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Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

For the best and cheapest Lubricating Oils, for Sewing Machines, Engines, and other Machinery, send for Price List and Samples, to Chard & Howe, Manufacturers, 134 Maiden Lane, New York.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line.

"507 Mechanical Movements."—The 6th Edition of this valuable work now ready. A complete illustrated table of Mechanical Movements, embracing all departments of Mechanics. No mechanic should be without it. Price \$1. By mail, \$1.12. Theo. Tusch, 37 Park Row, New York.

SCIENTIFIC AMERICAN—If you want back Nos. and Vols. of the SCIENTIFIC AMERICAN, at low prices, address Theo. Tusch, 37 Park Row, N. Y.

American Boiler Powder Co., P. O. Box 315, Pittsburgh, Pa. The Universal Clothes Washer is warranted to wash clothes as well as any other washing machine. Price only \$2.50. Address J. K. Dugdale, Whitewater, Wayne Co., Ind.

Only \$1,500 for a Patent of a Valuable Tool. Can be cast, or will be sold in State Rights. J. F. Ronan, Station A, Boston, Mass.

A. G. Bissell & Co., East Saginaw, Mich., manufacture Packing Boxes in shoos.

Wanted.—A first-class Draftsman and Calculator. One acquainted with drafting iron hulls, etc. None other need apply. Address, at once, with best references, W. S. Nelson, No. 618 N. Main st., St. Louis, Mo.

Parties manufacturing machines adapted to boring small cylinders, are requested to send illustrated circulars to J. E., Drawer 116, Bridgeport, Conn.

Wanted.—A situation as Analytical Chemist. Good references furnished. Address "Chemist," P. O. Box 60, Haverhill, Mass.

Commercial Travelers, Carpenters, Hardware Dealers, and others, address for sample of the best Sash Lock and Catch yet made Charleton & Woodbury, New Britain, Conn., or Madison, Wis. Contains no spring, and but one movable piece. Can be applied to any window in five minutes.

Wishing to increase my business, I desire to make arrangements with some responsible Sewing Machine Manufacturers, to furnish them with needles. All work warranted. Address E. S. Hill, S. Abington, Mass.

Bok & Bennett are dealers in Patents, and introducers of patented articles, 258 Broadway, New York.

Models in Miniature.—Wanted, working models of Steam Engines, Agricultural Implements, or any machine directly applied to agricultural purposes. Inventors and Patentees will please address circulars to Senor de Moncada, Grand Hotel, Broadway and 31st st., New York.

Manufacturers of Corn, Cotton, and Seed Planters (everywhere) send address and circular to Levi Scofield, Watertown, Wis.

Newton's Principia.—Wanted, a copy of this work. Address Publisher SCIENTIFIC AMERICAN, 37 Park Row, stating price.

Mechanical Draftsman wanted.—One experienced and expert in getting up machinery will find permanent employment, with liberal weekly pay. Address E. H. Stearns, Erie, Pa.

To Club Agents.—Those who have raised Clubs for the SCIENTIFIC AMERICAN, and others, can make it pay to take a Local Agency for the publications of S. R. Wells, 389 Broadway, New York. They are popular, practical and useful. Inclose stamp for terms.

A person with a knowledge of Chemistry, and 30 years' experience in Electro Plating (with some practice in Nickel Plating), is open to an engagement on reasonable terms. Address "Chemist," New Haven, Ct.

Superintendent Wanted.—An energetic man, capable of superintending a factory. Must have a general knowledge of mechanics. One familiar with the manufacture of horn, shell, or vulcanite preferred. The very best reference required. Address "Horn," P. O. Box 2874, New York.

Machinery for the manufacturing of all kinds of Rubber Goods, made by W. E. Kelly, New Brunswick, N. J.

See advertisement of L. & J. W. Feuchtwanger, Chemists, N. Y.

Carpenters wanted—\$10 per day—to sell the Burglar Proof Sash Lock. Address G. S. Lacey, 27 Park Row, New York.

Manufacturers' and Patentees' Agencies, for the sale of manufactured goods on the Pacific coast, wanted by Nathan Joseph & Co., 619 Washington street, San Francisco, who are already acting for several firms in the United States and Europe, to whom they can give references.

Pattern Letters for Machinists, Molders, and Inventors, to letter patterns of castings, all sizes. Address H. W. Knight, Seneca Falls, N. Y.

Improved mode of Graining Wood, pat. July 5, '70, by J. J. Callow, Cleveland, O. See illustrated S. A., Dec. 17, '70. Send stamp for circular.

All parties wanting a water wheel will learn something of interest by addressing P. H. Wait, Sandy Hill, N. Y., for a free circular of his Hudson River Champion Turbine.

