



**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.  
 The above are charges per square line—about eight words per line. This notice shows the width of the line and is set in agate type. Engravings may be advertised at the same rate per square 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.

Sewing machine thread waxing device, C. P. Holmes.....	564,889
Shades, guide for spring actuated, R. P. Smith.....	564,721
Shaft, crank, F. C. Holmes.....	564,938
Shaft, flexible, E. L. Doyne.....	564,875
Sheet metal articles, means for repairing punctured, M. A. Stone.....	564,850
Shirt waist, A. H. Graftey.....	564,925
Shoe, J. H. Preble.....	564,714
Shoe, W. Schneider.....	564,767
Shut-off, J. E. Woodard.....	564,716
Shutter operating and locking device, A. Veit.....	564,877
Sieve holder, J. Tollefson.....	564,855
Signal. See Railway signal.	
Signaling apparatus, P. Lupke.....	564,706
Singletree hook, J. E. Brunneisen.....	564,954
Skirt holder, K. D. Head.....	564,887
Smoke consuming furnace, F. J. Keinisich.....	564,649
Soap, electrical, H. E. Rider.....	564,717
Soap, fluorescent, S. Neumann.....	564,835
Sound locating instrument, D. P. Heap.....	564,926
Speaking tube, Berpente.....	564,936
Spindle, E. Woodard.....	564,935
Spinning spindle, cap, J. W. Bamford.....	564,773
Spring fastener, S. Porter.....	564,761
Sprinkler. See Water sprinkler.	
Stair step cover, D. Walker.....	564,730
Stand. See Bicycle stand. Display stand.	
Stereotype plate holder, C. C. Keller.....	564,624
Stopper. See Bottle stopper.	
Stove, air tight heating, W. M. Milburn.....	564,631
Stove and grate, B. Woodbull.....	564,677
Stove, gas, T. A. Brvan.....	564,881
Stove, heating and ventilating, J. D. Barrier.....	564,817
Stud clamp, H. Kertgen.....	564,838
Suspenders, C. G. Matthews.....	564,829
Swinging scale, Copeland & Nesmith.....	564,870
Switch. See Car track switch. Railway switch.	
Trolley track switch.	
Switchboard back connection, A. J. Wurts.....	564,679
Table. See Folding table.	
Telephone system, C. C. Gould.....	564,745
Theater, mechanical, T. H. Thornyke.....	564,853
Thill coupling, E. A. Bemmer.....	564,911
Threshing machine grain delivery, M. Rumley.....	564,765
Ticket, price, J. T. Hopkins.....	564,930
Time recorder, watchman's, K. Mailer.....	564,700
Tire for vehicle wheels pneumatic, C. K. Welch.....	564,818
Tire, inflatable, A. Pulbrook.....	564,763
Tire scraper, bicycle, G. A. Mylacrairie.....	564,831
Tire shrinker, W. Hullerman.....	564,690
Tires, evacuating device for pneumatic, H. A. Vezie.....	564,866
Tongue support, wagon, J. H. Cassidy.....	564,590
Toys, G. Gotschalk & Sipe.....	564,686
Toy team of horses, H. C. Ives.....	564,789
Trocar, S. E. Baker.....	564,581
Trolley, D. Lippy et al.....	564,795
Trolley carrier, banner, W. J. Sumner.....	564,949
Trolley finder, H. Osborn.....	564,638
Trolley track and hanger, L. Coburn.....	564,888
Trolley track switch and bracket, W. J. Sumner.....	564,950
Trolley wheels, yielding and self adjusting support for, Brunswick & Johnson.....	564,355
Trough. See Folding trough.	
Truck, car, Teasnyan.....	564,904
Truck corner iron, E. Dietz.....	564,740
Typewriting machine, G. W. Hall.....	564,749
Typewriting machine platen shift, W. P. Kidder.....	564,699
Valve, engine, H. R. Fay.....	564,917
Valve, safety, J. N. Wines.....	564,812
Valve, thermostatic, M. Leitch.....	564,791
Vegetable cutter, grater, and dish drainer, F. B. Cunningham.....	564,595
Vehicle brake, J. E. & J. G. Walton.....	564,663
Vehicle, motor, C. H. Barrows.....	564,584
Velocipede, T. S. Lovelace.....	564,797
Velocipede brake, G. Baxter.....	564,862
Velocipede seat, H. J. Burgess.....	564,588
Velocipede steering head, F. K. Dunn.....	564,741
Velocipede, device for varying the speed of, W. T. Harder.....	564,617
Velocipede, variable speed gearing for, W. T. Harder.....	564,616
Vending machine, Cravens & McGowan.....	564,871
Vending machines, coin detector for automatic, A. Jaeger.....	564,824
Vertical boiler, Patzel & Schoche.....	564,640
Wagon and velocipede, combined child's, Long & Shull.....	564,796
Washboiler, L. W. Boynton.....	564,777
Washing apparatus, portable, M. Frisch.....	564,878
Water closet seat, H. B. Riggs.....	564,900
Water closet seat and bing, J. Barrett.....	564,863
Water, purifying, G. H. Sellers.....	564,940
Water purifying apparatus, G. H. Sellers.....	564,938
Water purifying apparatus, G. H. Sellers.....	564,942
Water sprinkler, E. R. Gill.....	564,610
Water sterilizing apparatus, H. G. Stiebel, Jr.....	564,657
Water trough, North & Stake.....	564,635
Weighing and weighing machines, B. Simons.....	564,945
Weighing machine, automatic, B. Simons.....	564,946
Wheel, see Power wheel.	
Wheel rim, wooden, H. G. Shepard.....	564,802
Windmill, J. W. Henry.....	564,927
Wood, etc., tool for working, P. Jury et al.....	564,763
Work bench and tool box, combination, T. E. Doelger.....	564,782
Wrench. See Bicycle wrench.	
Wrench, Aldrich & Chamberlin.....	564,816
Wringer. See Clothes wringer.	

