

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion.

Wanted.—Second-hand Engine Lathe. Address Excelsior Mills, Bushnell, Ill.

Self-Feeding Upright Drilling Machine, of superior construction; drills holes from 1/4 to 3/4 inches in diameter. Pratt & Whitney Company, Hartford, Conn.

Wanted.—A First-class Second-hand Re-sawing Machine. Address, giving lowest cash price a description, D. 48 Liberty St., Utica, N. Y.

"Our Pet" Scroll Saw, Lathe, Anvil, Vise, Drill, and Grindstone, \$12; with all tools, \$16. Sent prepaid for cash. W. X. Stevens, East Brookfield, Mass.

For Sale.—Scientific American—September 1846 to July 1872—39 bound volumes; good order. Address P. O. Box 5630, N. Y.

Silk-Draming and Deniering Machines, manufactured by Norris & Co., Steam Gauge Makers, Paterson, N. J.

C. C. Phillips, 4,048 Girard Ave., West. Phila., manufactures Vertical and other Burr Mills adapted to all kinds of grinding; also Portable Flouring Mills.

Lipsey "Reliable" Wrench; strong, convenient. Best Roper Caloric Engine Manuf. Co., 91 Washington St., N. Y.

Ice Machines. Clayton & Cook, Daretown, N. J.

Corliss Engine Builders, with Wetherill's improvements, Engineers, Machinists, Iron Founders, and Boiler Makers. Robt. Wetherill & Co., Chester, Pa.

Electrical Goods of every description. Annunciators, Bells, Magnets, Batteries, Wire, etc. Finger, Bisteen & Co., Melrose, Mass.

Bound Volumes of the Scientific American.—I have on hand about 100 bound volumes of the Scientific American, which I will sell singly or together at \$1 each, to be sent by express. John Edwards, P. O. Box 778, N. Y.

The Best Mill in the World, for White Lead, Dry, Paste, or Mixed Paint, Printing Ink, Chocolate, Paris White, Shoe Blacking, etc., Flour, Meal, Feed, Drugs, Cork, etc. Charles Ross, Jr., Williamsburgh, N. Y.

The Niles Tool Works, Hamilton, O., have second-hand Machine Tools in first class order for sale.

Boilers set with the Jarvis Furnace will burn screenings and little soft coal without blower.

Bishop Stave-Sawing Machine for Tightwork, Novelty Iron Works, Dubuque, Iowa, sole manufacturers. It makes the best stave, uses less timber, cuts with the grain, and makes 6,000 to 9,000 per day. We also build Barrel Machinery for "Slack Work." Gauge Lathes, etc. Send us your address for circulars.

Noise-Quitting Nozzles for Locomotives, Steamboats, etc. T. Shaw, 915 Ridge Ave., Philadelphia, Pa.

For New Illustrated Catalogue of Foot Lathes, Scroll Saws, Small Steam Engines and Amateur's Tools, send stamp to Chase & Woodman, Newark, N. J.

Shaw's Mercury Gauge, U. S. Standard of Pressure, 915 Ridge Ave., Philadelphia, Pa.

Bolt Forging Mach. & Power Hammers a specialty. Send for circulars. Forsaith & Co., Manchester, N. H.

For Town & Village use, Combd Hand Fire Engine & Hose Carriage, \$350. Forsaith & Co., Manchester, N. H.

John T. Noye & Son, Buffalo, N. Y., are Manufacturers of Burr Mill Stones and Flour Mill Machinery of all kinds, and dealers in Dufour & Co.'s Bolting Cloth. Send for large illustrated catalogue.

Power & Foot Presses, Ferracute Co., Bridgeton, N. J.

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Steel Castings from 1 lb. to five thousand lbs. Invaluable for strength and durability. Circulars free. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

For Best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay Sts., Brooklyn, N. Y.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing metals. E. Lyon & Co., 470 Grand St., N. Y.

For the best Gate Valves of all kinds, apply to D. Kennedy & Co., 88 John St., N. Y.

Boulter's Superior Muffles, Assayers and Cupellers Portable Furnaces, Slides, Tile, Fire Brick and Fire Clay for sale. 1,609 North St., Philadelphia, Pa.

