

## ENGINEERING INVENTIONS.

A valve gear has been patented by Mr. Joseph Ralstin, of San Jacinto, Ind. This invention relates to reversing gear for plain slide valve engines, and covers a novel construction and arrangement of parts.

## AGRICULTURAL INVENTIONS.

A grain drill has been patented by Mr. Samuel H. Koble, of Hickman Mills, Mo. This invention covers certain novel features in the construction and arrangement of parts to promote convenience in operating and controlling grain drills, and to secure uniformity in the distribution of seed.

A check row planter has been patented by Mr. Charles R. Dollarhide, of Paris, Ill. By this invention the seed dropping mechanism is operated by an endless chain, which is made to travel on suitable wheels by means of projections on the chain, which are placed in contact with the ground, the device having also various novel features of construction.

A self-dropping corn planter has been patented by Mr. John A. Johnson, of London Mills, Ill. The self-dropping slide is connected with the axle of the drive wheels by a wheel on the axle, and provided with cams operating upon a vibrating frame, pivoted at one end of the carriage frame, and connected at the other end by a wire or attached to the seed-dropping slide, so the slide is operated by the revolution of the axle, with other novel features.

## MISCELLANEOUS INVENTIONS.

An improvement in fences has been patented by Mr. Charles C. Hinkle, of Hazleton, Ind. This invention relates to portable board fences, the construction being such as to make a frictional joint between the panels, with various other novel features.

A fitting for gas brackets has been patented by Mr. Henry P. Drew, of New York city. This invention covers a novel construction and arrangement of parts to prevent gas from escaping, strengthen the brackets, and prevent the swings from being turned too far.

A steam boiler has been patented by Mr. George W. Shealey, of Marshalltown, Iowa. The object of this invention is to provide an economical food cooker and boiler for steaming food for stock, and the device is one which has great working capacity, is easily operated, and is adapted to various kinds of fuel.

A fire escape has been patented by Mr. Edward Painter, of Easthampton, Mass. It is constructed of two endless chains or cables passed over notched wheels mounted on shafts journaled at the top and bottom of the building, the chains being united by cross rods, and buckets being hung on the chains.

A door signal has been patented by Mr. Alonzo L. Dorn, of Chicago, Ill. It consists of a contrivance to disclose a word signal and to sound a bell in connection with the unlatching wire extending from the front door to the interior or upper portion of the house, to admit people without descending the stairs.

A balanced stack roof has been patented by Mr. Frederick W. King, of Farmington, Iowa. It has slotted posts and rafters covered with boards and shingles, with ropes attached to the roof, passing over pulleys pivoted in the upper part of the slotted posts, with balancing weights attached to their ends, so the roof can be readily raised and lowered.

A hand elevator for packages has been patented by Mr. Frank Schumann, of Memphis, Tenn. This invention provides a rod with an adjustable and a pivoted clamping arm, making a device for use in depositing packages and small articles upon elevated shelving, or for taking them down, thus dispensing with the use of a step ladder for such purposes.

A log binder has been patented by Mr. John Flynn, of Roscommon, Mich. The invention consists in a lever with a grab and a locking latch pivoted to a frame connected with one end of the chain or some fixed object, one link being placed in the grab, the chain drawn taut, and the lever locked on the frame by means of the latch.

A sprung holder for napkins has been patented by Mr. John C. Tut, of Kansas City, Mo. This invention combines with the end of a spiral spring a sharp pointed hook with a rigid cross bar, one at each end of the spring, so the contraction of the spring draws the hooks together, and holds the napkin, handkerchief, or other garment to the desired adjustment.

A trace carrier has been patented by Messrs John C. Glaser and Charles A. Cummings, of Monticello, Iowa. This invention consists in a metallic loop with sockets adapted to fit and slide upon a metallic bar or slide secured to the skirt of the saddle, a thumb screw being screwed into the slide to limit the movement of the loop.

A padlock has been patented by Mr. William W. Richards, of Washington, Ga. The invention consists mainly in the peculiar form of locking bolt and its combination with a spring, a tumbler, and key, the revolving tumbler barrel swiveling on the case, and the key having bits adapted to engage with and pull down the bolt.

A fender for wagon bodies has been patented by Mr. Christian L. Haubell, of Waverly, Ohio. This invention relates to guards or chafing irons for wagons in which rollers are arranged to project on or from the body of the vehicle to prevent the wheels from chafing the body, and covers a novel construction of the rollers and means for supporting them.