**DESIGNS.**

Bell case, electric, E. G. Worley.....	25,842
Boiler lug, H. B. Butler.....	25,846
Buckle, C. S. Comstock.....	25,831
Cabinet, waiter's, M. A. Coman.....	25,847
Electrical plug casing, L. E. Caster.....	25,843
Frieze, E. Romphay & Company.....	25,832 to 25,835
Foot rest, G. W. Yearicks.....	25,848
Gas lights, gallery for incandescent, W. E. Barrows.....	25,844, 25,845
Hood, M. Dubinsky et al.....	25,849
Hook, lacing, E. K. Campbell.....	25,837
Meat tender, M. E. Ronte.....	25,841
Opera glass holder, B. H. Blank.....	25,838
Per rack and in stand, G. H. Allen.....	25,839
Puzzle box or case, A. E. Lester.....	25,840

**TRADE MARKS.**

Beverage, cordial, and sirup, carbonated, Drewry & Sons.....	28,686
Bicycles, Williams & Company.....	28,671
Bicycles and similar vehicles, D. A. Freeman.....	28,673
Bluing, American Bluing Company.....	28,697
Brushes and the like, horse, dust and scrubbing, Palmetto Fiber Company.....	28,670
Candy, chewing, Chicago Candy Company.....	28,691
Cement, Portland, J. S. and.....	28,676
Cigars, F. W. T. T. and.....	28,684
Coffee, chicory, R. B. Muller & Company.....	28,687
Fish, salted and boneless, J. W. Beardley's Sons.....	28,690
Flavoring extracts, S. Schmidt.....	28,692
Flour, wheat, B. Stern & Sons.....	28,689
Hams, shoulders, and breakfast bacon, P. T. George & Company.....	28,695
Hams, shoulders, sides, bacon and lard, P. T. George & Company.....	28,696
Lamps, bicycle, H. B. Clarke.....	28,672
Liniment, T. B. Rice.....	28,681
Malt, brewed, or fermented liquors, Volk Brewery Company.....	28,685
Milk, cream, butter and cheese, Canajoharie Creamery Company.....	28,688
Oil, wool, Keewau-Bradley Company.....	28,677
Pencils, penholders and crayons, lead, G. Sackers-dorf.....	28,675
Pharmaceutical and cosmetic products, Nord-deutsche Wollkammeret & Kammerarspinnererei.....	28,679
Remedy for infants' complaints, W. Peterson.....	28,682
Shirts, collars and cuffs, drawers and shirt waists, and goods of like character, Broom & Meyer.....	28,677
Snuff, Stewart, Ralph & Company.....	28,693
Suspenders, shoulder braces and garment supporters, Silvermann & Company.....	28,688
Toilet preparation for the skin in either a solid, liquid or powdered form, C. Lyons.....	28,690
Tonics, Knia Importing Company.....	28,684
Tomato, scalp, E. W. Knowlton.....	28,683
Tools, such as hoes and corn books, hand, Iowa Farming Tool Company.....	28,689
Watch movements, H. S. Montgomery.....	28,679
Wool fat and products of same, Norddeutsche Wollkammeret & Kammerarspinnererei.....	28,678

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1833, will be furnished from this office for 10 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York. Special rates will be given where a large number of copies are desired at one time.

