

## 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.

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.

Money to invest in some new article of real merit. Address W. P. Spence, Box 79, Stapleton, N. Y.

Cisterns prevented from overflowing and bursting by Muss' Patent Water Leader. Agents wanted. For particulars inquire of J. Muss, Box 726, Quincy, Ill., or J. R. Mitchell, Salem, Columbiana Co., Ohio.

Recipe Wanted—To enamel, japan, or varnish rusty galvanized Iron Wire Nets, which are used for drying glue on. Must be cheap and easily applied. Peter R. Lamb & Co., Toronto, Canada.

Send for circular of Oldham's Excelsior Clothes Dryer, a rare chance to make money. Address Geo. Oldham, Jr., Cuba, N. Y.

Manufacturers of Shingle Machinery please send circulars and price lists to M. A. McAfee, Talbotton, Ga.

Wanted—A situation as Sup't in a Foundry & Machine Shop. Well posted in pattern making, etc. Address C. P. W., 25 Pearl st., N. Y.

G. W. Lord's Boiler Powder for the removal of scale in steam boilers is good and reliable. We sell on condition. Send for circulars to G. W. Lord, 107 West Girard Avenue, Philadelphia, Pa.

Pyrites wanted—Containing Gold, Silver, or Copper. Address A. G. Hunter, Jackson, Mich.

Patent Rights bought and sold by R. T. Bradley & Co., 131 Fourth st., Cincinnati, Ohio.

Peck's patent drop press. Milo Peck & Co., New Haven, Ct.

Every wheelwright and blacksmith should have one of Dinsmore's Tire Shrinkers. Send for circular to E. H. Allen & Co., Postoffice Box 376, New York.

Aneroid Barometers made to order, repaired, rated, for sale and exchange, by C. Grieshaber, 107 Clinton st., New York.

Foundry and Machine Business.—Experience, with some capital, wants an engagement. South or West preferred. Address Box E. E., Catskill, N. Y.

Foreman in a Machine Shop—A person having ten years experience in that capacity is desirous of forming a new engagement. Address, with particulars, Postoffice Box 119, La Crosse, Wis.

Back Nos., Vols., and Sets of Scientific American for sale. Address Theo. Tusch, No. 37 Park Row, New York.

Mineral Collections—50 selected specimens, including gold and silver ores, \$15. Orders executed on receipt of the amount. L. & J. Feuchtlinger, Chemists, 55 Cedar st., New York.

The Babcock & Wilcox Steam Engine received the First Premium for the Most Perfect Automatic Expansion Valve Gear, at the late Exhibition of the American Institute. Babcock, Wilcox & Co., 44 Cortlandt st., New York.

For best quality Gray Iron Small Castings, plain and fancy Apply to the Whitneyville Foundry, near New Haven, Conn.

Keuffel & Esser, 71 Nassau st., N. Y., the best place to get 1st-class Drawing Materials, Swiss Instruments, and Rubber Triangles and Curves

Foot Lathes—E. P. Ryder's improved—220 Center st., N. Y.

Those wanting latest improved Hub and Spoke Machinery, address Kettering, Strong & Lauster, Defiance, Ohio.

For tinman's tools, presses, etc., apply to Mays & Bliss, Brooklyn, N. Y.

Mill-stone dressing diamond machine, simple, effective, durable. Also, Glazier's diamonds. John Dickinson, 64 Nassau st., New York.

Send 3-cent stamp for a circular on the uses of Soluble Glass, or Silicates of Soda and Potash. Manufactured by L. & J. W. Feuchtlinger, Chemists and Drug Importers, 55 Cedar st., New York.

Glynn's Anti-Incrustator for Steam Boiler—The only reliable preventative. No foaming and does not attack metals of boiler. Liberal terms to Agents. C. D. Fredricks, 587 Broadway, New York.

For solid wrought-iron beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Machinists, boiler makers, tanners, and workers of sheet metals read advertisement of the Parker Power Presses.

Diamond carbon, formed into wedge or other shapes for pointing and edging tools or cutters for drilling and working stone, etc. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

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

Winans' boiler powder, 11 Wall st., N. Y., removes incrustations without injury or foaming; 12 years in use. Beware of imitations

## 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 \$1 00 a line, under the head of "Business and Personal."

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

W. H. K. & Co., of Pa.—You can run a boiler with salt feed water without more than the ordinary injury to it until the salt deposits upon its surface. Before this takes place, the surplus salt in the concentrated water should be got rid of by what is called "blowing off," which carries off the supersaturated water. The length of time you can run without blowing off depends entirely upon the amount of evaporation and the saltiness of the water. We advise you to get "Bourne's Catechism of the Steam Engine," from which you can get the fullest information on this subject.

