

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**ROTARY ENGINE.**—Charles Ludvik, Brooklyn, N. Y. It is of that class in which a winged piston revolves in a cylindrical steam or fluid chamber having abutment chambers opening into opposite sides, in which rotary fluid abutments are arranged to alternately cut off the annular space around the piston and be retracted to permit the piston wing to pass, the invention providing for a light construction with simple means for reversing the engine.

**CAR COUPLING.**—George W. Dawson and Benjamin F. Cleveland, of Sac City, Iowa. A sliding plate fitted in a cavity in the drawhead has a projection engaging a pivoted bar to raise and lower the coupling pin, which is placed in position for coupling by a lever at the side of the car, and when the cars come together the entrance of the link in the drawhead causes them to couple automatically.

**STATION INDICATOR.**—Philip A. Shanklin, William R. Swager, and William Swager, of Sandoval, Ill. It is designed for street and railway cars, and adapted to be operated by a lever, pull rope, or other power, the invention covering a novel construction, combination, and arrangement of parts.

**CABLE RAILWAY.**—John Wilde, Providence, R. I. It is designed for use as a conveyor of coal, stone, gravel, and similar articles, or for conveying work, merchandise, or change from one room to another in the same building or different buildings, the invention covering various novel features of construction and combinations of parts.

**PUMP.**—William Keast, Russell Gulch, Col. It is specially designed for raising impure water from mines and other places, and to separate the impurities from the water before the latter reaches the surface, the invention covering various novel features of construction.

**COTTON PRESS.**—George J. Loyall and James M. Moyers, Richmond, Va. It is adapted to be operated by hydraulic power, the construction being designed to compress eight hundred to a thousand pounds of cotton to a bale of the usual size containing only four to five hundred, while doing the work with less labor and in the same time.

**SAW MILL FEED.**—Newton Hoffman, Elizabeth, West Va. Friction cone pulleys are arranged in peripheral contact and placed between the source of power and the carriage pinion, for propelling the carriage of saw mills or other machines back and forth at variable rates of speed, or holding it stationary as desired.

## Miscellaneous.

**VENDING APPARATUS.**—Henry Gates, Brooklyn, N. Y. It has a magazine with vertical tubes, in which are placed goods made up in packages to be delivered to a sliding drawer in exchange for a coin dropped in a slot, the machine being simple in construction and easy of operation, while it is designed to be impossible to work it by a coin of other denomination than that arranged for.

**SHOULDER BRACE.**—Mattie A. Van Alstine, Armstrong Springs, Ark. Its construction is such that when applied to the person the brace will not cut at the arms, pressure being taken away from the arm pits, while it is designed to effectually restrain a person from growing round-shouldered, without restricting the free action of the lungs.

**NEEDLE THREADER.**—James M. Miller, Richmond, Va. The body of the threader is formed of a single piece of spring wire doubled upon itself to form nearly parallel arms, to the extremity of one of which the thread hook is rigidly attached, the thread being drawn through the needle by direct pressure, the elasticity of the arms serving only to project the hook through the needle eye.

**CALCIMINE.**—Charles W. Hurd, Glens Falls, N. Y. This is a new composition of matter for a wash or finish for the interior walls of buildings, and consists of shell marl and sufficient glutinous matter to prevent it rubbing off when applied, with coloring matter as desired.

**RULING AND PRINTING MACHINE.**—George T. Patterson, New York City, and James W. Dickieson, Brooklyn, N. Y. This invention covers a novel construction and combination of parts making a machine for ruling sheets of paper and printing matter in perfect alignment and impression on the ruled sheet.

**VEHICLE SHAFT SUPPORT.**—Andrew T. Sears, Bridgeport, Conn. It consists of a frame with means for attaching it to a carriage spring or cross bar, a bar being pivoted to the frame for engaging and supporting a pair of shafts, for holding the shafts of a vehicle up out of the way when not in use.