Canadian orders may now be obtained by the inventors for a copy of the inventions named in the foregoing list, provided they are simple, at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.

**WOOD or METAL WORKERS**  
 without steam power can save time and money by using our Foot and Hand Power Machinery  
 SEND FOR CATALOGUES—  
 A—Wood-working Machinery.  
 B—Lathes, etc.  
**SENZCA FALLS MFG. COMPANY,**  
 695 Water St., Seneca Falls, N. Y.

**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. Contained in **SCIENTIFIC AMERICAN SUPPLEMENT, No. 1002.** Price 10 cents. To be had at this office and from all newsdealers.

**POWER & FOOT LATHES** SHAPERS, PLANERS, DRILLS, MACHINE SHOP CUTTING TOOLS, AND SUPPLIES. CATALOGUE FREE.  
**SEBASTIAN LATHÉ CO.,** 120 CULBERT ST., CINCINNATI, O.

**Rivet Machinery**  
 RAPID ACTION  
 MODERN DESIGN  
 HIGH-GRADE WORK  
 BUILT BY  
**THE E. J. MANVILLE MACH. CO.,**  
 P. O. Box 54, WATERBURY, CONN.

**The Curtis Patent Return Steam Trap**  
 Returns all condensation back to boiler, and operates equally well with reduced pressure or exhaust steam.  
 Its general use the past 10 years is best proof of its superiority.  
 Send for circular, S. B.  
**D'ESTE & SEELEY CO.,**  
 29-33 Haverhill St., Boston.

**THE VICTOR VAPOR ENGINE.**  
 The Twentieth Century Gas Engine.  
 The new Victor Vapor Engine is the result of more than 10 years' experience and progress in this line. It is a combination of excellencies, each one the subject of, not months but years of testing. Every possible weakness and fault so common in most gas engines have been eliminated. Utilizes the double spark invention, with same fuel, power increased from 50 to 100%. Send stamp for catalogue and state size needed.  
**THOMAS KANE & CO.,** 64-66 Wabash Ave., Chicago.

**GATES' ROCK AND ORE BREAKERS**  
 LEAD ALL OTHERS IN ECONOMY, DURABILITY, CAPACITY.  
 ESTIMATES furnished for COMPLETE CRUSHING PLANTS. We manufacture **MINING MACHINERY** of every description.  
**Gates Iron Works, Dept. C, 650 Elston Av., Chicago, Ill.**

**THE BILLINGS - PIPE - WRENCH**  
 Jaw Drop Forged from Best Tool Steel.  
 Few Parts. Best Workmanship. Angle of jaw teeth the same irrespective of the size of the pipe taken. Length 14 inches. Takes pipe from 1/4 to 1 1/2 inches. Send for Cir. P. W.  
**THE BILLINGS & SPENCER CO.,**  
 Drawer 3, HARTFORD, CONN.

**WORK SHOPS**  
 of Wood and Metal Workers, without steam power, equipped with **BARNES' FOOT POWER MACHINERY** allow lower bids on jobs, and give greater profit on the work. Machinery sent on trial if desired. Catalogue Free.  
**W. F. & JOHN BARNES CO.,**  
 1999 Ruby St., ROCKFORD, ILL.

**THE DURANT COUNTING MACHINES**  
 Received the Highest Award at the World's Fair.  
 Send for catalogue to **W. N. DURANT,**  
 233 2nd St., Milwaukee, Wis.

**EMERY WHEEL MACHINERY.**  
**Grinding Machine**  
 No. 6, with surface attachment. Will run two wheels up to 16 in. in diameter. Construction equal to the best made engine lathes.  
 Book 15 Free.  
**DIAMOND MACHINE CO.,**  
 P. O. Box 885, Providence, R. I.

**The Van Noman Universal Bench Lathe.**  
 A Lathe, Milling Machine, Screw Cutter and Universal Grinder in one tool. The best tool made for all kinds of small work. Made by **Waltham Watch Tool Co.,** SPRINGFIELD, MASS.  
 Send for Catalogue.

**PERFORATED METAL**  
 OF EVERY DESCRIPTION FOR ALL USES.  
**THE HARRINGTON & KING PERFORATING CO.,**  
 225 N. W. 10th St., CHICAGO, ILL.

