

RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM ENGINE VALVE GEAR.—Lemon O. Burk, Corning, Ark. To permit of conveniently reversing the engine and delivering the steam directly into the ends of the cylinder, this inventor has designed a simple and durable valve gear designed to be very effective in operation. The reversing link is rocked from the main shaft, and a block sliding in the link is connected by a rod with the valve stem, a raising and lowering device for the rod moving the block in the link. The device consists of an adjustable rock shaft having an arm with an eye through which the connecting rod slides. The steam chest has openings at its ends and removable cover sections, there being valve casings in the ends of the casing, and the middle portion of the chest forming the chamber for the live steam.

DOUBLE ACTING PUMP.—Frank J. Brown, Alfred Allen, and Solomon Allen, Halstead, Kan. In the lower end of a tubular well casing, according to this invention, is held a double cylinder, with differential bores, the upper and smaller discharging into a casing above, while the lower and larger cylinder has an inlet opening controlled by a suction valve. In this cylinder is also a plunger connected by a hollow stem with a plunger in the upper cylinder, there being on the upper end of the stem a valve passing the water into the upper cylinder. A rod connected with the hollow stem is coupled to a lifting rod whereby plungers in the two cylinders are reciprocated. The construction is simple and durable and the pump is designed to be very effective.

Railway Appliances.

SWITCH WORKING MECHANISM.

James and Charles McGhee, Sandy Valley, Pa. This invention provides an inexpensive mechanism for application to an ordinary switch, by which it may be worked from a passing train, with means for automatically locking the switch to hold the main line open and prevent the switch from being tampered with. Vertical shafts with striking arms are geared to a crank shaft adapted to throw the switch, an arm on the crank shaft receiving a forked post, and a pin moving through the arms being actuated by the crank, while the shaft is turned and the pin moved by levers fulcrumed at the side of the track, the levers being actuated by the approaching train.

RAIL.—Lawrence K. Devlin, Helena, Montana. To form a duct or passageway in rails for electric wires, according to this invention, the rails are formed with a longitudinal recess, extending centrally up from the bottom, the web of the rail being made somewhat larger than usual, and thus forming a double web. The bottom of this recess is closed by a plate preferably of wood, snugly fitted, and at the rail joints is employed a hood, corresponding in shape to the recess, the hood extending a short distance into the meeting ends of adjacent rails.

RAILWAY CROSSING GATE.—James Ruthford, Brooklyn, N. Y. This is a sliding gate, with sliding trips at each side to be operated by a moving train, there being pinions actuated by the trips and shifting bars connected with opposite sides of the gate, the bars having rack surfaces engaging opposite sides of the pinions, so that the action of one is the reverse of that of the other. The arrangement is such that the gates are automatically closed by an approaching train before the latter reaches a crossing, and automatically opened after the train has passed.

STREET CAR FENDER.—William H. Brock, Brooklyn, N. Y. This is an improvement on a formerly patented invention of the same inventor, providing an auxiliary shifting device whereby, when the fender is drawn beneath the car, and strikes an object, the fender will automatically move outward to a position to receive the object, in case the motorman or gripman should fail to bring it into requisition. The shifting device is of simple construction and very light, occupying but little room, not interfering with other attachments beneath the car body.

BALL BEARING WHEEL.—Hallam F. Coates, Cambridge, Ohio. According to this invention the hub portion of the wheel has a central socket into which a filler of slightly less diameter is slid, the filler having annular grooves in which are bearing balls engaging the wall of the chamber, means being provided for adjustably connecting the filler on the axle. In this wheel the use of bolts, gaskets, caps, nuts, and other loose parts is dispensed with, the axle is protected, and the friction reduced to a minimum. The construction is simple, there being but few parts and these easily put together.

Mechanical.

BENCH STOP.—Josiah Daily, North Peoria, Ill. This stop may likewise be used as a square and marker, having a side arm and at right angles thereto a cross or head bar, the latter being graduated and at a higher level. The side arm forms a guide or abutment for the board applied to the stop, and has near its end a removable stud adapted to enter one of a series of sockets along both edges of the bench near its top, to bring the stop to any desired point.

PIPE OR HOSE COUPLING.—Simon A. Stahley, Suspension Bridge, N. Y. This invention comprises a coupling member having a head formed with guideways tapering from top to bottom, a rack held alongside one of the guideways, and a second head engaging the guideways, while a gear wheel turning loosely on the second head is adapted to mesh with the rack. The improvement enables the operator to positively produce a non-leaking joint, and permits of readily connecting or disconnecting the coupling members on their full pressure and without the use of separate tools.

