

ENGINEERING INVENTIONS.

A rotary engine has been patented by Mr. John W. Emerson, of Opoka, Fla. It has a driving wheel with a central passage, and curved passages radiating therefrom to and through the periphery of the wheel, to receive and discharge the steam or other driving fluid admitted under pressure through a hollow shaft of the wheel from a supply pipe.

An automatic railway gate has been patented by Mr. James K. Patterson, of Crete, Neb. It has main bars pivoted to a side post, and pickets hinged to the bars, so that as the gate is lifted vertically by the weight of an approaching train, the pickets will hang down somewhat as a fan closes, and after the train has passed the gate will come down in place mainly by its own gravity.

AGRICULTURAL INVENTIONS.

A corn planter has been patented by Mr. John A. Cherry, of Roads, Mo. By this device the corn is clucked by knife blades mounted on a revolving axle, which mark the ground at every hill of corn deposited, and the weight of the driver is utilized to effect the desired pressure on the runners and wheels for working the marking knives.

A seed planter has been patented by Messrs. James A. Roden and Nicholas C. Morgan, of Deerbrook, Miss. It is more especially intended for planting cotton seed, and provides means whereby the seed discharged at one time can be regulated, the soil packed upon the seed and the top of the row rounded and the plows adjusted to work at any desired depth or be supported above the ground.

MISCELLANEOUS INVENTIONS.

A revolving sign has been patented by Mr. John F. Bengert, of Brooklyn, N. Y. This invention covers a manner of constructing signs in such way that they will be revolved by the wind, and thus attract attention, the construction being simple, and signs so put up not liable to get out of order.

A lathe chuck has been patented by Mr. Edward Pement, of Esmond, Dakota Ter. This invention relates to improvements on a recently patented improvement of the same inventor, and provides a simplified construction, intended also to render the chuck more effective.

A blind slat adjuster has been patented by Mr. Peter Rundquist, of New York city. The slats have end recesses, and cranks with side lugs on their stems engage with these recessed ends to turn the slats, while the slats can thereby be readily adjusted to any desired angle.

A cabinet for tobacco, cigars, etc., has been patented by Mr. Charles N. Swift, of New York city. It has a water receptacle and novel construction of capillary conductors, whereby the air throughout the interior of the cabinet may be kept at uniform humidity, and the degree of moisture may be readily regulated.

A ticket case has been patented by Mr. William M. Stevenson, of Adelaide, South Australia. Combined with a containing case and its inclosed spring pressed follower is a sliding cap with slots to receive lugs on the follower, whereby tickets may be forced out of the case one at a time as desired.

A vegetable grater has been patented by Mr. Peter Blum, of Orville, Mo. It is made in cylindrical form, of sheet metal, punched to form the cutting points, and attached at one end to a circular head, the opposite end being open, through which the grated material is discharged, the cylinder being revolved by a crank.

An embroidering machine has been patented by Fridolin Schnelle, of West Hoboken, N. J. This invention relates to improvements on the Heilmann or Swiss embroidering machine, with special reference to those designed for embroidering handkerchiefs, and relating particularly to the construction of the immediate attaching frame carried by the tambour frame.

A draught equalizer has been patented by Mr. Joseph M. Langston, of Berlin, Ill. It is a device adapted for use with four horse teams, and so constructed that with its use an equal amount of the load will be drawn by each animal, the invention being an improvement on a former patented invention of the same inventor.

A swimming apparatus has been patented by Mr. William J. Corbett, of Tucson, Arizona Ter. To the under side of a plate made to conform to the bottom of the foot is pivoted a blade frame carrying a novel construction of feathering web, giving a broad surface for the stroke, which surface is diminished on the return movement of the leg.

A clamp for stopping leaks and bursts in pipes has been patented by Mr. William W. Knight, of Jersey City, N. J. It has a side opening and interior recesses at the opposite sides, with a pad of leather, copper, or other suitable material, concave saddle, and key, whereby the pad and saddle can be readily forced down upon a pipe and held in place.

A water elevator has been patented by Mr. Robert C. Dugan, of Millersburg, O. This invention covers special devices for lifting water by a windlass from wells, in connection with a carrier, with pulleys, by which the water may be carried horizontally to a distance and delivered in a spout or as otherwise desired.

A mechanical movement has been patented by Mr. Frederick Reed, of Solomon City, Kansas. This invention covers a novel arrangement and combination of parts by means of which motion can be transmitted from one crank to another, or from a reciprocating bar to a rotating crank, or from a crank to a reciprocating bar, avoiding dead centers.

A fetter for cows' tails has been patented by Mr. Benjamin S. Slinn, of Spring Valley, N. Y. It consists of an anti-switching attachment, made with a rod having spring clamps, whereby the attachment can be readily applied to and detached from a cow's tail, to prevent the cow from switching her tail in the milker's face.

A safety attachment for watch pockets and similar uses has been patented by Mr. John H. Barnes, of Greencastle, Ind. It has a plate to be secured to the pocket with a chain-supporting hook and a lock, with a watch-securing device, whereby the watch may be made fast and the chain passed up over the hook, so that any strain only binds the watch more firmly.