A process of marking cakes of soap has been patented by Mr. James M. Craig, of Brooklyn, N. Y. The cakes are cast in moulds, around dies placed upon a rod, and when the soap is hard the rod and dies are withdrawn; the cakes are then placed in a mould covering the ends of the die apertures, and liquid soap of a different color is poured into the uncovered end of the rod aperture.

A friction balanced spring roller has been patented by Mr. James H. Russ, of Providence, R. I. This invention covers an improvement on a former patented invention of the same inventor, making a roller which is cheap, durable, and reliable, and in some cases, for very heavy window shades, a rubber washer is employed upon the spring head.

A gearing for windmills has been patented by Mr. Charles W. Roberts, of Oskaloosa, Kan. There is a combination of double gears and shafts for transmitting rotary motion from the wheel shaft of the mill to the line or driving shaft, with provision for certain of the driving gears to run idle in a back direction when the mill shifts or turns in the wind.

A railroad switch has been patented by Mr. Abraham Agres, of New York city. This invention relates to that class of railroad switches which are operated by the weight of the horses drawing the cars, the switch tongue being shifted by the movement of a rocking frame, thus securing ease of movement and reliability in action.

A wagon spring and gearing has been patented by Mr. Joseph Allan, of Carrollton, Miss. This invention covers a novel construction and arrangement of main and auxiliary springs in wagons, making a gearing that is substantial and comparatively inexpensive, combined with which is a fifth wheel that relieves strains on the king bolt.

A button attaching implement has been patented by Mr. Milton H. McNair, of Meadville, Pa. This invention relates to improvements in a magazine implement where the fastenings pass through the eyes of the buttons, and consists in a novel construction and arrangement of parts, and the implement may be operated or the mechanism organized for use with treadle or other power.

A pail, tub, or barrel of novel construction forms the subject of a patent issued to Mr. James W. Weston, of New York city. The invention consists in the combination, with head sections and key, for closed or headed receptacles, of a removable support or follower, to close the openings of the adjacent head sections, and there is also a novel device of sampling hole and plug.

A lead press has been patented by Mr. William A. Shaw, of Pittsburg, Pa. This invention covers a novel construction resulting in a duplex machine in which one charge of metal cools to proper consistency in position in its holder or cylinder, while another is being forced through the die of a different cylinder, so that no time is lost by the attendants in waiting for successive charges.

A carriage pole or shaft has been patented by Mr. James M. Dille, of Cooperstown, Pa. The invention covers a novel construction of devices for a part of the hills or pole to so attach the horse that he will have free and unobstructed movement of his limbs, and to relieve both the horse and the occupant of the carriage from shocks when the carriage wheels meet obstructions.

A boiler for heating buildings has been patented by Mr. William H. Byram, of New York city. It is composed of independent sections arranged one above the other, the connections being fitted together by tongue and groove joints, and the sections secured together by bolts, to make an efficient and economical sectional boiler, maintaining a positive circulation, and comparatively or wholly free from leakage.

A bicycle has been patented by Mr. William Clemson, of Middletown, N. Y. In combination with the wheels and fork, levers at or near their centers on the cranks, bars connecting the front ends of the levers with the fork, there being springs on the levers and foot rests on their rear end, to give greater leverage and enable the bicycle to be more easily worked.

A fire extinguisher has been patented by Mr. James McGwin, of Fulton, Mo. A revolvable, perforated, bottle holding cylinder is suspended within a vessel, and there is a shaft for revolving the cylinder, the shaft being also arranged to liberate acid and mix it with the contents of the vessel, making a simple portable fire extinguisher, which can be quickly brought into action.

A combined lint room and press has been patented by Mr. William B. Padgett, of Batesville, Ark. This invention pertains to attachments for cotton gins, and provides an improved contrivance for tramping the cotton in the press case, avoiding the former laborious and unhealthy method of tramping by the feet, while doing the work more efficiently and with less expense.

A harness has been patented by Mr. Cicero C. Ferrill, of Shubuta, Miss. This invention relates to a former patented improvement of the same inventor, and consists in part in adapting the ordinary breast collar to be used in connection with devices for attaching thills to a pair of hames directly, to dispense with all other parts of a harness except a collar and breeching, the latter attached to the thills.

A fire escape has been patented by Mr. Joseph M. Hodson, of Amherstburg, Ontario, Canada. It is formed of a casing on which a drum is pivoted, on which a wire is coiled, the wire being passed through apertured lugs or brake levers pivoted in the casing, the wire also passing between transverse pins or rods in the casing, the friction preventing the apparatus from descending too rapidly.

A workbox has been patented by Mr. Hugh S. Dickson, of La Harpe, Ill. This invention covers an improvement on a former patented invention of the same inventor, consisting of a workbox decreasing in depth from the bottom to the top, and having a cover increasing in depth from the bottom to the top, shelves being held in the cover from which inclined pins for holding spools project.

