

ENGINEERING INVENTIONS.

A steam engine has been patented by Mr. Martin Burkley, of Moline, Ill. The cylinder has two diametrically opposite inlet and outlet openings at each end, with rocking valves on the ends of the cylinder fitted in pairs upon a common axis, which are operated from the working parts of the engine to alternately close the outlet and inlet openings, and make a simplified form of construction.

A fanning device for railway cars has been patented by Mr. Robert W. Macgowan, of New York city. It has an outside current or driving wheel and an inside fanning wheel on opposite ends of a shaft uniting the two, to be held in position by the closing of the window sash, and driven by the resistance encountered by the moving train, and thus introduce fresh and cool currents through the particular window to which it is applied.

A winch engine has been patented by Mr. Earle C. Bacon, of New York city. It is so constructed that any desired number of windlasses, each carrying a hoisting rope, can be set in motion by a train of gear wheels which derive their motion from a steam engine by suitable connections, and the windlasses can each be thrown separately in and out of gear, and held at any point with a suspended load without interfering with the movements of the other windlasses.

AGRICULTURAL INVENTIONS.

A hay rack has been patented by Mr. Joseph Grimes, of Perry, Ill. On the outer surfaces of the side pieces of the wagon box are pockets or loops for receiving the lower tapered ends of stakes on the ordinary extension boards, with other novel features, whereby the rack can easily be converted into a stock rack or box for vehicles.

MISCELLANEOUS INVENTIONS.

A hat stand has been patented by Mr. Joseph Mersman, of Delphos, Ohio. It is made of wires twisted to form a standard, having an arm and a ring at its upper end and legs with spring loops at the lower end, being simple in construction, but intended to be strong and durable.

A stencil holder has been patented by Mr. Augustus D. Klaber, of New York city. A frame is hinged on a board, and a clamping frame on the hinged frame to make a convenient device for holding a sheet of paper while stenciling and while impressions are being made.

A farm gate has been patented by Mr. William W. Sweetland, of Edwardsburg, Mich. This invention covers a novel construction and combination of parts, designed to afford a gate which can easily be opened from either side, and is automatically locked in position either when open or closed.

A rice huller and cuticle remover has been patented by Mr. John S. Moore, of New Orleans, La. It consists of a case with discharge doors and hopper, two parallel shafts with a right and left spiral flange each, and means for operating them, whereby the hulls will be removed from the rice kernels by friction.

A medical compound for the treatment of consumption and like diseases has been patented by Mr. Rufus G. Gish, of Redfield, Kan. It is made of bloodroot, dandelion, black cohosh, bardock root, spikenard, bitter-sweet, water, sweet yeast, and other ingredients, in certain proportions, prepared in a specified way.

An explosive compound has been patented by Mr. Milton F. Lindsley, of West Hoboken, N. J. It consists of nitro-cellulose, saltpeter, charcoal, chlorate of potash, starch, and carbonate of potash in certain specified proportions, mechanically mixed and prepared, to make a powder suitable for use in firearms of all descriptions.

A wire stretcher has been patented by Mr. George H. Brackman, of Lake Run, Pa. It consists of a clamping device with hinged arms carrying plates between which the wire to be stretched is placed and clamped, with other novel features, to facilitate stretching plain, barbed, or insulated wires, and holding them taut while splicing.

A draught equalizer has been patented by Mr. Albion Wheeler, of Ridgeway, Iowa. The even-er is arranged to draw against a rocking yoke or clevis placed in its front, producing a shifting fulcrum that automatically equalizes the draught, the device being such that it may be used for equalizing the draught for any number of horses.

A flaxseed separator has been patented by Mr. George Adams, of Sherburne, Minn. It has an inclined frame and a vibrating frame with overlapping plates and guard plates, in connection with a hopper, and means of operating, whereby round seeds will be separated from the flaxseed and discharged beneath the machine.

A combined cooking stove and baking and warming oven has been patented by Mr. Fredrick Artmann, of Lexington, Miss. It has a baking and a warming oven, with flues above and between them, a flue below the warming oven, and three horizontal flues below the baking oven, with other novel features for economizing fuel and promoting efficiency.

A tapping machine has been patented by Mr. Victor H. Ernst, of Jersey City, N. J. Its construction is such that the pressure of the taps on the foot stock, when the machine is in operation, is received by the follower, which yields sufficiently to prevent the breaking of the taps, which is likely to occur when the action of the taps is met with a rigid resistance.

