

ENGINEERING INVENTION.

A steam separator has been patented by Mr. Alexander Davidson, of Chicago, Ill. It consists of a steam pipe or section with spiral ribs on its inner side to give a whirling motion to the steam passed through, thus casting down heavy impurities where they will pass into a collector chamber, from which a pipe leads to the boiler, discharging under the water line.

MISCELLANEOUS INVENTIONS.

An ear battery for the deaf has been patented by Mary E. Moore, of New York City. It has a copper wire coiled around a zinc tube, and connected thereto by a wire shaped to enter the ear, in combination with a diaphragm held at the outer end of the device.

A hay rack has been patented by Mr. Calvin E. Hagerman, of Ainsworth, Neb. It is of light weight, adapted to be carried on a wagon, whereby hay or straw may be carried from the field to the stack or market, or loaded and unloaded in windy weather with comparatively little waste.

A sash fastener has been patented by Mr. Harry I. Williams, of Decatur, Texas. It consists in the combination of a ratchet bar attached to the sash, a grooved or hollow bar attached to the window frame and bearing a spring pawl engaging with the ratchet bar, and a wedge-shaped stop with supporting chain.

An electric vapor bath has been patented by Messrs. Robert F. Jackson and William R. Pope, of Baltimore, Md. This invention provides simple means by which the electric current from either a Faradic coil or from a galvanic battery, or both, can be applied to the human system for the treatment of disease, the current being easily regulated.

A land roller and clod crusher has been patented by Mr. Friedrich Twick, of Sheboygan, Wis. This invention covers a novel construction and combination of parts in a machine adapted for rolling, crushing, and pulverizing land, to prepare it for receiving crops, being an improvement on a former patented invention of the same inventor.

A lamp extinguishing apparatus has been patented by Messrs. Joseph Miller and Frank R. Page, of Olean, N. Y. It is a simple device capable of attachment to any lamp, and especially adapted for railroad car lamps, for automatically extinguishing the lamp in case of a collision or accident upsetting the car.

A fire extinguisher for car heaters has been patented by Mr. George F. Seaver, of Dover, N. H. A perforated plate is held in the top of the heater to which lead-inclined pipes having balls containing a fire-extinguishing compound, an accident to the car causing these balls to be broken on the perforated plate, thus extinguishing the fire.

A car heater has been patented by Mr. James Wardle, of Hope, British Columbia, Canada. It consists of a stove made of an inner and outer cylinder of steel or iron, strengthened by outer attached metal bands, with a space between the cylinders for the circulation of air, and so constructed that its overturning will not allow the escape of the fuel.

A removable corset fastening has been patented by Selma A. Schoerer, of Brooklyn, N. Y. It has pockets at the meeting edges, arranged to receive the steels or clasps, there being lacing cords by which the edges of the flaps forming the pockets are united, so that the steels can be easily removed when the garment is to be washed.

A buckle has been patented by Mr. Tobias A. Lee, of Sidney, Ohio. It has a tongue support and tongue, combined with a pivoted loop movable down over the tongue and a spring for actuating the loop, avoiding the use of a pin tongue and the inconvenience experienced in inserting it through perforations in the strap to be secured.

A harness back pad has been patented by Mr. Limbrick W. Vandenberg, of Americus, Kansas. It has a metal frame entirely inclosed or covered upon the outer surface with leather, with pads upon the under surface, the metal frame being composed of three sections, a central curved section and two side sections hinged to the end of the central curved section.

A method of binding books forms the subject of a patent issued to Messrs. John J. Meston and Nate S. Dygert, of Portland, Oregon. It is especially applicable to shipping receipt books as used by draymen, expressmen, etc., strips bent to form longitudinal sockets being used in connection with a handle, whereby the books may be more conveniently handled and carried without mutilation.

A clasp has been patented by Annie Lewis, of Galveston, Texas. It has front and rear plates hinged together on a spindle on which is coiled a spring for pressing the plates from each other, the plates having toothed jaws, and a strap being secured to one of them for suspending the clasp, which is simple and durable in construction and effectively retains the clasped parts.

A washing machine has been patented by Mr. William L. G. Appleby, of Germantown, Md. The invention relates to machines having two presser boards, one supported on brackets on the inside of the box and the other suspended by links and oscillated with a sweeping motion by a crank shaft, one board adjusting itself by a spring connection to avoid tearing or injuring the clothes.

A combined step ladder and ironing board has been patented by W. J. Allen, of Arkansas City, and Belle West, of Winfield, Kansas. The ironing board has a clamp at one end and a step ladder hinged to its opposite end, a bosom board being hinged to the ironing board above the ladder to be folded over

upon either, the bosom and sleeve board being folded over upon the ironing board when the device is to be used as a step ladder.

An embroidering machine attachment has been patented by Messrs. Edward Aldom and Henry E. Schmitz, of Brooklyn, N. Y. It is an improvement on a former patented invention of the same inventors for simultaneously working duplicate strips of chenille, etc., by throwing each strip alternately to opposite sides of the line of stitch, the two embroidering stripes crossing each other and forming a series of more or less open loops.

