

(11) J. F. S. writes: Please give me a good receipt for preventing the hair of the head from falling out? Try the following, which has been successfully used: Aromatic spirits of ammonia, two ounces; glycerine and rose water each, two ounces; tincture of cantharides, one-half ounce; alcohol, sufficient to clarify the mixture.

(12) T. N. writes: A friend has a common flat boat, 16 feet wide, 75 feet long. He wants to run it by steam, with side wheels. Will two common slide valve engines, 7½ inch bore by 3 feet stroke direct to shaft, turn wheels 12 feet in diameter, 9 inch x 3½ feet bucket, and run the boat 7 miles an hour? A. Yes; but we think your wheel should not be over 10½ or 11 feet diameter.

(13) W. D. K. writes: I have a cistern which does not hold water. Upon letting it get dry it is evident that the leak is not in any one place, but is general by percolation throughout the walls and sides. Will cement remedy this, and if so, which kind is best, and in what proportions of materials? If not by cement, how can the trouble be remedied? A. We would advise cementing it over with a cement made by mixing silicate of soda solution to a paste with quicklime.

(14) D. G. P. asks what is the best form of condenser for a steam launch, 30 feet long? What should it be made of—copper or brass? A. The cheapest and lightest form is a keel condenser, that is, a copper pipe outside the boat, fitted alongside of the keel, and running aft from the engine to the stern post, and then returned on the opposite side and the end connected to the air pump.

(15) R. asks: Which will be most economical of fuel in driving a 20 ft. catamaran—a screw or paddle wheel; in either case to be placed between the boat, and of course free from dead water? Have plenty of depth of water for screw. A. We are of the opinion that a screw will give the best results, as the weight of the machinery will be less, consequently the boat draws less water than with paddle wheel. 2. What is the best method of feeding a small boiler, i. e. what will be the surest and require least attention? A. There is no mode of feeding that is reliable without attention. It is usual to have two independent means, say a feed pump and an injector.

(16) L. F. writes: In your issue of May 27, 1882, p. 322, the Massachusetts Railroad Commissioners recommend the drilling of the stay-bolts in locomotive boilers, ¾ in. deep, ¼ in. diameter. Please inform me what is the return or benefit. A. These braces almost invariably break or crack at the edge of the plate, and by so drilling the braces a break is discovered at once by the leak through the hole drilled in the brace. 2. Why is it in making silver solder we use or combine the two metals, silver and brass, in certain proportions, so the solder will melt at a lower temperature than the article we are soldering? How does the combining the two metals lower the melting point of the composition? A. It has never been satisfactorily explained.

(17) D. & H. S. write: We are using a large quantity of borax for welding cast steel to iron, and we believe that you can tell us the best way to prepare it for application. We now pulverize it by attrition, or perhaps you may say by grinding, and then apply it to the heated metal with a small ladle or spoon, and by this method much of it flows off into the fire, and, as we think, is a waste. Can you tell us of any better method? If you can so tell us, we shall be glad to pay you for it. A. Powder your borax in the manner you describe, and heat it in an iron pot gently until it ceases to boil, and then to fusion. Pour it out on a flag stone, and when cool break into pieces and use. In this manner less need be used. It will not boil upon the metal, and consequently less loss will be incurred.

(18) W. R. asks what makes the rumbling noise in what they call the whistling buoy at Sandy Hook. A. The "whistling buoy," off Sandy Hook, is a heavy shell of iron which takes in air when it is raised by the waves, and when it falls forces the air through a pipe ending with a whistle like a steam whistle. The note of the whistle is very "low."