G. B., of Vt.—Your first query is answered in an article recently published in our columns, on the injurious effects of salt in sleeping apartments. You ask further, "Is there any danger of carbonic acid descending from a flue above an open fireplace, when it is discharged into a chimney through the fireplace into the room where the fireplace is placed?" We think there would be, unless a strong draft were maintained in the chimney by a fire in the lower fireplace.

L. & Co., of Pa.—Theoretically there should be no difference in the economy of running a one cylinder engine of eighty-horse power or a of two cylinder one of the same power.

R. S., of N. C.—Heat escapes in three ways, by convection, conduction, and radiation. Only the last two are concerned in the escape of heat from the outer surface of an inclosed tube, but both must be guarded against. Air is a bad conductor but does not resist radiation. Charcoal pulverized of course holds air in its interstices, and it has been found by experience to be excellent as an imprisoning agent for heat in hot water pipes, etc., and as a filling for refrigerators.

J. R. M., of Ohio.—It is not true that water enters a vacuum as rapidly under atmospheric pressure as when its surface is subjected to greater pressure. Of course the higher a column is carried in a pipe before reaching the vacuum chamber, the more counter resistance from the weight of the column will be experienced.

W. D. F., of Cal.—The plan of elevating the streets at crossings and allowing them to descend to the middle of the intervening blocks, has already been suggested and decided impracticable. Not impracticable in construction, but it is thought the people will not tolerate it.

S. J. T., of Ga.—The metallic appearance of the mineral you send is due to the presence of iron in the shape of pyrites. The mineral is of no value unless it also contains precious metals which is not probable and would require analysis to determine.

E. S., of N. Y.—We think you have misunderstood the import of the article on balance wheels of watches referred to. If you wish to bring your proposition before the public, you should advertise it in our "Business and Personal" column. Your communication is respectfully declined.

F. L. C., of Ohio.—The New York Belting and Packing Co., 39 Park Row, New York, make an extra stout hose which we regard as the best flexible steam pipe to be had. It costs about fifty per cent more than the common hose.

M. S., of Mo.—We do not know positively what effect the chlorine would have upon the glue which holds ivory to wood, but we think ivory might be bleached while glued to wood without damage. You can by a slight experiment determine this for yourself.

A. M., of Vt.—It will take no more power to drive a machine at the end of a shaft remote from the main driving pulley than at any other part of the shaft, provided the shaft is perfectly lined. If out of line the case is different, and as absolute perfection is unattainable, it is probable that practically a little more is generally required to drive machinery remote from the main pulley than near to it.

D. P. C., of Md.—We do not believe in discharging exhaust steam into a brick chimney. It is liable to disintegrate the mortar and destroy the chimney. The proper way to secure a good draft is to correct the proportions of the chimney. This will also prove the most economical in the long run.

C. H., of Me., and others.—A hollow cylinder of metal of any kind is stronger than a solid cylinder of the same weight and length. Although a hollow cylinder might be, in some instances, as strong or stronger than a solid one, the same diameter and length, it would not do to make such a proposition general.

C. D. M., of Oregon.—To find the proper weight for a safety valve, multiply the number of pounds pressure per square inch you wish to carry in the boiler, into the area of the inner side of the valve in square inches; then multiply this product by the distance from the center of the valve stem to the fulcrum of the lever, and divide the product thus obtained by the distance the weight is to be suspended from the fulcrum; the result will be the weight in pounds.

J. H. S., of Ohio.—Your views are, in our opinion, altogether wrong; but whether correct or not, they do not affect the question of the relative ease of draft between wooden and iron axletrees. The position taken in this matter was that all the circumstances should be equal or similar. You consider them as dissimilar.

A. S. R., of Texas.—You can change cider to vinegar quite rapidly by leaching it slowly through beech shavings, birch twigs, or corn cobs, a proper temperature, 90° to 92° Fah., being maintained. We can not answer your second query about horseshoes. We find none advertised in our paper.

T. D. H., of N. Y.—The throat of your fan wheel should have sectional area equal to that of one third the diameter of the fan. It may be somewhat larger without injuring its working qualities.

S. H. W., of Oregon.—It requires a hot fire to melt the glazing for pottery. Furnaces capable of producing intense heat are usually employed. There is no difference chemically between the terms "sea salt" and "common salt." Both mean chloride of sodium.

E. P. L., of Wis.—One stick of timber used as a stringer eight inches by twelve is better and stronger, in our opinion, than two eight by six, with keys eight feet apart and bolted at each key, provided the timber used is of equally good quality in both cases.