BELT SHIFTER AND BRAKE FOR COTTON PRESSES.—Thomas M. Wallace, Marion, Ala. This improvement is applicable for presses with a reciprocating follower, especially with "self-tramper" presses, where the follower is actuated by toggle levers and a rotating screw shaft. In combination with two sets of fast and loose pulleys are slidable belt shifters whereby the

follower may be returned very quickly, to economize time in compressing the several charges of cotton. In the same connection and coacting with the belt shifter is a friction brake mechanism, that the speed of the follower may be maintained up to the limit of its movement in either direction without strain or injury to the press.

WALL PAPER PRINTING MACHINE.—William H. Waldron, New Brunswick, N. J. This inventor has been awarded two patents for improvements by which wall paper is produced by two impressions from two machines, with an intermediate drying apparatus, the design for the paper of the second machine registering accurately with the design already printed by the first machine, irrespective of the shrinkage or expansion of the paper caused by the drying apparatus. A compensating device is provided for the printing rollers of the second machine, whereby they will be run at a speed corresponding to the design of the paper passing over the cylinder, one of the inventions covering an electrically controlled compensating device and the other a mechanical one. The latter is actuated by an operator watching the paper while the electrical device is automatically operated by the paper, according to its shrinkage or expansion.

ROCK DRILL.—Harvey P. and George B. Jones, Denver, Col. According to this invention a track is held by a fastening device to a bed adjustably secured to a supporting standard, a drill frame sliding on the track, while there is a ratchet connection between the drill frame and the track, and drill mechanism carried by the frame. The drill may be held in almost any place where it is desirable to work. The blow is given by a spring-propelled hammer operated by a crank handle, the drill being turned after each blow by a simple mechanism, while the recoil is made to feed it forward in position for rapid drilling.

Agricultural.

CORN PLANTER AND FERTILIZER DISTRIBUTER.—Jacob W. and William C. Duryea, Blawenburg, N. J. This invention provides independent devices for simultaneously dropping seed and distributing fertilizer therewith, each of the devices being provided with a cut-off mechanism under control of the operator for regulating the delivery of seed or fertilizer. An endless chain marking device is also provided, the machine traveling upon the chain and thus marking the ground between the rows, the markers on the chain making impressions simultaneously with the discharge of the seed.

STRAW CONVEYER.—William L. Johnson and William L. Hay, Franklin, Tenn. This is an improvement in pneumatic conveyers for thrashing machines, making the discharge end of the main blast tube at the mouth of the conveyer section, there being a detachable cap for each end, while a supplemental blast chamber has its discharge mouth opening into the conveyer section. The improvement may be readily applied to any of the modern thrashers, being secured to the discharge end and readily thrown up and back on the machine, to give the operator full access to all the working parts of the thrasher for cleaning and adjusting the sieves.

FIELD THRASHING MACHINE.—Axel Anderson, Ronda, Texas. As this machine is drawn forward in a field it is designed to harvest the tops of the standing grain, leaving the stalks in the ground, the machine thrashing the grain from the heads, separating the chaff from the grain and delivering the grain into a suitable receptacle. The grain heads are forced into the thrashing cylinder by means of a feed mechanism as the machine is drawn along, and this cylinder may be readily raised or lowered and held in adjusted position, according to the height of the grain.

DITCHING MACHINE.—Alfred C. Carter, Greenfield, Iowa. Operating somewhat after the manner of a plow when drawn across a field, this machine is designed to dig a ditch of uniform width and depth and deposit the loosened earth at one side of the ditch. Pivoted on a pin on the plow point are parallel knives which extend upward and are connected by cross ribs, these knives being just far enough apart to cut the walls of the ditch and make it the desired width. The plow cuts the ditch horizontally and raises the loosened earth to a mouldboard carried by the beam, from which the earth is thrown to one side of the ditch.

Miscellaneous.

MARINE VELOCIPEDE.—William Dryden, Brooklyn, N. Y. This invention comprises a hull of the catamaran order whose sections are united at the bow, there being a nearly central seat from which an operator actuating a pedal shaft may rotate a propeller, there being also a centerboard between the hull sections and a regulating rod by means of which the operator may readily raise and lower it. A steering device is also within convenient reach, and the construction is capable of use as a life raft when required.

