

Advertisements.

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Victor Bicycles

Are first in tires and improvements. The best pneumatic with inner tubes removable through the rim. If you are going to ride why not ride the best?  
Victor catalog is yours for the asking.

Overman Wheel Co., Boston, Washington, Denver, San Francisco. A. G. Spalding & Bros., Chicago, New York, Philadelphia.

FOR SALE PATENT-BEST OUT-CHEAP- C. WETZIG-CLEVELAND, OHIO.

COLD FORGED PRODUCT.

"Rogers' Drive Screw."

Patented May 10, July 19, 1887;  
July 10, 1888;  
July 19, 1892.

It is cheaper than a common screw, and, being cold forged, the entire surface has a metallic skin.

For applying steps to Electric Light Poles, it has no superior.

Send for samples to

AMERICAN SCREW CO. PROVIDENCE, R. I.

THE WILMOT & HOBBS MFG. COMPANY

HOT ROLLED BAND, STRIP AND PLATE STEEL

GOLD ROLLED SHEET AND STRIP STEEL

H.W. JOHNS' ASBESTOS STEAM PACKING

Boiler Coverings, Millboard, Roofing, Building Felt, Liquid Paints, Etc. DESCRIPTIVE PRICE LIST AND SAMPLES SENT FREE. H. W. JOHNS MFG. CO., 87 Maiden Lane, N. Y.

A man without a conscience is hardly worse off than without a watch.—No excuse for lacking either.  
A handsome 14-karat gold, filled, or coin-silver watch; jeweled movement; a perfect time-keeper; stem-set and stem-winding (in about five seconds); may be bought for ten dollars—even less. It is far superior to any Swiss watch at the price.—The new, perfected, quick-winding "Waterbury."

Your jeweler sells it in a great variety of designs: ladies' hunting-case, dainty chate-laine with decorated dial, business-man's watch, and boy's watch. \$4 to \$15.

PATENTS!

MESSRS. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN, continue to examine improvements, and to act as Solicitors of Patents for Inventors.  
In this line of business they have had forty-five years experience, and now have unequalled 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 entrusted to them is done with special care and promptness, on very reasonable terms.  
A pamphlet sent free of charge, on application, containing full information about Patents and how to procure them; directions concerning Labels, Copyrights, Designs, Patents, Assignments, Reissues, Infringements, Assignments, Rejected Cases. Hints on the sale of Patents, etc.  
We also send, free of charge, a Synopsis of Foreign Patent Laws, showing the cost and method of securing Patents in all the principal countries of the world.  
MUNN & CO., Solicitors of Patents, 361 Broadway, New York.  
BRANCH OFFICES.—Nos. 622 and 624 F Street, Pacific Building, near 7th Street, Washington, D. C.

SEND FOR OUR CIRCULAR  
**IN ONE MINUTE**  
IT WILL CONVINCe YOU OF OUR ABILITY TO SUPPLY TOILET PAPER FOR LESS MONEY THAN IT CAN BE OBTAINED ELSEWHERE. A.P. W. PAPER CO. ALBANY, N.Y.

MINING AND PROSPECTING TAUGHT BY MAIL

Also, MECHANICAL DRAWING, Mechanics, Arithmetic, etc. To begin, students only need know how to read and write. DIPLOMAS Awarded. Low Prices. Send for FREE Circular to The Correspondence School of Mines, Scranton, Pa.

SAWS  
Wanted 50,000 Sawyers and Lumbermen to send us their full address for a copy of Emerson's Book of SAWS, new 1892 edition. We are first to introduce NATURAL GAS for heating and tempering SAWS with wonderful effect upon improving their quality and toughness, enabling us to reduce prices. Address EMERSON, SMITH & CO. (Limited), Beaver Falls, Pa.

COMPUTER  
Mistakes in Addition, Office Headache, and mistakes in carrying forward don't occur where the Computer is used. It saves half the time in doing the work and all time looking for errors. Solves with great rapidity and absolute accuracy all arithmetical problems. Why don't you get one? Write for Pamphlet.  
FELT & TARRANT MFG CO. 52-56 ILLINOIS ST., CHICAGO.

KODAKS.

