

Advertisements.

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The above are charged per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may head advertisements at the same rate per agate line, by measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

CASCADILLA SCHOOL

Ithaca, N. Y. Boys' Fitting School—the leading one for Cornell University. Preparing for Engineering Courses a specialty. Certificate widely accepted. General courses. Military drill. Tuition, \$250; tuition and home, \$600. Year opens Sept. 27. "I have never been acquainted with any which has more nearly realized my idea of what such a school ought to be."—R. H. Thurston, Director of Sibley College.  
Address C. V. PARSELL, A.M., Principal.

New Highest Grade '92 Model Pneumatic Safeties For \$60, \$60, \$60. Sold direct to riders only. Former list \$150. A limited stock. \$60 Cash. Eagle Bicycle Mfg Co., Torrington, Ct., Makers of Highest Grade Bicycles.

COLD FORGED PRODUCT.

Forged Wood Screw

Patented May 10, July 19, 1887; Oct. 29, 1889; Aug. 19, Oct. 21, 1890; April 7 May 12, 1891; July 19, 1892.

- Its Advantages are:
1. Stronger than a common screw.
  2. Uniform and wide slot.
  3. Requires the use of but one bit in hard wood.
  4. Inserted easier.
  5. Centralized point.
  6. Superior holding power.
  7. The screw being Cold Forged, instead of Cut, leaves on its entire surface a metallic skin.

Send for samples to AMERICAN SCREW CO. PROVIDENCE, R. I.

ELECTRO VAPOR ENGINE.

GAS OR GASOLINE FOR FUEL. NO BOILER. NO FIRE. NO DANGER. NO ENGINEER.

Engine operated by spark from small battery. You turn the Switch, Engine does the rest.

Kane's Electro Vapor Stationary and Marine Engines, 1/2 h. p. upward, and Kane's Electro Vapor Pumping Engines, 1/2 to 2,000 gallons capacity.

MANUFACTURED BY THOMAS KANE & CO., CHICAGO, ILL. Send stamp for catalogue "V."

HYDRAULIC WHEEL PRESSES

A SPECIALTY. Can represent a single pump machine for belt power. This press is made in various sizes to swing car wheels and drive wheels, 30, 36, 42, 54, 66, 72, 78, and 84 inches. Single or double pumps as required, and for generating from 80 to 300 tons.

The J. T. Schaffer Mfg. Co., Rochester, N. Y.

Parsons Horological Institute.

Learn the Watch Trade

Engraving and Jewelry Work. PARSONS, IDE & CO. Circular free. 302 Bradley Ave., PEORIA, ILL.

SINTZ GAS ENGINE CO.

GRAND RAPIDS, MICH., U. S. A. Manufacturers of the Sintz Stationary and Marine Gas and Gasoline Engines. Especially adapted for Boats and Electric Lighting. Runs with manufactured or natural gas—Boats and launches. Prices within the reach of all. Send for Catalogue. Mention this paper.

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WRITE FOR CATALOGUE AND AGENCY. C.H. BESLY & CO. CHICAGO, ILL. U.S.A.

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W. L. DOUGLAS \$3 SHOE For Gentlemen.

Best Calf Shoe in the World for the Price. W. L. Douglas's name and price is stamped on the bottom before they leave the factory to protect you against high prices. Dealers who make the price on unstamped shoes to suit themselves, charge from \$4 to \$5 for shoes of the same quality as W. L. Douglas \$3.00 Shoe. If you wish to get the best shoes in quality for your money it will pay you to examine W. L. Douglas Shoes when next in need. Sent by mail, Postage Free, when shoe dealers cannot supply you. Send for catalogue with full instructions how to order by mail. W. L. DOUGLAS, Box 551, Brockton, Mass.

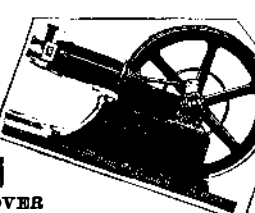
KODAKS

The Columbus Model Folding Kodaks combine the desirable features of a complete view camera with the compactness of a Kodak.

Recent Improvements include the iris diaphragm shutter with pneumatic release, double swing back and sliding front. Can be used with long focus or wide angle lenses.

Easily adapted to stereoscopic work. Made in three sizes: 4 x 5, 5 x 7 and 6 1/2 x 8 1/2.

EASTMAN KODAK CO. Rochester, N. Y. Send for Catalogue.



"OTTO" GAS AND GASOLINE ENGINES.

1/2 to 100 h. p. Can be used in cities or in country independent of gas works or gas machines. No Boiler, No Danger, No Engineer. OTTO GAS ENGINE WORKS, PHILADELPHIA.

THE COPYING PAD.—HOW TO MAKE and how to use; with an engraving. Practical directions how to prepare the gelatine pad, and also the aniline ink by which the copies are made, how to apply the written letter to the pad, how to take off copies of the letter. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 435. Price 10 cents. For sale at this office and by all newsdealers in all parts of the country.



