

ENGINEERING INVENTION.

A steam generator has been patented by Mr. Alfred Musil, of Steyr, Austria-Hungary. It is a rotatory generator, in which the water is subjected to the action of the heat in comparatively thin layers within receptacles presenting extended heating surfaces, there being but few joints requiring to be made steam tight, and the configuration of the parts being such that they will best resist strain.

AGRICULTURAL INVENTION.

A fender has been patented by Messrs. Walter McCoy and James McArthur, of Miltonvale, Kansas. It is an improved fender for corn, comprising a draught bar and a shield loosely connected therewith, a chain or similar support sustaining the weight of the draught bar and relieving the shield of the pressure, efficiently protecting the plants over which the shield or fender passes.

MISCELLANEOUS INVENTIONS.

A staple driver has been patented by Mr. Willis W. Bloodworth, of Molino, Fla. The invention covers a novel construction and arrangement of parts in a device for driving staples when building wire fences, the wire being held in position while the staples are driven over it.

A grinding and polishing material has been patented by Mr. Charles M. Lindsey, of Pittsburg, Pa. This invention covers a process of making such material of pulverized steel, the steel being first heated to a high temperature, then immersed in a bath of water, salt, and soda, and the crystals subsequently pulverized.

A toggle fastening for buttons, etc., has been patented by Mr. Charles V. Richards, of Skowhegan, Me. It is a needle-pointed toggle, so made as to not only form a slotted and crooked fastening, but also to puncture and make its own passage through the garment or fabric when attaching the button or article to its place.

A process of making pyrosulphates has been patented by Mr. Heinrich Baum, of Mannheim, Germany. It consists in heating the acid sulphates of the alkali metals, as also of ammonia, in a vacuum, to temperatures below brown heat, or between 200° and 400° C., it being feasible to perform the operation in cast iron vessels.

A bow resining attachment for violins has been patented by Messrs. Edwin M. and Ernest S. Comstock, of Cascade Valley, N. Y. It consists in a resin dust box supported near the strings of the violin, so that its vibrations when in use will cause the resin to fly on to the strings and bow, and make the usual resining by hand unnecessary.

A bobbin catch for spinning machines has been patented by Mr. Isaac L. Allen, of Brooklyn, N. Y. It is a thimble-like catch inserted within or through the head of the bobbin, and having an interior flange on its outer end, reducing the cutting and wear of the button and its catch, while the catch or thimble may be turned in its seat to change the weaving surfaces.

A carpet stretcher has been patented by Mr. Andrew McFarland, of Thomaston, Me. Combined with a lever and brace having a longitudinal slot, with a guide bar mounted to ride in the slot, is a spring-actuated clamp with an eye embracing the guide bar, a shoe and slip ring, with other novel features, whereby great power, efficiency, and convenience in use are obtainable.

A gauge attachment for scroll sawing machines has been patented by Mr. Frank R. Schloer, of Baltimore, Md. It is adjustably supported in accordance with a novel construction above the work passage or support, and adapted for use in sawing circular and irregular forms, being calculated to save time and labor and insure greater accuracy and neatness of work.

A tapered nail has been patented by Mr. John Hyslop, Jr., of Abington, Mass. This invention covers a new article of manufacture consisting of a nail having the longer dimension of its point about parallel with the longer dimension of the upper part or head portion of the nail, so the nail can be driven easily and truly without splitting the work, and will hold well.

An oil vapor heater has been patented by Mr. William W. Batchelder, Jr., of Boston, Mass. It is of that class in which a wick draws up the oil, which is vaporized at the wick by a small initial flame and then passes as unconsumed vapor to the burner proper, the device preventing the escape of bad odors, increasing the heating capacity, and regulating the vaporization of the oil.

An elevator hatchway has been patented by Mr. Edwin Spencer, of Brooklyn, N. Y. This invention provides a series of plates or platforms beneath the car, and independent thereof, adapted to close the hatchway at each story as the car ascends, and a second series of plates carried by the car, independent of the first series, adapted to cover the hatchway at each story as the car descends.

A thill coupling has been patented by Mr. Frank L. Burton, of Erie, Pa. It has an anti-rattler and pivot-holding device of an elastic plate or plates placed between the coupling clip or axle and the thill iron eye and forcing the eye to the pivot, a flange plate connected to the elastic plates bearing against the end and side of the pivot to prevent endwise displacement and rotary motion thereof.