Take one with You to the World's Fair.  
They're the only practical camera for the purpose. No bulky glass plates—no troublesome holders—no need of hunting up a dark room. With our special Columbian spools of film, containing 200 exposures you can have your Kodak loaded before leaving home and can then "press the button" as often as you like, while at the Fair, without the necessity of reloading.

Eastman Kodak Co., Rochester, N. Y.

"IMPROVEMENT THE ORDER OF THE AGE."  
**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.

No one ever wrote **1000 Letters** an Hour, that is, unless they first wrote one and then copied the rest on an **EDISON MIMEOGRAPH**  
Invented by Thos. A. Edison. For Daily Office Use in duplicating both handwriting and typewriting. Anybody can operate it. Simple—Compact—Cleanly—Cheap. Endorsed by over 90,000 users. Catalogues and Samples of Work sent free upon application. Manufactured only by the A. B. DICK CO., 151 E. Lake St., Chicago. Branch Office at Nassau St., N. Y. City, 10 So. Fifth St., Phila.

FASTEST FINE GRINDER KNOWN  
VERTICAL ROCK EMERY MILL  
3 Tons per Hour  
STURTEVANT MILL CO. Boston, Mass.

CHOLERA: EPIDEMIOLOGY OF.—By Dr. G. Archie Stockwell. An interesting and valuable paper on the dissemination of the Asiatic Cholera, showing what does and what does not spread the disease. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 5888. Price 10 cents. To be had at this office and from all newsdealers.

The O'Connell Company's Leading Lithographers. Chicago.

PHOTO-SMOKE CIGAR HOLDER.  
Most wonderful novelty of the day. Takes your picture while you smoke. Agents wanted. Sample, terms, etc., 25 cents. Address Parisian Novelty Co., 80 Cortlandt St., New York.

**Electric Motors**  
FOR ALL POWER PURPOSES.  
MILLS, FACTORIES, SHOPS, LOCOMOTIVE WORKS, ETC., OPERATED BY OUR ELECTRIC MOTORS.  
Are Cleaner, Healthier, Give Greater Returns for Outlay, than those Operated by Other Methods.  
PROFIT—ECONOMY.  
GENERAL ELECTRIC COMPANY,  
DISTRICT OFFICES:  
44 Broad Street, New York. 620 Atlantic Avenue, Boston, Mass.  
119 and 175 Adams Street, Chicago, Ill. 549 Arch Street, Philadelphia, Pa.  
Fifth and Race Streets, Cincinnati, O. 401-407 Fifth Street, St. Paul, Minn.  
Equitable Building, Atlanta, Ga. 1833 F Street, N. W., Washington, D. C.  
15 First Street, San Francisco, Cal. Masonic Temple, Denver, Colo.  
All business outside the U. S. transacted by Thomson-Houston International Electric Co., 44 Broad St., New York

The Monarch  
KING OF THEM ALL.  
MONARCH CYCLE CO.  
Lake and Halsted Sts., CHICAGO, U. S. A.

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

COPELAND & BACON HOISTING & WINDING ENGINES  
55 LIBERTY ST. NEW YORK. (60-30 CAPITAL ST.) CHICAGO.

PATENT JACKET KETTLES  
Plain or Porcelain Lined. Tested to 100 lb. pressure. Send for Lists. BARROWS SAVERY CO., S. Front & Reed Streets, Philadelphia, Pa.

THE PREMIER CAMERA  
IS THE BEST IN MARKET. Simple of Manipulation. Plates or Films are used. The Shutter is always set. PRICE \$18.00.  
Send for Catalogue and copy of Modern Photography. WE MAKE ALL KINDS OF CAMERAS.  
ROCHESTER OPTICAL COMPANY, 14 S. Water St., ROCHESTER, N. Y.

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.

RIEDLER ENGINES  
PUMPING ENGINES ARE POSITIVELY BETTER THAN ANY OTHERS  
AIR COMPRESSORS UPON THE MARKET.  
FOR EVIDENCE OF THIS FACT WRITE FOR PARTICULARS TO FRASER & CHALMERS 133 FULTON ST. W. CHICAGO, ILL.

PRINTING INKS.  
The SCIENTIFIC AMERICAN is printed with CHAS. ENRI. JOHNSON & CO.'S INK, Tenth and Lombard Sts., Philadelphia, and 47 Rose St., opp. Duane, New York