**MAIL BAG.**—Carson C. Cook, Camas, Idaho Ter. The locking devices and the formation of the bag at the mouth are simplified, and a means provided whereby, when the bag is locked, matter cannot be abstracted without an indication on the surface of the bag denoting the attempt.

**BOOK HOLDER.**—Edward H. Roys, Spencertown, N. Y. It consists of pivoted and folding bars, with inwardly extending clips at the outer ends of arms, the holder offering no obstacle to the free turning of the pages of the book, and being likewise adapted for holding manuscripts, its construction being very simple.

**BOOK SUPPORT.**—James W. Coultas, Clinton, Ill. It is designed for holding dictionaries and other large and unwieldy books, the support having hinged side frames which close together to shut the book with a spring, the side frames, when opened, throwing the springs out of action, so that the book may lie at rest in opened position.

**WHIFFLETREE COUPLING.**—B. F. Alvey, St. Mary's, Ind., and Frank Lesneure, Marshall, Ill. [The latter only to be addressed in relation to the patent.] This invention provides a simple device for

coupling whiffletrees to doubletrees to allow of free horizontal play to both trees without rocking motion of either and without strain on the pivot bolt which connects the trees.

**AUTOMATIC PUMP.**—Francois Romain, Grenoble, France. The device is provided with a water cylinder, pressure-regulating mechanism, and air pump, for operating upon a cask in which beer or liquor is stored, whereby air may be forced in and the contents of the cask forced out of the discharge orifice or faucet.

**EGG PACKAGE.**—Arthur S. Hoyt, Hoboken, N. J. It consists of a casing formed from a blank of pasteboard, with a removable cell frame, consisting of longitudinal strips interlocking with cross strips, and forming therewith and with the casing a series of egg cells, making a package adapted to be packed in quantities in crates without liability of breaking the eggs.

**TOBACCO CURING.**—Edwin R. Bardeen, Aiken, S. C. This invention provides an apparatus for admitting into the curing house in which green tobacco is hung dry heated air or moist heated air alternately, under absolute control of the attendant, for drying and sweating out the nicotine and empyreumatic oils, and quickly curing and bleaching the tobacco to the desired color.

**ELECTRIC LETTER BOX.**—Charles F. Harms, of Hoboken, N. J. This improvement is in the form of an electric attachment whereby the circuit will be closed during the mechanical lifting or removal of the cover to insert mail matter in the box, thereby giving an alarm, which may be located at any desired point.

**SHIRT.**—Charles and Jacob Falkenberg and Morris Jones, New York City. This invention relates to woollen shirts having attached collars which may be turned in so that a linen collar can be worn, and the construction of the collar band and attached collar is such that when the collar is turned in, all uncomfortable fullness at the neck is avoided.

**HAT OR BONNET HOLDER.**—Nancy E. Veatch, Gales Creek, Oregon. The device consists of a coil of fine wire with fastening devices at its ends for securing the coil to a hat or bonnet, the coil being of suitable length to pass under the hair of the wearer and of sufficient elasticity to close snugly between the hair and head.

**VALVE.**—Johan A. Brudin, New York City. It is designed especially for use in connection with flasks of aerated waters, or "siphons," and has a pouch-like packing, a spring-pressed piston arranged in connection therewith, and a thumb piece to throw the piston against the tension of its spring.

**SCAFFOLD BRACKET.**—William H. Higgins, Forest City, Pa. The bracket proper consists essentially of a flattened forwardly extending tongue and an outwardly extending projection formed with claws, the invention being an improvement on a former patented invention of the same inventor.

**STUMP EXTRACTOR.**—John Cornelius, Evansville, Ind. Combined with a chain wheel and a worm wheel formed in sections arranged on opposite sides of the chain wheel, a worm is fitted to mesh with the sections, the machine being drawn to face the direction of greatest strain, changing its direction as one, two, or more stumps of a group are pulled.

## Business and Personal.

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Safety Elevators, steam and belt power; quick and smooth. The D. Frieble Co., 112 Liberty St., New York.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28.

Lathe for cutting irregular forms. Handle and spoke lathes. I. E. Merritt Co., Lockport, N. Y.

