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.

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 Person l."

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

SOLDERING SPRING WIRE.—J. E. W. asks how to solder spring wire with hard solder. In watch making I have often made brass and steel tongues, soldered them to the joint with hard solder, and left them in an elastic state. Steel wire may be tempered in the usual manner after soldering, but we usually treat it the same as brass. After soldering the temper is restored by hard rubbing with a burnisher, which condenses and hardens the wire in the same way that hammering or milling does a plate. Brass, gold, copper, or silver, should be treated with dilute oil of vitriol after soldering, to destroy the oxide and the compound of oxide with borax or other flux used. Steel or iron should never be put into vitriol.—J. T. L., of S. C.

HEATING SURFACE OF STEAM BOILERS.—W. V. B. is running an engine developing, according to his statement, 107-horse power, while his locomotive boiler, allowing 6 square feet of heating surface per horse-power, develops only 50-horse power. Two cylinder boilers, 30 inches diameter and 40 feet long have 323¼ feet of heating surface; and as a much greater proportion of fire surface is required per horse-power in a cylinder boiler than in a locomotive boiler, the two cylinder boilers would not generate steam faster, perhaps not as fast as through the locomotive boiler, and therefore could not supply steam enough to run the engine under the conditions specified.—W. M. M., of Mich.

BOILER CAPACITY.—If the two cylindric boilers referred to by W. V. B., be well set and covered in, say 6 inches above their centers, they will present 400 square inches of surface to the fire, and ought to give 40 to 45-horse power of steam to the engine mentioned, if the steam be properly utilized in the cylinder. We have obtained 55-horse power with a 15 x 36-inch cylinder, with plain slide valve, the steam being made in three 36-inch diam., 30 feet plain cylinder boilers fired with shavings and sawdust. The difficulty with the locomotive boiler is lack of effective heating surface. Not more than half the surface of the tubes, owing to soot and ashes, being available for transmission of heat.—J. H. C., of Pa.

WIRE OF SOLDER.—E. E. D. can make solder in the form of wire, as follows: Take a common ladle used for melting lead, and drill a small hole one half inch from the brim opposite the nose. Melt the solder so that it will run easy through the hole, and as it runs out, draw the ladle along over some smooth surface, such as a saw plate or the face of an anvil. If done properly it will run in the shape of a thin wire as long as the surface you run it on. This is the only way I think it can be done. The right of making solder wire this way was purchased from a peddler, who went round the country selling the wire to jewelers.—C. H. G., of N. Y.

CALCULATING HEATING SURFACE OF TUBES.—W. V. B. should calculate the heating surface of tubes from the inside.—G. M. M., of N. J.

L. J. K., of N. Y.—The conventional tints for the various materials represented in mechanical drafting are variously prepared. We prefer Johnson's formulæ to any other. According to these formulæ, stone is represented by a light dull yellow, made by mixing a little India ink with Roman ochre. For brick use a light red, made of vermilion, brightened by a little carmine. For steel or wrought iron a light shade of Prussian blue, a trifle lighter for steel than wrought iron. For cast iron use indigo, with a little carmine added, or Payne's gray. For lead and tin use the same color as for cast iron, with the addition of a small proportion of India ink and carmine. For copper, use pure carmine or crimson lake, with a little burnt sienna added. For brass or bronze use burnt ochre or a mixture of gamboge with vermilion, or simple gamboge. If the mixture of gamboge and vermilion be used, it must be kept constantly stirred, or the colors will separate. For wood use burnt umber, or raw sienna. For leather use a light tint of sepia; for gutta-percha a darker tint of the same, and for vulcanized rubber, use sepia with a little indigo added.

A. H., of Ohio.—The word power is used in two senses. In the modern use of the term it means the ability to perform work as measured by foot-pounds of resistance overcome in a definite time. In this sense the term is general in its signification, and has no reference to any particular resistance to be overcome. It is in this sense, doubtless, that Mr. Craik uses the word in the article on "Fly and Balance Wheels," published on page 403 last volume, and to which you take exception. In the old saying, "What is lost in speed is gained in power," and *vice versa*, the word power is used in a special sense, meaning ability to overcome a particular resistance, as, for instance, a particular weight to be raised in mass. Mr. Craik makes no claim in his work to literary merit, and perhaps fails to express himself perfectly in the passage cited. We understand, however, his meaning to be what we have stated, the expression "loss in power" probably referring to consumption of power through friction, etc.

L. I. O., of Minn.—From your description we judge your ice-house leaks air at the bottom, either through the drain pipe, (is there a trap in this pipe?) or through unstopped crevices. Such crevices would cause a downward draft of warm air through the open ventilator at the top, and cause the melting from the top and sides of the ice of which you complain. If you must use an open ventilator at the top to keep the articles stored in good condition, you must be careful to stop all the air holes at the bottom.