Self-Testing Steam Gage. There's a difference between a chronometer watch and a "bull's eye." Same difference between a self-tester and common steam gage. Send for Circular. E. H. Ashcroft, Boston, Mass.

Belting that is Belting.—Always send for the Best Philadelphia Oak-Tanned, to C. W. Arny, Manufacturer, 301 Cherry st., Phil'a.

E. Howard & Co., Boston, make the best Stem-winding Watch in the country. Ask for it at all the dealers. Office 15 Maiden Lane, N. Y.

For mining, wrecking, pumping, drainage, and irrigating machinery, see advertisement of Andrews' Patents in another column.

Millstone Dressing Diamond Machine—Simple, effective, durable. For description of the above see Scientific American, Nov. 27th, 1869. Also, Glazier's Diamonds. John Dickinson, 64 Nassau st., N. Y.

Walrus Leather, for Polishing Steel and Plated Ware, at reduced rates. Greene, Tweed & Co., 10 Park Place.

Oak-Tanned Leather Belting.—We make an extra quality, cheapest for the consumer. Greene, Tweed & Co., 10 Park Place.

Gage Lathes for Broom and other handles, Chair Rounds, etc. Price \$20. With attachment for Null work, price \$30. Also, Wood-turning Lathes. A. L. Henderer & Co., Binghamton, N. Y.

E. P. Peacock, Manufacturer of Cutting Dies, Press Work. Patent Articles in Metals, etc. 55 Franklin st., Chicago.

Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct.

Dr. E. F. Garvin's Tar Remedies cure Gout and Rheumatism. Sold by Druggists.

Inventors' Cooperative Mfg Co, 258 Broad'y. Send for circular.

H. S. Redgrave, Norfolk, Va., would like information as to the most improved process or apparatus for drying fruits, either by steam, hot air, or other means.

Wanted, a man, fully up to the times, who has acted as Superintendent of a Gun or Sewing Machine Factory, to take charge of a shop. One fully competent to set up the machinery and break in the help. Address H. H., 35 Bond st., N. Y.

Brown's Coal-yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water st., N. Y.

Improved Foot Lathes. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

Cold Rolled-Shafting, piston rods, pump rods, Collins pat. double compression couplings, manufactured by Jones & Laughlins, Pittsburgh, Pa.

Keuffel & Esser 116 Fulton st., N. Y., the best place to get 1st-class Drawing Materials, Swiss Instruments, and Rubber Triangles and Curves.

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

The Merriman Bolt Cutter—the best made. Send for circulars. H. B. Brown & Co., 25 Whitney ave., New Haven, Conn.

Taft's Portable Hot Air, Vapor and Shower Bathing Apparatus. Address Portable Bath Co., Sag Harbor, N. Y. (Send for Circular.)

Glynn's Anti-Incrustator for Steam Boilers—The only reliable preventive. No foaming, and does not attack metals of boilers. Price 25 cents per lb. C. D. Frédricks, 587 Broadway, New York.

For Fruit-Can Tools, Presses, Dies for all Metals, apply to Bliss & Williams, successor to May & Bliss, 118, 120, and 122 Plymouth st., Brooklyn, N. Y. Send for catalogue.

Presses, Dies, and Tinner's Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water st., opposite Fulton Ferry, Brooklyn, N. Y.

2d hand Worthington, Woodward and Novelty Pumps, Engines 25 to 100 H.P., 60 Horse Loc. Boiler. W. D. Andrews & Bro., 414 Water st., N. Y.

English and American Cotton Machinery and Yarns, Beam Warps and Machine Tools. Thos. Pray, Jr., 57 Weybosset st., Providence, R. I.

Winans' Boiler Bowder.—15 years' practical use proves this a cheap, efficient, safe prevention of Incrustations. 11 Wall st., New York.

To Ascertain where there will be a demand for new machinery or manufacturers' supplies read Boston Commercial Bulletin's Manufacturing News of the United States. Terms \$4 00 a year

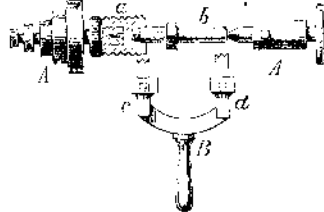
Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address correspondents by mail.

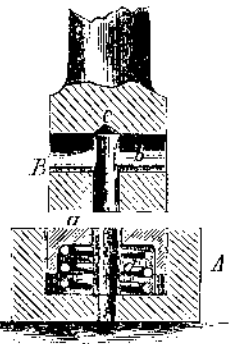
SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 100 a line, under the head of "Business and Personal."

All reference to back numbers must be by volume and page.