A gate has been patented by Mr. Thos. H. O'Reilly, of Canandaigua, N. Y. Its construction is such that by pulling a rope on either side an angle lever is made to raise the bolt, and release the gates, a further pulling swinging the gates in the direction from the person, the gates being closed by pulling a rope on the opposite side after the person has passed through.

A fastener for barrel heads has been patented by Mr. James W. Weston, of New York city. It

consists of croze-shaped double legged permanent fastenings and removable brace head nails, made to act in conjunction with the permanent fastenings, to secure and support and brace the head or end of the barrel, its chine, and the outer end hoop.

A horse boot has been patented by Mr. Allen H. Tyson, of Lansdale, Pa. Between the outer leather facing and the inner fabric lining is a stiffening plate, preferably of metal, and of the desired form to correspond with the size and shape of the boot, to keep the latter in its original shape, so that the boot will keep its proper place when strapped to the animal.

A neck yoke coupling has been patented by Mr. Samuel Maneer, of Craigville, Ont., Canada. A collar or sleeve is fitted adjustably on the tongue, so that it may be moved along the tongue to suit the size of the draught animals, and this collar has an eye through which the bight of a chain held at one end to the neck yoke is passed, making a reliable and easily adjustable attachment.

A roller skate has been patented by Mr. James B. Harris, Jr., of Geneseo, N. Y. On the rear axle is carried a small additional roller suspended behind, which, by raising the toe of the skate, is brought into contact with the floor, either to guide the movement or apply the brakes, but this roller may be adjusted to bear on the floor for aiding beginners, and the brake may be applied to either the toe or heel of the skate.

A device for moulding brick has been patented by Mr. Silas Wright, of Washington, Middlesex Co., N. J. The base frame has a frame hinged at one end to and movable toward and from the base frame, with cutters on the lower side of the hinged frame, and a moulding box fitted therein, the device being also susceptible of adjustment to make keystone and beveled brick, etc.

A lifting jack has been patented by Mr. Emanuel Nordyke, of Heppner, Oregon. Its construction is such that the center piston of the jack is raised during one stroke of the hand lever, and is automatically held from falling back during the reverse movement of the lever, and the self-sustaining clutch is thrown out of action and the center piston allowed to slide back when required.

A hose coupling has been patented by Messrs. Frank Atherton and Manton T. Bentley, of Paterson, N. J. It is so made that when the ends of two tubes are brought together only two movements are necessary in fastening the coupling, an outward movement of a sleeve to bring it over the joint between the tubes, and a rotary movement of the sleeve to bring the lugs of the two tubes into slots of the sleeve.

A breast strap hook has been patented by Mr. Walter D. Drake, of Santa Fe, Mo. It is pivoted to the breast strap slide or guard, and has a retaining ring for locking the ring of the neck yoke in the hook, the retaining ring having a loop to receive the holdback strap of the harness, the device being calculated to facilitate the work of attaching the neck yoke to and detaching it from the breast strap.

An excavator has been patented by Mr. Cyrus Howard, of Pittsburg, Pa. This invention covers an improvement on a former patented invention of the same inventor, its object being to shear off slices of earth as a plowshare does, to move the earth from the path of the machine to one side, and to throw it to a distance therefrom.

A snow plow has also been patented by the above inventor. It is designed to clear snow from railways, throwing it to one side on levels and in cuts, first removing it from the road bed and then compacting it at the sides, to form inclines down which the snow may slide, in order more conveniently to receive the snow into open cars, and removing it by withdrawing the cars from the cut and dumping at any convenient point.

NEW BOOKS AND PUBLICATIONS.

A TREATISE ON THE MANUFACTURE OF SOAP AND CANDLES, LUBRICANTS, AND GLYCERIN. By William Lant Carpenter. London: E. & F. N. Spon, 1885.

Much of the material comprised in this treatise has appeared before in others of the Messrs. Spon's publications, but in its present form all of the subject matter has been carefully revised and brought down to date. Mr. Carpenter was for several years practically engaged in the industries of which he treats, and has therefore the advantage of both theoretical and experimental knowledge. The manufacture of these commodities is essentially a chemical operation, and the successful manufacturer must needs be something of a chemist. In describing the underlying principles, the sources of the raw materials and the subsequent processes by which they are utilized in these different products, the author assumes that his readers have such a chemical foundation. Treated in this spirit, these processes of manufacture are at once removed from the blind following of cook book recipes to the higher level of an applied science. With the rationale of the matter in mind, the manufacturer can select better materials, prepare them more effectively, and consequently turn out more valuable products. He will find the study of this volume much to his advantage, even if he must prepare himself for it by a preliminary course in chemistry. Sketches of apparatus illustrate the text where necessary.