"Little All Right," the smallest and most perfect Revolver in the world. Radically new both in principle and operation. Send for circular. All Right Firearms Co., Lawrence, Mass., U. S. A.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Felt of every description for Manufacturers' purposes, especially adapted for Polishing, can be furnished in any thickness, size, or shape. Tingle, House & Co., Manufacturers. Salesroom, 69 Duane St., N. Y. Factory at Glenville, Conn.

Best Pulleys and Couplings made; secured to shafts without keys, set-screws, bolts, or pins. Send for catalogue. Taper Sleeve Pulley Works, Erie, Pa.

Hand Fire Engines, Lift and Force Pumps for fire and all other purposes. Address Rumsey & Co., Seneca Falls, N. Y., U. S. A.

Lansdell & Leng's Lever and Cam Gate Valves. Cheapest and best. Leng & Ogden, 212 Pearl St., N. Y.

The Varnishes and Japans of Hyatt & Co., established 1872 ("The London Manuf. Co."), made from scientific formula by a practical maker of materials, free of deleterious substances, are, in the success met with, noted for color, purity, and durability, with cheapness, giving them a meritorious pre-eminence. Try them. Send for circulars and price list to Company's office, 246 Grand street, N. Y.

Silver Solder and small Tubing. John Holland, Cincinnati, Manufacturer of Gold Pens and Pencil Cases.

Mill Stone Dressing Diamonds, Simple, effective, and durable. J. Dickinson, 64 Nassau St., N. Y.

Chester Steel Castings Co. make castings for heavy gearing, and Hydraulic Cylinders where great strength is required. See their advertisement, page 414.

Patent Scroll and Band Saws. Best and cheapest in use. Cordesman, Egan & Co., Cincinnati, O.

For Boulter's Paneling, Moulding, and Dovetailing Machine, and other wood-working machinery, address B. C. Machinery Co., Battle Creek, Mich.

Reliable information given on all subjects relating to Mechanics, Hydraulics, Pneumatics, Steam Engines, and Boilers, by A. F. Nagle, M. E., Providence, R. I.

For Sale.—40 in. Lathe, \$225; 30 in. do., \$200; 18 in. do., \$195; 15 in. do., \$185; 7 ft. Planer, \$250; at Shearman's, 133 N. 3d St., Philadelphia, Pa.

Planers, Engines, and Hand Lathes, Screwand Milling Machines, Presses, Spindle Drills, etc., for sale. For particulars, address P. O. Box 744, New Haven, Conn.

The best Cornice Brake. J. M. Robinson & Co., Cincinnati, Ohio.

Wanted.—A Spring Castor; rubber or spiral. C. F. Hill, Hazelton, Pa. Inventor of Folding Bookcase.

Notes & Queries

(1) G. W. inquires (1) whether 100 small cogwheels be run altogether by one belt, in a circle, the object being to bore 100 holes through 1 1/2 inch wood, 3/4 inch in diameter? A. Yes. 2. How many revolutions will the cogs have to make, and what would the size of belt be? A. The cogs should make at least 500 revolutions per minute, and a 2 inch belt will answer.

(2) J. W. W. writes: 1. Is there not a substance that can be cut deeply with acids which may be photographed upon as in the "Albertype process," and a stereotype taken from it in type metal so as to be printed among types on a printing press, and what substance is it? A. We believe there is nothing better for this purpose than the bichromated gelatin film; the print being produced by inking the surface, that is left in relief, by washing the film with water after it has been placed under a negative and exposed to light. 2. Is there any combination of liquids that will cut glass and have no effect on oils? A. Water, which has absorbed hydrofluoric acid gas, will etch glass; and will have very little effect on oil. This solution must be kept in bottles made of rubber (caoutchouc). For every fine etchings it is best to expose glass to the gas itself, produced by pouring sulphuric acid on fluoride of calcium (fluorspar).

(3) C. H. H. asks for the diameter and pitch of a screw wheel that will be the proper size for two cylinders 8' x 12' with 100 lbs. pressure per square inch and connected directly to main shaft? A. Diameter 4 1/2 feet, pitch 6 feet.