A. B. S., of Pa.—The simplest and most common way of making U-magnets, is to forge the steel bars into the proper shape, harden, and then place them with their poles together, in such a way that the poles which are to be of opposite names shall come together. They are then rubbed with a strong horseshoe, or U-magnet, placing the latter in such a way that its north pole is next to the south pole of one of the new magnets, and its south pole next to the north pole of the same new magnet.

J. D. O. C.—It is not necessary that drawings intended to illustrate a work on carpentry should be as finely executed in the manuscript as they are intended to appear in the work itself. The artist, if he knows his business, will be able to execute them properly, provided they are intelligible.

J. T. L., of S. C.—Your query in regard to weights and cords is not sufficiently explicit. Do you mean a cord attached at both ends, or only at one end?

J. G. M., of ——.—There is no known solvent for the diamond. Evaporation is a widely different process rom dissolving. Consult your dictionary on the meaning of these terms.

C. H. S., of ——.—In the absence of our regular proof reader last week, an error occurred in the answer to your query. It should have read: The Torricellian Vacuum, formed by inverting a tube filled with mercury in a cup containing the same metal, is not perfect. Good authorities maintain that no perfect vacuum can be produced.

J. S., of R. I.—For siliceous silica, in the answer to your query published last week, read *infusorial* silica.

T. T. O., of Ill.—For rules to calculate dimensions of safety valve, lever, etc., consult Bourne's Hand Book of the Steam Engine. Any bookseller will order it for you.

A. H. L., of Mass.—There is no substance known which, placed between a magnet and its armature, will stop its attraction.

B. F. C., of R. I.—Your method of making leather handles is not new.

Inventions Patented in England by Americans.

[Compiled rom the Commissioners of Patents' Journal.]

PROVISIONAL PROTECTION FOR SIX MONTHS.

2,905.—PNEUMATIC TELEGRAPH.—Edward A. Calahan, Brooklyn, and G. B. Baker, New York city. November 3, 1870.

2,924.—BUOYANT MATTRESS DESIGNED TO SERVE EITHER AS A BED OR A LIFE PRESERVER.—Joshua Hunt, Providence, R. I. November 5, 1870.

2,925.—AXLES OF RAILWAY AND TRAMWAY CARRIAGES, AND IN APPARATUS TO BE EMPLOYED THEREWITH.—Henry Graham Thompson, New York city November 5, 1870.

2,931.—TELL-TALE MECHANISM APPLICABLE TO CLOCKS AND WATCHES.—Cyrille Duquet, Quebec, Canada. November 21, 1870.

2,934.—MACHINE FOR CUTTING AND PRINTING LOZENGES AND CRACKERS.—Ernest Greenfield and Philipp Strauss, New York city. November 7, 1870.

2,935.—METALLIC COMPOSITION FOR ROOFING LININGS, PIPES, AND OTHER PURPOSES.—David J. Millard, Clayville, N. Y. November 7, 1870.

2,936.—IMPROVEMENT APPLICABLE TO TREADLES USED IN SEWING AND OTHER MACHINES.—Charles Gordon Patterson, New York city. November 7, 1870.

2,939.—MACHINERY FOR MANUFACTURING CARPET LINING.—Joel F. Fales, Walpole, Mass. November 9, 1870.

2,943.—PROCESS FOR EXTRACTING THE USEFUL SUBSTANCES OF HOPS, AND FOR MANUFACTURING A PURE AND CONCENTRATED EXTRACT OF HOPS.—C. A. Seely, New York city. November 8, 1870.

2,950.—METHOD OF SECURING OR LOCKING SCREW BOLTS AND NUTS.—Robinson Rutter, Vallejo, Cal. November 9, 1870.

2,953.—SEWING MACHINES AND TABLES FOR SEWING MACHINES.—J. N. Tarbox, Hamilton, Canada. November 9, 1870.

2,951.—APPARATUS FOR EFFECTING AND REGULATING THE SUPPLY OF THE DEODORIZING MATERIAL IN EARTH CLOSETS.—William R. C. Clark, Chicago, Ill., and James E. Aiken, New Orleans, La. November 9, 1870.

2,969.—MANUFACTURE OF ALKALIZED ISINGLASS, SULPHITED AND BISULPHITED.—Baylis Child, New York city. Nov. 11, 1870.

2,973.—PENHOLDER AND PENS.—Isaac Jacobs, New York city. November 12, 1870.

APPLICATIONS FOR EXTENSION OF PATENTS.

MACHINE FOR CUTTING PASTEBOARD FOR BOXES.—Franklin N. Clarke, New Haven, Conn., has petitioned for an extension of the above patent. Day of hearing Feb. 15, 1871.

ENEMA SYRINGE.—Herman E. Davidson, Gloucester, Mass., has petitioned for an extension of the above patent. Day of hearing March 15, 1871.

SEEDING MACHINE.—L. B. Myers and H. A. Myers, Elmore, Ohio., have petitioned for an extension of the above patent. Day of hearing Feb. 15, 1871.