CUTTING SMALL BRASS SCREWS.—L. C. D. asks for a plan to cut small brass screws, fine thread and true, in a quick and reliable way. I submit drawing of tool that is simple, and that will do good work if given half a chance. On the threaded end of the spindle of hand lathe, A, a hub, a, is screwed; said hub is threaded on its outer surface, the same pitch being given as is required on the bolts to be cut. The hub has a square, tapered socket formed in its free end, for the retention and driving of the bolt, b; the bolts to be turned and chased should have one end squared to fit the socket in a. The chaser holder, B, is constructed, as shown, with two boxes, one of which carries the guiding chaser, the other the cutting chaser. The guiding chaser, c, meshes into the hub, a; the cutting chaser, d, cuts the bolt, b. A proper rest, or support, for the holder should be provided. The great difficulty which amateurs experience, in using a chaser, is to properly start the thread. This tool overcomes the trouble, and, with a little practice, by its use a true thread can be cut without failure.—W. P. P., of Pa.



CUTTING BLANKS FOR TOOTHED WHEELS.—In the SCIENTIFIC AMERICAN of March 25, B. B. S. desires a plan to cut blanks of small toothed wheels and to punch the center hole at one operation. I send a drawing of a method, now in use for similar work, that operates well. The lower die, A, cuts the outside of blank; the small punch, i, is rigidly adjusted in the center of die, A. A flanged disk, a, is provided of proper size to slide in die, A, and an over punch, z. A stout spiral spring, preferably of steel, supports the disk, a, level with the upper face of the die, A. The upper punch, B, has a longitudinal hole of the size of punch, i, drilled in its center; a transverse hole or opening, b, is cut to intersect hole, a, and should be of sufficient size to permit the waste cut by punch, i, to pass out. The spring, z, should be of sufficient strength to remove the punched blank from die, A, by forcing up disk, a.—W. P. P., of Pa.



TEMPERING CHISELS MADE FROM OLD FILES.—Tempering cold chisels made from old files, would, to a very great degree, depend upon the quality and temper of steel from which the files are made. If the chisels are made from saw files, draw your steel down, at a very low heat, to the shape or form required, and let them get cold. Then grind, or rub with sandstone, at least two inches up from the cutting edge, till bright, which enables you to see distinctly the change in color as it advances to the end. Heat them slowly, at least three inches from the point upwards, in a clean, low fire, till you get a cherry red heat through the body of the metal. Effectually cool them in clean cold water, one inch up from the point. Rub away the dirt from the surface with your sandstone, and the heat above will bring down your white, cool end, gradually and evenly, to a dark blue; cool off, and you have a good tool. If your files be small flats or rounds, run down your temper, by the same process, to a pale blue, and cool off. If your files be large, cool off at a dark straw color. These remarks apply only to files made from good material and on most approved principles. Should the nature of your steel by the foregoing process, require a higher or a lower temper, regulate it by the degrees of color in your tempering, but in no case make your steel too hot.

But you may rest satisfied that if your files have been bad as files, they will not make good cold chisels. Want of precaution, ignorance of the nature of steel, and overheating and hurry in the hardening and tempering tools, have wasted thousands of dollars that would otherwise have been moving in the legitimate channels of commerce and trade. If you want a good tool, there must be no undue haste in making it; your steel should never be heated in a quick hot fire, from the fact that the point is hot before you have sufficient heat above to gradually bring down the temper. Besides, in this way, you do not get even the point heated as a mass. A hot, quick fire gives you a skim heat, and, if you adopt this process, do not charge the fault to the steel, but to your individual ignorance, carelessness, or undue haste, when your tools crumble off in bits at the points, and you have to spend more time at the grindstone than at the lathe or vise. All files for cold chisels should be annealed, though this is not necessary for lathe tools.—B. C., of Pa.

CUTTING FINE THREADED SCREWS.—L. C. D., does not give the length of the screws, nor state whether it is necessary that they should be cut sharp up under the head. If they are not to be so cut, a solid die, having three or four cutting edges in it, may be made to do the work by flaring out the three or four first threads, so that it will act like a female taper tap. If necessary to come sharp up under the head, use a second die that is not tapered out. Make the outside of the dies round, and on one side slot them right through to the center; then put them into a holder, having a set screw in it, and set them together, by means of the set screw, if they make the screw too large. Use them in the engine lathe with the screw gear on, if necessary.—S. G. S., of Conn.

BOILER FURNACE.—N. H., with two boilers, will find that a furnace constructed as follows will answer his purpose: Fire the full width of both boilers with 7 feet grate bars, then let each boiler have its own draft of 2 feet 6 inches by 15 inches deep, a division wall running from the fire back to the end flue. Distance from back wall to boiler, 2 feet—or 3 feet would be better. Use good fire brick for walls.—G. D., of Miss.