(4) W. B. asks: What is hydramyle, its uses, properties, and effects? A. Amyl hydrate or amyl alcohol (the principle of fusel oil) is a constant accompaniment of alcohol (ethyl alcohol) prepared from corn, potatoes, the must of grapes, etc. It passes over in considerable quantities towards the end of the distillation, and may be collected apart. To obtain it in a state of purity these portions are freely washed with water, the residue redistilled, and the portions passing over between 267°—270° Fah. collected separately. It is a colorless liquid having an odor peculiar to itself and a burning taste. Its chief use is in the production of several fragrant ethers, as amyl acetate, which has the odor and flavor of the Jargonelle pear. These are used largely for flavoring confectionery and liquors, and by perfumers. To the presence of amyl alcohol in cheap liquors is attributed their potent intoxicating properties.

(5) A. H. A. asks: How large a cylinder will be required with length of stroke, at 40 or 50 lbs. pressure, to propel a boat 23 feet long, 5 feet beam, and 15 inches deep, at a rate of 12 miles an hour? A. We think you will have difficulty in designing proper machinery for such a speed at the pressure of steam mentioned.

(6) W. H. writes: We have a 5 inch steam pipe running from the surface down inside a mine. I have noticed sometimes, in caulking a thimble that was leaking, something like an electric spark fit across the point of chisel. A. Electric phenomena are sometimes noticed in the case of steam escaping from small orifices, and are attributed to the friction at the point of escape.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

H. K.—It is acetate of copper.—R. M. D.—It is sulphide of iron.—W. H. D.—The sample consists principally of ferric sulphide. It may or may not contain traces of precious metals. The sample was too small to admit of examination.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On Gas Poisoning. By N. D.
On a Preventive of Colliery Explosions. By G. W. D
On Predicting the Weather. By G. R. C.
On Hydraulic Rams. By E. B., M. D.

HINTS TO CORRESPONDENTS.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

WANTS AND BUSINESS INQUIRIES.

Almost any desired information, and that of a business nature especially, can be expeditiously obtained by advertising in the column of "Business and Personal," which is set apart for that purpose subject to the charge mentioned at its head.

We have received this week the following inquiries, particulars, etc., regarding which can probably be elicited from the writers by the insertion of a small advertisement in the column specified, by parties able to supply the wants:

Where can I obtain a portable mill for grinding wheat?

Where can chrome steel be obtained? Who sells simple horse powers?

OFFICIAL.