W. B. G., of Mass.—The gyroscope was noticed in our journal many years ago. We refer you to the back volumes. We do not wish to resume the discussion of this subject at the present time.

W. J. A., of N. Y.—A round bar of wrought iron one inch in diameter is stronger than a wire rope of the same size.

A. M., of Ky.—If by your query you wish to ascertain whether we think it economy to work steam expansively, we answer—Yes.

A. E. G., of Wis.—An engine of 5-horse power over and above friction, will raise 132 gallons of water 20 feet per minute.

## Recent American and Foreign Patents.

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

**STEAM GOVERNOR.**—C. D. Allen, New York city.—This invention relates to a new and useful improvement in governors for steam engines whereby such governors are made more useful than they have hitherto been.

**ANTI-FRICTION JOURNAL BEARINGS FOR HOISTING MACHINES AND OTHER PURPOSES.**—Robert G. Hatfield, New York city.—This invention relates to a new and useful improvement in machines for raising weights and moving bodies in any direction, and consists in mechanism for diminishing friction on the journals.

**PROPELLING BOATS.**—Daniel J. Ross, Havre de Grace, Md.—This invention relates to a new and useful improvement in the mode of propelling boats through the water, more especially designed to be applied to small boats, or those which are usually propelled by oars.

**TUBE CUTTER.**—John Peace, Camden, N. J.—The object of this invention is to provide a tool for cutting tubes of all diameters by hand and with great facility.

**SPRING-BED BOTTOM.**—Andrew Cole, Mishawaka, Ind.—The object of this invention is to provide a durable, simple, and highly elastic bottom for beds.

**AXLE GAGE.**—Gottlieb Luedke, Princeton, Wis.—The object of this invention is to provide improved gages for easily determining the pitch for the arms of the wood axles, by which to be guided in dressing down the said arms for the reception of the skeins, so that when the wheels are placed thereon the spokes of dished wheels will, when at the under side of the hubs, stand perpendicular.

**SCREW CLAMP FOR SHIPWRIGHTS.**—Wm. H. Phillips, Bridgetown, N. J.—The object of this invention is to furnish a simple and effective screw clamp for shipwrights' use. It is to be employed in planking the hulls of vessels, in which operation each successive plank must be forced down firmly against the upper edge of the preceding one, before it is fastened with treenails, bolts, or spikes. This forcing of the two planks together requires an apparatus capable of developing great power, owing to the edgewise curve or "snye," so-called, which the form of the hull requires of the planks.

**VAPOR CANDLE.**—L. Chandor, St. Petersburg, Russia.—This invention relates to new and useful improvements in vapor candles.

**SLEEVE BUTTON.**—John Kenmuir, Leavenworth, Kansas.—This invention relates to improvements in fastening devices for sleeve buttons, and consists in the application to the back of the button of a hinged hook and spring catch, the said hook being bent into the proper form to be passed through small holes in each part of the sleeve, and then through a hole in the back of the button for engagement with the spring catch.

**SKATE.**—Charles T. Day, Newark, N. J.—This invention consists in pivoting the clamping levers which carry the jaws together, and in forming a curved nut on each pair of such levers, so that the right and left hand adjusting screw can be fitted through both the said nuts in a diagonal position.

**SUN DIAL.**—Ludwig Ignatius Trug, St. Vincents, Pa.—This invention relates to a new sun dial which is so constructed that it can be correctly set in accordance with the several degrees of latitude, and to be in conformity with the actual time of correct clocks. The invention consists chiefly in the employment of a graduated arc which is pivoted at its ends and which receives the shadow from the indicator plate.

**REVERSIBLE CHAIR.**—William H. Joekel, New York city.—This invention has for its object to provide a simple device whereby, on such chairs which have reversible backs, the seat will be inclined backward whenever the position of the back is changed. The invention consists in the application of a cam to the pivot of the back, working between forked ears that project from the pivoted seat. Whenever the back is turned over the cam will be turned over with it to change the position of the seat.

**BUTTON.**—A. P. Critchlow, Northampton, Mass.—This invention has for its object to construct buttons of all kinds, that the same can be readily fastened to garments or other articles, and that they may be constructed at a small cost.

**WATER WHEEL.**—R. W. Trude, Clearfield Bridge, Pa.—This invention has for its object to furnish an improved water wheel, simple in construction, effective in operation, and which will not be impeded in its operation by back water.

**CULTIVATOR.**—Jesse A. Wilson, Hamburg, Iowa.—This invention has for its object to furnish an improved cultivator, which shall be strong, simple in construction, and effective in use, being so constructed that the frame work of the cultivator will readily pass over the rows of plants without injuring them.