(19) D. F. writes: I would like to have you decide a point in dispute. I have a tubular boiler which I use for thrashing from June to October, after which it is laid up. I used to clean it out well, and fill up with clean water, and let it stand so when not in use. Last winter a boiler maker told me to fill the boiler to the dome with water, then put in 5 gallons of black oil, fire up until I had 20 pounds steam, then blow off slowly. This, he said, left the oil covering the inside of boiler and all the flues, prevented rusting, and took off any scale remaining in boiler. Which is the best plan to adopt? A. Cleaning out and refilling your boiler was proper as far as it went, but if you did not boil the water it still contained air, which is a source of trouble. If you get up steam with the boiler full and blow a little steam from the safety valve, all the air will blow out, then shut every outlet tight. You will find your boiler in the best condition for work at the beginning of the season, and free from rust inside. This is the universal practice with boilers used for house heating in this climate, where there are thousands in use that are steamed only about six or seven months in the year. We do not know that there is any scale-removing virtue in the oil. Tannic acid or a weak decoction of oak or hemlock bark is much used for removing scale where hard water is used.

NEW BOOKS AND PUBLICATIONS.

DIE MAGNET ELEKTRISCHEN UND DYNAMO-ELEKTRISCHEN MASCHINEN UND DIE SEGENANTEN SECUNDAR BATTERIEN. (Magneto Electric and Dynamo Electric Machines and Secondary Batteries.) By Gustav Glaser De Cew. Wien, Pest, Leipzig: A. Hartleben. 1883. pp. 264.

This is the first volume of an electro technical library, by Mr. Glaser De Cew. The author gives a clear description of the continuous and alternating current dynamo electric machines, and a history of the development of these mechanisms; the physical laws governing the construction of the machines, the merits and demerits of the several kinds. Secondary batteries are discussed

in separate chapters. The use of electricity for lighting and other purposes also receives proper attention. In an appendix the author gives various formulæ for the construction of electro-magnets and instruments for measuring electrical currents. The work is handsomely printed and is well illustrated.

KATE SANBORN'S SUNSHINE CALENDAR FOR 1883. Consists of a pictorial card on which the daily calendar for the year is mounted. Appropriate poetry for each day. James R. Osgood & Co., publishers, Boston. C. T. Dillingham, agent, 678 Broadway, New York.

NAUTISCH-TECHNISCHES WOERTERBUCH DER MARINE. Bearbeiter von P. E. Dabovich. Pola, 1882.

The peculiarity of this new technical dictionary consists in its polyglot character, four languages being represented, viz., German, Italian, French, and English. It appears in parts of eighty pages each. The twelfth part brings it to SC of the first volume, in which German and Italian terms (mixed) lead, while the German words are followed by Italian ones, or Italian by German, and both of these by French, and that by English. The different languages are distinguished by the type, Italian and English being in italics of different fonts, French in spaced Roman letters, and the German in plain Roman.

GIORNALE DI ARLIGLIERIA E GENIO. Roma: 1882.

We have received part second for May, 1882, of this handsomely illustrated journal. A considerable portion of the plates as well as the letter press is devoted to the application of the electric light to military purposes. This is followed by an illustrated article on the effects of dynamite, and other matters of interest to military men.

JOURNAL D'HYGIENE is a weekly paper published by Dr. Prosper de Pietra Stanta, at 54 Ave. de Wagram, Paris, at 20 francs, foreign 22 francs. Each number contains 16 pages about half the size of these, filled with interesting and useful reading connected with this important subject.

ILLUSTRIRTES HAND UND HULFSBUCH FUER DEN PRAKTISSCHEN METALLARBEITER. Von H. Schubert. Hartleben, Vienna, Pest, Leipzig: 1882. Illustrated Handbook and Practical Metal Workers' Assistant.

This practical and exhaustive work is intended to cover the entire domain of technical metal working, while the sciences that bear upon the subject are also briefly explained so far as they interest the artisan. The work is issued in parts of forty-eight pages each, ten of which have already been received, and five more are to follow, so that the complete work will consist of seven hundred and twenty pages, illustrated with three hundred wood cuts and fifteen colored plates. Price in Germany, 15 cents per part; \$2.25 for the entire work. The book is divided into six sections, the first being devoted to the metals, their occurrence and preparation, their chemical properties and qualitative tests. The second relates to making moulds and castings, also the galvanoplastic art; the third treats of working metals, such as rolling, drawing, spinning, bending, cutting, welding, soldering, riveting, etc. The fourth describes the decoration of metals, etching, polishing, enameling, varnishing, etc.; in the fifth we have a description of the motors, including the steam engine, hot air, gas, and water motors, while the final chapter will treat of geometry, mechanics, and drawing.

