

engravings. Contained in SCIENTIFIC AMERIC SUPPLEMENT, Nos. 542,543 and 544. Price 10 ce To be had at this office and from all newscenters.

## PATENTS.

LUBRICATING OILS .- A PAPER BY C J. H. Woodbury, giving the results of the examin tion of a single lubricant under a wide range of invest fation concerning its friction. Illustrated with 6 figure<sup>9</sup>. Contained in SCIENTIFIC AMERICAN SUPPLEMENT NO 473. Price 10 cents. To be had at this office and from all newsdealers.

Mention this paper.

Directions and Dimensions for construction, with one illustration of cold house for preserving fruit from season to season. The air is kept dry and pure through-out the year at a temperature of from 34 to 36°. Con-tained in SCIENTIFIC AMERICAN SUPPLEMENT NO. 116. Frice 10 cents. To be had at this office and of all news-dealers.







THE BACTERIA OF DISEASE .- BY DR. Henry Hun,—The contents of the air we breathe. The nature of bacteria. Classification of bacteria. Useful bacteria. The bacteria of disease. With 16 illustrations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 545. Price 10 cents. To be had at this office and from all newsdealers.

Chemistry, Electricity, Light. Heat, Mechanical Engi-neering, Steam and Railway Engineering, Mining, Ship Building, Marine Engineering, Photography, Technology, Manufacturing Industries, Sanitary En-gineering, Agriculture, Horticulture, Domestic Economy. Biography. Medicine. etc. A vast amount of fresh valuable information pertaining to these and allied subjects is given, the whole profusely illustrated with engravings. The most important Engineering Works, Mechanisms

and Manufac

applicat dealers.

MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine improvements, and to act as Solicitors of Patents Inventors

E In this line of business they have had forty-one years experience, and now have unequaled facilities for the preparation of Patent Drawings, Specifications, and the prosecution of Applications for Patents in the United States, Canada, and Foreign Countries. Messrs Munn & Co. also attend to the preparation of Caveats, Copyrights for Books, Labels, Reissues, Assignments, and Reports on Infringements of Patents. All business intrusted to FRICTION PULLEYS CLUTCHES and ELEVATORS them is done with special care and promptness, on very reasonable terms

A pamphlet sent free of charge, on application, con-taining full information about Patents and how to pro-gure them; directions concerning Labels, Copyrights Designs, Patents, Appeals, Revissues, Infringements, As skriments, Rejected Cases, Hints on the Sale of Pa-tents, etc.

We also send, *free of charge*, a Synopsis of Foreign Pa tent Laws, showing the cost and method of securin patents in all the principal countries of the world.

## MUNN & CO., Solicitors of Patents,

· 361 Broadway, New York.

BRANCH OFFICES .- No. 622 and 624 F Street, Pa cific Building, near 7th Street, Washington, D. C.



**PROVIDENCE, R. I.** THE , PHOTOPHONE.-DESCRIPTION THE , PHOTOPHONE. — DESCRIPTION by Prof. Alex. Graham Bell of the gew apparatus (Pho-tophone) for the production and reproduction of sound by means of light, and explanation of the principle in-volved therein. Selenium and its properties. Experi-ments with selenium. Experiment with light as a pro-ducer of sound. Researches by Messrs. Tainter and Bell on the resistance of crystalline selenium within manageable limits. Photophone receivers. Contained in SCIENTIFIC AMERICAN. SUPPLEMENT, No. 246. Price 10 cents. To be had at this office and from all news-dealers.



EXPERIMENTS IN ACOUSTICS. - A EXPERIMENTS IN "ACOUSTICS. — A valuable paper containing accounts of an interesting series of acoustical experiments made by Mr. A. C. Engert, to show how sound may be propagated and improved by the use of steel plates and wires, and the principle involved in which is believed to be capable of development and application tother lmprovement of sound in buildings not property planned for that purpose. The system thas the advantage of eimplicity and readiness of application; it is not cumbersome or unsightly, and need not interfere with architectural arrangements. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 247, Price 10 cents. To be had at this office and from all wesdealers.

and described in the SUPPLEMENT. Price for the SUPPLEMENT.

Canada, \$5.00 a year, or one copy of the SCIENTIFIC AM-ERICAN and one copy of the SUPPLEMENT, both mailed for one year for \$7.00. Address and remit by postal order, express money order, or check.

MUNN & Co., 361 Broadway, N. Y., Publishers SCIENTIFIC AMERICAN.

To Foreign Subscribers.-Under the facilities of the Postal Union, the SCIENTIFIC AMERICAN is now sent by post direct from New York, with regularity, to subscribers in Great Britain. India, Australia, and all other British colonies; to France, Austria, Belgium, Germany, Russia, and all other European States; Japan, Brazil, Mexico, and all States of Central and South America Terms, when sent to foreign countries, Canada excepted, \$4, gold, for SCIENTIFIC AMERICAN, one year; \$9, gold for both SCIENTIFIC AMERICAN and SUPPLEMENT for one year. This includes postage, which we pay. Remit by postal or express money order, or draft to order of MUNN & CO., 361 Broadway, New York.

PRINTING INKS. THE "Scientific American" is printed with CHAS ENEU JOHNSON & CO.'S INK. Tenth and Lom bard Sts., Phila., and 47 Rose St., pop. Duane St., N. Y.