE" for 1884 contains a very creditable amount of information. A series of papers on "Experiments upon Iron and Steel," by the editor, forms a prominent feature of the publication. This, with other articles *expos* to steam boilers, will make the volume of much interest to both manufacturers and engineers. The selection of miscellaneous material has not always been so happy. The paper on aluminum is notably erroneous. It serves the good purpose, however, of bringing forth an entertaining criticism from Dr. Wahl, and of making the editors more cautious in the sequel. As an amusing result, a very sober article taken from *Von Nostrand's* is introduced with an editorial disclaimer of all responsibility.

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.

Billings' Patent Adjustable Four and Six Inch Pocket Wrenches. Billings & Spencer Co., Hartford, Conn.

Blake's Belt Studs. The strongest and best fastening for Rubber and Leather Belt. Greene, Tweed & Co., N. Y.

Best Automatic Planer Knife Grinders. Pat. Face Plate Chucks. Am. Twist Drill Co., Meredith, N. H.

Volney W. Mason & Co., of Providence, R. I., have sent a number of their Friction Pulleys and Clutches for use in mines in Colorado and Montana.

Master Keyed Padlocks and Locks. Factory and Railway outfits. Miller Lock Works, Philadelphia, Pa.

Pat. Geared Scroll Chucks, with 3 pinions, are sold at same prices as common chucks by A. F. Cushman, Hartford, Conn.

Plain Milling Machine.—Length of table, 23 inches. Accompanying machine are wrenches, adjustable hangers, etc. Brown & Sharpe Mfg. Co., Box 469, Providence, R. I.

Cable Railway Grip Patent for sale. Address Wm. Gilday, 452 Lancaster Ave., Philadelphia

Inventor.—Fast-selling household necessity that can be sent by mail, wants active partner. Small capital. F. K. Hickok, 2 West 14th St., New York.

For Sale.—No. 3 Merchants' Ammonia Freezing Machine. Price low. Address Theophilus M. Marc, 43 Exchange Place, N. Y.

Frick Company, Waynesboro, Pa., have for sale a heavy second-hand 1833 engine. Send to them for prices and list of second-hand engines and boilers. All in good order. Prices low.

Wanted.—Second-hand Rowler Ore Crusher. Address, stating price, P. O. Box 521, Trenton, N. J.

The Philadelphia Exhaust Ventilator Co. desire correspondence with manufacturers of machinery and articles in their line, to handle as agents or as consignment. Particular information as to engines and motors desired. The Philadelphia Exhaust Ventilator Co., 121 North 4th Street, Philadelphia, Pa.

Wanted.—The New York Agency of a good machinery specialty. Address, with cuts, A. Rickard, 110 John Street, New York.

Patent for sale or on royalty for Batz's Hand Propeller, illustrated on page 197 SCIENTIFIC AMERICAN, of March 28, 1885. Address M. Batz, 357 Flatbush Ave., Brooklyn, N. Y.

Valuable Inventions for sale. J. Jarvis, Box 404, Toronto, Ontario.

Capitalists willing to undertake sorghum sugar culture (Collier's process). Address Wm. H. Hale, Albany, N. Y.

Valuable Patent for sale.—Cloth measuring machine; cheap to manufacture; is practical; will sell rapidly and pay a good profit. Write for descriptive circular to H. J. Barrows, Armada, Mich.

Peck's Patent Drop Lifters can be attached to any drop. Beecher & Peck, New Haven, Conn.

"How to Keep Boilers Clean." Send your address for free 85 page book. Jas. C. Hotchkiss, 86 John St., N. Y.

The most complete catalogue of Scientific and Mechanical Books ever published will be sent free on application to Munn & Co., 361 Broadway, N. Y.

Stephens' Patent Bench Vises are the best. See adv., p. 283.

Oars to face your course with speed and ease. At Alex. Beckers, Hoboken, N. J.

Shafting, Couplings, Hangers, Pulleys, Edison Shafting Mfg. Co., 36 Goerck St., N. Y. Send for catalogue and prices. Air Compressors, Rock Drills. Jas. Clayton, B'klyn, N. Y.

The Best Upright Hammers run by belt are made by W. P. Duncan & Co., Bellefonte, Penna.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

The leading Non-conducting Covering for Boilers, Pipes, etc., is Wm. Berkefeld's Fossil Meal Composition: 3/4 inch thickness radiates less heat than any other covering does with two inches. Sold in dry state by the pound. Fossil Meal Co., 43 Cedar St., N. Y.

Every variety of Rubber Belting, Hose, Packing, Gaskets, Springs, Tubing, Rubber Covered Rollers, Deckle Straps, Printers' Blankets, manufactured by Boston Belting Co., 226 Devonshire St., Boston, and 70 Reade St., New York.

Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with 45 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

Write to Munn & Co., 361 Broadway, N. Y., for catalogue of Scientific Books for sale by them.

Wanted.—Patented articles or machinery to manufacture and introduce. Lexington Mfg. Co., Lexington, Ky.

Mills, Engines, and Boilers for all purposes and of every description. Send for circulars. Newell Universal Mill Co., 10 Barclay Street, N. Y.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 361 Broadway, New York.

Linen Hose and Rubber Hose for all purposes. Greene, Tweed & Co., New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

For Steam and Power Pumping Machinery of Single and Duplex Pattern, embracing boiler feed, fire and low pressure pumps, independent condensing outfits, vacuum, hydraulic, artesian, and deep well pumps, air compressors, address Geo. F. Blake Mfg. Co., 44 Washington St., Boston; 97 Liberty St., N. Y. Send for catalogue.

Send for catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 270.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Curtis Pressure Regulator and Steam Trap. See p. 285.

Woodwork'g Mach'y, Rollstone Mach. Co. Adv., p. 284.

Wood Working Machinery. Full line. Williamsport Machine Co., 110 W. 34 St., Williamsport, Pa., U. S. A.

Anti-Friction Bearings for Shafting, Cars, Wagons, etc. Price list free. John G. Avery, Spencer, Mass.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. DuGeon, 24 Columbia St., New York.

Hoisting Engines. D. Frisbie & Co., Philadelphia, Pa.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 284.

Hull Vapor Cook Stoves.—Best in the world; sell everywhere. Agents wanted. Send for catalogue and terms. Hull Vapor Stove Co., Cleveland, Ohio.

Experimental Tools and Machinery Perfected; all kinds. Interchangeable Tool Co., 313 North 2d St., Brooklyn, N. Y.

Catalogue of Books, 128 pages, for Engineers and Electricians, sent free. E. & F. N. Spon, 35 Murray Street, N. Y.

The best Steam Pumps for Boiler Feeding. Valley Machine Works, Easthampton, Mass.