

Business and Personal.

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Permanent Exposition.—Inventors' Institute, Cooper Union, N.Y. City. Every facility for exhibition of machinery, merchandise, and inventions. Send for particulars.

Drop Presses, Bending Machines, the Justice Hammer, tools for plow and agricultural implement makers. Williams, White & Co., Moline, Ill.

THE UNION IRON AND STEEL COMPANY, CHICAGO, NOV. 18, 1882.

DEAR SIR: This Company now have in use your Asbestos and Hair Felt (Double Air Chamber) Covering on Steam Pipes, aggregating over twelve thousand (12,000) square feet of surface.

BEADLESTON & WOERZ, EMPIRE BREWERY, 291 W. 10TH ST., NEW YORK, NOV. 2, 1882.

DEAR SIR: The H. W. Johns Manufacturing Company is doing our covering of pipes and boilers, and we continue to give them orders. They give perfect satisfaction.

The South.—Important notices. See pages 380 & 381. Coil-gongs for Clocks. Makers of, address Box 21, Somerset Club, Boston.

Curtis Pressure Regulator. See illus. adv. on p. 364. Blake's Belt Studs. The strongest and best fastening for leather and rubber belts. Greene, Tweed & Co., N. Y.

American Fruit Drier. Free Pamphlet. See ad., p. 366. Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders.

Fire Brick, Tile, and Clay Retorts, all shapes. Bornerg & O'Brien, M'Frs, 23d St., above Race, Phila., Pa.

Drop Forgings of Iron or Steel. See adv., page 365. For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

Brass & Copper in sheets, wire & blanks. See ad. p. 364. Cope & Maxwell M'f'g. Co.'s Pump adv., page 366.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York. Millstone Dressing Diamonds. Simple, effective, and durable. J. Dickinson, 64 Nassau street, New York.

Eagle Anvils, 10 cents per pound. Fully warranted. Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 366.

Garmore's Artificial Ear Drums for relief of partial or entire deafness. Invented by one who has been deaf thirty years. Simple and scientific in construction; not observable in use. Send for circular. John Garmore, S. W. cor. 5th and Race Sts., Cincinnati, O.

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For Mill Mach'y & Mill Furnishing, see illus. adv. p. 364. Red Jacket Adjustable Force Pump. See adv., p. 366.

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Upright Self-feeding Hand Drilling Machine. Excellent construction. Pratt & Whitney Co., Hartford, Conn. Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 366.

Trevor's Patent Key Seat Cutter. Trevor & Co., Lockport, N. Y. See page 366. Bonhack's Match Split Setting Machine. Best and quickest in the market. Recipes and advice gratis. Address C. F. Bonhack, patentee, 527 W. 43d St., New York.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn. To stop leaks in Boiler Tubes use Quinn's Patent Ferrules. Address S. M. Co., So. Newmarket, N. H.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill. The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 350.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 349. Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 350.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 350. 4 to 40 H. P. Steam Engines. See adv. p. 350.

To make Violins, write James Roblee, Syracuse, N. Y. Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Drop Forgings. Billings & Spencer Co. See adv., p. 333. Assays and Analyses of ores and all commercial products. Advice given and investigations made in all branches of chemical industry. Send for circular. N. Y. Assay Laboratory, 40 Broadway, New York.

Guill & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Soapstone Packing, Empire Packing, Hemp Packing, Rubber Packing of all kinds. Greene, Tweed & Co., N. Y.

Wanted.—A second-hand centrifugal machine for liquids. Address, with description and price. P. O. Box 3896, Boston, Mass. Lubricator. See adv., Detroit Lubricator Co., p. 318.

See New American File Co.'s Advertisement, p. 318. Steam Pumps. See adv. Smith, Vaile & Co., p. 316. Engines, 10 to 50 horse power, complete, with governor. \$250 to \$550. Satisfaction guaranteed. Nearly seven hundred in use. For circular address Heald & Morris (Drawer 127), Baldwinville, N. Y.

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