

Business and Personal.

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Special and Automatic Machines built to drawings on contract. The Garvin Machine Co., 141 Varick St., N. Y. FERRACUTE Machine Co., Bridgeton, N. J. Full line of Presses, Dies and other Sheet Metal Machinery.

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The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, New York.

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

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 This is for our information and not for publication.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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.

(7510) C. J. T. asks if two one-candle power electric lamps, each of 3 1/2 volts 0.50 amperes, could be lit in series on a 3 1/2 volt circuit. A. No. If one lamp takes one-half ampere at 3 1/2 volts to light it, two in series will take one-half ampere at 7 volts to light them; but in parallel, the two will take one ampere at 3 1/2 volts to light them. If a lamp requires the entire voltage to force current through it, you cannot put another lamp on the end of it and have the same current flow through both. To find the number of lamps in a series, divide the voltage of the circuit by the voltage one lamp. When the lamps are in parallel, the same voltage serves for all; but each lamp takes from the circuit the amount of current it requires. See Electrical Incandescent Lighting, Houston & Kennelly. Price \$1, by mail.

(7511) A. A. R. asks for the formula for making the gum in use on postage stamps, and oblige. A. For postage stamp mucilage, try the following: Gum dextrine, 2 parts; water, 5 parts; acetic acid, 1 part. Dissolve by the aid of heat and add 1 part of 90 per cent alcohol.

NEW BOOKS, ETC.

UP-TO-DATE AIR-BRAKE CATECHISM. Containing nearly one thousand questions, with their answers, intended as examination questions, for engineers and firemen, as well as all other practical railroad men. By Robert H. Blackall. Fully illustrated. New York: Norman W. Henley & Company. 1898. Pp. 224. 12mo. Price \$1.50.

There is a law compelling companies to have a sufficient number of cars equipped with air brakes, by January 1, 1900, to control the trains. In view of this fact, there is a vast army of railroad employes, specially engineers and train crews and air brake machinists, who must acquire information on the subject. There is no question that a complicated mechanism like the air brake demands a practical and thorough understanding of the subject by all who are concerned in any way with its operation, maintenance, or repair. There is no book published which gives a complete study of the air brake equipment, including the latest devices and inventions used. It is to meet the demand for such a book that the present work is designed. The popular question and answer form is used, and all things considered, this is the best system, as the information must necessarily be supplied in concrete form. The illustrations are numerous and are very clear and well executed. At a time when railways require special instruction cars and instructors and inspectors, a book of this kind cannot fail to have a great success. It is a work we can confidently recommend.

ZEITUNGS-KATALOG UND INSERTIONS KALENDER. Hamburg: Rudolf Mosse. 1898. Pp. 362, quarto.

The present work is a list of various papers published in Germany and other countries. It appears to be very full and complete, specially the classified list of scientific and trade publications. The book is accompanied by a handsome calendar which is bound in, and the whole is neatly bound in leatherette.

ELECTRICITY IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE NOSE, THROAT, AND EAR. By W. Sheppegrell, A.M., M.D. New York: G. P. Putnam's Sons. 1898. 8vo. Pp. 403. 155 illustrations. Price \$4.50.

The author has been an officer in many medical societies devoted to the study of the nose, throat, and ear, and is also a practicing specialist, which all fits him for writing the present work, which is a complete treatise on the use of electricity in the diagnosis and treatment of diseases of the nose, throat, and ear. It is filled with illustrations describing the very latest apparatus and methods of operation. It is a book which will be hailed with delight by all specialists. Some idea of the mine of material which the author has explored will be obtained when it is stated that there are no less than 565 bibliographical references.

COMMERCIAL ORGANIC ANALYSIS. By Alfred H. Allen, F.I.C., F.C.S. Vol. I. Introduction: alcohols, neutral alcohol, derivatives, sugars, starch and its isomers, vegetable acids, etc. Philadelphia: P. Blakiston, Son & Company. 1898. Pp. 557. 8vo. Price \$4.50.