AN IRON CROWN. A novel tale of the Great Republic. Chicago: T. S. Denison.

In this anonymous novel, an attempt is made to picture in alarming colors the dangers which menace a free government from the amassing of immense wealth in the hands of a single individual or in the still less governable hands of a powerful corporation.

The *Technique* is the title of the first annual issued by the students of the Massachusetts Institute of Technology. It is an exquisitely printed book of 150 pages, containing useful and interesting information for students and their friends, and shows very creditable work on the part of the class of '87.

Among the many calendars which business houses exercise their taste and energy in getting out the first of the year, we notice one of Messrs. Styles & Cash, New York stationers, as showing beautiful work in a clock face form, a removable dial for each month, the twelve tablets mounted on a brilliantly colored card. Another one, by the American Bank Note Company, gives the twelve months in exquisitely colored and shaded divisions, each month being different from every other, and the whole work printed in the most perfect manner. Of statistical calendars, perhaps one issued by Messrs. Palen, Nelson & Co., New York leather brokers, is the most complete. Accompanying each month's calendar are the prices of leather and hides for the corresponding month of four preceding years, and there are tables showing our exports of sole leather and receipts of foreign hides for many years.

Received.

A LUCKY WAIF. Novel. By Ellen E. Kenyon. New York: Fowler & Wells Co., 1885.

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.

Fortune's Favorites

Are those who court fortune—those who are always looking out for and investigating the opportunities that are offered. Send your address to Hallett & Co., Portland, Maine, and they will mail you free, full particulars about work that you can do while living at home, and earn from \$5 to \$25 per day and upward. Capital not required. You are started free. Both sexes. All ages. Some have earned over \$50 in a single day. All is new. All succeed grandly.

For Sale.—One 50 H. P. and one 200 H. P. Corliss Engines, built by Geo. H. Corliss; also one 30 H. P. Portable Engine, built by Erie City Iron Works, nearly new; used only few months. Henry I. Snell, 135 North 3d St., Philadelphia.

Modern M'ch. Tools a specialty. Abbe Bolt Forgers, Power Hammers, Lathes, Planers, Drills, and Shapers. Send for estimates. Forsaith M. Co., Manchester, N. H.

Wanted.—Addresses of parties wishing to pulverize 1,000 tons ore. H. Poole, Box 2942, New York city.

For Sale.—A valuable patent on a Stone or Marble Sawing Machine. Address J. H. Frenier, Rutland, Vt.

To Manufacturers.—The owner of 260 acres of ground at Pittsburg, on the Allegheny River and Pennsylvania system of railroads, in order to improve the property, offers to donate a number of excellent manufacturing sites. See adv. of Whitney & Stephenson, this issue.

Rubber Belting, Cotton Belting, Leather Belting, Economy Belting, and Polishing Belting. Greene, Tweed & Co., New York.

A Sure Thing.

There are very few things in this life of which we may be absolutely certain, but this is one of them: That Dr. Pierce's "Pleasant Purgative Pellets" have no equal as a cathartic in derangements of the liver, stomach, and bowels. They are very small, and their action is pleasant. Purely vegetable, perfectly harmless. 25 cents a vial. All druggists.

Second-hand Engine and Speed Lathes. Send for list to P. O. box 1700, Boston, Mass.

Order our elegant Keyless Locks for your fine doors. Circular free. Lexington Mfg. Co., Lexington, Ky.

Mechanical Stoking saves 35 per cent in cost of steam. Address Brightman Stoker Co., Cleveland, O.

Wanted.—A working millwright able to draught and plan mill, water, and machine work. To a man not afraid of work, and of good ability and high moral character, a desirable situation is open. No others need apply. Best of references required. Address Geo. T. McLauthlin & Co., 120 Fulton St., Boston.

Geo. E. Lloyd & Co., Electrotype and Stereotype Machinery, Folding Machines, etc. Send for catalogue. Chicago, Ill.

Blake's Belt Studs. The strongest and best fastening for Rubber and Leather Belting. Greene, Tweed & Co., 118 Chambers St., New York.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Grimshaw.—Steam Engine Catechism. A series of thoroughly Practical Questions and Answers arranged so as to give to a Young Engineer just the information required to fit him for properly running an engine. By Robert Grimshaw. 18mo, cloth, \$1.00. For sale by Munn & Co., 361 Broadway, N. Y.