**VANDUZEN STEAM PUMP**  
 THE BEST IN THE WORLD.  
 Pumps Any Kind of Liquid.  
 Always in Order, never Clogs nor freezes. Every Pump Guaranteed.  
**10 SIZES**  
 200 to 12000 Gallons per Hour.  
 Cost \$7 to \$75 each. Address  
**THE E. W. VANDUZEN CO.,**  
 102 to 108 E. Second St., Cincinnati, O.

**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. The gas as made for and used by the microscopist and student; its use in the magic lantern. The new French table lamp making its own acetylene. Contained in **SCIENTIFIC AMERICAN SUPPLEMENT, No. 1057.** Price 10 cents. To be had at office.

**The Rivett Lathe**  
 Fanehill Watch Tool Co., Boston, Mass., U. S. A.  
 Adopted by all great universities.  
 The greatest lathe for fine mechanics.

**BATTS PAT. IMPROVED DIFFERENTIAL Self-Lubricating HOISTS.**  
 ONE MAN CAN HANDLE A TON.  
 Send for Particulars.  
**BOSTON & LOCKPORT BLOCK CO.,**  
 143 Commercial St., Boston, Mass., U. S. A.

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

**DORMAN'S VULGANIZERS**  
 are used all over the world.  
 Exclusive Manufacturers of Steam Machines for Rubber Stamps. We also make Dry Heat Vulcanizers. Complete outfits from \$10 to \$1,000. All Stamp and Stencil Tools and Supplies. Brass and Steel Dies for all purposes. Stamps, Engraving and Die Sinking of all kinds. Established 1881.  
 Send for Catalogue.  
**THE J. F. W. DORMAN CO.,**  
 121 E. Fayette St., Baltimore, Md., U. S. A.

**ROCK DRILLS**  
**AIR COMPRESSORS & MINING TUNNELING.**  
 GENERAL MACHINERY FOR QUARRY & RAILROAD WORK.  
**RAND DRILL CO.** 100 BROADWAY, NEW YORK.

**"My Well and what came out of it."**  
 A story by the novelist Frank R. Stockton.  
**"Your Well and what will come out of it."**  
 By the  
**Pohlé Air Lift Pump**  
 Bulletins to tell you will be sent on application.  
**The Ingersoll-Sergeant Drill Co.,**  
 Havemeyer Building, 26 Cortlandt Street, New York.

**The Bartley Direct Running Saw Mill**  
 Most complete, compact, and substantial Portable Saw Mill now on the market. Can be set up anywhere. Cuts all kinds of lumber. Entirely self-contained. No lost power. Hundreds in use.  
 Write for Illustrated Catalogue.  
**WM. BARTLEY & SONS, Mrs.,** Bartley Station, N. J.

**CATALOGUES FREE TO ANY ADDRESS**  
**GEARS AND PARTS OF MODELS**  
**GODDOW & WIGHTMAN**

**Draughting Instruments**  
 Established in 1848. And Supplies for Architects, Engineers, and Draughtsmen.  
 New Catalogue free.  
**FROST & ADAMS CO.,**  
 39 Cornhill, Boston, Mass.

**TRANSITS AND LEVELING INSTRUMENTS.**  
**NEW ADJUSTABLE BENCH LEVEL**  
 Bottoms ground true. Vials ground and graduated.  
 Size 4 in. to 18 in. Price \$2.50 to \$8. For book on the level  
**C. F. RICHARDSON & SON,**  
 P. O. Box 977, ATHOL, MASS., U. S. A.

**OIL TEMPERED SPRINGS**  
 FOR ORGANS—PIANOS—GOVERNORS—BICYCLES—AND AGRICULTURAL IMPLEMENTS—SPECIAL SPRINGS—MADE FROM CRUCIBLE "BEST" STEEL.  
**SABIN MACHINE CO. MONTPELIER, VT.**

Repair Bicycles for a Living.—Your boy's bobby may be mechanics; if so, get him the proper tools.  
 Here is a bicycle repair outfit complete. Illus. catalogue of tools for stamp. Fred. Frasse Co., 21 Warren St., N. Y.

**Architecture**  
 Architectural and Mechanical Drawing; Electricity; Mechanism; Plumbing; Mining; Civil Engineering in all Branches; Steam Engineering (Loco., Ship and Marine)  
**TAUGHT BY MAIL**  
 The International Correspondence Schools  
 12 Housatonic St., New York, N. Y.