A thill coupling has been patented by Messrs. Henry and John Knupp, of Warren, Pa. Combined with a pivoted thill iron and anti-rattler placed next thereto are opposite plates clamping the anti-rattler, one of the plates having a lug overlying the head of the thill iron pivot, the device obviating rattling, preventing loss of the pivot, and promoting the durability of the entire coupling.

A bailer has been patented by Mr. David F. Brown, of Washington, Pa. This invention relates particularly to bailers with a body or tube the lower end of which has a valve-seated opening, a valve for closing the opening, and a dart or stem fixed to the valve and extended out of the tube or body, being especially designed for bailing the sediment out of oil and artesian wells.

A drag saw machine has been patented by Mr. Cornelius W. Wright, of Democracy, Ohio. It is a portable device having a longitudinal beam having a pin at one end to engage the log, and supported by hinged legs at the other end, an operating lever being pivotally supported in the hinged legs, and standards pivotally connected to the beam supporting the saw in working position.

A machine for making paper tubes has been patented by Mr. Thomas Granger, of New York City. Combined with a mandrel having one end unsupported and an endless belt arranged in connection therewith are fixed rollers and rollers carried by swinging arms, one pair of the arms having extensions carrying a paste-applying roller, with other novel features, the machine being of simple construction and designed to make paper tubes quickly.

A clock has been patented by Mr. Henry A. Russell, of Boyne City, Mich. The invention covers a novel attachment adapted to carry multiplying gearing, whereby clocks made to run only a short period can be readily made, at but slight expense, to run for a much longer time without winding up, as, for instance, a thirty-hour clock can be made into an eight-day clock, or longer, and the attachment can be applied to clocks run by springs or weights.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER NUMBER.

TABLE OF CONTENTS.

1. Elegant Plate in Colors of a Suburban Dwelling costing about Nine Thousand Two Hundred and Fifty Dollars, with floor plans, specifications, sheet of details, etc.
2. Plate in Colors of a Dwelling erected near Wareham, Mass., at a cost of Twenty-eight Hundred Dollars, with full specifications, floor plans, sheet of details, etc.
3. The Shakespeare Memorial at Stratford-upon-Avon.
4. Perspective view and floor plans of a Residence to cost Eight Thousand Dollars.
5. Engravings of Five Tasteful Residences recently erected at Glenridge, N. J., varying in cost from Four Thousand to Six Thousand Five Hundred Dollars.
6. Perspective view, detail drawings, specifications, roof, and floor plans of a Two Thousand Five Hundred Dollar California House.
7. Engravings showing interior and front view of Chateau of Castelnaudary. M. Aubry, Architect.
8. Lea Hurst, Derbyshire, the home of Miss Florence Nightingale.
9. Elevations and floor plans of Homes of Factory Operatives at Willimantic, Conn.
10. Bathing House and Saloon at Vittel. Built by Charles Garnier, Architect, of Paris.
11. Floor plans and perspective sketch for a Cottage costing about Five Thousand Five Hundred Dollars.
12. Perspective view and floor plans of a Cottage costing Four Thousand Two Hundred Dollars.
13. Front and rear perspectives, with plans, for a Handsome Stable being erected in Brooklyn, N. Y. Cost, Five Thousand Five Hundred Dollars.
14. Perspective view and floor plans of a Residence for Five Thousand Dollars.
15. Perspective view and plans of a Neat Dwelling costing Four Thousand Two Hundred Dollars.
16. Half page engraving of the John Crouse Memorial College for Women, Syracuse University, Syracuse, New York.
17. Plans for a French Cottage, Hotel de Peintre, Meudon.
18. Miscellaneous Contents: Optical Refinements in Architecture.—Testing Pile Protecting Compounds.—Our Forestry Problem.—Bamboo Tree.—Fire-proof Structures, illustrated.—Construction of Chimney Flues.—Roadside Plantations of Trees in Belgium.—An Egyptian Temple.—The White Ash.—Ornamental Keystones, three illustrations.—Sawdust, how Utilized.—Fire Bricks.—Improvements in Making Portland Cement.—Typhoid Fever Carried by Well Water.—An Unsafe Church.—Cedar Pavements.—Hemlock for Paving Purposes.—Collapse of Walls of Burning Buildings.—Relative Value of Wire and Cut Nails.—How to Build an Ice House.—Look to your Drain Pipes and Wells.—Arch Construction.—New Form of Chimes for Churches, illustrated.—Painting.—Removal of Chimneys.—The Back Yard.—Pine Woods.—Sketch of Thomas Ustick Walter.—Roburite, a New Explosive, with illustrations.—Iron Beams in Place of Wood.—Gangways v. Staircases.—How we have Grown.—A Great Building.—Proportions of Rooms.—How a Marble Statue is Made.—The Wainwright Horizontal Feed Water Heater, illustrated.—An Improved Double Surface Planer, illustrated.—How to Make a Cheerful Fireplace, illustrated.—The Sounding Board in St. Paul's Cathedral.—Gleason's Double Surface Planer, illustrated.—The Popular "Fortune" Hot Air Furnace, illustrated.—An Improved Hand and Foot Power Band Saw, illustrated.—Plants for Room Decoration.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects. The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsmen.