A device for unloading vessels has been patented by Mr. James H. Teubert, of Coal Valley, W. Va. A stationary inclined railway track is supposed to be built on the bank of a river, and the barges or vessels are to have hopper-shaped receptacles for cargo from which discharge openings are arranged directly over the tracks, with sliding gates.

A milk cooler has been patented by Mr. Francis S. Hartzell, of Bean Pa. The object of this invention is to cool milk rapidly and uniformly, to raise cream in the shortest time, and for this purpose is provided an outer and inner metallic tank of special construction, so that the water spaces furnish a very large cooling surface, and the contents of the can are quickly and uniformly cooled.

A photographic camera has been patented by Mr. Walter Clark, of New York city. The invention provides a camera partition in front of the adjustable reflector and compartment or chamber in which the sensitive plate is exposed, thus dividing the box into two sections, whereby provision is made for inclosing the lens case and working mechanism within the box, and doing away with objectionable outside exposure of parts, with other novel features.

The manufacture of solidified compound metals forms the subject of a patent issued to Mr. Ferdinand E. Canda, of New York city. This invention contemplates the grinding or pulverizing of two or more metals or alloys, and then coating the particles with tin or Babbitt metal or other alloy melting at a low temperature, after which the mixture so made may be treated in a die or mould, after having been suitably heated.

## Business and Personal.

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Curtis Pressure Regulator and Steam Trap. See p. 78.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 77.

Drop Forgings. Billings & Spencer Co., Hartford, Conn.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa. can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

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Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 157.

Renshaw's Ratchet Drills. No. 1, \$10; No. 3, \$15. Cash with order. Pratt & Whitney Co., Hartford, Conn.

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## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

Name and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or mail, each must take his turn.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) G. H. asks: On what part of the boiler does scale mostly collect—on shell or flues? A. It depends upon construction and way of operating. An examination of the particular boiler only will determine.

(2) Mrs. T. P. J. asks if there is any way of removing rust from cut steel ornaments. A. There is no way but to repolish them with a buff and rouge.

(3) W. B. asks a recipe for making the liquid used in the brilliant gold paint manufactured in Baltimore, or a liquid that would do. A. We do not know what is used in the preparation of the paint you mention, but benzine and paraffine are sometimes employed for this purpose.

(4) F. A. J. asks what the fulcrum of a safety valve is. A. The fulcrum is the center on which the lever moves. 2. What is meant by an automatic engine? A. An automatic engine is one governing its speed by the work it does, or having cut-off governors.

(5) A. S. B. asks what to put in hard water to keep lime from forming in his water pipes that feed his bathroom. A. A little caustic soda put into the tank will tend to break up the lime scale in the hot water pipes. About an ounce to the cubic foot.

(6) J. H. says: We have four sections of dry docks here in the Manatee River which are raised by hand pumps; why is it that the pumps work so much harder when we raise a large schooner than when we raise a light one? It looks as if we were pumping water from a reservoir, and the weight should have no effect on the pumps. A. Your pumps work harder on account of the increased height of the column of water you have to raise.

(7) S. H. B. asks for a good formula for making sticky fly paper. A. In a tin vessel melt together one pound of resin and add two fluid drachms of linseed oil. While the mixture is warm dip a spatula into it, and spread what adheres to the blade on foolscap paper. Different samples of resin require varying proportions of oil to make it spread properly.

(8) J. H. S. asks: Is there a mine in Pennsylvania requiring pipe strong enough to stand a pressure of 1,500 pounds to the square inch, for the purpose of pumping out water? A. No. The pressure is sometimes nearly reached in the pipe of "oil lines," so that pipe and fittings have to be tested to 2,000 pounds.

(9) D. T. W.—To run water mixed with air through glass tubing, the water, colored or otherwise according to one's fancy, is allowed to drop quickly into a little funnel at the top of the glass tube. This carries air in with the drop, and may be managed so as to represent a string of colored or silver beads.

(10) C. H. K. asks if any of the readers of the SCIENTIFIC AMERICAN have any knowledge or information of that ill-fated American inventor, J. W. Starr, who about forty years ago exhibited, in conjunction with a Mr. King, an electric light of great merit, of said Starr's contrivance?

(11) E. S.—There is no general rule as to the width or richness in color in gold bearing veins. It is said that the great Eureka vein in California was 6 feet wide at the outcrop and increased in width and value to a depth of over 1,300 feet. Sometimes the fissures are found to divide, and finally vanish in several directions.