STREET SWEEPER.—William H. Walker and Thomas H. Boyce, New York City. This machine is designed to be connected with a cart by which it is drawn along, when a brush rotated from the large wheels of the scraper delivers the dirt onto a pan within an elevator casing, the sweeping being then removed by scrapers to buckets which discharge into a chute, down which the sweepings pass into the cart. When the cart is filled it is detached from the sweeper and an empty one connected in its place, a continual sweeping up and taking away of the dirt being thus provided for.

HOSE BRIDGE AND TOWER.—James Blake and Emil F. Beggiebing, Union Hill, N. J. For the use of fire departments these inventors have devised an apparatus which may be collapsed and folded into small compass, or extended and raised, the bridge for carrying lines of hose over a track being extensible for a considerable length. It may also be used to discharge water from the bridge without the use of a hose, and thus serve as a fire tower, with revolvable nozzle operated from the truck. It has a convenient and simple arrangement of braces, and the whole affair may be readily turned and easily operated.

WINDMILL.—Seth K. Humphrey, Omaha, Neb. According to this invention a horizontal shaft carries horizontally supported sails, and means are provided whereby, through a chain belt, a group of sails are operated to cause the various sails to shift their positions. Should the wind shift, the carriage acts automatically upon the stationary portion of the mill to bring the sails up into the wind. The support for the sails for attachment to the main driving shaft is very simple and inexpensive and thoroughly braced.

HYDROCARBON BURNER.—Charles E. Cookerly, Kansas City, Mo. This burner is adapted for an ordinary cook stove, or in a heating stove or other heater, there being within the shell a steam supply pipe and suspended fire pan, over which is an oil retort with depending discharge pipe, the oil well consisting of an open-ended tube embracing the discharge pipe and delivering into the fire pan. A steam generator affords the steam combined with vaporized oil to form the hydrocarbon gas, the parts being so arranged that there are no small openings to get clogged with soot, and the steam and oil vapors being combined and burned in an economical manner to produce intense heat.

DOOR CHECK.—Charles W. Hamshaw, Gallatin, Mo. An arresting and holding device to automatically engage and retain a house door in open position has been devised by this inventor, comprising a hook and casing holder through which projects a pivoted latch, there being an adjustable base block in the casing, a spring supported on the block engaging the under side of the latch. Attached to the door is a base piece from which a hook limb projects outwardly and downwardly, and when the door is held open it may be released by a slight exertion of force.

PIANO CASE.—Alfred J. Newby, New York City. This invention relates to the mechanism for automatically moving up the front of the case by the lifting and pushing in of the keyboard fall. The case has a swinging front, with fall and movable slide plate hinged to it, and a lever hinged on the case has its lower end connected with the slide plate and its upper end extending opposite the swinging front, there being also a vertically movable guide bar parallel with the slide plate, and cranks secured to the guide bar and pivoted to the slide plate.

DAMPER FOR SWISS MUSIC BOXES.—William H. Hoshcke, Brooklyn, N. Y. For boxes having a pin cylinder acting on the teeth of a fixed comb, this invention provides an improved independent damper attachment for the teeth of the comb, so arranged that the damper only acts on the tooth immediately previous to the sounding of the tooth by the corresponding pin of the pin cylinder.

AUTOMATIC MUSICAL INSTRUMENT.—The same inventor has obtained a patent for a musical instrument in which a traveling perforated sheet actuates the star wheel or other picking mechanism engaging and sounding the comb. The star cylinder has rotatable disks, each with picking pins and gravity plungers, a traveling sheet having slots for the plungers, while a revolving cylinder has blades to engage the ends of the plungers extending below the traveling sheet. The improvement is designed to prevent tearing or otherwise injuring the sheet, whereby the sheets may be used over again without danger of changing the tunes.

CONFECTIONERY MACHINE.—Simeon J. Hicks, Englewood, Ill. A machine more especially designed for cutting buttercups and similar forms from a drawn and fattened piece of candy has been devised by this inventor. The invention consists principally of a hinged stripper plate to support the pieces cut by the knives, the plate being adapted to pass over the lower knives, while a pivoted frame carries the upper knives, and catches held in the frame engage the stripper plate to swing it upward to move the candy from between the lower knives, dropping it at the rear of the machine.

MACHINE TO CUT STICK CANDY.—John M. Allaroyce, Galveston, Texas. A reciprocating cutter is, according to this invention, mounted in a traveling bed, and mechanism controlled by the bed-operating mechanism raises the cutter and allows it to drop, whereby the long sticks of stick candy laid on the table may be cut into the lengths desired. The machine is of very simple construction and easily operated.

