

ENGINEERING INVENTIONS.

A flood gate has been patented by Mr. James M. Metcalf, of Enfield, Ill. The gates are made to stand sufficiently above the bed of the stream to allow the ordinary flow of water, and in connection therewith are braces, check cords, or chains, strong posts, and a supporting frame, to allow of the gates being swung open as desired.

A vehicle propelled by compressed air has been patented by Mr. Daniel S. Troy, of Montgomery, Ala. The axle or axles and reach are made hollow and connected to serve as a reservoir for compressed air, as is also the body of the vehicle, the reservoirs being adapted to be charged at a station, whence the vehicle may be sent out as a self-contained motor.

A hydraulic elevator has been patented by Mr. Oliver P. Rice, of New York city. This invention has for its object, by special construction and combinations, to facilitate the operation and increase the efficiency of hydraulic elevators, it being easy to regulate the speed of travel of the cage by opening or closing a valve, while the elevator may be stopped at any desired point by cutting off the supply or discharge pipe.

A spark arrester has been patented by Mr. William C. Beal, of Fernandina, Fla. There is a hollow truncated cone which concentrates the current of sparks at the center of a hollow cone above, in which they are deflected to the side of the stack and given a whirling motion; there is also a guard in the upper part of the stack for preventing the escape of sparks that may turn upward from the place where they are deflected.

MECHANICAL INVENTIONS.

A polishing wheel has been patented by Mr. Henry Binz, of New York city. It is made with a block cast with hub, spokes, and rim in one piece, and with holes in the rim provided with wire drawn knots, such wheels being cheaply made and more durable than ordinary polishing wheels.

A double gauge has been patented by Mr. John Hellriegel, of Marine, Ill. The invention relates to gauges used by cabinet makers, carpenters, etc., for making working lines parallel to the edges of the work, its object being to enable the mechanic to gauge two lines at different distances from the edge of the work by two strokes of one gauge.

AGRICULTURAL INVENTIONS.

A rotary sulky harrow has been patented by Mr. William H. Southward, of Mendon, Ohio. By this invention one of the wheels may be turned slower than the other, as in turning around, without affecting the revolution of the axle, the gear wheels can be readily thrown out and into gear, and the teeth of the harrow may be held out of the ground, all to promote convenience and thoroughness in harrowing.

A grain drill has been patented by Mr. Abram L. Reese, of Chase, Kansas. This invention relates to improvements on former patents issued to the same inventor, and covers certain details of construction whereby, as the machine is drawn along a row of plants, the grain will be drilled into the soil upon both sides of the row, and without doing any injury to the plants.

MISCELLANEOUS INVENTIONS.

A window sash has been patented by Mr. Louis L. Arnold, of Chicago, Ill. The object of this invention is to provide a sash which can be easily removed from the window frame for washing, painting, etc., for which purpose a novel combination of parts is provided.

A calendar has been patented by Mr. Henry S. Stevens, of Keene, N. H. It is adjustable for any year for a long term of years, the adjustments are easily understood and can be quickly made, and the device has a wider range of use than the ordinary adjustable calendar.

A fence post has been patented by Mr. Ely N. Obert, of Cuba, N. Y. It is hollow, open at top and bottom, with its sides inclined inwardly toward the top, and with apertures to receive the rails, the post and rails being held in place by stones placed in the post.

A portable fence has been patented by Mr. William Cockayne, of Geetingsville, Ind. This invention relates to improvements in this style of fences, for effecting convenience, economy, and increased durability, and covers a peculiar construction and arrangement of parts.

A headed slug nail has been patented by Mr. John Hyslop, Jr., of Abington, Mass. The nail has a rectangular wedge shaped point and a rectangular head, the end parts connected with the body by tapered webs, so the heads will not crack the leather, and the nail will hold the leather firmly.

A folding table has been patented by Mr. William E. Eldred, of Brooklyn, N. Y. The object of this invention is to provide a new and improved button for folding tables, for the purpose of holding the legs firmly in place when the table is set up, and it consists in the special construction and arrangement thereof.

A necktie fastener has been patented by Mr. Weisel Beale, of Shawneetown, Mo. A slotted plate is adapted to be secured to the pasteboard back or frame of the tie, in combination with a locking lever and spring, so the tie is securely held, or may be easily removed by throwing back the locking lever.

