

Advertisements.

ORDINARY RATES.

Inside Page, each insertion, - 75 cents a line
Back Page, each insertion, - \$1.00 a line
For some classes of Advertisements, Special and Higher rates are required.

WOOD or METAL WORKERS
without steam power can save time and money by using our Foot and Hand Power Machinery

POWER & FOOT SHAPERS, PLANERS, DRILLS, LATHES. MACHINE SHOP OUTFITS, TOOLS

A College Education for 7 Cents a Day
Improve your condition. Thorough courses, by mail, in Mechanical, Steam, Electrical, Civil, and Sanitary Engineering.

THE UNITED CORRESPONDENCE SCHOOLS, F. W. EWALD, Gen. Mgr. 154, 156, 158 5th Ave., New York

TOOLS
Every kind of Tool for Steam, Gas, and Water Fitters. Every Tool has our personal guarantee.

A TELEGRAPH OPERATOR'S WORK IS PLEASANT
pay good wages, and leads to the highest positions. We teach it quickly and start our graduates in telegraph service.

"Queen" Builder's Transit
IMPROVED TRANSITS AND LEVELS
Graduated entirely on our large dividing engines. Special award at World's Fair.

Water Emery Tool Grinder
Has no pumps, no valves. No piping required to supply it with water. Always ready for use.

SUB-PRESS PUNCHES AND DIES
We make to order drawings or models blanking, shaving and swaging dies, either simple or compound, for work requiring accuracy and finish.

HIGH GRADE WOOD WORKING MACHINERY
Single Machines or Complete Equipments for Any Class of Work.

TRANSITS AND LEVELING INSTRUMENTS. NEW ADJUSTABLE BENCH LEVEL
Bottoms ground true. Vials ground and graduated.

AMERICAN PATENTS. - AN INTERESTING and valuable table showing the number of patents granted for the various subjects upon which petitions have been filed from the beginning down to December 31, 1894.

THE HARRINGTON & KING PERFORATING CO.
PERFORATED ZINC OF ANY SIZE & SHAPE FOR SHEET-METALS OF ALL PURPOSES

with ordinary copying ink mixed with gamboge or vermilion. Then slightly dampen the surface of the negative near the bottom right or left hand corner in as unobtrusive and unimportant a portion of the picture as possible.

(7387) M. T. says: Please refer me to SUPPLEMENT explaining how to construct a medical battery, or otherwise furnish as full instructions as convenient for coil and core of moderate strength.

(7388) C. H. R. says: Have you the formula for making a new method burnishing ink for boots and shoes? A Four ounces shellac, 1 ounce borax, sufficient water.

TO INVENTORS.

An experience of fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted
MARCH 15, 1898, AND EACH BEARING THAT DATE.

Table listing inventions and their patent numbers. Includes: Air brake coupling safety appliance, Artbur. 600,641; Air brake safety apparatus, A. Kholodkowski. 600,537; Alarm, See Fire alarm.

(Continued on page 306)

WILLIAMS' SHAVING SOAPS. EXCELL ALL OTHERS IN THE PECULIAR SOFTENING ACTION ON THE BEARD, AND THE WONDERFULLY HEALING-CREAMY-NEVER-DRYING LATHER. THE J. B. WILLIAMS CO. Glastonbury, Conn., U.S.A.

Eyelet Machines.

We can furnish the Latest Improved Eyelet Machines for making shoe eyelets and special eyelets of all descriptions. We are also builders and designers of Special Wireworking Machinery.

BLAKE & JOHNSON, P. O. Box 7, WATERBURY, CONN., U. S. A.

ARMSTRONG'S PIPE THREADING AND CUTTING-OFF MACHINES
Both Hand and Power. Sizes 1 to 6 inches. Water, Gas, and Steam Fitters' Tools, Hinged Pipe Vises, Pipe Cutters. Stocks and Dies universally acknowledged to be THE BEST.

ACETYLENE APPARATUS
Acetylene number of the SCIENTIFIC AMERICAN SUPPLEMENT, describing, with full illustrations, the most recent, simple or home made and commercial apparatus for generating acetylene on the large and small scale.

MIETZ & WEISS KEROSENE ENGINE
the most economical power known. Absolutely safe and reliable. Runs with common kerosene. Perfectly automatic. Patented 1897 U. S. and European countries.

SHERIFFS MANUFACTURING COMPANY. Established 1854. Manufacturers of Marine Engines MILWAUKEE, WIS., U. S. A.

