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J. A. PAY & CO. Cincinnati, Ohio, U.S.A. WOOD WORKING MACHINERY. Embracing nearly 300 different tools for arsenals, navy yards, war ships, bridge works, saw and planing mills, door, sash, furniture, piano & organ factories, etc. including sawing, planing, molding, mortising, denoning, shaping, polishing, etc. of the highest standard of excellence and warranted the most labor saving of any in use. W. H. Douce, President. D. L. Egan, Secy.

DEAFENING. FIRE AND VERMIN PROOF. Sample and Circular Free by mail. R. MINERAL WOOL CO., 22 Courtlandt St., N. Y.

The Mines of the Carolinas Use Van Duzen's Patent Steam Jet Pump. Far superior to any other Jet Pump for practical service. Made of Brass; has no valves, no moving parts, no small openings. Will pump Dirty, Sandy, Gritty, Hot, or Cold Water. Will raise water to 50 feet vertically. Can be used with hose. Warranted reliable and satisfactory. Prices from \$7 up. Capacities 800 to 20,000 gal. per hour. Demand this pump and take no cheap substitute. Send for Catalogue No. 45. VAN DUZEN & TIFT, Cincinnati, O.

ONLY \$3 for complete electro-medical battery, is conveniently carried about; no liquid to spill. Sent on receipt of price. P. SCHLOSSER, Itoboken, N. J.

THE SCIENTIFIC AMERICAN AND THE RURAL NEW YORKER. WITH ITS CELEBRATED FREE SEED DISTRIBUTION, ALL ONE YEAR FOR \$4.40.

THE ONLY PERFECT SEWING MACHINE. SIMPLEST, LATEST IMPROVED MOST DURABLE & BEST. LIGHT RINGED. BUY IT AND MAKE HOME. IF THERE IS NO AGENT NEAR YOU WRITE DIRECT TO US. NEW HOME SEWING MACHINE CO. 30 UNION SQUARE N.Y. CHICAGO ILL. GRAND MASS. ATLANTA GA.

THE RIDER COMPRESSION PUMPING ENGINE. (Hot Air) for city or country residences where it is required to raise a supply of water, is the most Perfect Pumping Machine in the market. Its marvelous Simplicity, absolute Safety, great Economy and Effectiveness, render it far superior to all others. Can be run by any inexperienced person. Send for catalogue and price list to CAMMEYER & SAYER, 93 Liberty St., New York, and 20 W. Lake St., Chicago, Ill. Please mention this Paper.

SEND TO LONDON, BERRY & ORTON PHILA PA FOR THE BEST BAND SAW BLADE

Steam Fitters' & Plumbers' Supplies. RUE'S LITTLE GIANT INJECTOR. JOHN S. URQUHART, Successor to ALBERT BRIDGES, 46 Cortlandt Street, New York.

CURTIS PRESSURE REGULATOR, FOR STEAM AND WATER. Is made entirely of Metal. Occupies the same space as a Globe Valve. It has no glands or packing, and is a lock-up valve. CURTIS STEAM TRAP Has automatic air discharge; has a differential opening, thus discharging all the water as fast as it comes. Is very accessible for cleaning the valve, being on the outside. Send for circular to CURTIS REGULATOR CO., 54 Beverly St., Boston, Mass.

TOP HAMMERS. Punching Presses, Dies and other tools. SHEPARD'S CELEBRATED \$30 Screw Cutting Foot Lathe. Foot and Power Lathes, Drill Presses, Scroll Saws, Attachments, Chucks, Mandrels, Twist Drills, Dogs, Calipers, etc. Send for catalogue of outfits for amateurs or artisans. Address H. L. SHEPARD & CO., 341 & 343 West Front St., Cincinnati, O.

KEUFFEL & ESSER, New York. Drawing Materials in Largest Variety. Celebrated Rubber Tools, warranted. Paragon Drawing Paper, the best ever made, Helio's Blue Process Papers, Excelsior Measuring Tapes, Transits, and Levels, for R. R. Engineers etc., etc. Send for illustrated catalogue.

OFFICE OF THE COMPTROLLER, CITY OF ALLEGHENY, PENNA., Dec. 23, 1882.

Notice to Engine Builders and Boiler Manufacturers. Sealed proposals will be received at this office until January 15, 1883, for the construction and erection of one or more (not exceeding three) pumping engines, to be located on lot on River Avenue, Eighth Ward, Allegheny, Penna. The specifications will include the excavation for pump well, and all necessary masonry for foundations for well, also foundations of engine and engine house, also the erection of engine house for same. The engine or engines to be of four millions (4,000,000) capacity, and to be of guaranteed duty of not less than ninety millions (90,000,000) of foot pounds duty per one hundred (100) pounds of bituminous coal consumed, or such guaranteed duty as can be had with the present boilers now in use at works. The contractor must furnish specifications and detail drawings of type of engine and boilers to be furnished, also plan of well and pump house, the well to be so constructed that extra pumps can be placed therein when required. The whole to be erected and completed, and in accordance with such plans as may be selected by the Superintendent of Water Works, and approved by the Water Committee and Councils of the City of Allegheny, Penna. Contractors must specify when the work will be completed. All information in regard to the above work will be furnished by Edward Armstrong, Supt. of Water Works, City Hall, Allegheny, Penna. No proposal will be received unless accompanied with a bond equal in amount to the bid. The Committee on Water reserves the right to accept or reject any or all bids. JAMES A. BROWN, Comptroller of the City of Allegheny.