MUNN & CO., PUBLISHERS,
361 Broadway, New York.

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.

For Sale.—U. S. and Canadian patent. Cost to manfg., 80 cents per gross. Sells on sight at \$3.25 per gross. Retail at 5 cents each. Address W. H. Voss, E. Stroudsburg, Pa.

Portable grinding mills. Chas. Kaestner & Co., Chicago, Ill.

To Inventors, Patentees, and Manufacturers.—Geneseo Business Men's Association will aid the establishment of manufactures in Geneseo, Ill. Desires to correspond with parties who have a good thing and wish a good location. Address H. L. Kiner, Secretary, Geneseo, Ill.

Situation Wanted.—By a man of experience as superintendent or foreman of iron foundry. References given. Address P. O. box 783, Providence, R. I.

Wanted.—New invention or novelty for the English market by a first-class London house, having a large connection among shippers, warehousemen, drapers, etc. Address "Everclean," 100 Wood St., London, England.

Laquers.—Zapon, Brilliantine, Brassoline, Opaline, and other laquers and special varnishes. Brilliant, hard, durable. Send for catalogue. The Fred'k Crane Chemical Co., Short Hills, N. J. N. Y. agent, Horace Van Sands, 733 Broadway.

Perforated metals of all kinds for all purposes. The Robert Aitchison Perforated Metal Co., Chicago, Ill.

For the latest improved diamond prospecting drills, address the M. C. Bullock Mfg. Co., 138 Jackson St., Chicago, Ill.

The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 36 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.

Feed grinders. Chas. Kaestner & Co., Chicago, Ill.

Link Belting and Wheels. Link Belt M. Co., Chicago.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. 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 Laquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn.

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.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

Lathes for cutting irregular forms a specialty. See ad. p. 349.

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

Curtis Pressure Regulator and Steam Trap. See p. 364.

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

60,000 Emerson's 1887 Book of superior saws, with Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

Hoisting Engines, Friction Clutch Pulleys, Cut-off Couplings. D. Frisbie & Co., 112 Liberty St., New York.

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 120 Liberty St., N. Y.

Paint mills. Chas. Kaestner & Co., Chicago, Ill.

Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 152 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

Practical Working Drawings of machinery made by A. K. Mansfield & Co., 280 Broadway, N. Y. Life-long mechanics. One formerly R. R. supt. M. P. Important references. Work guaranteed. Correspondence invited.

For best leather belting and lace leather, including Hercules, see Page Belting Co.'s adv., p. 366.

Pedestal tenoner. All kinds woodworking machinery. C. B. Rogers & Co., Norwich, Conn.

Talcott's belt hooks. Best made. Providence, R. I.

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

Engines and boilers. Chas. Kaestner & Co., Chicago, Ill.

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

NEW BOOKS AND PUBLICATIONS.

TWELVE TIMES TWELVE. By Miss M. A. Lathbury. Worthington & Co. Price, \$1.75.

This consists of illustrations of child life in facsimile water color prints. The drawings are accompanied with well selected verses from the best poets.

CANADA STATISTICAL ABSTRACT AND RECORD FOR THE YEAR 1886. Published by the Department of Agriculture. Ottawa. 1887. Pp. 467.