A machine for cutting, sanding, and rolling roofing felt has been patented by Mr. Benjamin C. Waite, of Brooklyn, N. Y. It has a mechanism with a suspended sand hopper, by which the amount of sand discharged can be regulated, and provides for the knife being operated with a quick downward movement and a slow upward movement, while a peculiarly constructed mandrel is arranged so that the felt will be wound automatically, and the felt roll can be readily removed from the machine.

A galvanic battery forms the subject of two patents issued to Mr. Horatio J. Brewer, of New York City. A new and useful improvement in porous cup batteries is provided by these inventions, the construction being such that the electrodes are securely seated in place and the gases forming in the porous cup can readily escape, so as to prevent the adhesion of insulating bubbles on the negative electrode, and its polarization, thereby rendering the battery very effective at all times.

SCIENTIFIC AMERICAN BUILDING EDITION.

APRIL NUMBER.—(No. 30.)

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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.

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

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The Knowles Steam Pump Works, 113 Federal 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.

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

Curtis Pressure Regulator and Steam Trap. See p. 77. Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

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NEW BOOKS AND PUBLICATIONS.

A MANUAL OF STEAM BOILERS: THEIR DESIGN, CONSTRUCTION, AND OPERATION. By Professor R. H. Thurston. New York: John Wiley & Sons. Pp. 671. Price \$6.

The Director of Sibley College, Cornell University, has in this volume fitly supplemented his other works on the materials of engineering and construction, and on steam engines, with a plain and practical treatise on the steam boiler, which, although primarily designed for technical schools and colleges, covers a much wider field than is likely to be included in any course of technical study, and is well worth a place among the text books of all who have troublesome problems to solve in any department of steam engineering. The rules and formulae given for the determination of the efficiency of fuels, and measuring the realized values of combustion, under various conditions of steam making, superheating, condensation, pressure, and temperature, are generally such as can be applied by one having but a moderate proficiency in mathematics; and the mechanical details furnished, touching a wide variety of boilers, are so plainly set forth that one not an expert in the business can derive from this volume ample data upon which to decide as to the kind of boiler best adapted for any special service. The book is fully illustrated and has an excellent index.

ELECTRICAL INSTRUMENT MAKING FOR AMATEURS. By S. R. Bottone. London: Whittaker & Co. 1888. Pp. viii, 175. Price \$1.20.

In this work appears the substance of the well known series of articles from the *English Mechanic*. The matter of the book is extremely practical—his treatment of the subject, seems at times almost crude. Yet in this apparent crudeness will be found its greatest merit. The use of tools and application of processes is the first subject treated. Then the leading pieces of electrical apparatus are taken up *seriatim*. The gold leaf electrophorus, gold leaf electroscope, frictional electrical machine, induction or dielectric machines, condensers, volt and am meters, and much other matter, are described in detail. It is perfectly true that a difference of opinion may exist as to the author's treatment of some portions of his subject, but the spirit of the book is good, and it is a work that may be of much use to the amateur, student, and teacher. Had science taken its proper place in the schools of this country, this work would be of even greater use than it now will be.

STIMULANTS: USES, AND HOW BEST CONSERVED. By J. M. Emerson. New York: Dick & Fitzgerald. 1888. Pp. 61. Price 50 cents.

In this work the author is an advocate for temperance, in the sense that alcohol may be used temperately, and that its use may not degenerate into abuse. It is as much opposed to total abstinence as to intemperance. The work is well printed and attractive in appearance.

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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) G. F. C. asks: 1. How can I make a speed regulator for the electric motor described in SCIENTIFIC AMERICAN of March 17, 1888? A. Make a small governor like any steam engine governor, and in lieu of the steam valve use an electric contact and arrange the governor so as to break the circuit when the speed is too high. 2. How can I make a battery for same? A. Use a battery of 6 or 8 elements, each formed of one plate of zinc 6x8 inches, and two plates of carbon of the same size. Plunge these plates in the ordinary bichromate solution.

(2) S. F. desires (1) a polish for starch for laundry purposes. A. See answer to query 19 in SCIENTIFIC AMERICAN for February 25, 1888. 2. Can either wax or spermaceti be mixed with water so as not to separate when cold? A. No.

(3) F. J. F. asks how to make a cell containing six or eight divisions for plunge battery, with bichromate and sulphuric acid solution, and would a wooden cell covered with asphaltum or any other matter prove serviceable? A. Make the cell of wood with glass or wooden divisions let into the sides. For waterproofing, coat the wood with a mixture of resin 4 parts, gutta percha 1 part, and a little boiled oil, put on hot. Apply the composition thoroughly, using a hot iron to melt it into the corners.

(4) E. P. asks: Is there any way to stop the roaring of a mechanical telephone, and not interfere with the speaking? A. Use stranded steel wire for line.

(5) F. R. F. writes: In regard to the electric motor described in your issue of the March 17, will the motor run if connected with an Edison dynamo? How many ordinary "crowfoot" batteries would