A mail bag catcher has been patented by Messrs. Ethan Allen and William H. Harrod, of Sellersburg, Ind. It is attached to a crane or post at the side of the tracks, and so madethat at the same time a pouch is taken from the crane by the gripper on the car a pouch is taken from the car by the gripper on the crane, a bar being reversible to catch pouches on trains running in either direction.

A gas pressure regulator has been patented by Mr. Robert F. Hatfield, of New York city. Combined with the inlet pipe and regulator having valve apparatus operated by the gas pressure is a float and attached valve operated by the rise and fall of the liquid constructed in such manner that the float valve and the regulator valve shall be independent of each other.

A telegraph sounder has been patented by Mr. Alphonso S. Keating, of Corry, Pa. The invention consists of a novel combination with a magnet coil of a pivoted armature in which a diaphragm is held, to be used as a telephone when the telegraph signals cannot be understood readily, or as a telegraph instrument when the telephonic communications are rendered indistinct by induction.

A soldering iron has been patented by Mr. Henry M. Dixon, of New York city. The larger or tip end is countersunk, with an oblique perforation, in which is removably fitted a copper tip, that may be replaced by another of different shape, according to the work required, the construction being such as to give the greatest amount of metal to retain the heat at the working end of the stock.

A machine for sawing hoop poles has been patented by Mr. Edwin Powell, of Williamsport, Pa. This invention provides a machine with which the hoop may rest flat at the point of sawing, whether the pole be bent or straight, so that crooked poles may be cut with greater facility, and the gauge is simple, held rigidly at right angles to the saw, and moving freely therefrom in the arc of a circle.

A watchmaker's screw driver has been patented by Mr. Oliver L. Neal, of Waltham, Mass. It is also adapted for holding and working a drill, and has a flexible thumb and finger pieces to allow them to be bent according to the hand of the operator, in working a miniature pinion wheel and rack bar, whereby a screw can be turned in or out at one movement or a drill rapidly rotated.

A combination folding bed has been patented by Mr. Abraham T. McCurry, of Goodland, Ind. It is adapted for construction with a bookcase or other upright article of furniture, having an apartment at the top for bed clothing, the bedstead being attached by plates to corner irons in the case, which irons constitute two of the legs of the bedstead when it is lowered to a horizontal position.

A bark cutting machine has been patented by Mr. John C. Hagerty, of Santa Cruz, Cal. It has a rotating wheel within a suitable casing, the wheel being provided with knives, which cut off the ends of the bark as the latter is fed down a chute, the cut off ends of the bark being carried inward toward the hub of the wheel and then inward ejected to fall downward through an opening in the bottom of the casing.

An apparatus for dyeing has been patented by Messrs. John O'Connell and Frank E. Weeden, of Providence, R. I. Combined with operating and supply tanks and a force pump is a system of pipes, and other novel features, intended to dye, wash, under pressure and a continual stream of either liquor, air, or gas, wool in the fleece, card balls, roving and yarn, in hank or in spools, as well as cotton, flax, and jute, and other fibrous or woven materials.

A pump has been patented by Mr. Hiram M. D. Babcox, of San Francisco, Cal. The air chamber has an open lower end combined with the plunger, the upper enlarged end of the pump case, and an enlarged upper air chamber with a lower open end, and the combination with these parts of the working barrel with a surrounding water space, the invention being an improvement on a former patented invention of the same inventor.

A damper regulator has been patented by Messrs. Charles A. McDonald and Charles W. Townsend, of Portland, Oregon. This invention covers means whereby a positive action or direct pressure of the working vapor, gas, etc., is used to close the damper or valve, also means for providing for the escape of the vapor or gas after it has performed its work, and for draining the connections of fluid or condensed vapor. The same inventors have likewise patented a damper regulator for steam boilers on the same principles, but especially applicable to controlling the dampers in the ash pans of locomotive steam boilers.

A billiard cue tip fastener has been patented by Mr. Henry A. Harmer, of East Newark, N. J. This invention consists in the combination, with a cue tip, of two half screws or pins having prongs passed into the tip, the half pins or screws being secured in the end of the cue, and thus holding the tip on the end of the cue, or the fastening may thus be permanently made with glue. For State rights for this patent apply to J. Harmer, 236 Harrison Avenue, East Newark, N. J.

NEW BOOKS AND PUBLICATIONS.

THE PRACTICAL ESTIMATOR. By J. D. Sibley and A. O. Kittredge. New York: David Williams, 1885.

Furnishes in a compact form some very good hints upon how an estimate should be prepared, a complete list of the items to be considered, and a table of rules and formulæ for calculating quantities. With this assistance he can go to work at once, without puzzling himself as to whether anything has been forgotten.

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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.

One Cent Invested

In a postal card on which to send your address to Hallett & Co., Portland, Maine, will, by return mail, bring you free full particulars about work that both sexes, of all ages, can do and live at home, earning thereby from \$5 to \$25 per day, and upward. Some have earned over \$50 in a single day. Capital not required; you are started free.