J. G., of Miss.—We have no means of judging as to the durability of the cement you name. We certainly should not condemn it upon present information, and we should not praise it over others, even if we knew it to be superior. The proprietors of a good article need no gratuitous advertising from us.

YELLOW RAIN.—The yellow powder, observed by H. H. B., after the storm of March 8, 1871, at New Orleans, was the pollen from the blossoms of the forest trees of the Great Mississippi Valley.

J. L. & Son, of Md.—With the same mean effective pressure, and same amount of radiation, the indicated power of two engines will be in proportion to the steam consumed. A cylinder 7 x 9, making 300 strokes per minute, will, with equal mean effective pressure, give two and one fifth times as much power as a cylinder 5 x 10, making 240 strokes per minute.

W. A., of R. I.—The suggestions made in the article sent you on improved permanent way for railways, contain nothing substantially new. Stone supports for rails have been tried, but have not met with favor. Such a permanent way as you describe would cost more money than railway companies are willing to pay, and would, we think, be accompanied by practical difficulties unforeseen by you.

T. B. K., of Pa.—An inch rope laid upon a level surface, and long enough, so that its friction in moving would be greater than the tensile strength of the rope, would of course break before tension could be transmitted from one end to the other.

W. P., of Md.—Lightning conductors conduct only on their surfaces. A hollow tube slit longitudinally will conduct both on outside and inside surfaces, or if open at both ends will conduct on both sides. The resistances of conductors vary as their cross sections.

N. T. D.—We should prefer Bunsen's carbon battery to Daniell's for the voltaic arc experiment. Forty eight of Bunsen's elements have produced good results. We should not expect much success with fifty Daniell's elements.

H. B., of Pa.—We do not think tea is liable to become tainted with lead from the lead lining of the chests, unless, through leakage water should gain access to the contents.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

DUMPING CART.—William Hand, Plainfield, N. J.—This invention relates to a new and useful improvement in dumping carts, whereby much time and labor is saved, and it consists in attaching the body of the cart to the axle and in connecting the "hind board" of the cart body with the shafts, attaching the shafts to the body, and in fastening the body of the cart down to the shafts by a hook which fastens automatically.

CONSTRUCTING WATER-PROOF CELLARS, CISTERNS, ETC.—Tobias New, Brooklyn, N. Y.—This invention relates to a new and useful improvement in the construction of water-proof cellars, cisterns, vaults, and all underground apartments for whatever purpose, whereby the bottom and walls of such cellars, etc., are made perfectly impervious to water.

ADJUSTABLE SEAT.—Louis Postaroka, East Cambridge, Mass.—This invention relates to a new and useful improvement in seats for pianos and other purposes, and consists in making the seat adjustable as to height.

SWIVEL PIN FOR TETHERING ANIMALS.—William Lyon Troop, Camp I, Halleck, Nevada.—This invention relates to a new and useful improvement in a pin for tethering horses and other animals.

COMBINED WASHER AND WRINGER.—Cyrus E. Carter, Martinsville, Ohio.—This invention relates to new and useful improvements in machines for washing and wringing clothes, whereby convenience, ease of action, and expedition are secured.

AUTOMATIC CLOSING GATE.—Benoni F. Palmer, Baraboo, Wis.—This invention relates to a new and useful improvement in mode of hanging and operating gates, whereby the gate is made self-closing, and may be opened from either side or in four different directions.

COMB.—Leonce Picot, Hudson City, N. J.—This invention has for its object to avoid the corrosion of the metal strengthening backs applied to horn, bone, and composition combs, to permit warping, which is caused by the acids deposited on the combs in use, and it consists, in one case, in applying the stiffening ribs so as to be wholly covered by the substance of which the comb is made, and in another case, in providing a raised rib between the metal back and the base of the teeth, one on each side, to arrest the said deposit in advance of the metal backs, and prevent contact therewith.

PREPARING SILK AND OTHER TEXTILE FABRICS FOR PRINTING.—Louis Prang, Boston, Mass.—This invention has for its object to facilitate the proper printing of silks, laces, and other textile fabrics of a pliable character, in one or more colors.

ELECTRICAL GAS LIGHTING AND EXTINGUISHING APPARATUS.—John Vansant, San Francisco, Cal.—This invention has for its object to produce an apparatus by means of which gas can be lighted and extinguished on a suitable number of burners in rapid succession, and without requiring the handling of, or personal contact with, each burner or its gas pipe. The invention consists in the application to each gas pipe, or burner, of an electric apparatus, by means of which the valve, for admitting the gas to the burner or withholding it from the same, will be opened or closed whenever the currents are directed in the appropriate manner.

PADLOCK.—George Merkel and Charles H. Meyer, New York city.—This invention relates to a new padlock, and has for its object to make the picking of the same more difficult than in ordinary padlocks, and also to facilitate the operation of the same by the right key.