Patent swing cut-off saw, with patent shield for saw. Rollstone Machine Co., Fitchburg, Mass.

Belting.—A good lot of second hand belting for sale cheap. Samuel Roberts, 369 Pearl St., New York.

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## NEW BOOKS AND PUBLICATIONS.

A DICTIONARY OF TECHNICAL AND TRADE TERMS. London and New York: Ward, Locke & Co. Pp. xxxv. Price \$2.

This dictionary covers principally terms related to architectural design and building construction, and is remarkable for the completeness with which it gives the derivations of and French and German equivalents or synonyms for the various terms. The dictionary is distinguished by a comprehensiveness of terms and a fullness of their definitions calculated to make it practically useful to artisans and mechanics in a variety of industries.

TWENTY YEARS WITH THE INDICATOR. By Thomas Pray, Jr. New York: John Wiley & Sons. Pp. 284. Price \$2.50.

Mr. Pray's work under this title has already become well known to engineers, but this edition represents what has formerly appeared in two volumes, all now newly arranged and complete in one volume. It is written as a practical text book for the engineer or the student, with no complex formulæ, and with many illustrations and rules as to the best way to run any steam engine to get the most economical results, showing how to adjust valves and to work out horse power, determining the amount of steam or water per horse power, the economy of fuel, etc.

## SCIENTIFIC AMERICAN

## BUILDING EDITION

DECEMBER NUMBER.—(No. 38.)

## TABLE OF CONTENTS.

- Elegant plate in colors, showing three designs for small cottage dwellings, for twenty-five foot lots. Cost, fifteen hundred dollars each. Floor plans, details, etc.
- Plate in colors, illustrating a village school house, to cost three thousand dollars. Details, floor plans, etc.
- Full page illustration of the great chimney at the Clark Thread Works, Kearney, N. J. Height, 335 feet. The tallest chimney in America.
- Perspective view and floor plans of an attractive residence built at East Orange, N. J. Cost, eight thousand five hundred dollars.
- A cottage recently erected on Sound View Hill, New Rochelle, N. Y. Plans and perspective. Cost, four thousand dollars.
- Views of the Pratt Institute for Industrial Education, Brooklyn, N. Y.
- A cottage for four thousand three hundred dollars, recently erected at Rochelle Park, N. Y. Plans and perspective.
- Perspective and floor plans of an attractive cottage built recently at East Orange, N. J. Cost, six thousand dollars.
- A suburban villa built lately at Richmond Hill, Long Island. Cost, seven thousand dollars. Plans and perspective.
- Engraving of a country residence at East Orange, N. J., with plans and perspective. An excellent design.
- A residence on Renolds Terrace, in Orange, N. J., lately built at a cost of eight thousand dollars. Perspective view and floor plans.
- Design for the new court house and post office, Abingdon, Va.
- Design for the new building for the United States post office, etc., at Dayton, Ohio.
- An admirable design for a suburban residence of the Queen Anne type, recently built at East Orange, N. J. Cost, nine thousand dollars. Perspective and floor plans.
- Perspective and plans of a barn and carriage house built at Richmond Hill, Long Island. Cost, eight hundred dollars.
- The Villa Reiss, near Cronberg, Tannus Mountains, Germany. New residence of the Empress of Germany.
- Miscellaneous contents: Publication of designs.—The Drexel building, Philadelphia.—Ancient sanitation.—Effect of adding sugar to cement.—The New York safety dumb waiter, illustrated.—The automatic regulation of the temperature in houses, illustrated.—The Aldine fireplace, illustrated.—The Howard combination heater, illustrated.

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## Notes &amp; 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.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(1) C. F. asks for a receipt or two of a method for making heavy felted goods waterproof, if such a thing can be done. A. Stretch the piece in a frame and rub with beeswax on wrong side. Then melt in with a hot smoothing iron. Or use paraffin in the same manner. Also see SCIENTIFIC AMERICAN SUPPLEMENT, No. 317, which we can send by mail for ten cents.