**"WOLVERINE" GAS AND GASOLINE ENGINES, STATIONARY AND MARINE.**  
 The "Wolverine" is the only reversible Marine Gas Engine on the market. It is the lightest engine for its power. Requires no licensed engineer. Absolutely safe. Manufactured by **WOLVERINE MOTOR WORKS,** 12 Huron Street, GRAND RAPIDS, MICH.

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. Built on interchangeable plan. Built of best material. Made in lots of 100, therefore we can make the price. Boxed for shipment, weight 800 pounds. Made for Gas or Gasoline.  
 Write for Special Catalogue.  
**WEBSTER MFG. CO.,**  
 1074 West 15th Street, CHICAGO.

**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 and launches. Prices within the reach of all. Send for Catalogue. Mention this paper.

**GAS and GASOLINE ENGINES.**  
 Using Natural Gas, Coal Gas, Producer Gas, and Gasoline direct from the tank. 1 to 40 H. P., actual.  
 The Springfield Gas Engine Co., 21 W. Washington St., Springfield, O.

**"SURE STEP" Rubber Cushion Tread Horse Shoe.**  
 Positively prevents slipping, stumbling, jar, concussion, caking, or interfering. Adopted and in use by leading Fire Departments, Livery and Driving Stables. Consists of steel skeleton shoe, perfect in shape, size, weight, and durability; provided with Rubber Cushion Tread adapted to take a firm hold upon the ground. Price per set, complete, \$2.00. This circular sent free. Agents Wanted **F. W. HAHN, Mfr.,** 358 Grand St., N. Y.

**MONITOR MARINE GAS ENGINES AND LAUNCHES**  
 NO BOILER. NO HEAT. NO SMOKE OR ODOR.  
**MONITOR VAPOR ENGINE & POWER COMPANY**  
 GRAND RAPIDS, MICHIGAN.  
 EASTERN OFFICE, LUDLOW STATION, YONKERS, N. Y. CATALOGUE FREE.

**ALCO VAPOR LAUNCH.**  
 Engine and helm controlled from bow. Latest improved and only 12 to 1 motor now ready for the market. 18 to 40 ft. launches 2, 3, 5 and 7 h. p. No licensed engineer or pilot required. Speed and safety guaranteed. No dangerous naphtha or gasoline used.  
**Marine Vapor Engine Co.,** Jersey City, N. J.

**GALVANIZED IRON—APOLLO.**  
 Your jobber can always get it—he may not make so much money on it—promptly.  
 Your jobber may not be ours; he can buy of ours; so can you.  
 Every sheet and part of a sheet guaranteed. Return to jobber at jobber's expense for any defect whatever.  
**Apollo Iron and Steel Company,** Pittsburgh, Pa.

**Wire Forming Machines**  
 With F. B. Manville's Patent sliding former, circles made from coil of round, flat or square wire, same as shown in the cut.  
 Bent Wire Goods furnished to order.  
**BLAKE & JOHNSON,**  
 P. O. Box 7, Waterbury, Conn., U. S. A.

**BICYCLE MACHINERY. CHAIN DRAW BENCH**  
 For making Steel Tubing.  
 Send for Booklet.  
**The Waterbury Farrell Foundry and Machine Company,**  
 Bank St., Waterbury, Conn., U. S. A.

**CARBORUNDUM**  
 HARDEST ABRASIVE KNOWN. EMERY AND DIAMOND POWDER SUBSTITUTE. IN FLOUR, POWDER, CRYSTAL, WHEEL, SLAB & HONE FORM.  
**CARBORUNDUM CO. MONONGAHELA CITY, PA., U. S. A.**

**DO YOUR OWN PRINTING**  
 25 PRESSES for cards, circulars, &c. Press for printing a small paper, \$40.  
 Have money! Make money printing for others! Type-setting easy. Printed rules. Write for catalogue, presser type, cards, etc. to factory.  
**KELSEY & CO.,** Meriden, Conn.

**RHODES LEATHER BELT PRESERVER**  
 GIVES LIFE, FLEXIBILITY AND ADHESIVENESS AN UNUSUAL VIRTUE. 100% OF THE BELT IS OILED, AN UNUSUAL FEATURE. 25 CENTS. BELT PRESERVER SO SOLELY FOR 25 CENTS IF YOU MENTION SCIENTIFIC AMERICAN. **J. E. RHODES & SONS, MAKERS OF THE RHODES BELT PRESERVER,** 239 MARKET ST., PHILA., PA.