

experiment and find what gives you the best results. We have no means of knowing what you will get.

(8037) A. A. asks: Would one solid piece of soft iron, say Norway iron, of proper size do for field magnet core for simple electric motor described in SCIENTIFIC AMERICAN SUPPLEMENT No. 641, instead of the strips of Russia iron, or are the strips better? A. Yes. The strips of iron are used in the motor because the plan is made for the benefit of those who have no tools for shaping iron. If one has a shop and tools, he can do better work and build a better machine.

(8038) H. L.—A dam lower down upon a stream cannot retard the water in the tailrace of another dam higher up the stream, if the back water of the lower dam does not reach into the tailrace of the upper dam.

NEW BOOKS, ETC.

SOILING CROPS AND THE SILO. By Thomas Shaw. New York: Orange Judd Company. 1900. 12mo. Pp. 366. Price \$1.50.

This new book by Prof. T. Shaw forms a companion volume to his "Forage Crops," published last year. The book is divided into two parts, the first of which treats of growing and feeding of all kinds of soiling crops. The second part discusses the silo. The subject is treated in a simple and comprehensive manner. It is a plea for the silo by a sensible discussion of the place of the silo. All progressive farmers should have a copy of this book.

MECHANICAL TRIUMPHS OF THE ANCIENT EGYPTIANS. By Commander F. M. Barber, U. S. N., late Naval Attache. London: Kegan Paul, Trench, Trubner & Company, Ltd. 1900. 16mo. Pp. 123.

As the result of three visits to Egypt, it has been the author's experience that, notwithstanding the interest of travelers in the manners and customs of the ancient Egyptians and the nature of their stupendous monuments, the question most frequently asked with regard to the latter is not why did they create them, but how? How did they transport these great stones, and how did they lift them to the position in which they are now found? It has been the author's object in preparing this essay to solve the problem in a more complete manner than has yet been done, and to show what is actually known, and to suggest the most plausible theories. The author has produced a most attractive and readable little book, which is well printed and bound.

SPECIFICATIONS FOR STEEL BRIDGES TAKEN FROM DE PONTIUS. By J. A. L. Waddell. New York: John Wiley & Sons. 1900. 16mo. Pp. 178. Price \$1.25.

There is a considerable demand by draughtsmen and computers for the specifications of "De Pontibus," but that book is too expensive to use for specifications only, consequently the author and publishers of the work have concluded to print the said specifications, together with the tables and diagrams, separately from the other chapters; hence this little book, it is hoped, will serve the purpose of engineers at a third of the cost of the original treatise. It is a most admirable engineering treatise.

THE CHEMISTRY OF MATERIALS OF ENGINEERING. By A. H. Sexton. Manchester, England: The Technical Publishing Company. 1900. 12mo. Pp. 33.

For several years the author has given a course of lectures to engineering students on the materials of engineering, and he has felt the need of a suitable text-book for the class. To meet this need he has prepared the present volume. It covers the ground occupied by treatises which were beyond the reach of the ordinary student. The chemistry of iron, the manufacture of iron and steel, copper, lead, zinc, alloys, wood, stone, clay, mortar, cements, fuel, water, lubricants, paints and varnishes, are some of the subjects treated.

INORGANIC, GENERAL, MEDICAL, AND PHARMACEUTICAL CHEMISTRY. By Oscar Oldberg, Ph.D. Chicago: Medical Book Company. 1900. Two vols. 8vo. Pp. 522, 655. Price \$7.

It was the chief aim of the author in writing this book to prepare for the use of his pupils a treatise on the pharmacy of inorganic chemistry, but this could not be accomplished without including in the book so much of general, theoretical and descriptive chemistry that the inevitable outcome is instead a treatise on inorganic chemistry of pharmacy, including an adequate discussion of the fundamental principles of general theoretical chemistry. The author's chapters dealing with elementary theoretical chemistry are particularly to be commended. We have rarely seen the basic principles of chemistry so well presented. It is a most admirable section of the first volume and occupies some 314 pages. The second volume is devoted to a laboratory manual and includes probably all inorganic chemical preparations of medicinal or pharmaceutical use and nearly all of commercial importance, together with many compounds introduced solely for the purpose of instruction. The volumes are handsomely printed in large type and good paper, and are worthy of a large sale.

MODERN ELECTRIC RAILWAY MOTORS. By George T. Hanchett, S.B. New York: Street Railway Publishing Company. 8vo. Pp. 300. Price \$2.

This volume is a discussion of the current practice in electric railway motor construction, maintenance and repair. The trolley, both overhead and underground, has now displaced so thoroughly all other means of propulsion for street cars that any new and satisfactory books upon this subject are very welcome. The subject appears to be very adequately treated by the author. It is intended more particularly for those who have just entered or are about to enter active work in the electric railway field.

By almost the same mail we received copies of the January number of The Engineering Magazine and Cassier's Magazine, both of which are fine examples of modern journalism. The Engineering Magazine contains no less than 327 pages of reading matter, and in connection with the advertisements justly bears out the claims of the publishers that it is the largest single issue of any magazine. The number is what is called the "Works Management Number," and deals with such vast enterprises as the Elswick Works of Lord Armstrong, the huge enterprises built up by Andrew Carnegie, the founders of the Krupp establishments, George Westinghouse, inventor, organizer and director. Then follows a series of elaborate articles within the purview of the title.

Cassier's Magazine for January, while much smaller, is beautifully printed and illustrated. The interesting feature about it is that which is called the "library edition." That is, instead of having the usual paper covers like all other magazines, the library copy will hereafter be furnished in handsome cloth covers, printed on extra heavy paper. In this form each separate copy of Cassier's will be a substantial volume and the contents will be well preserved.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending JANUARY 22, 1901, AND EACH BEARING THAT DATE.

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

Table listing inventions and their patent numbers, including items like Acid, making pie, M. Neumann (666,627), Adding-machine, E. F. Canode (666,599), and many others.

WOOD or METAL Workers. Without Steam Power should use our Foot and Hand Power Machinery. Send for Catalogue. A—Wood-working Machinery, B—Lathes, etc. SENECA FALLS MFG. CO. 695 Water St., Seneca Falls, N.Y.

ENGINE & FOOT LATHES. MACHINE SHOP OUTFITS. TOOLS AND SUPPLIES. SEBASTIAN LATHE CO. 12 CINCINNATI, O.

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses. SHEPARD LATHE CO., 133 W. 34 St., Cincinnati, O.

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BARNES' NEW FRICTION DISK DRILL. FOR LIGHT WORK. Has These Great Advantages: The speed can be instantly changed from 0 to 1600 without stopping or shifting belts. Power applied can be graduated to drive, with equal safety, the smallest or largest drills within its range—a wonderful economy in time and great saving in drill breakage. W. F. & JNO. BARNES CO., 1999 Ruby Street, Rockford, Ill.

Physical and School Apparatus. GALVANOMETERS. STANDARD, SINE, TANGENT, REFLECTING and WIEDEMANN GALVANOMETERS. Catalogue free. E. S. Ritchie & Sons, Brookline, Mass.

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"WOLVERINE" Gas and Gasoline Engines STATIONARY and MARINE. The "Wolverine" is the only reversible Marine Gas Engine on the market. It is the lightest engine for its power. Requires no licensed engineer. Absolutely safe. Mfd. by WOLVERINE MOTOR WORKS, 12 Huron Street, Grand Rapids, Mich.

Table listing various mechanical devices and their prices, including items like Comminuting machine, G. D. Coleman (666,409), Compressible tube, D. Smith (666,443), and many others.

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