**SEED PLANTER.**—J. L. Strait, Cooksville, Mich.—This invention has for its object to furnish a simple, convenient, effective, and inexpensive machine for planting cotton seed, corn, peas, etc., which shall be so constructed as to be conveniently adjusted to plant the seeds in hills or drills and in greater or less quantities, as may be desired.

**HARROW.**—Charles R. Macy, Bodminster, N. J.—This invention has for its object to furnish an improved harrow, which, while operating as an ordinary harrow to stir up, loosen, and pulverize the soil, will, at the same time, crush and break up the clods and lumps, and scatter the parts and fragments of said clods and lumps over and mix them with the loose soil.

**HAME FASTENER.**—William W. Tillou, LeRoy, N. Y.—This invention has for its object to furnish an improved fastener, by means of which the ends of the hames may be conveniently drawn into place and securely held and locked.

**HAIR CUTTER.**—George A. Harley, New York city.—This invention has for its object to improve the construction of an improved hair cutter, patented by the same inventor, September 14, 1869, and numbered 94820, so as to make it more convenient in use by adapting the slotted comb to be used with an ordinary razor blade.

**TRACE FASTENING.**—William W. Mallery and Charles H. Sage, Copenhagen, N. Y.—This invention relates to a new and useful improvement in a fastening for the traces of harness, and consists in applying a spring slide to the end of the trace, by which slide the trace is held to the whiffletree.

**PULLEY BLOCK.**—C. H. Knapp, Lawrenceville, Pa.—This invention relates to improvements in pulley blocks, and consists in an improved construction of divided blocks, for being automatically opened by blocks on the rope for discharging the same, when the weight is raised to the required height, for allowing the latter to fall in a lateral direction, as in elevating hay and delivering over the mow, or on the top of the stack.

**PROPELLING APPARATUS.**—E. Averill, Sacramento, Cal.—This invention relates to improvements in feathering paddles for boats, and operating devices for the same, having for its object to provide an improved arrangement of means for feathering the paddles, and for operating a pair for one side of a boat alternately; also for reversing them for propelling in either direction.

**PISTON.**—O. Collier, Sacramento, Cal.—This invention consists in an arrangement of the piston, of two end disks and a grooved central ring, one of the disks having a tubular extension, to which the other is fitted, and through which the piston rod passes, receiving a nut at the end, screwing the one disk on the extension of the other, and against the central ring; also screwing the whole against a collar on the rod. The invention also comprises a mode of packing by which the piston may be centered.

**TABLE.**—Heber F. Leonard, Mazo-Manie, Wis.—This invention relates to improvements in the construction of tables for house, office, and other uses, and consists in an improved mode of joining the side rails of the frame to the posts by dovetail or beveled rebates, and detachable metallic clamps, to provide a more durable construction, and an arrangement whereby the legs and frame may be readily detached for packing and transportation. The tops and leaves are also detachably connected to the side rails of the frame. The invention also consists in an improved arrangement with the leaf supporting arms of fall leaf tables, of springs to throw the arms out when the leaves are raised.

**BRAKE FOR VEHICLES AND MACHINERY.**—Benj. F. Leet, Dayton, Nevada.—This invention relates to new and useful improvements in brakes for car, wagon, and other revolving wheels, and consists of brake shoes suspended in advance of the wheels upon arms jointed to supports above the horizontal axis of the wheels, and arranged to be let down by strong suspending devices against the faces of the wheels, the friction of which on the said brake shoes, will cause the shoes self-actingly to arrest the motion of the said wheels, the said brake shoes being so suspended that in swinging downward in the plane of the wheels, their course will cross that of the periphery of the wheels. The invention also comprises a mode of suspending and operating the brake shoes, or the arms on which they swing, by knuckle-jointed links, to the middle joint of which a sliding bar is attached and operated, either by a toothed pinion and hand shaft, or by an oscillating shaft, hand lever, and eccentrics, for imparting the reciprocating motion for working the said knuckle-jointed links; the said links, as also the jointed arms by which the brake shoes are suspended, are arranged for adjustment for varying the position of the shoes relatively to the periphery of the wheels.

**SPUR.**—Seth Craig, Philadelphia, Pa.—This invention relates to a new manner of securing spurs to the heels of boots, and has for its object to provide a simple and reliable fastening, which need not have any catch provided in the heel, and which allows the ready removal of the spur.

**DETACHABLE HEAD REST FOR CHAIRS, ETC.**—D. R. V. Goetchins, Little Falls, N. Y.—This invention has for its object to provide a head rest which can conveniently be secured to the backs of railroad chairs, common chairs, sofas, etc., and which can as conveniently be detached.