The properties, proximate analytical examination, and modes of assaying the various organic chemicals and products employed in the arts, manufactures, and medicine, with concise methods for the detection and determination of their impurities and products of decomposition, are treated in the present edition, which is the third. It has been revised by the author and matter has been added by him. Dr. Henry Leffmann has also assisted, revising and adding matter. The last edition of this volume was issued in 1885, and has been out of print for several years, though the demand for it has been considerable. It was recently reprinted without permission of the author and without revision, and, as this reprint necessarily misrepresented Mr. Allen's present views on many subjects, he determined to issue a revised edition immediately, and the result is the edition before us. The work, by its scope, thoroughness and accuracy, has been well received by chemists and has been for a long time regarded as one of the most important volumes which chemists can have in their libraries. The present book contains the very latest researches, and we have no hesitation in recommending it to all who are in need of a work on the commercial side of organic analysis.

A PRACTICAL TREATISE ON MODERN GAS AND OIL ENGINES. By Frederick Grover. Manchester, England: Technical Publishing Company, Limited. New York: D. Van Nostrand & Company. Pp. 256. 12mo. 123 illustrations. Price \$2.

In writing these pages the author has endeavored to supply to the average mechanical draughtsman the information necessary to enable him to apply his art to the design of gas engines. From this it will be seen that the work before us is designed on rather different lines than other works on gas engines. Such subjects as physical properties of oils, oil engines, vaporizers, and a few special points in connection with oil engine testing, are also considered. The book is well illustrated by clear diagrams and engravings.

INDICATOR DIAGRAMS AND ENGINE AND BOILER TESTING. By Charles Day. Manchester, England: Technical Publishing Company, Limited. New York: D. Van Nostrand & Company. 1897. Pp. 212. 12mo. Illustrated. Price \$2.

The purpose of the first portion of this book is to explain the construction of the different kinds of indicators used and show their advantages and disadvantages, and also to explain clearly the general principles on which the interpretation of the indicated diagrams is based. A large number of descriptive diagrams are illustrated and described. In the second part of the book the testing of engines and boilers is considered. This will supply a want on the part of those who have not already had experience in such work. The illustrations number 126 and fully elucidate the text.

JOURNAL AND PROCEEDINGS OF THE ROYAL SOCIETY OF NEW SOUTH WALES FOR 1897. Vol. XXXI. Edited by the Honorary Secretaries and published by the Society at Sydney, New South Wales. Pp. 554. 8vo. 20 plates.

The Royal Society, New South Wales, originated in 1821. The Philosophical Society of Australasia and the present society were incorporated in 1881. The volume before us, in addition to addresses and proceedings, contains a number of important papers, notably that of Professor Liversidge on the "Crystalline Structure of Gold and Platinum Nuggets and Gold Ingots," illustrated with a number of photographs and plates. So far as we know, this is an entirely unique paper and possesses great value. There are a large number of other papers on astronomical, physical, archaeological, ethnological, mineralogical, meteorological, and technical subjects. The book is fully illustrated and it is interesting to see what is being done for science in this far-away part of the world.

THE DISCHARGE OF ELECTRICITY THROUGH GASES. By J. J. Thomson. New York: Charles Scribner's Sons. 1898. Pp. 203. 12mo. Illustrated. Price \$1 net.

The present work consists of lectures delivered on the occasion of the sesqui-centennial celebration of Princeton University, by Prof. J. J. Thomson, of the University of Cambridge. With the hope of making the work more useful, the author has added some results which have been published between the delivery and the printing of the lectures. The celebration at Princeton in 1896 was one of the most memorable occasions in the university life of America, and the publishers are to be congratulated in putting in permanent form the lectures delivered by the guests of the University.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

OCTOBER 11, 1898, AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with patent numbers and names of inventors. Includes items like Abdominal bandage, Bed rail clamp, Bicycle, and various mechanical devices.

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AMERICAN PATENTS.—AN INTERESTING and valuable table showing the number of patents granted for the various subjects upon which petitions have been filed from the beginning down to December 31, 1894. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 1002. Price 10 cents. To be had at this office and from all newsdealers.

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Every Tool for Every Use A complete list of all the Tools made for any and every purpose, all fully described and accurately illustrated will be found in the 1898 edition of MONTGOMERY & CO.'S TOOL CATALOGUE. It contains 510 closely printed pages with index. Book is pocket size, 6 1/4 x 4 1/4 inches, with rounded edges and stitched covers. Sent free by mail on receipt of 25 cents by MONTGOMERY & CO. 105 Fulton Street, New York.

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