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending November 13, 1877, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Table listing various inventions and their patent numbers, including items like Album, tourists', F. L. Sarmiento, Amalgamating pan, Kustel & Hofmann, Animal trap, J. B. Cuzner, Atomizer, Rundquist & Angelo, Barley-peeling mill, M. Martin, Barometers, packing joints, J. P. Simmons, Barrel heads, clamp for, T. C. Seaman, Barrel-making machine, W. K. Hoback, Bed bottom, spring, O. L. Fuller, Bedstead, sofa, W. E. Buser, Beer barrel, tap, Bruns, Laig & Von Dehsen, Bessemer steel scrap utilizing, O. Williams, Blower, fan, F. F. Sturtevant, Boiler covering, R. Thomas, Book case, C. F. Hill, Book-displaying rack, H. Huss, Boot and shoe insole, J. K. Gittens, Bougie, S. St. John, Brake, car, W. S. Richardson, Brake, flax, J. H. Tabler, Brush, metallic, W. Barbour, Buckle, harness, W. F. Van Keuren, Bung-cutting machine, J. Franzmann, Burglar alarm, C. C. Dusenbury, Burglar alarm, S. Mangold, Button coupling, W. C. Baskin, Button fastening, W. Richardson, Cars, roof for, J. M. Ayer, Cars, hasp for freight, B. P. Lamason, Carriage, child's, J. F. Downing, Carriage dash frame, W. T. Cooley, Chains, machine for making, G. B. Whitney, Chair, tilting, H. G. E. Wolf, Chimney cap, F. Lichtenfels, Chimney, sectional, L. E. Clawson, Churn, H. C. Green, Cigar box, M. A. Penn, Clothes pounder, J. C. Pickens, Clothes wringer, G. Campbell, Clutch, C. H. Robinson, Coal, mining, H. F. Brown, Cork-cutting machine, Warrington & Harwood, Corn stripper, green, W. A. L. Kirk, Cultivator, H. I. Heaton, Cultivator, F. L. Hillsbeck, Cultivator, J. P. Terry, Cultivator, double-winged, C. J. Cooper, Cultivator, wheel, Macy & Watkins, Curtain roller and bracket, H. Seehausen, Dental impression cup, W. M. Reynolds, Desk and crib, combined, H. S. Hale, Domino, E. Aldom, Door securer, A. Voegel, Doors, gates, etc., hanger for, E. Prescott, Dose measurer, G. Colmer, Dress elevator, E. C. Caim, Drill cable measure, Barse & Moore, Elevator bucket, E. Johnson, Embossing wearing apparel, J. Steinlein, Fan, automatic, J. B. Boone, Faucet, J. Graham, Feather renovator, A. McConnell, Feed bag, R. Brass, Feed water heater and cleaner, J. F. Morse, Felt, etc., sizing machine for, M. Chittenden, Fence, D. Gordon, Fence, barbed, F. C. Randall, Fence post, R. J. Redmond, Fire escape, T. F. Stevenson, Fire kindler, J. P. Wagner, Fork, egg, G. H. Hunting, Furnace blast, J. F. Bennett, Furnace door, etc., J. M. Marshall, Furnace, heating, A. Guettermann, Furnace, hot air, W. E. Henderson, Gaiter, over, Whitcomb & Daggett, Game apparatus, J. Brown, Game apparatus, W. J. Lyman, Gas apparatus, illuminating, T. Tully, Gas device, E. Lindsley, Gas, W. N. Adams, Gas, M. H. Strong, Grain binder, E. Chapman, Grain binder, W. A. Sutphin, Grain drill, J. S. Bogle, Grain separator, A. B. Farquhar, Grain separator, J. B. Sutt, Grate, fireplace, R. L. Mitchell, Harness saddle, S. E. Tompkins, Harrow, smoothing, K. K. Chuispensen, Harvester, W. N. Whitley, Harvester dropper, J. T. Jeter, Hat brims, machine for trimming, C. M. Osgood, Hay fork, horse, B. Jackson, Hay tedder, W. F. Goodwin, Hinge for awning blinds, C. L. Hasbrouck, Hook, bench, J. Kime, Hoop poles, splitting, J. A. Peoples, Horse collars, cap for, J. F. Walsh, Horses, hitching, W. T. & J. B. Burton, Hydrocarbon fluids, testing, F. B. Squire, Illuminating clock dials, etc., T. Dickinson, Indexes, machine for cutting, W. McMillan, Iron, treating, W. Stecher, Jr. (r), Ironing machine, J. W. Abel, Ironing machine, H. Monk, Japanning wood, A. Gigrich, Journal bearing, J. N. Kaurholz, Kettle, steam cooking, W. G. Flanders, Knitting overgaters, etc., H. P. Ballou, Knob fastening, door, J. A. Thomson, Ladder, extensible step, H. H. Kochsmeler, Lamp, E. S. Drake, Lamp, L. H. Olmsted, Lamp chimney, G. W. Martin, Lampextinguisher, F. Rhind, Lamp, safety, E. S. Drake, Lamp shade and reflector, combined, J. W. Drake, Latch, gate, W. F. Eaton, Leaf turner, D. J. Ferry, Leather, artificial, J. Harrington (r), Leather-splitting machine, H. N. Cook, Lock for barn doors, I. Frees, Loom