A steam heater has been patented by Mr. William C. Bronson, of Saratoga Springs, N. Y. The water is contained in small tubes and chambers, directly among and against which the heat and products of combustion circulate, making a heater that is cheap, easy to handle, and that will rapidly generate steam.

A portable fruit drier has been patented by Mr. Joseph N. Parker, of Vineland, N. J. The shell of the drier is made of zinc, tin, or other suitable material, and is designed to be placed over an ordinary cooking stove or range, to facilitate the drying of

fruits, vegetables, etc., and promote convenience and economy in the operation.

A hay carrier has been patented by Mr. Abner J. Burbank, of Harvard, Ill. It consists of a duplicate contrivance of catch hooks for holding up the hay fork by the head of the shaft of the hay fork pulley to better advantage than a single catch will, with an improved arrangement of the locking and tripping levers and the catch and trip blocks.

A cracker machine has been patented by Messrs. Charles S. Fowler, of Brooklyn, N. Y., and Lucius A. Rockwell, of New York city. The object of this invention is to promote convenience in adjusting cracker machines, which is effected by a special combination and a novel construction and arrangement of parts.

An improved shirt has been patented by Mr. Jacob Cohen, of New York city. This an open front shirt in which the center piece or outer fly may be readily secured in the center of the front, and the under fly made to form a complete lap with the outer fly, to prevent gaping of the parts while the shirt is being worn.

A horse collar has been patented by Mr. Herman T. Detert, of Faribault, Minn. The collar is adjustable, and has metallic attachments forming flanges for the hames, with means for spreading and contracting the collar at the bottom, with special devices for easily effecting a perfect fit of the collar to the horse.

A fountain pen has been patented by Messrs. Charles H. Court, of Jersey City, N. J., and Albert J. Kletzker, of New York city. The pen is cheaply made and durable, and is always in condition for immediate use, the feed of ink being regulated exactly in accordance with the demand, neither too rapid nor too slow.

A design for a piano case has been patented by Mr. Anton Gunther, of Toronto, Ontario, Canada. It is an upright piano case of an irregular pentagonal figure, when viewed from the front, with one of its two longer sides horizontal and the other nearly so, and its keyboard cover included within the limits of the circumscribed lines of the pentagon.

A toy has been patented by Mr. James E. A. McAllister, of Albany, N. Y. It is a hollow ball of two sections hinged together, and held by a spring or elastic band, and having an aperture opposite the hinge; the ball has an elastic cord, and is thrown against headed pegs held in a board, withdrawing them therefrom.

A shade roller hanger has been patented by Mr. William J. Mullen, of New York city. The invention covers the combination, with a disk or plate with a screw on its upper surface and legs on its lower surface, of a hanger pivoted between the jaws, with a socket at its free end for receiving the end pin, whereby the roller can be hung easily and rapidly.

A tramping attachment for baling presses has been patented by Mr. Gideon P. Thompson, of Crowley's Station, Texas. The invention covers trampers, and a crank with power mechanism, for beating in the cotton on the follower preparatory to closing the press, and thus enable bales of full size to be made in a smaller case.

A millstone dressing machine has been patented by Mr. John Miller, of Milton, Oregon. It is a rotary self-feeding apparatus, in which diamonds are used as the cutters, and dispensing with proof and pen-staff and other devices heretofore used for the purpose, while dressing burr or other millstones perfectly true with much saving of labor.

A vehicle wheel has been patented by Mr. Jacob Dietrich, of Brushland, N. Y. This invention covers a novel construction in making up the felly portion of the wheel, which is metal, and in the manner of securing the spokes, so that lightness is combined with strength, without impairing the elasticity, and the tire is prevented from working off the wheel.

A portable table for transferring flour from barrels into bags has been patented by Mr. William Cochrane, of Brooklyn, N. Y. It is an elevator table, of a size adapted to have a barrel placed upon its side upon it, and with side and end fenders leading to a spout or hopper for conducting the flour from the barrel and table into the bag held under the spout or hopper.

A combined firing and bell ringing burglar alarm has been patented by Mr. Charles L. Morehouse, of Brooklyn, N. Y. It is formed of a cap or cartridge firing device and a bell operated by a clock work mechanism, the device and bell being so arranged that both are released at one time, and it is so constructed that it may be easily attached to a door or window sash.

A furnace has been patented by Messrs. John A. Topliff, Edward S. Cross, William S. Cox, and John A. McCollum, of Elyria, Ohio. With two stoves or furnaces and a chimney is a single flue with separate openings connecting with each of said stoves above and below their fire grates, and with the chimney and its dampers, all to more completely utilize the fuel, and prevent the escape of smoke and foul gas.