In this work, compiled by Mr. Sydney D. Ropes, a very full statement of data referring to the Dominion is given. History, constitution, finance, tariff, arts and products, and many other topics are treated. To those interested in our neighbor, the work will be of great value. The cheerful statement of her net public debt—\$23,159,107 on June 30, 1886, making an increase of

\$26,751,415 since June 30, 1885—offers an argument that annexationists should ponder well over before desiring to take possession of so encumbered an estate. The fisheries for 1885 are put at a produce value of \$17,722,973, and for 1886, \$18,979,288. The full statement of fish produce is given in great detail. These figures show that Canada has a very big bone of contention for her interests to be settled by Mr. Chamberlain and his conferees.

NATURAL LAW IN THE BUSINESS WORLD. By Henry Wood. Boston: Lee & Shepard; New York: Charles T. Dillingham. 1887. Pp. 222. Price 30 cents.

This is a cheap reprint of what has proved a very popular book. The author deals with questions of economic science, and treats them largely from the conservative side. A special appeal for the increase in its circulation that appears on the cover makes it clear that it was designed for a special purpose—the confutation of some of the theories that have within the last few years been offered to the world. The work is acceptable, and well worthy the perusal of all interested in the maintenance of the present order of things.

A HISTORY OF PHOTOGRAPHY. By W. Jerome Harrison, F.G.S. New York: Scovill Manufacturing Company. 1887. Pp. 136.

This interesting work deals with the history of the photographic art from the earliest times. The dry plate and the many efforts at the production of a dry plate process receive much attention. The work done in color photography, and the probable outcome for the future, are fully treated by the author. Paper negatives and built-up prints from several negatives are described. The subject of orthochromatic photography and the more recent achievements in composite portraiture and in instantaneous work, involving the systematic study of the motion of animals, by Marey and others, seems to be outside of the author's scheme, and little or nothing is said of them. It is a work which every intelligent worker should possess and study. It has as frontispiece a characteristic portrait of the author reproduced by Moss type from a negative by Harold Baker, of Birmingham, England.

THE CHILDREN OF SILENCE; OR, THE STORY OF THE DEAF. By Joseph A. Seiss, D.D., LL.D. Philadelphia: Porter & Coates. 1887. Pp. 208.

This little work is a succinct account of the world of the deaf and dumb. The census of the deaf mute population of different countries discloses who are the subjects of the treatise. The causes, congenital and adventitious, of deafness are fully considered. The sad condition of those thus affected is eloquently depicted. The labors of the early instructors in this field are summarily given, from the 13th century down. Modern institutions are catalogued in tabular form; their size, method of teaching, and other particulars are given, and a synopsis of the more extended tables closes the work.

SPON'S HOUSEHOLD MANUAL. A Treasury of Domestic Receipts and Guide for Home Management. E. & F. N. Spon, London and New York. 1887. Pp. vii, 988.

The title of this work pretty well indicates its scope. The dwelling and its surroundings, water supply, sanitation, ventilation, lighting, etc., its furniture and decoration, are fully treated. Thieves and fire, the larder, cooking and preserving food, the management of the nursery, and all imaginable home topics, are all among its subjects. Home recreations and medicine, games, the playground, workroom, library, and laundry, receive attention, while in out of door operations the farmyard and garden are included. A chapter on domestic law, landlords and tenants, lodges, servants, etc., is calculated more for the English horizon than for our country. Where needed, illustrations are given, and the book may safely be recommended to all householders.

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.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(1) F. T. asks: What is the best and most simple method of lining brass boxes (such as car journal bearings) with lead or a low grade of Babbitt metal, without the aid of grooves or holes in the brass, so that the lead, etc., will adhere firmly to the box? A. There is no way known to us of lining a brass journal box, except by tinning or employing the grooves and holes as suggested by you, nor do we see the value of building up a car journal box with anything but the best Babbitt, which will hold by flushing with tin.

(2) S. asks how window glass is measured in the box. A. A box of window glass contains 50 square feet of glass without regard to size.

(3) A. L. F.—Gas and electric light fixtures can only be brightened by taking apart and dipping in boiling caustic soda to remove dirt and old varnish. Wash in hot water, then dip in strong nitric acid for a few seconds, wash in boiling water, dry in