shuttle, C. J. Higgins, Lubricating oil compound, E. E. Hendrick, Lubricator, A. G. Myers, Marble, artificial, R. P. Coughlin, Metals, transferring, A. Steitz, Millstone balance, R. K. Ent, Monument, C. W. Wickham, Mortising machine, S. Duck, Musical instrument, automatic, E. P. Needham, Mustache guard, A. Fenniss, Nursing bottle, L. Meyer, Nut lock, M. Bourke, Ordnance, breech-loading, W. Palliser, Ores, leaching, A. B. Crosby, Organ bellows valve, A. K. Hebard, Organ reed, M. J. Matthews, Ornamentation of surfaces, J. F. Boynton, Paper box, J. F. Winchell, Paper, circulars, etc., Gage, H. W. Hill, Paper machine, J. Bacon, Paper pulp, preparing, Allen & Mason, Pessary, medicated ring, R. H. Kline, Piano action frame, C. F. T. Steinway (r), Piano and organ key, E. P. Needham (r), Pile, thermo-electric, C. & L. Wray, Jr., Planter, corn, J. Rosenkrantz, Planter, hand corn, P. McCollum, Planter, seed, J. W. Burtis, Planter, corn, J. Harvey, Plow, J. M. Basset, Plow, gang, C. Mowrey, Plow point, reversible, M. M. Bowers, Plow, sulky, W. L. Casaday (r), Printing press, E. Dummer, Pulley block, J. Manning, Pump, beer, J. Nell, Pump, double acting, R. Bean, Pump, lift, A. Johnson, Pump, oil well, L. B. Fulton, Pump, rotary, V. C. J. Ortmans, Pumps, a tachment for, J. R. Devor, Railway frog, C. L. Cooke, Razor strop, J. Maxson, Reciprocating engine, J. N. Kanfholz, Refrigerator car, R. Burrows, Road scraper, F. W. Schulz (r), Rock drill expansion, J. A. Albright, Rolling tubes and bars, J. O. & A. E. H. B. Butler, Roofing, L. Peirce, Rotary engine, J. Slavick, Sad iron holder, W. Reinhard, Sash fastener, O. F. Fogelstrand, Sash holder, I. Scoville, Sash, metallic window, J. T. Harris, Saw guide, Meyers & Smith, Scales, pendulum, H. M. Weaver, Screw-threading machine, metal, S. L. Woolsey, Sewer trap, J. H. Macke, Sewing machine, J. T. Jones, Sewing machine, C. S. Cushman, Shaft hanger, P. Prybil, Shoe fastener, G. D. Paul, Skate, J. P. Becker, Jr., Sleigh, N. Carson, Snap hook, G. D. Mosher, Soil breaker and irrigator, E. Robbins, Spice caddy, E. Norton, Spoke-finishing machines, W. McNeal, Sponge cup, M. M. Macdonald, Spools, metallic, G. W. Billings, Stove, Musgrave, Shillington & Hanna, Stuffing box for steam engines, T. H. Hopkins, Suspenders, etc., elastic fabric for, W. Lapworth, Swing, automatic, Connelly & Bickell, Syringe, enema, F. B. Richardson (r), Table, C. Kramer, Table leaf support, G. E. Eberhart, Telegraph wires, cleaning, J. Walsh, Thill coupling, D. W. Copeland, Thill coupling, Seymour & Allen, Thill coupling, J. W. Wallace, Thrashing machine, clover, J. C. Birdsell, Time lock, J. Sargent (r), Tinner's machine stand, W. Dale, Tire tightener, A. G. Shepard, Tire, vehicle wheel, G. Cornwall, Tobacco press, S. B. Minnich (r), Torpedo for oil wells, Hinman & Seely, Torpedo for oil wells, E. E. Swett, Toy, E. Hasbrouck, Toy money box, J. Blanc, Trunk catch, J. Arnold, Truss, J. H. Corwin, Truss, B. R. Jones, Truss, B. T. Nichols, Tuck marker, F. Henry, Valve attachment, H. G. Ashton, Valve, balanced, E. W. Aitken, Valve, rotary, D. Job, Valve, safety, Ashton & Maynadier, Valves, reversible seat for ball, Hills & Berens, Vehicle wheel, I. W. Mead, Ventilator for chimneys, etc., M. C. Hull, Vessel, metallic, E. T. Covell (r), Vise, A. H. Bell, Wagons, draft attachment for, M. Turley, Wagons, shoveling board for, J. K. McLennan, Washing machine, W. Morehouse, Watch, R. Whitaker, Water closet valve, P. Magnus, Weather strip, J. F. Rowlett, Welding chain links, die for, J. Haley, Well tubes, perforating artesian, J. M. Creal, Windlass, F. S. Manton, Windlass bit, F. S. Manton, Windlasses, deck pipe for, F. S. Manton, Window shade, F. J. Becker

DESIGNS PATENTED.

- 10,810.—MIRROR FRAMES.—J. Crawford, New York, N. Y.
10,811.—FONT OF ORNAMENTAL PRINTING TYPES.—J. Herriet, New York, N. Y.
10,812.—WHITE LINED PIPKINS.—J. E. Jeffords, Philadelphia, Pa.
10,813.—BASKET TEA POTS.—J. E. Jeffords, Philadelphia, Pa.
10,814.—WOVEN BORDERS FOR TOWELS.—R. T. Webb, Randallstown, Ireland.

[A copy of any of the above patents may be had by remitting one dollar to MUNN & Co., 37 Park Row, New York city.]