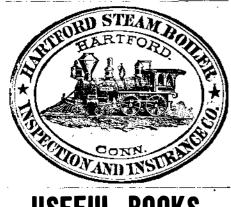
Scientific American.

## Advertisements.

The above are charges per agate hne-about anter. Words per line. This notice shows the width of the line, and is set in agate type. Engravings may head adver-tisements at the same rate per agate line, by measure-ment, as the letter press. Advertisements must be received at publication office as early as Thursday morn-ing to appear in next issue.



S3 SHOE. ACCORDING TO YOUR NEEDS. ICA UTION! Positively none genuine unless our name and price appear plainty on the seles. Some dealers, in order to make a larger prost, will recommend the inferior roods with which the market is the order JANES MEANS S3 HUE is light and stylica. It fits the nate ching and the KOLINES NOT HREAS INGIN. Seing or the will satisfy the most naid system of the original taildows, as it is in every wital respect equal to the have hitberts been re-tailed at \$7 Ack for the James Means \$2 Shee for Reys mal \$3 Sobe, and is absolutely the only shee of its price in which has ever been placed extensively on the market in which durability is considered before mere outward appearance. The shoes are sold by the best retailers easily within your reach in any State or Territory if you will send us a postal card, mentioning this paper. James Means & Co., 41 Lincoln St., Boston, Mass.



## **USEFUL BOOKS.**

Manufacturers, Agriculturists, Chemists, Engineers, Mechanics, Builders, men of leisure, and professional men, of all classes, need good books in the line of their respective callings. Our post office department permits the transmission of books through the mails at very small cost. A comprehensive catalogue of useful books by different authors, on more than fifty different subjects, has just been published for free circulation at the office of this paper. Subjects classified with names of author. Persons desiring a copy, have only to ask for it, and it will be mailed to

them. Address, MUNN & CO., 361 Broadway, New York.

INFLUENCE OF AGE UPON THE IN **EVER DUPINUE OF AGE UPON THE IN-Molect.**—A very interesting paper, giving an enumera-tion of some of the greatest writers and thinkers that the world has produced, and the ages at which they wrote some of their most celebrated works; the exam-ples given proving conclusively that the human mind seldom decays before the approach of death. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 246. Price 10 cents. To be had at this office a d from all bewsdealers.

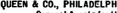


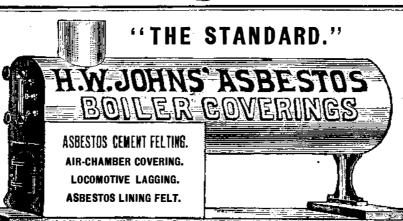
CHEMISTRY OF BUILDING MATE CHEMISTRY OF BUILDING MATE, rials. The bearings of chemical science on certain promi-nent materials used for building purposes, such as stones, lines, mortars, cements, brick, marble, etc. 1. A brief account of the general principles of chemistry. The chemical substances which enter into the composition of the above-named materials, their characteristics, and directions for ascertaining their presence in any mineral. 2. Examination in detail of the several varieties of stone found in the earth, both as regards the proper-ties. Contained in SCENTERC AMERICAN SUPPLEMENT, No. 379. Price licents, To be had at this office and trem all newsdeslers.

## THE & JOHANN FREES SIBERIAN LEAD PERCIL

USED AND RECOMMENDED by MEISSONIER, KAUL-BACH, VON PILOTY, GAB. MAX, and the most emi-nent artists throughout the world. The

Johann Faber Siberian Lead Pencils. None genuine unless stamp d Johann FABER. I by all stationers and dealers in Artists' Materials QUEEN & CO., PHILADELPHIA





Samples and Illustrated Pamphlet "Steam Saving and Fire-Proof Materials" Free by Mail. H. W. JOHNS MANUFACTURING CO.,

SOLE MANUPACTUREES OF H.W. Johns' Fire and Water-Proof Asbestos Roofing, Sheathing, Building Felt, Asbestos Steam Packings, Boiler Coverings, Roof Paints, Fire-Proof Paints, etc. VULCABESTON, Moulded Piston-Rod Packing, Rings, Gaskets, Sheet Packing, etc. Established 1858. 87 MAIDEN LANE, NEW YORK. CHICAGE. PHILADELPHIA.