(2) H. W. O. asks: Can you give me a receipt in your Notes and Queries column to make a solution to brass-plate with? I have a five-gallon tank; the zinc goes to the bottom, and the copper deposits. A. The articles must be prepared with great care, by pickling, etc., so as to be perfectly clean. Then for bath use:

Best sheet brass.....1 ounce.  
Nitric acid (by measure) about.....4 "  
Water.....2 "

After action ceases, if no brass is left undissolved, a little must be added, as an excess of metal is requisite. Pour off the solution from undissolved brass and dilute with three to four times its volume of water, add ammonia (0.880) until all is clear blue in color, then add cyanide of potassium until the color turns yellowish. It should stand twenty-four hours, and be filtered before use. Use not less than 2 volts E.M.F. Use a brass anode. The anode must not be too large or too small. Watch color of deposit, and lower or raise anode until the deposit is yellow. A large anode gives zinc, a small one copper. Keep article quiet while in bath.

(3) P. J. R. asks how he could stain or dye cheaply sawdust the following colors, viz., bright yellow, bright green, light blue, bright red, and if possible a pure white. A. Use aniline colors or Diamond dyes. You will not succeed in producing pure white. Bleaching with chloride of lime or javelle water will give you an approach to it, but may injure the fiber.

(4) W. R. asks: 1. How many Grove's batteries, zincs 2 inches wide by 3 inches long, and platinum 1 inch wide by 3 inches long, would it take to operate a 20 candle power incandescent lamp? A. About 30 cells. 2. How is aniline green manufactured? A. Spens' Encyclopedia, part II., which we can supply for 75 cents, contains a treatise on aniline colors. 3. If tin foil pasted on a board and cut into small squares about a quarter of an inch apart, and connected with the secondary binding screws of an induction coil, would give a light sufficient to light a room 12 feet by 12? A. No.

(5) A. A. F. asks: What is the paste composed of that stereotypers use for making matrix for moulding plates or "turtles" for the web perfecting printing presses? A. Take 5 ounces flour, 7 ounces white starch, 1 large teaspoonful powdered alum, and 4 quarts water. Put the flour, starch, and alum in a saucepan and mix in a little of the water, cold, to about the consistency of thick cream. Then gradually add the remainder of the water, which must be boiling, stirring well meanwhile, to prevent lumps. Then put the whole of it over a fire until it boils. Then allow it to stand until quite cold. When you are ready for work add Spanish whiting, the mixture not to be too stiff, to spread readily with a paste brush. Put through a fine wire sieve with a stiff brush, and it is ready for use.

(6) J. P.—For the horse power of an engine, multiply the square of the diameter of the cylinder by the decimal 0.7854, and this product by eight-tenths of the boiler pressure, if the cut-off is not known. Multiply the last product by the speed of the piston in feet per minute (or twice the stroke in feet and decimals, multiplied by the revolutions per minute). Divide the last product by 33,000 for the horse power.

(7) C. M.—For etching on steel use a ground made of asphalt and beeswax equal parts melted together. Warm the article, and even the ground with a dabber made of cotton in a silk cover. Scratch the figure, and bite with nitric acid mixed with three to four parts water. If you wish to stamp the figure, put a little linseed oil with the above ground to make it as thin as printer's ink. Print with a rubber stamp, and cover parts not required to be bitten with a varnish of asphalt and turpentine.

(8) A. M. M. asks: Is there any place in United States where sheet tin is manufactured? A. We know of but one, the United States Iron and Tin Plate Company, Pittsburg. We export block tin, and import tin plate.

(9) C. A. B. asks the position of the Brooklyn Bridge by the points of the compass. A. It lies very nearly north and south, or NNW. by SSE.

(10) A. B. F. asks how silver-plated ware is treated after being taken from the plating bath. A. Dipped in a boiling solution of caustic potash, one-fourth pound to a gallon of water, then rinsed in hot water, dried in fine boxwood sawdust, and burnished.

(11) G. S. asks: 1. Do ashes made from soft coal form a good material to cover a steam pipe