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn. Metallic Pattern Letters and Figures to put on patterns of castings. H. W. Knight, Seneca Falls, N. Y.

The Beginning of Consumption.

Blisters, pimples, eruptions, "fever sores," ulcers, and enlarged glands are but so many outward manifestations of poisonous and scrofulous humors in the blood, which sooner or later are apt to attack the delicate tissues of the lungs, causing ulceration and consumption of these organs. Be wise in time and use Dr. Pierce's "Golden Medical Discovery," the greatest blood purifier, pectoral, and strength giver yet known to medical science. It cures all these dangerous maladies having their origin in the blood, if taken in time.

Tunneling Under the Hudson River. Giving full particulars of the prosecution of the work thus far. With working drawings, in 27 handsome plates, showing all details. By S. D. V. Burr. \$2.50.

Catarrh, Catarrhal Deafness, and Hay Fever. Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result is that a simple remedy has been formulated whereby catarrh, catarrhal deafness, and hay fever are cured in from one to three simple applications made at home. A pamphlet explaining this new treatment is sent free on receipt of stamp by A. H. Dixon & Son, 305 King Street West, Toronto, Canada.—Christian Standard.

Wm. Frech, Manufacturer of Sensitive Drills, Turret and Speed Lathes, Power Punching Presses, 68 W. Monroe St., Chicago.

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.

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.

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

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

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 Catalogue.—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.

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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.

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

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

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Cyclone Steam Flue Cleaners are the best. Crescent Mfg. Co., Cleveland, O.

Curtis Pressure Regulator for Steam Heating Apparatus, Waterworks, etc. Curtis Regulator Works, Boston, Mass.

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

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 93.

Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 136 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

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

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

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

Pattern and Brand Letters, Steel Punch Letters. Vanderburgh, Welis & Co., 110 Fulton St., New York.

Astronomical Telescopes, from 6" to largest size. Observatory Domes, all sizes. Warner & Swasey, Cleveland, O.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for your 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. W. asks: Will you please inform me, through the correspondence column of the SCIENTIFIC AMERICAN, of what the prisms of a Leclanche battery are composed of? A. They are formed of granulated oxide of manganese, and a small percentage of cement material, such as shellac. 2. Is it necessary in all cases, in the construction of a dynamo machine or electric motor, to use a smaller gauge of wire on the armature than on the electro magnets, and if so, in what ratio is the difference generally made? A. The winding of the armature and field magnet of a dynamo electric machine depends altogether upon the use to which the machine is to be applied. It is not always necessary that the wire of the armature should be smaller than that of the field magnet. In Edison's large machines the winding of the armature consists of large copper bars, while the winding of the field magnets consists of wire very much smaller than the copper bars of the armature. 3. Is the carbon taken from gas retorts identical with that used in electric batteries. If so, how is it prepared? A. It is of the same character, but of better quality than is generally employed. Battery carbons are generally prepared from selected pieces of coke, pulverized and mixed with carbonized cement, and afterward carbonized in a closed retort.

(2) E. M. D.—Oil barrels are painted with glue and any cheap color. Where large quantities are used, the color and glue, of the consistency of oil, is run through a paint mill. Chalk or whiting tempered with yellow ochre or indigo blue is the color generally used. It is not for sale mixed. The paint trade can furnish the materials.

(3) G. W. D. asks: Can vinegar be deodorized without impairing its efficacy? A. The odor of vinegar will be lessened by filtering the fluid through charcoal. Its strength will not be impaired by this process.

(4) A. C. J. asks: What is the best way to clean alabaster? A. Soap well, and wash with hot water. If stained, apply fuller's earth, pipe clay, or whiting for three or four hours, then wash off. If very dirty and stained, first wash with nitric acid diluted with water.

(5) W. B. asks for a formula for making flint glass. A. The following quantities form a very excellent glass:

Fine white sand.....	300 parts.
Red lead or litharge.....	200 "
Refined pearl ashes.....	80 "
Niter.....	20 "

Arsenic and manganese, a small quantity.

(6) R. C. B. writes: A bets B that there is only one pair of driving wheels on a locomotive. B bets A there are two pairs. Which is correct? A. All are driving wheels that are connected with the cylinders, directly or indirectly.

(7) W. R. C. writes: I am interested in building a small steamer. I have an engine 8 inches in diameter and 8 inches stroke. Cutting off steam at half stroke, what heating surface will I require to keep 100 pounds pressure running at 300 revolutions per minute? Also, can a single slide valve be used to cut off steam at half stroke advantageously? A. You will require 434 square feet of heating surface in your boiler. A single slide valve can be made to cut off at half stroke, economizing 86 per cent of the initial pressure, for which the lap should be arranged for the cut off at half stroke. We recommend you McCord's "Practical Treatise on Valve Gear," which we can furnish for \$3.

(8) R. F. desires a good cement that will cement asbestos, one that does not contain grit. A. See the article on "Cements," contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 158. Ordinary glue would be all that is necessary if the asbestos is to be used with wood.

(9) W. A. O. asks for a simple method of testing coal oil. A. A simple petroleum tester is described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 263.