

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.

Wanted—Parties to introduce the best Type Setting and Distributing Machine ever invented. J. J. Green, Boonton, N. J. Box 415.

The time-worn joke on the steel pen manufacturer, that he makes people steal (steel) pens and says they do right (write), is true of Esterbrook, whose pens are found everywhere.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 28.

Wanted—A good second-hand Dynamo-electric Machine, etc., for plating. Alliance Dash Rail Co., Alliance, O.

Automatic Planer, Knife Grinders, best Solid Emery Wheels, Machines to run Emery Belts, etc. All warranted satisfactory. Amer. Twist Drill Co., Meredith, N. H.

See Bentel, Margedant & Co.'s adv., page 28.

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

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

The Merryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 29.

50,000 Sawyers wanted. Your full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten saws, etc. Emerson, Smith & Co., Beaver Falls, Pa.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 28.

Bostwick's Giant Riding Saw Machine, adv., page 28.

Gould & Eberhardt's Machinists' Tools. See adv., p. 30.

Centrifugal Pumps, 100 to 35,000 gals. per min. See p. 29.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 28.

For Heavy Punches, etc., see illustrated advertisement of Hiles & Jones, on page 29.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p. 29.

Vertical Engines, varied capacity. See adv., p. 28.

Drop Hammers, Power Shears, Punching Presses, Die Sinkers. The Pratt & Whitney Co., Hartford, Conn.

For best low price Planer and Matcner. and latest improved Sash, Door, and Blind Machinery, Send for catalogue to Rowley & Hermance, Williamsport, Pa.

The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Schleicher, Schumm & Co., Philadelphia. Pa. Send for circular.

The Porter-Allen High Speed Steam Engine. South-west Foundry & Mach. Co., 430 Washington Ave., Phil. Pa. 4 to 40 H. P. Steam Engines. See adv. p. 23.

Pure Water furnished Cities, Paper Mills, Laundries, Steam Boilers, etc., by the Multifold System of the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Red Jacket Adjustable Force Pump. See adv., p. 13. Cope & Maxwell Mfg. Co.'s Pump adv., page 13.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 14.

Supplee Steam Engine. See adv. p. 13.

Lightning Screw Plates, Labor-saving Tools. p. 402.

Malleable and Fine Gray Iron Castings to order, by Capital City Malleable Iron Co., Albany, N. Y.

New Engine Lathes for sale, for instant shipment; 18 and 20 in. swing; 6 to 10 ft. bed; modern improvements. Forsaith & Co., Manchester, N. H., or 289 Center St., N. Y.

Drop Forgings. Billings & Spencer Co. See adv., p. 405.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 405.

The Sweetland Chuck. See illus. adv., p. 406.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solomon's Parallel Vise, Taylor, Stiles & Co., Riegelsville, N. J.

Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsaith & Co., Manchester, N. H.

List 28, describing 3,000 new and second-hand Machines, now ready for distribution. Send stamp for same. S. C. Forsaith & Co., Manchester, N. H., and N. Y. city.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Small articles in sheet or cast brass made on contract. Send models for estimates to H. C. Goodrich, 66 to 72 Ogden Place, Chicago, Ill.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill.

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 3083, New York city.

Improved Skinner Portable Engines. Erie, Pa.

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. V. Dorman, 21 German St., Baltimore. Catalogue free.

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

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J. Presses & Dies (fruitcans) Ayar Mach. Wks., Salem, N. J.

Wood-Working Machinery of Improved Design and Workmanship. Cordeman, Egan & Co., Cincinnati, O.

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

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other (an) Tools. E. W. Bliss, Brooklyn, N. Y.

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. Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

NEW BOOKS AND PUBLICATIONS.

ANNUAL REPORT OF THE BOARD OF REGENTS OF THE SMITHSONIAN INSTITUTION, 1880. Washington: Government Printing Office. 8vo, pp. 772.

One of the fullest and most valuable of the reports of this institution, now the center of much of the best scientific work of the country. The funds of the institution amount to \$651,500. Professor Baird believes that the efficiency of the institution would be doubled were its endowment raised to the limit fixed by Congress, \$1,000,000. It is doubtful if \$348,500 could be placed where it could do more for the increase and diffusion of knowledge among men. A valuable feature of this year's report is a 200 page summary of recent scientific progress. Among the other useful papers is a 100 page synopsis of the writings of Sir William Herschel.

GEOLOGICAL SKETCHES AT HOME AND ABROAD. By Archibald Geikie, Director General of the Geological Surveys of the United Kingdom. New York: Macmillan & Co.

Dr. Geikie is a charming writer as well as a successful student of geology in its broader aspects. The papers here collected cover a wide range of subjects, from the author's first geological excursion as a boy to his recent studies of American geology in Utah, Wyoming, and Colorado. The volcanoes of central France, the old glaciers of Norway and Scotland, geographical evolution, and the geological influences which have affected the course of British history, are among the other subjects treated upon.