The Smith Premier Typewriter

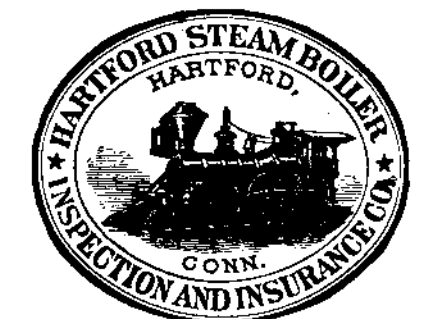
Embodies the most Progressive Mechanical Principles. All the Essential Features Greatly Perfected. Perfect and Permanent Alignment. Easiest Running, and Nearly Silent. All type cleaned in Ten Seconds without Soiling the Hands. The Smith Premier Typewriter Co., Syracuse, N. Y., U. S. A. We have 20 branch offices in the principal cities throughout the United States.

H. W. JOHNS' Liquid Paints. These Paints are composed of pure linseed oil and the highest grade of pigments. They are combined by processes exclusively our own and are unequalled by any in richness and permanency of color. One gallon will cover from 275 to 300 square feet, two coats without thinning and can be safely thinned with 1/2 gallon linseed oil to one gallon paint for first coat. JAMES CARD of 56 SHARES, INSTRUCTIONS FOR USE AND SUGGESTIONS FOR PAINTING ETC. FREE BY MAIL. NEW YORK, JERSEY CITY, CHICAGO, PHILADELPHIA, BOSTON, ATLANTA. H. W. JOHNS Mfg. Co.

Motor of 19th Century. Can be used any place, to do any work, and by any one. No Boiler, No Fire, No Steam, No Oil, No Ashes, No Goggles, No Engines! A perfectly safe Motor for all places and purposes. Cost of operation about one cent an hour to each individual horse power. For circulars, etc., address CHARTER GAS ENGINE CO., P. O. Box 148, Meriden, Ill.

LIFE SAVING DEVICES.—A Collection of suggestions of devices for saving lives between the shore and stranded vessels, offered to the London Daily Graphic by various correspondents. With 100 illustrations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 848, 849, 850, 851, 852, 853, 861, 862, 864, 869, 871, 874 and 884. Price 10 cents each, or \$1.50 for the series. To be had at this office and from all newsdealers.

THOMPSON IMPROVED INDICATOR. Manufactured solely by American Steam Gauge Co. 5,000 IN USE. Adopted by the U. S. Navy on all the government cruisers and gun-boats to be built. Also Manufacturers of POP SAFETY VALVES, STEAM PRESSURE GAUGES, ETC. 34 Chardon Street, Boston, Mass.



Scientific Book Catalogue

RECENTLY PUBLISHED. Our new catalogue containing over 100 pages, including works on more than fifty different subjects. Will be mailed free to any address on application. MUNN & CO., Publishers Scientific American, 361 Broadway, New York.

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ASTRONOMY

Poole Bros. Celestial Planisphere and Celestial Handbook just published. For descriptive circular address POOLE BROS., CHICAGO, ILL.

The McCONNELL Germ-Proof Filters. REMOVE MICROBES.—AND—All Kinds of Disease Germs. Is a Filter and Cooler Combined. The ice as it melts is filtered. No other gravity filter does this. The McConnell Filter Co., BUFFALO, N. Y.

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IMPROVED CHARTER GAS ENGINES. H.W. CALDWELL & SON. Sole Mfrs. CHICAGO, ILL.

COMPLETE ELECTRICAL EQUIPMENTS.—FOR—ARC OR INCANDESCENT LIGHTING. Arc Lamps, Incandescent Lamps, House Wiring Appliances. MINIATURE LAMPS FOR DECORATIVE PURPOSES. GENERAL ELECTRIC COMPANY, DISTRICT OFFICES: 44 Broad Street, New York; 173 and 175 Adams Street, Chicago, Ill.; Fifth and Race Streets, Cincinnati, O.; Equitable Building, Atlanta, Ga.; 15 First Street, San Francisco, Cal. All business outside the U. S. transacted by Thomson-Houston International Electric Co., 44 Broad St. New York.

ENGINES, BOILERS & MACHINE TOOLS.

The American Bell Telephone Company

125 MILK ST., BOSTON, MASS. This Company owns the Letters Patent No. 186,787, granted to Alexander Graham Bell, January 30, 1877, the scope of which has been defined by the Supreme Court of the United States in the following terms:

"The patent itself is for the mechanical structure of an electric telephone to be used to produce the electrical action on which the first patent rests. The third claim is for the use in such instruments of a diaphragm, made of a plate of iron or steel, or other material capable of inductive action; the fifth, of a permanent magnet constructed as described, with a coil upon the end or ends nearest the plate; the sixth, of a sounding box as described; the seventh, of a speaking or hearing tube as described for conveying the sounds; and the eighth, of a permanent magnet and plate combined. The claim is not for these several things in and of themselves, but for an electric telephone in the construction of which these things or any of them are used."

This Company also owns Letters Patent No. 463,569, granted to Emile Berliner, November 17, 1891, for a Combined Telegraph and Telephone; and controls Letters Patent No. 474,231, granted to Thomas A. Edison, May 3, 1892, for a Speaking Telegraph, which cover fundamental inventions and embrace all forms of microphone transmitters and of carbon telephones.



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A special feature is the presentation in each number of a variety of the latest and best plans for private residences, city and country including those of very moderate cost as well as the more expensive. Drawings in perspective and in color are given, together with Plans, Descriptions, Locations, Estimated Cost, etc. The elegance and cheapness of this magnificent work have won for it the Largest Circulation of any Architectural publication in the world. Sold by all newsdealers. \$2.50 a year. Remit to MUNN & CO., Publishers, 361 Broadway, New York.

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