Encyclo-pedia of yoo Engrav ings of W E. I. I. TOOLS, Machines. Book free, 25C. for mailing it. American Well Works, Aurora, Ill,

NEW BRIDGE OVER THE DOURO.

EDACE

(THE ONLY GENUINE )

LIQUID GLUE

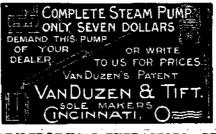
COCOAINE.-DESCRIPTION OF DR. J. L. Corning's system of administering this drug in pam-ful nervous affections. With 8 figures. Contained in SOLENTIFIC AMERICAN SUPPLEMENT, No. 612. Price ten cents. To be had at this office and from all news-dealers.

Van Duzen's Pat. Loose Pulley Oller Highest Indorsements Enviable Reputation Scientific Pedigree. A two years' test by conservative manufacturers of national reputa-tion has shown it to be the on's per-fect Lubricator for Loose Pulleys in use. Prices very reasonable. Send for our "Catalogue Number 55." VAN DUZEN & TIFT. Cincinnati, O.

UNEQUALLED for CEMENTING

(IS MADE BY THE) AWARDE OF A WARDE OF A WARDE OF THE AWARDE OF THE AWARDE OF A WARDE OF

25c. for mailing it. American



CENTRIFUGAL EXTRACTORS.-R. F. Gibson. A concise explanation R. F. Gibson. A concise explanation of the principles underlying the working of these apparatus, and the consideration and laws governing the shape, size, ma-terial, etc. With 38 engravings of apparatus. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, NOS. 612 and from all newsdealers. -BY



Description of an ingenious apparatus for the automa-tic determination of the specific gravity and composition of illuminating gas. With 4 engravings. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, NO. 612. Price 10 cents. To be had at this office and from all news-dealers.



HYPNOTISM IN FRANCE.-AN INteresting review of the present status of this subject, by Max Dessoir. Contained in SCIENTFICAMERICAN SUP-PLEMENT, NO. 613. Price 10 cents. To be had at this office and from all newsdealers.

Sa.

BARNES' NEW Patent Velocipede Grinding and Polishing Machine. For grinding and polishing Cutlery, Jewelry, Ornamental Wares, Skate Grinding, etc., etc., as an accessory to or for a distinct business, a large profit with small outlay. Outfits of Foot Power Machinery for practical shop service in Wood and Metal. Cata-loguefree.

dealers.

W. F. & John Barnes Co 1999 Ruby St., Rockford, Ill.



The best made, all steel, and warranted, 8 sizes. 28 to 22 South Canal Street, Chicago, U. S. A.

**BABBIT and ANTI-FRICTION METALS** AS MANUFACTURED BY

THE AMERICAN BELL TELEPHONE CO. 95 MILK ST. BOSTON, MASS.

This Company owns the Letters Patent granted to Alexander Graham Bell, March 7th, 1876, No. 174,465, and January 30th, 1877, No. 186,787.

The transmission of Speech by allknown forms of Electric Speaking Telephones infringes the right secured to this Company by the above patents, and renders each individual user of telephones not furnished by it or its licensees responsible for such unlawful use, and all the consequences thereof, and liable to suit therefor.



## Scientific American Supplement.

This is a separate a d distinct publication from THE SCIENTIFIC AMERICAN, but is uniform therewith in size, every number containing sixteen large pages. THE SCIENTIFIC AMERICAN SUPPLEMENT is published weeky. and includes a very wide range of contents. It presents the most recent papers by eminent writers in all the principal departments of Science and the Useful Arts, embracing Biology, Geology, Mineralogy Natural History, Geography, Archæology, Astronomy, Chemistry, Electricity, Light, Heat, Mechanical Engi-neering, Steam and Rallway Engineering, Mining, Ship Building, Marine Engineering, Photography, acchnology, Manufacturing Industries, Saritary En-gineering, Agriculture, Horticulture, Domatic Economy. Biography. Medicine, etc. A vast amount of fresh and valuable information pertaining to these and allied subjects is given, the whole profusely illustrated with engravings. The most important Engineering Works, Mechanisms

and Manufactures at h ome and a