VALUABLE PATENTS FOR SALE. My interest in MARTIN BRICK MACHINE PATENTS, No. 138,754, No. 150,065, issued to Henry Martin, one-half interest assigned to me. Address W. C. McCLALLAN, Springfield, Mass. BOOKWALTER ENGINE. Compact, Substantial, Economical, and easily managed; guaranteed to work well and give full power claimed. Engine and Boiler complete, including Governor, Pump, etc., at the low price of 8 HORSE POWER..... \$240 00 4 1/2 "..... 280 00 6 "..... 350 00 8 "..... 440 00 Put on cars at Springfield, O. JAMES LEFFEL & CO., Springfield, Ohio, or 110 Liberty St., New York.

SEND FOR CIRCULAR AND PRICE LIST OF COPE & MAXWELL M'F'G CO'S New and Improved Styles of STEAM PUMPS AND BOILER FEEDERS. "The Best Made," Address HAMILTON, OHIO.

EVERY USER OF MACHINERY SHOULD LEARN How to Use Loose Pulleys. Useful information on this subject is given in our "Catalogue No. 55." Sent free to any address. VAN DUZEN & TIFT, Cincinnati, O.

ERICSSON'S New Caloric Pumping Engine FOR DWELLINGS AND COUNTRY SEATS. Simplest, cheapest, and most economical pumping engine for domestic purposes. Any servant girl can operate. Absolutely safe. Send for circulars and price lists. DELAMATER IRON WORKS, C. H. DELAMATER & CO., Proprietors, No. 10 Cortlandt Street, New York, N. Y.

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Novelty Turning Company, Plain and Ornamental WOOD TURNERS. Knobs, Handles, and Ornaments from Foreign Woods a Specialty. Samples and Specifications solicited. Lock Box 257, WESTFIELD, MASS.

70 \$6.50 only for an Exhausting, and \$4.50 for a Compressing Air Pump. 2-9 gals. per min., 30-45 lb. pressure - to be exhausted within 80 days for any other in list of Improved Flywheel, Air, and Gas Pumps. Large variety of Hand Pumps, Geared Power and small Steam Pumps. Write to H. WEINDEL, 405 N. 4th Street, Philadelphia.

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SOUTHWARK FOUNDRY & MACHINE COMPANY, 430 Washington Avenue, Philadelphia, Engineers & Machinists, Blowing Engines and Hydraulic Machinery. Sole makers of the Porter-Allen Automatic Cut-Off Steam Engine.

THE HOLLAND LUBRICATOR, VISIBLE DROP. It is guaranteed to be 1. A perfect insurance against the cutting of Valves, seats, Cylinders and Governor Valves of the engine. 2. It will pay for itself in six months, in the saving of oil, coal, and packing. 3. It will insure more speed in the revolutions of the engine, say from one to two strokes per minute, thus increasing the power of the engine. M'f'd by Holland & Thompson, 217 River St., Troy, N.Y.

WILLIAMS PORT Pony or Panel Planer. For general use in Door Shops, Box and Furniture Manufacturers. For planing Door Panels, Chair Box Stems, and Furniture work, it has no equal. We use the Ellis Patent three part Journal Box and a solid forged steel bear. Two pressure bars. Has strong feed. Will plane from 1-16 to 6 inch thick. Weight, 1,400 lb. The lowest priced first-class planer in the market. ROWLEY & HERMANCK, Williamsport, Pa.

SPRAY FEED WATER PURIFIER FOR STEAM BOILERS. U.S. & FOREIGN PATENTS.

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Our 10-Horse Spark-Arresting Threshing Engine has cut 10,000 feet pine lumber in 30 hours. Will burn wood six feet long, coal, straw, and corn stalks. Send for Price List and Catalogue "S." B. W. PAYNE & SONS, Corning, N. Y. Box 843.

BARREL, KEG, HOGSHEAD, AND Fan and Stave Joiner. Chamfering, Howeling, and Crozing. Stave Machinery. Over 50 varieties manufactured by E. & B. HOLMES, Buffalo, N. Y. Head Roundling.

The Eclipse Engine. Furnishes steam power for all Agricultural purposes, Driving Saw Mills, and for every use where a first-class and economical Engine is required. Eleven first-class premiums awarded, including Centennial '76. Refer to No. 7 issue of '77, No. 14, issue of '78, of SCIENTIFIC AMERICAN, for Editorial Statements. FRICK & CO., Waynesboro, Franklin Co., Pa.

NUT TAPPING MACHINE. DURRELL'S PATENT. No. 1 Machine, 900 lb., 7 spindles. No. 2 " 1,050 " 7 " No. 3 " 600 " 8 " Capacity of 7 Spindles, 8,000 per 10 hours. A knowledge to be an indispensable tool. Manufactured by HOWARD BROS., Fredonia, N. Y.

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