HAND BOOK OF TENNESSEE. Prepared by A. W. Hawkins, State Commissioner of Agriculture, Statistics, Mines, and Immigration; assisted by Henry E. Colton, Geologist and Mining Engineer. Nashville, Tenn. 1882.

Describes briefly the geography, topography, and geology of Tennessee, its useful minerals and their outcroppings; its timber, agricultural products and capabilities; railways, educational, social, and political institutions; the natural and civil divisions of the State and their several characteristics; and gives much other information of interest to intending settlers and investors in mines and other properties within the State.

POINT LACE AND DIAMONDS. By George A. Baker, Jr. New York: R. Worthington.

A new edition of Mr. Baker's pretty little book of society verses, with some additions. Mr. Baker is clever at verse making—so clever that it seems a pity that he should spend his time over such trifles.

HOW TO BE WEATHERWISE. A New View of our Weather System. By Isaac P. Noyes. New York: Fowler & Wells. 25 cents.

Explains briefly the conditions and effects of high and low barometer and other meteorological phenomena upon the interpretation of which our Signal Service weather indications are founded; and shows how by a proper study of the weather maps everybody may become usefully weatherwise.

HOW TO KEEP A STORE. By Samuel H. Terry. New York: Fowler & Wells. 12mo, pp. 406. \$1.50.

The author seeks to give to young men beginning or contemplating a venture in retail trading the benefit of 30 years' experience in merchandising. The author's spirit and method are commendable, and the advice he gives will be found suggestive and worthy of thoughtful consideration by all young merchants and mercantile clerks. It is a good book to have around a store and in mercantile libraries for the instruction of beginners and the entertainment of the more experienced.

THE MODERN HOUSE CARPENTER'S COMPANION AND BUILDER'S GUIDE. By W. A. Sylvester. Boston: A. Williams & Co. \$1.25.

An unpretending handbook which has grown out of the author's experience and needs as a practical carpenter. The information is well selected, well put, abundant for so small a book, and, so far as necessary, clearly illustrated by diagrams.

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.

Lettering for Draughtsmen.—1 sheet, 25 cts.; 5 for \$1; 50 for \$3.50. One-third discount to trade. W. A. Lorenz, Hartford, Conn.

Wanted—Four miles second-hand T-rail for tramway. Weight about 30 pounds to yard. G. Gunby Jordan, Columbus, Ga.

Foot Lathes. W. E. Lewis, Cleveland, O.

Want nice model, in proportion, of 8 wheel car, with metal wheels, axles, etc. G. B. Thompson, Pittston, Pa. Emery Grinding Machinery of all kinds. Latest styles and designs at reduced prices. Send for descriptive catalogue and price list of the celebrated Lehigh Emery Wheels. Lehigh Valley Emery Wheel Co., Lehigh, Pa.

Blake's Belt Studs. The strongest and best fastening for leather and rubber belts. Greene, Tweed & Co., N. Y.

In stock, ready for immediate delivery, all new, 24 in. Rotary and Single Surfacter; No. 3 Wardwell's patent Saw Bench; 20 in. Upright Drill Press, hand feed, quick return; Cast Engine Lathe, 13 in. by 4 ft. Send for list of 2,000 new and second-hand machines. Rollstone Mach. Co., 95 Liberty St., New York.

To make Violins, write James Roblee, Syracuse, N. Y.

Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

American Fruit Drier. Free Pamphlet. See ad., p. 334.

Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders, Fire Brick, Tile, and Clay Retorts, all shapes. Bornerg & O'Brien, M'f'rs, 234 St., above Race, Phila., Pa.

Peck's Patent Drop Press. See adv., page 334.

For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Drop Forgings. Billings & Spencer Co. See adv., p. 333.

Brass & Copper in sheets, wire & blanks. See ad., p. 332.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

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

Diamond Saws. J. Dickinson, 64 Nassau St., N. Y.

Eagle Anvils, 10 cents per pound. Fully warranted.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus., adv. p. 332.

Garmore's Artificial Ear Drums for relief of partial or entire deafness. Invented by one who has been deaf thirty years. Simple and scientific in construction; not observable in use. Send for circular. John Garmore, S. W. cor. 5th and Race Sts., Cincinnati, O.

Pure Turkey Emery, Glue Composition, Rouge, and Pumice for polishers. Greene, Tweed & Co., New York.

Heliographic or Blue Process Paper to take copies of Drawings, at Keuffel & Esser, 127 Fulton St., New York.

Pays well on small investment.—Stereopticons, Magic Lanterns, and Views illustrating every subject for public exhibitions. Lanterns for colleges, Sunday-schools, and home amusement. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., N. Y.

Cutters for Teeth of Gear Wheels formed entirely by machinery. The Pratt & Whitney Co. Hartford, Conn.

Catechism of the Locomotive. 625 pages, 250 engravings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 B'way, N. Y.

Trevor's Patent Key Seat Cutter. Trevor & Co., Lockport, N. Y. See page 332.

Assays and Analyses of ores and all commercial products. Advice given and investigations made in all branches of chemical industry. Send for circular. N. Y. Assay Laboratory, 40 Broadway, New York.

Wanted.—A second-hand centrifugal machine for liquids. Address, with description and price, P. O. Box 3396, Boston, Mass.

Small patented articles, or light machinery, made and introduced. Gaynor & Fitzgerald, New Haven, Conn. Lubricator. See adv., Detroit Lubricator Co., p. 318.

Bostwick's Giant Riding Saw Machine, adv., page 318. See New American File Co.'s Advertisement, p. 318.

Steam Pumps. See adv. Smith, Vaile & Co., p. 316.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 318.

The Sweetland Chuck. See illus. adv., p. 318.

Knives for Woodworking Machinery. Bookbinders, and Paper Mills. Taylor, Stiles & Co., Riegelsville, N. J.

Red Jacket Adjustable Force Pump. See adv., p. 302.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 302.

Cope & Maxwell M'fg Co.'s Pump adv., page 285.

Sheet and cast brass goods, experimental tools, and fine machinery. Estimates given when models are furnished. H. C. Goodrich, 66 to 72 Ogden Place, Chicago.

Improved Skinner Portable Engines. Erie, Pa.

Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. Nearly seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

25' Lathes of the best design. G. A. Ohl & Co., East Newark, N. J.

Combination Roll and Rubber Co., 68 Warren street, N. Y. Wringer Rolls and Moulded Goods Specialties.

First Class Engine Lathes. 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Ice Making Machines and Machines for Cooling Breweries, etc. Pictet Artificial Ice Co. (Limited), 142 Greenwich Street. P. O. Box 3053, New York City.

Soapstone Packing, Empire Packing, Hemp Packing, Rubber Packing of all kinds. Greene, Tweed & Co., N. Y.

Jas. F. Hotchkiss, 84 John St., N. Y.: Send me your free book entitled "How to Keep Boilers Clean," containing useful information for steam users & engineers. (Forward above by postal or letter; mention this paper.)

Steel Stamps and Pattern Letters. The best made. J. F. W. Dorman, 21 German St., Baltimore. Catalogue free.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Presses, Dies, Tools for working Sheet Metals, etc. Fruitland other (Can Tools). E. W. Bliss, Brooklyn, N. Y. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

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

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 300.

Supplement Catalogue.—Persons in pursuit of information on 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.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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