CASTING SKEINS FOR WAGONS.—John Benedict, Kenosha, Wis., has petitioned for an extension of the above patent. Day of hearing Feb. 8, 1871.

ENEMA-GIVING APPARATUS.—Benjamin T. Babbitt, New York city, has petitioned for an extension of the above patent. Day of hearing March 1, 1871.

GAS GENERATORS.—Alonzo M. Giles, Boston, Mass., has petitioned for an extension of the above patent. Day of hearing March 1, 1871.

CHAIRS FOR INVALIDS.—James G. Holmes, Charleston, S.C., has petitioned for an extension of the above patent. Day of hearing May 31, 1871.

MACHINE FOR CUTTING AND BENDING SHEET METAL.—Elliot Savage, West Meriden, Conn., has petitioned for an extension of the above patent. Day of hearing March 1, 1871.

Recent American and Foreign Patents.

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

COMPOSITION FOR DESTROYING WORMS IN THE COTTON PLANT.—Thoma W. Mitchell, Richmond, Texas.—The object of this invention is accomplished by sprinkling the cotton plants, on which the worm feeds, with a solution of arsenic in water, in suitable proportions.

"MIDDLINGS" PURIFIER.—Lemuel G. Binkly, Baughman, Ohio.—This invention relates to an arrangement of reels, one of which is covered with coarse cloth for separating and removing the coarse feed and shorts, the fine feed, middlings, and flour being thence conveyed to another reel covered with finer cloth. The middlings and fine feed are by this last separated from the flour, and conveyed to a chamber over the reels where a fan and hinged deflectors quickly separate them into three grades, and distributes them in hoppers or bins correspondingly.

PLOW.—Arthur C. Smith, Joyner's Depot, N. C.—This invention has for its object to improve the construction of turn-plows to better adapt them for running the first furrows in breaking up the land and forming the ridges in preparing the land for planting cotton.

SPICE BOXES.—Edward S. Kennedy, Birmingham (Buchanan Postoffice), Pa.—This invention has for its object to furnish an improved spice box, which shall be so constructed as to contain salt and pepper, or two other spices, and which shall, at the same time, be simple in construction and convenient in use.

FLOUR BOLTS.—Cyrus T. Hanna, Keokuk, Iowa.—This invention has for its object to furnish an improved flour bolt, which shall be so constructed that the bolt cloth may be secured to the inner sides of the ribs, forming a smooth surface of bolting cloth.

COTTON CULTIVATOR, SCRAPER, AND CHOPPER.—J. H. W. Young, Henderson, Texas.—This invention relates to certain improvements in a machine or cultivating cotton, the same consisting in barring-off plows placed in such position in front of the wheels, on which the machine runs, to make tracks in the earth for the wheels to follow in; also in shanks for the scrapers pivoted at their upper ends to the frame, and provided with curved slots through which pass bolts so as to enable the scraper sto be set at different angles, according to the nature of the soil through which they run; and in chopping hoes made adjustable for the purpose of varying their position according to the desired width of hill or ridge.

COTTON AND HAY PRESS.—S. K. Davis, Monticello, S. C.—This invention relates to improvements in the cotton and hay press patented September 28, 1869. The invention consists in providing two uprights with beveled joints and catches, which also act as supports, so as to permit a portion of the frame above the joints to be drawn from a perpendicular to an inclined position, and replaced at pleasure; also in constructing a nut with adjustable levers, and a groove for the reception of band or cord, by which the nut at each end of the press may be screwed down or up at the same time; also in the construction of a clamp provided with a hinge in such a manner that the clamp may be easily removed from the press when the bale has been formed.

SUBSOIL PLOW.—T. G. Wilder, Camden, Mo.—This invention has for its object to improve the construction of subsoil plows, so as to make them stronger, more substantial, and easier upon the team, and enables them to be conveniently adjusted to work deeper or shallower in the ground, as may be desired, and which will cause them when adjusted to work at a uniform depth.

PROPELLING APPARATUS FOR STREET CARS.—John Roy, New Orleans, La.—This invention relates to improvements in apparatus for propelling street cars by means of a traction rope worked along the track, either above or under the ground, by means of stationary engines or other power, and consists in the application to the car, either at one or both sides, or between the sides, of traction wheels, preferably three in a row, so arranged that the rope will work under the two end wheels, to be prevented from rising above the ground either in front or rear of the car and over the center wheel, so as to impart rotary motion to them, which, being arrested by brakes, will cause the car to be drawn along by the friction of the rope on the wheels.

BALANCED SLIDE VALVES.—John Nesbitt, Concord, N. H.—This invention relates to improvements in balanced slide valves, or those which are so arranged that they cannot be raised off their seats, when the throttle valve is closed and the piston continues in motion by the air, for admitting it behind the piston and preventing the forming of a vacuum, which greatly retards the motion, especially in the case of a locomotive going on a downward incline.