A snow plow has been patented by Mr. John Q. Day, of Red Cliff, Col. This invention relates to snow plows with a wheel and annular groove in each side, for forcing the snow out laterally, slides or gates being arranged to close the grooves behind the snow, to hold it thereon until carried to the upper side, there being also a flaring arrangement of the outside rim of the wheel to facilitate the discharge of the snow.

A fruit picker has been patented by Mr. John S. Spraker, of Kokomo, Ind. In combination with a pole or handle, and a hoop and bag thereon, is another handle with a curved wire at one end, and secured to the first handle by loops, so a person taking the picker by the handles, and standing in a convenient position, can break the stem of the fruit and allow it to fall into the bag without injury.

An oil press plate has been patented by Mr. Clark Woodman, of Omaha, Neb. This invention dispenses with the hair or mat-faced plates heretofore

used, and the metal plates are made to constitute and comprise the mats, being of proper form to prevent the meal from squeezing out, with provision for the escape of the expressed oil, and space is economized in the press.

A heating and ventilating device for buildings has been patented by Amanda M. Hicks, of Clinton, and Atanzo Dishman, of Paducah, Ky. The invention covers novel combinations of fresh air supply pipes with the chimney or flue of a building, also with a stove grate or fire place in a lower floor, with drums in the upper rooms of a building, whereby better results are obtained than by previous methods.

A fire escape has been patented by Messrs. John Larson and August W. Magstrom, of Stockholm, Wis. A specially contrived basket or chair is made to descend by a rope running over a series of pulleys, acting partially as brakes, but the speed of which may be regulated by a cam lever, the whole being easily operated and not liable to get out of order, and so made that it can be packed in a traveling bag.

A hand and foot power device has been patented by Mr. Owen E. Jones, of Wymore, Neb. This is a novel construction, promoting economy in the application of power, as by its use a man is enabled to drive two or more machines in the time in which he would drive one without it; the convenience of the operator is also promoted, and power may thus be readily applied to washing machines, pumps, saws, churns, etc.

A press for packing bran, sawdust, etc., has been patented by Mr. Arthur L. Battson, of Morrisburg, Ontario, Canada. This invention covers an improvement on a former patent issued to the same inventor, and consists in the combination, with the press casing and the ends of the hoop bar, of spring catches, so the sack cover plate, when forced down by the follower, will be caught and held as the follower is again raised.

A burglar alarm for safes has been patented by Mr. William Y. Cruikshank, of Danville, Pa. A roughened strip or plate is connected with a device to be operated by compressed air, said device, etc., being combined with clamps for holding matches and the fuses of explosive cartridges, so that, if the safe is blown open, the compressed air causes the matches and cartridges to ignite, and make an explosion. In a further patent of the same inventor, the spring hammer of a trigger lever, revolved by a shaft, and worked by compressed air, is made, when the safe is violently opened, to explode a cartridge and thus give an alarm.

Business and Personal.

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The next—July—issue commences a new volume of this popular magazine, and if future issues improve as the successive previous ones have done since the publication was started, the older monthlies will have to look to their laurels, for their young rival seems to be pressing onward very rapidly.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) F. A. W. says: I have a small terrestrial telescope, which has only two lenses; the eye lens is double concave, but the object glass I am not certain about, as it is spun into its cell. The telescope has a small field, but splendid definition. Could a practical one, that is, one for say tourist purposes, be made on this principle? If so, kindly give diameters, foci, and distance apart, and kind of lens required. A. Your telescope is of the Galilean form, and the type that of the ordinary opera glasses. When well made, it gives a very clear definition with exact image and small field, also small amplification; on this latter account it is not used for instruments of power. You can make a very good field glass with a plano-convex glass of fifteen inch focus, 1½ inch diameter, plane side next the eye, and a plano-concave glass of from 3 to 6 inch focus three-fourths inch diameter placed at its own focal distance within the focus of the object glass, concave side next the eye; the shorter focus eye lens giving the greater power. The power with a 3 inch eye lens being 5, and with a 6 inch eye lens 2½ times.

(2) W. E. L. asks: Is there any machinery in successful operation for manufacturing lumber, furniture, etc., from sawdust? A. Sawdust and shellac pressed in moulds have been used for ornaments for furniture and fancy articles, and there is a so-called