RUBBER STAMP MAKING. - THIS article describes a simple method of making rubber stamps with inexpensive apparatus. A thoroughly practical article written by an amateur who has had experience in rubber stamp making.

NO FIRE, SMOKE, OR HEAT. ABSOLUTELY SAFE
\$200 and up. Send 5 stamps for Catalogue. Truscott Boat Mfg. Co., Drawer 9, St. Joseph, Mich.

THE TORPEDO BOAT TURBINIA. - This article describes the construction of the Turbinia, which made such a phenomenal speed. Detailed drawings showing arrangement of machinery. SCIENTIFIC AMERICAN SUPPLEMENT 1121. Price 10 cents.

VAPOR LAUNCH COMPLETE FOR \$150 AND UPWARDS
Row, Sail or Steam Boats. Send five cents for catalogue. Racine Yacht and Boat Works, Racine Junction, Wis., Box A.

ARTESIAN WELLS
Any depth from 10 to 2,000 feet. Wells for the Improved Air Lift Pump a specialty. Old and new wells made deeper. Test Boring for Water. Soundings made for Foundations. Send for references and particulars.

WELL DRILLING MACHINERY, MANUFACTURED BY WILLIAMS BROTHERS. ITHACA, N.Y. MOUNTED OR ON SILLS, FOR DEEP OR SHALLOW WELLS, WITH STEAM OR HORSE POWER

"A Tome That Tells of Tools."
All about every known Tool large and small, and its use, size, weight, and present market price. Every Tool described and illustrated by fine and accurate cuts. Send at once for MONTGOMERY & CO.'S thoroughly up to date TOOL CATALOGUE for 1898.

ELECTRO MOTOR, SIMPLE, HOW TO make. - By G. M. Hopkins. Description of a small electric motor devised and constructed with a view to assisting amateurs to make a motor which might be driven with advantage by a current derived from a battery, and which would have sufficient power to operate a foot lathe or any machine requiring not over one man power.

WEBSTER MFG. CO., 1074 West 16th St., CHICAGO
This beats Wind, Steam, or Horse Power. We offer the WEBSTER 2 1/2 actual horse power GAS ENGINE for \$150, less 10% discount for cash.

HOISTING ENGINES
operating on GASOLINE, DISTILLATE or CRUDE OIL. Both Friction and Geared Hoist, from 10 to 50 H. P., for Mines, Quarries, Docks, etc. Great Saving over steam, especially where wood, coal or water are scarce.

The "Wolverine" Three Cylinder Gasoline Marine Engine.
The only reversing and self starting gasoline engine on the market. Lightest engine for the power built. Practically no vibration. Absolutely safe. Single, double, and triple marine and stationary motors from 4 to 30 H. P.

DRY BATTERIES. - A PAPER BY L. K. Bohm, treating of open circuit batteries, historical dry batteries, modern dry batteries, Heilisen's battery Bryan's battery, Koller's battery, and the efficiency of dry cells. With three illustrations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 1001. Price 10 cents.

RACINE BOAT MFG. CO., CHICAGO
This \$300.00 Launch for \$200.00, guaranteed or money refunded. Send stamps for Catalogue.

PALMER STATIONARY GAS. ENGINES
LAUNCHES \$178.00 AND UP
BOAT FRAMES, PROPELLER WHEELS, ENGINE CASTINGS SEND STAMP FOR CATALOGUE MIANUS ELECTRIC CO. MIANUS, CONN.

SUBMARINE TELEGRAPH. - A POPULAR article upon cable telegraphing. SCIENTIFIC AMERICAN SUPPLEMENT 1134. Price 10 cents.

25 Second-Hand Engines
They must be sold at once. All are in good running order. Some of these were taken in part payment for our Gates Gas and Gasoline Engines. Will sell cheap for cash. Prices, \$75 up. We want a good live man in every town to represent us.

Chains
High grade Crane, Dredging, and Steam Shovel Chains. Made of best American Charcoal Bloom Iron, Norway or Swedish Iron or Basic O. H. Steel. Write for prices. JAS. MCKAY & CO., Manufacturers, Office Address, 1029 Liberty St., Pittsburg, Pa.

KEEP YOUR TOOLS SHARP
by the use of CHAPMAN'S EMERY GRINDING MACHINE (Foot or Power). Light, strong, durable, practical and thoroughly tested. Especially well adapted to Bicycle Repair Shops.

TOOLS OF ALL KINDS
Send 10 cents for 128-page Illustrated Catalogue. H. L. CHAPMAN, Marcellus, Mich., U. S. A.