REPORT OF THE CHIEF OF ORDNANCE TO THE SECRETARY OF WAR FOR 1881. Washington: Government Printing Office. 8vo, pp. 560.

In addition to the usual statement of the principal operations of the Ordnance Department for the year covered, the volume contains thirty-eight papers on ordnance and other subjects, some of which, like the report on files by Lieutenant Lyle and Master Armorer Porter, are of general interest to mechanics and engineers.

ANNUAL REPORT OF THE OPERATIONS OF THE UNITED STATES LIFE SAVING SERVICE FOR 1881. Washington: Government Printing Office.

One hundred and eighty-three stations were maintained, 143 on the Atlantic coast, 34 on the Lakes, and 6 on the Pacific. There were within the scope of the operations of the service during the year 250 disasters to vessels, carrying 1,878 persons, of whom 1,354 were saved. Sixteen other persons not on vessels were saved from drowning. Threatened disaster to 188 vessels, stranded or otherwise imperiled, was averted by the service. Sixty-six vessels were a total loss. Property to the value of nearly three million dollars was saved by the service.

CALIFORNIA AS IT IS. Written by seventy leading editors and authors of the Golden State. San Francisco Call Company. 8vo, pp. 209. Cloth, 75 cents.

Any one wanting specific information with regard to the natural characteristics, the people, or the industries and resources of any part of California will find it here. The book is packed with facts and statistics, each county being described in detail by one or more of the editors residing in it.

THE THEORY AND PRACTICE OF THE PREPARATION OF MALT AND THE FABRICATION OF BEER. Translated from the German of Professor Julius E. Thausing, by William T. Brannt, and Edited by A. Swartz and Dr. A. H. Bauer, of the American Brewer. Philadelphia: Henry Carey Baird & Co. 8vo, cloth, pp. 810.

This adaptation of the admirable work of Professor Thausing to the conditions and requirements of American brewing and brewers has been done with ability and care. It is now rather a brewer's encyclopedia than a simple treatise on brewing. In addition to the purely technical matter the volume contains elaborate chapters on the physics and chemistry involved in or incidental to scientific brewing; the production and testing of the materials used; the apparatus and machinery employed by brewers; statistics of brewing; artificial refrigeration; the examination and testing of beer; the metric system; and no end of commercial, agricultural, and other information bearing on the great and rapidly growing brewing industry.

THE COUES CHECK LIST OF NORTH AMERICAN BIRDS. Second edition. With a Dictionary of the Etymology, Orthography, and Orthoepy of the Scientific Names, etc. Boston: Estes & Lauriat.

This is quite a different book from the original check list, the high value of which as a catalogue of names is known to all students of American ornithology. The present volume is an improvement and extension of that, with an ornithological dictionary added. As an indication of progress in this department of science, it may be noted that the number of species is now 888 against 778 as given in 1874, while ten of the latter list have been ruled out—six as synonyms and four as extra limital. Thus 120 new species have been discovered in eight years.

ANDREW J. CORCORAN'S SYSTEM OF WATER SUPPLY. Office, No. 76 John Street, New York.

A very handsome illustrated catalogue of Mr. Corcoran's windmills, pumps, and other water supply material. A large number of full page engravings show windmills of artistic designs erected at country seats.

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) C. W. C. writes: Having collected a great number of small pieces of various kinds of soap which have been saved in the household after having become too small to use, I wish to inquire how I can combine the same so as to make into one cake. I have grated and heated to a thick consistency in a pail immersed in boiling water, but it will not harden when cold. A. Heat the mass in a copper kettle with constant stirring until it becomes pasty, then pour out in a wooden box, and let the mass cool thoroughly before cutting.

(2) J. N. C. writes: I have had a carving, in pure white marble, made of my daughter and placed at the head of her grave, a good likeness of her, life size, and an exquisite piece of carving, pronounced equal to any existing. To protect it from the weather and injury of every kind, I had a glass case made of heavy French plate glass, about 2 feet square horizontally and 5 feet high, placed over it and resting upon the square stone base on which the figure is placed. This case has a solid bronze frame, and the glass is cemented in, water and air tight, and air and water tight around the base; neither air nor moisture can get in from the outside, and yet the top of the case, which is also glass, is studded thickly with large drops of water, which are every now and then dropping down on to the marble figure and producing mildew. Frequently all four of the glass sides will be covered with moisture like steam, almost hiding the inside from view. The point is, to remedy this accumulation of moisture. Can you help us? A. The moisture is doubtless derived by precipitation from the air inclosed in the glass case. A simple remedy is to put in the case a tray containing a pound or two of powdered quicklime to absorb the moisture. The case should then be sealed.

(3) G. L. K. asks: Can you give a receipt for a good black (when first written with) ink? A. A very good black ink is prepared by dissolving best soluble nigrosine in hot water, in the proportion of about 2 1/2 ounces to the pint.