BOX.—Zada B. Webb, Whippany, N. J. Fancy boxes for holding bonbons, etc., are the subject of this improvement, the invention providing for making a simple and cheap box of attractive appearance. It is of flexible material, self-closing, and the fastening may be readily converted into a handle. The blank of which the box is formed has side pieces with registering apertures through which are passed ribbons or cords which are drawn up in bringing the box to shape.

WRITING TABLET.—Max Rubin, New York City. According to this invention a pad or table may be quickly and conveniently reversed while in hinged connection with the body of the tablet proper, the supports for the tablet being so constructed as to be concealed when the tablet is in open or closed position. The hinged connection between the tablet and the pad is very simple and inexpensive, and readily applicable to the framework of the tablet.

HAT PIN.—Osborn Congelton and Gertrude R. Boyd, Philadelphia, Pa. This is a simple and inexpensive device to be fastened permanently to the hat, and is readily operated and provided with prongs which cannot injure the head or hat, but are sure to engage the hair and hold the hat in place. An eyeletted crown tip is fastened to the hat, and the pin has a guide frame with spring-pressed slides, prongs projecting through the eyelets on the crown tip, while there are outwardly projecting arms with knobs on the slides, by which the device is operated.

MATCH RECEPTACLE.—Fred D. Halsey, Tyler, Texas. The body of this match box is that of an animal with open mouth, the match repository being on its back, from which a trough communicates with a mouth passage, a spring-pressed rod forming the tongue and serving also as a finger piece, there being ignition devices in the passage and the tail forming a stop. But a single match can be withdrawn at a time, and the match is ignited before it is entirely removed, thus pre-

venting the abstraction of a number of matches where only one is meant to be offered free.

DENTAL NAPKIN HOLDER.—George A. Bronson, St. Louis, Mo. This improvement comprises a dished presser piece, a curved handle piece and a keeper tang, for holding in proper position in the mouth of a patient a folded napkin or porous pliable pad to absorb salivary moisture that might otherwise obstruct the work of the dentist. The same inventor has obtained a further patent for an additional improvement in this line, by means of which the tongue is held depressed and the napkin pressed against the tongue on each side of the teeth being operated upon, thus effectually absorbing the moisture during an operation.

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.

LA METALLURGIE EN FRANCE. Par Urbain le Verrier. Avec 66 figures intercalées dans le texte. Paris: Librairie J. B. Bailliere et Fils. 1894. Pp. xi, 333. Price 75 cents.

POOR'S DIRECTORY OF RAILWAY OFFICIALS. 1894. Ninth annual number. Containing lists of the officers of all railways in North America and of the leading organizations auxiliary to the railway system; lists of officers of South American and Hawaiian railways, etc. Compiled from official information. New York: Poor's Railroad Manual. London: Effingham Wilson. Pp. 400. Price \$4.

TRANSITION CURVES. A FIELD BOOK FOR ENGINEERS. Containing rules and tables for laying out transition curves. By Walter G. Fox. New York: D. Van Nostrand Company. 1893. Pp. 80. Price 50 cents.

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3. A cottage at Mt. Vernon, N. Y., erected at a cost of \$4,500. Perspective elevations and floor plans. Mr. Walter F. Stickles, architect, Mt. Vernon, N. Y. An attractive design.
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7. A Colonial residence at Flatbush, L. I., erected at a cost of \$7,500. Two perspective elevations and floor plans. Mr. John J. Pettit, architect, Brooklyn, N. Y.
8. A residence at Mt. Vernon, N. Y. Two perspective elevations and floor plans. A pleasing design in the Colonial style. Mr. Chas. E. Miller, architect, New York City.
9. A picturesque and well appointed residence at Belle Haven, Conn., recently erected for E. C. Converse, Esq. Four perspective elevations and floor plans. An excellent design. Mr. Bruce Price, architect, New York City.
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11. Miscellaneous contents.—Hints to readers.—The education of customers.—How to catch contracts.—The latest and best designs for houses.—Diamond cement plaster.—Preserving metals in roofs, bridges, etc.—A perfect roofing material.—Stamped metal ceilings, illustrated.—New wood stains.—Woodwork vs. flame.—Ebonizing wood.—A stove for heating water, illustrated.—Columbian Exposition award for copper and brass goods.—An improved band saw file, illustrated.—How to move large maps.—Value of coverings for steam pipes.—Watering garden plants.—Earthquake effect on brick buildings.—The trouble New York builders have with foothold on pavements.—Milwaukee water elevator, illustrated.

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