Woodw'kg. M'ch'y, Engines, and Boilers. Most complete stock in U. S. Prices to meet times. Send stamps for catalogues. Forsaith M. Co., Manchester, N. H.

Shafting, Couplings, Hangers, Pulleys. Edison Shafting Mfg. Co., 36 Goerck St., N. Y. Send for catalogue and prices.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Haswell's Engineer's Pocket-Book. By Charles H. Haswell, Civil, Marine, and Mechanical Engineer. Giving Tables, Rules, and Formulas pertaining to Mechanics, Mathematics, and Physics, Architecture, Masonry, Steam Vessels, Mills, Limes, Mortars, Cements, etc. 900 pages, leather, pocket-book form, \$4.00. For sale by Munn & Co., 361 Broadway, New York.

Air Compressors, Rock Drills. J. Clayton, 43 Dey St., N. Y. Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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.

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.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

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

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

Wood Working Machinery. Full line. Williamsport Machine Co., "Limited," 110 W. 3d St., Williamsport, Pa.

Curtis Pressure Regulator and Steam Trap. See p. 350.

Iron and Steel Drop Forgings of every description, Billings & Spencer Co., Hartford, Conn.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spencé Co., 419 East 8th Street, New York.

Universal and Independent 2 Jaw Chucks for brass work, etc., both box and round body. Cushman Chuck Co., Hartford, Conn.

The Crescent Boiler Compound has no equal. Crescent Mfg. Co., Cleveland, O.

Curtis Steam Trap for condensation of steam pipes, high or low pressure. Curtis Regulator Works, Boston, Mass.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Emerson's Book of Saws free. Reduced prices for 1885. 50,000 Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa.

Hoisting Engines, Friction Clutch Pulleys, Cut-off Couplings. D. Frisbie & Co., Philadelphia, Pa.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 86 John St., N. Y.

Barrel, Keg, Hogshead, Stave Mach'y. See adv. p. 76.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co., Box 423, Pottsville, Pa. See p. 46.

The "Improved Greene Engine" can be obtained only from the sole builders, Providence Steam Engine Co., R. I.

Hercules Lacing and Superior Leather Belting made by Page Belting Co., Concord, N. H. See adv. page 46.

Planing and Matching Machines. All kinds Wood Working Machinery. C. B. Rogers & Co., Norwich, Conn.

Domestic Electricity. Describing all the recent inventions. Illustrated. Price, \$3.00. E. & F. N. Spon, New York.

Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

Brands cut in Wood, Pattern and Brand Letters. Vanderburgh, Wells & Co., 110 Fulton St., New York.

Brass and Iron Working Machinery, Die Sinks, and Screw Machines. Warner & Swasey, Cleveland, O.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names 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 in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest, cannot be expected 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) J. M. K. asks what kind of cement to use in fastening together the ends of leather belting. A. Use the best and toughest white glue.

(2) E. A. A. asks: Is there such a thing as an iron railroad tie? If there is, why is it not in general use? A. Various forms of iron ties have been invented, and they are extensively used in countries like India, where wood is very dear. In this country wood is cheaper; hence iron ties are little used.

(3) C. H. asks how to make an electric coil used in electrical medical apparatus. A. Make a thin wooden spool $3\frac{1}{4}$ inches long, and $\frac{1}{4}$ in. diameter; wind the spool with 4 layers of No. 24 wire; surround these layers of wire with two thicknesses of writing paper covered with shellac varnish, and upon this wind 8 to 12 layers of No. 36 silk covered copper wire. This will form your coil. Connect the ends of your coarse wire with your interrupter and battery; connect the ends of your fine wire with handles. Make a bundle of annealed wire to fit loosely in the hole of the spool, so that you can withdraw it and insert it to vary the strength of the shock.

(4) M. R. A. asks: How can I put a high polish on a piece of walnut and preserve the natural color? A. If the piece of walnut is small, you can put a high polish on it by rubbing with a mixture of equal parts of shellac varnish and boiled linseed oil. If the piece is large, this would be a laborious process of securing a polish. It would be better to give the article several coats of varnish, rubbing each coat down by means of pumice stone and water; and finally applying a flowing coat of fine, hard drying varnish. If this does not produce the finish required, you can rub the last coat down with fine pumice stone and finish it with rotten stone.