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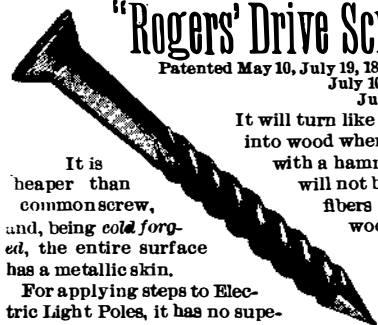


OVERMAN WHEEL CO.

BOSTON, WASHINGTON, DENVER, SAN FRANCISCO.
A. G. SPALDING & BROS., Special Agents,
CHICAGO, NEW YORK, PHILADELPHIA.

COLD FORGED PRODUCT.

"Rogers' Drive Screw."
Patented May 10, July 19, 1887;
July 10, 1888;
July 19, 1892.



It will turn like a screw into wood when driven with a hammer, and will not break the fibers of the wood.

It is heavier than 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.

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, Meriden, Ill.

THE COPYING PAD.—HOW TO MAKE and how to use; with an engraving. Practical directions how to prepare the gelatine pad, and also the outline 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. 438. Price 10 cents. For sale at this office and by all newsdealers in all parts of the country.

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

Give her a watch;

a good watch, a handsome one—but don't "go broke" over it.

Fourteen-karat gold, filled, or coin-silver, elegantly engraved; enamel dial in modern Arabic numerals; jeweled works; stem-set and stem-winding. A gem to look at and a perfect time-keeper. It looks like a hundred-dollar watch; any one can take genuine pride in its looks and its behavior. The new, perfected, quick-winding "Waterbury" (\$4 to \$15).

No cheap Swiss watch can compare with it. Your jeweler sells it, in many different styles.

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 unequal 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 the preparation of Caveats, Copy rights 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.

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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. 63 and 64 F Street, Patent Building, near 7th Street, Washington, D. C.

ZINC ETCHING HALFTONE PROCESS
Printer
OF
Engravings MAGAZINES, BOOKS, SOUVENIRS.
CATALOGUE WORK A SPECIALTY
A.H. KELLOGG
SCOTT & BOWNE BUILDING New York.

ACCOUNTANTS
who use the Comptometer
have no trouble with their trial balance. Has it ever occurred to you that by getting one you might save lots of time, avoid mistakes and not ruin your nerves?
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.

PERFORATORS OF ALL METALS
For Cotton, Oil and Rice Mills, Sugar Houses, Distilleries, Phosphate and Fertilizer Works, Mining and Concentrating, Gas and Water Works, Elevators, Thrashers, Separators, Corn Shellers, and all kinds of Grain Cleaning Machinery. Heavy Steel and Iron Plates and Cylinders for Screening Ore, Coal, Stone. For Filters, Strainers, Ventilators, Oil Gas and Vapor Stoves and all special purposes. Special sizes for Coffee Cleaning and Roasting Machinery, Perforated Tin and Brass.
The Harrington & King Perforating Co., Chicago, and 284 Pearl St., 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.

MECHANICS' TOOLS.
If you are interested in Tools as a manufacturer or amateur, you should have a copy of our new catalogue. Our 1892 edition is a very elaborate and complete book of 70 pages, handsomely bound in cloth. The book will be sent to any part of the world, prepaid, on receipt of \$1.00, and the money thus paid will be refunded with the first purchase amounting to \$10.00 or over. Every manufacturer and amateur should have this catalogue, even if they do not intend buying their Tools and Supplies of us.
MONTGOMERY & CO., Fine Tools,
105 Fulton Street, New York City, N. Y.

THE STANDARD
H.W. JOHNS ASBESTOS BOILER COVERINGS
H.W. JOHNS MFG. CO.
27 MAIDEN LANE, NEW YORK
PATENTED

SCIENTIFIC EXPERIMENTS.—Description of some simple and easily performed scientific experiments. Foucault's pendulum, exchange of water and wine, the bird in the cage, the five-pointed star, the sum of the angles of a triangle, surface of the sphere, with 8 illustrations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 875. Price 10 cents. To be had at this office and from all newsdealers.

SEND FOR OUR CIRCULAR
IN ONE MINUTE
IT WILL CONVINCING 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.

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
175 and 176 Adams Street, Chicago, Ill.
5th 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

Greenfield's Stationary Engines
3 to 5 H. P. Price \$120.
Adapted for all purposes. Also Automatic and Variable Cut-Off Engines. Sizes from 3 to 75 horse power. 10 years on the market.
MANUFACTURED BY
W. G. & G. GREENFIELD,
EAST NEWARK, N. J.

FASTEST FINE GRINDER KNOWN
VERTICAL ROCK EMERY MILL
STURTEVANT MILL CO.
BOSTON, MASS.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.
At 1/2 Price
Gold and Silver Watches, Bicycles, Tricycles, Gigs and Picnics, Carriages, Wagons, Carriages, Saws, Blights, Harness, Cart Tops, Blinds, Sewing Machines, Accordions, Organs, Pianos, Under Mills, Gas Engines, Food Mills, Saws, Kettles, Bone Mills, Letter Presses, Jack Screws, Trucks, Drills, Hay Cutters, Press Stands, Copy Books, Vices, Rods, Road Plows, Lawn Mowers, Coffin Mills, Lathes, Benches, Dump Carts, Corn Shellers, Hand Carts, Forges, Scrapers, Wire Fences, Washing Mills, Engines, Saws, Steel Slabs, Grain Dumps, Cross Bars, Ballers, Tools, Bit Braces, Hay, Stock, Elevator, Railroad, Platform and Counter SCALES.
Send for free Catalogue and see how to save money.
181 So. Jefferson St., CHICAGO SCALE CO., Chicago, Ill.

AGENTS WANTED FOR FINE TOOLS IN EVERY SHOP.
C.H. BESLY & CO.
CHICAGO, ILL., U.S.A.

CASH PAID for all kinds of good Second-hand Iron and Wood-Working Machinery. Address W. P. DAVIS, ROCHESTER, N. Y.
"The case of cycling is in the tire."
Columbia Bicycles are fitted with the
COLUMBIA PNEUMATIC TIRE
The Columbia catalogue is the most readable book of its class—beautifully illustrated—free at Columbia agencies—by mail for two 2-cent stamps.
Guaranteed against puncture. Fastest and most resilient. Built to last.
POPE MFG. CO., Boston, New York, Chicago, Hartford.

KEMP'S MANURE SPREADER
Spreads any and all kinds of yard and stable manure. Its chief merit is in the thorough pulverizing and even distribution, though it will discharge its load in one-tenth the time required by hand.
KEMP & BURPEE MFG. CO.
Box 66. SYRACUSE, N. Y., U. S. A.

CALDWELL IMPROVED CHARTER GAS ENGINES.
TAKES...
H.W. CALDWELL & SON
WASHINGTON, D. C. CHICAGO, ILL.

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.

CLAY & TORBENSEN GLOUCESTER CITY, N.J.
DESIGNERS, BUILDERS OF YACHTS, LAUNCHES AND SAILING CRAFT.
SEND FOR CATALOGUE

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