(4) D. C. W. writes: In SCIENTIFIC AMERICAN SUPPLEMENT, No. 226, page 3600, you have an article written on salicylic acid. Now what I should like to ask of you is, whether salicylic acid is the thing to stop fermentation of mince meat, and about how much to use per 100 pounds? Also, how will it act on sweet cider, or will it stop ferment in it? A. Salicylic acid has been used for this purpose; 10 grains per quart will ordinarily preserve mince meat. Bisulphite of soda is better for cider. See "A New Antiseptic," page 5293, SUPPLEMENT, No. 332.

(5) E. K. asks: 1. Could I beg you to inform me how artificial stone is made, such as are used for fences, etc.? They are almost as hard as granite, and stand the weather. A. The stone you refer to is made from sand, ground slate, hydraulic cement, and water. These are mixed together with water and moulded under pressure. 2. What is the chemical name for water-glass? A. Water-glass is also called soluble glass and silicate of soda.

(6) M. W. asks: Please advise me how to make a hard rubber solution that is used for coating saddery hardware. Can it be applied to brass and other metals? A. We know of no good solvent for hard rubber or vulcanite. It cannot be used in the way you propose. Try fine black japan varnish.

(7) J. A. McC. asks: Can you inform me what kind of wax or preparation copper plate engravers use for etching? Refer me to some book describing the same. A. See "Etching and Engraving," Spens' "Workshop Receipts."

(8) J. C. asks: Can you inform of a solution to flow on surface of engraver's boxwood, preparing it for a silver print or photograph to engrave from? I desire some method to make a print from photograph to engraver's wood. If print is not very clear it will answer my purpose for engraving. A. See "Photographs on Wood for Engraving," by Edward Pocock, in SUPPLEMENT, No. 53.

(9) W. H. D. asks: Can you tell me how to keep bright steel goods from rusting without impairing the bright finish? Don't want to paint the article. A. The rusting is due to the precipitation of moisture from the air. It may be obviated by keeping the air surrounding the goods dry. A saucer of powdered quicklime placed in an ordinary show case will usually suffice to prevent rusting of cutlery on exhibit therein.

of the plaster mould. As I pour the melted metal into the mould, it bubbles and boils like boiling water, finally cooling and hardening, full of cavities, etc., on the under side where intended for engraving. A. Warm the plaster mould, secure it, face upward, in a shallow cast iron pan, and plunge, pan and all, into a pot of melted type metal until bubbles of air and steam are no longer given off. Then draw out, cool, separate the plate, and plane or trim it.

(11) H. H. asks: Can you tell me of a way in which to destroy or drive away ants? I am troubled with them more this year than ever before, they destroying the lawns, flower beds, and paths. A. The judicious use of a little cheap benzine will usually destroy or exterminate the pest without materially injuring vegetation or endangering the lives of animals.

(12) S. K. W. writes: I desire to know if there are any manufacturers of sulphate of ammonia and vitriol in the States? Also the price of these substances wholesale? Is gas water utilized in any way, or is it allowed to run into the rivers, etc., as waste? A. Sulphate of ammonia and oil of vitriol (sulphuric acid) are both largely manufactured in the United States. For prices address any of our operative or manufacturing chemists. Very little of the first wash water in gas manufacturing is allowed to waste, as they usually contain much condensable hydrocarbon matters, ammonia salt, etc., which can be profitably extracted therefrom.

(13) M. H. S. writes: I have a good deal of trouble in the foundry I am engaged with, in getting the copper and zinc we use occasionally to give good results, and apply to you for aid and information. The copper is what is called battery copper, and the zinc is the same, battery zinc. Will you please inform me the best method of obtaining good results from its use? What chemicals can be used with the copper in making a brass mixture that will make a good, solid, smooth casting? We used this copper once in making a very large brass casting, and when pouring a white vapor issued from the mould and filled the whole room. What was the cause of it? What is the best method of refining the zinc? A. Battery copper usually contains a little zinc and zinc and copper sulphates. When the copper is melted, the salts and some of the zinc volatilize, producing the fumes mentioned. In melting use a little carbonate of soda, skimming the dross well before pouring. The addition of one-tenth of one per cent of phosphorus to the copper alloy will improve the castings. The zinc can only be purified by re-distillation. See Percy's "Metallurgy—Zinc."

(14) B. B. P. asks: Is there anything that will remove the peculiar smell of benzine without interfering with its cleansing properties? A. If fractionally re-distilled by injection of superheated steam, so as to prevent "cracking," a benzine nearly free from the grosser odor observed in the crude distillate may be obtained. It is, however, impossible to completely deodorize benzine.

(15) T. H. S. asks: Can you inform me of any process to bleach asphaltum white? A. No; asphaltum cannot be bleached.

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending June 20, 1882, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 261 Broadway, corner of Warren Street, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Table listing inventions and their patent numbers, including items like Advertising card, Air compressing apparatus, Book copying, etc.