

From the Shop... to the office; from a small salary to a good one, is but a step if you go the right way about it.

CHANCE YOUR WORK without loss of present salary. We guarantee to give you an education by mail in Steam, Electrical, Mechanical or Civil Engineering...

To the Office... HIGH GRADE WOOD WORKING MACHINERY

Single Machines or Complete Equipments for Any Class of Work. Four Correspondence is Solicited.

J. A. FAY & CO. 10-30 John St., CINCINNATI, OHIO

DYNAMOS—Motors. Multi-Polar Iron-Clad Type. Slow and Moderate Speeds. A Modern Machine embodying all the best features in Dynamo and Motor Construction.

ROTH BROS. & CO., Mfrs. 88-92 W. Jackson Street, Chicago, Ill., U. S. A.

P. T. AUSTEN, Ph.D., F. J. MAYWALD, L. S. MOTT, President, Vice-Pres., Sec. and Treas.

The Austen Chemical Research Co. Experimental Investigation of Technical Problems. Research Work for Manufacturers. Improvement and Invention of Processes and Products.

Universal Kneading and Mixing Machines. Over 6200 in use. Over 500 varieties in 155 different industries.

WERNER & PFLEIDERER. Saginaw, Mich. Builders of all kinds of Chemical Machinery.

DON'T LEAVE YOUR KEYS in the front door. Fasten them to the pocket or waistband with a key chain secured by the Improved Washburn Patent Fastener.

AMERICAN RING CO. Box F. Waterbury, Conn.

SETS OF CASTINGS OF MODEL ENGINES. SEND 10¢ FOR 128 PAGE ILL. CATALOGUE.

FINE GREY IRON CASTINGS. Art Castings in Iron, Stove Plate, Light and Medium Weight Machinery Castings.

NEW IDEA IN TRUNKS. The Stallman Dresser Trunk is constructed on new principles. Drawers instead of trays.

The Ideal Hunting Shoe. The concentrated product of fifty years of shoemaking skill. Ten inches high, Bellows tongue, uppers gray color, soft as a glove, tough as steel.

The Typewriter Exchange. 1 1/2 Barclay St., NEW YORK; 124 La Salle St., CHICAGO; 38 Bromfield St., BOSTON; 817 Wyandott St., KANSAS CITY, MO.; 209 North 9th St., ST. LOUIS, MO.; 432 Diamond St., PITTSBURGH, PA.

SUNART CAMERAS. SO SIMPLE A CHILD CAN USE THEM. 24 STYLES, PRICES FROM \$5 TO \$50.

THE HARRINGTON & KING PERFORATING CO. SCREENS OF ALL KINDS.

Table listing various mechanical components and their prices, such as 'Steering and propelling apparatus, combined, I. Lehman, \$35,384' and 'Superheater, G. Henkel, \$35,491'.

Table listing various mechanical components and their prices, such as 'Type, printing, A. L. Campfield, \$35,651' and 'Violin string holder, H. W. Pearson, \$35,722'.

Table listing various mechanical components and their prices, such as 'Binding, skirt, B. Lipper, \$1,729' and 'Bottle, J. Schies, \$1,706'.

Table listing various mechanical components and their prices, such as 'Ale, ginger, Gosman Ginger Ale Company, \$3,629' and 'Beer, Hartmann & Febrnbach Brewing Company, \$3,630'.

Table listing various mechanical components and their prices, such as 'Brilliantine, for stove polish, Brilliantine Manufacturing Company, 7,186'.

Reversible LINENE Collars and Cuffs.

Stylish, convenient, economical. Made of fine cloth, finished in pure starch, and exactly resemble fashionable linen goods.

TUBULAR DRIVING LAMP. IT is the only perfect one. IT will not blow out. IT gives a clear, white light. IT is like an engine headlight.

WANTED—Position as Superintendent for some Mfg. Firm in or near N. Y. City. 12 years' experience.

50 YEARS' EXPERIENCE PATENTS TRADE MARKS DESIGNS COPYRIGHTS & C.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable.

Chain BELTING of Various Styles, ELEVATORS, CONVEYORS, COAL MINING and HANDLING MACHINERY.

FOR SALE Two Steam Engines built by The Each engine consists of 2 horizontal condensing Corliss Engines coupled to one shaft, with a vertical air pump driven from crank pin.

The Pipe of the Century ...THE... "MALLINCKRODT" PATENT

NICOTINE ABSORBENT and VENTILATED SMOKING PIPE, IS THE ONLY PIPE FIT FOR A GENTLEMAN TO SMOKE.

At "HARBACH'S" All MAGIC LANTERNS and SLIDES \$1 up. For Home or Exhibition!

Brass Band Instruments, Drums, Uniforms & Supplies. Write for catalogue, 446 illustrations.

Planning the New Home Building Edition of the Scientific American

Anyone contemplating the building of a new home will find the Building Edition of the Scientific American of peculiar and absorbing interest.

PROPOSALS.

U. S. MILITARY GOVERNMENT OF PORTO RICO. Office of Board of Public Works, San Juan, Porto Rico, October 12, 1899.

H. P. Motor, Bench Speed Lathe and Drill Press, \$30. Columbia Mfg. Co., 84 Walnut St., Philadelphia, Pa.

WE BUY NOVELTIES of any branch. Send lists and discounts for cash. ROMAIN TALBOT, Berlin C, Germany.

TURBINES Send for Circular "M." JAS. LEFFEL & CO. Springfield, Ohio, U. S. A.

ICE MACHINES, Corliss Engines, Brewers' and Bottlers' Machinery. THE VILTER MFG. CO., 899 Clinton Street, Milwaukee, Wis.

MODELS & EXPERIMENTAL WORK. Inventions developed. Special Machinery. E. V. Baillard, 106 Liberty St., New York.

GAS AND GASOLINE ENGINES WATER MOTORS. BACKUS WATER MOTOR CO. NEWARK N. J. U. S. A.

For Sale—Van Norman Lathe, 29 in., Waltham Watch Tool Co.'s make, with full attachments, newly reared.

MAGICAL apparatus, scientific novelties, etc. Illustrated catalogue of parlor tricks free.

FOR STEREOPTICONS AND SLIDES Moving Picture Machines and Films, write Williams, Brown & Earle, 920 Chestnut St., Philadelphia, Pa.

D'AMOUR & LITTLEDALE MACHINE CO. 130 WORTH ST., NEW YORK. Machinery, Tools, Patterns, Models.

To Inventors and Manufacturers. We have exceptional facilities for making turned wooden goods for inventors and others.

D. L. HOLDEN 1336 BEACH ST. PHILADELPHIA PA. SOLE MANUFACTURER. REGEALED ICE MACHINES.

AGENTS WANTED for the renowned Mietz & Weiss Kerosene and Gas Engine. A successful Kerosene Engine.

Acetylene Burners. A new burner for STEREOPTICONS. Highest C. P. possible.

\$3 a Day Sure. Send us your address and we will show you how to make \$3 a day absolutely sure.

PALMER Stationary and Marine Gasoline Engines and Launches, Motor Wagon Engines, Pumping Engines.

LIFE PRODUCERS SUCCESSFUL INCUBATORS. LIFE PRESERVERS SUCCESSFUL BROODERS.

Planning the New Home

Anyone contemplating the building of a new home will find the Building Edition of the Scientific American of peculiar and absorbing interest.