

**I, J, the flexible rod or cord, P, P', levers, R, R', and wheel, S:** this I claim when constructed and relatively arranged and operating as described, and also when used in connection with the drag bars, E, E', articulating upon the axle, C, as set forth, for the purpose specified.

**HOT WATER RADIATORS**—Thomas T. Tasker, of Philadelphia, Pa.: I am aware that sections of tubes, with and without flange and shoulder joints, have been secured together by through bolts, and I lay no claim to this mode of securing parts of a tube together.

But I claim the mode of securing together the several divisions or systems of radiator tubes, as set forth, the same consisting in the employment of the four terminal sections, P, to each division, the whole being held together by the through bolts, H, as set forth, thereby affording great facility in setting up the radiators, and in taking them apart.

**IRON PAVEMENTS**—Abijah B. Tewksbury, of East Boston, Mass.: I do not claim an iron hexagonal paving block formed with legs or lugs, extending downward from the several corners of its cap, to be united or fixed to other blocks of like character, by means of iron slips or bolts, such being described in the specification of No. 15,776 of United States patents.

Nor do I claim a pavement block made of metal, and formed of a series of arches alternating in position, and connected to ridge or string-pieces, and having interstices between the arches, the same being shown in No. 15,479 of United States patents.

Nor do I claim a pavement block made of a hollow cubical box, having an arched or ribbed cup, and formed with round holes through its vertical sides, as my invention, or improved block, as a whole, differs essentially from such.

In the first place, it had but two prongs extended down from the ends of its cap, and such cap is arched in two directions, viz., lengthwise, as well as widthwise. My block is of an oblong shape, and each prong is made wedge-shaped, in order that when the block may be driven downwards, the wedge-shaped prongs will enter the soil, and consolidate the earth which may enter between the two prongs. Furthermore, the concave cap or cup-shaped arch also consolidates and consolidates the earth, so as to steady and support the pavement block in lateral, as well as in longitudinal directions.

I claim the improved cast iron pavement block as made with an arched cap and two wedge-shaped prongs, arranged substantially as described.

**CONSTRUCTING FRAMING OF BRIDGES, &c.**—Wm. McKibbin, of San Francisco, Cal.: I claim the combination of the slotted lugs, a, a, on the ends of the bars, the slotted plates, c, and d, and the wedges or keys, e, e, substantially as described, for the purpose set forth.

[This invention consists in a novel and very simple method of clamping and securing together the ends of metal bars, and of uniting plates with the said bars, by which great strength is obtained. The invention is applicable in almost all cases where it is required to connect the ends of iron bars, whether or not it is required to combine plates with the said bars.]

**LIFE-PRESERVER RAFT OR BUOYANT MATTRESSES**—W. Urquhart, of New York City: I am aware that it is old to form a raft by strapping together a series of mattresses, which are arranged in the same horizontal plane, the straps being attached to the side edges and end of each mattress, and the connection finally formed in such a manner that unclosed joints between the different mattresses exist for the water to dash up through and flood the raft; therefore I do not claim a raft thus formed.

But I claim providing the mattresses of a ship with straps and buckles on their upper and under surfaces, and with loops round their edges in the peculiar manner shown, whereby, in case of emergency, a series of mattresses can be buckled together, and a life-preserving raft formed, by placing several layers or tiers of the mattresses thus buckled together on top of one another, in a manner to form angular break joints, and said layers or tiers thus arranged readily and conveniently strapped together, in such a manner that it will be impossible for the ties to separate or change their position longitudinally or laterally, as set forth.

**VALVE FOR STEAM ENGINE**—Isaac Van Doren, of Somerville, N. J.: I claim a valve constructed substantially as described, having the steam-chest in its center, but such steam-chest, so constructed as described, that the steam shall not press against the valve, and also having the exhaust chamber between its outer and inner shells, the whole arranged substantially as and for the purposes set forth.

**BRUSH HOOK**—Edwin B. White, of Nashua, N. H.: I do not claim the shell or case, nor the hook, C, provided with the shank, D, which fits within the shell, A, for these parts have been previously used.

But I claim securing the hook, C, at the desired height by means of the lever, E, attached to the shell in case, A, and operated or adjusted by the screw, F, or its equivalent, so that the shank, D, of the hook will be pressed against, both at its upper and lower end, and thereby firmly secured within the shell or case, as described.

[This invention consists in the novel means employed for holding the hook in its case or shell, whereby the hook may be readily adjusted, and firmly secured at the desired height above its bed-piece or plate, so as to effectually resist the pressure of the stuff which is placed against it, as usual, while being planed, or otherwise operated upon.]

**CARPET-STRETCHER**—Joseph Warner, of New Britain, Conn.: I claim the lever, A, of any proper form or shape, provided at one end with teeth, d, and pivoted to a plate, B, having spurs, e, attached, substantially as and for the purpose set forth.

[This is a lever, having teeth pivoted to a plate provided with spurs, the parts being arranged so that the implement may be readily secured to the floor, and connected to the edge of the carpet in such a way that, as the latter is tacked to the floor, it may be stretched with the greatest facility. This stretcher is, in every way, convenient for operation.]

**TRENCHING PLOW**—William Wise, of Washington, D. C.: I claim the combination of the auxiliary share with the plow, substantially as described.

I also claim the combination of the guide-bar with the plow, substantially as described.

**COTTON GINS**—Francis L. Wilkinson, of Adam's Run, S. C.: I am aware that the plate, E, has been previously used for the purpose stated, and stripping brushes have also been used; I therefore do not claim separately the plate, E.

I am also aware that grooved rollers have been used in cotton gins, and therefore I do not claim them as my invention.

Nor do I claim, separately, and irrespective of their relative position with the rollers, D, B, the brushes, v, w, on the bars, H, I.

But I claim the arrangement shown and described of the spirally grooved rollers, B, D, one for both, stripping brushes, v, w, and plate, E, for the purposes set forth.

[One or both of the rollers of this cotton gin are grooved spirally, like a screw, for the purpose of readily detaching the seed from the cotton; and there is also used in connection with the grooved rollers, stripping brushes, and a guard plate, whereby the usual slow process of ginning cotton by means of rollers is much expedited, as is effectually performed.]

**RAILROAD CAR BRAKES**—Stephen M. Whipple, of North Adams, Mass.: I claim the combination of levers, pulleys and chains, operated and arranged substantially as described, by which a brakeman on the rear end of the last car of the train is enabled to brake the train.

**MACHINES FOR PICKING FERROUS MATERIALS**—Oliver Woodworth, Jr., and J. D. Page, of East Hartford, Conn.: We claim the combination of two or more conical cylinders, having teeth placed spirally around them at proper intervals, and within a suitable case, having teeth arranged in such manner as to allow the teeth in the cylinders to pass between them, for the purpose described, and in the manner substantially as set forth.

We wish it understood that we do not confine ourselves to the precise dimensions given, but vary according to the kind of stock used and quantity required.

**STEAM BOILERS**—Joseph Wood and H. N. Winans, of Jersey City, N. J.: We claim the interposition of the diaphragm reflector, A, between the flues and the exhaust for the purpose of protecting the exhaust from the draft, and for reflecting the heat back to the heat, the whole constructed and arranged substantially as described.

**CONSTRUCTION OF MILITARY DRUMS**—Charles M. Zimmermann, of Philadelphia, Pa.: I do not claim tightening the ends of military drums by a rope passing through holes made in the hoops, and over the same, as this is in common use.

But I claim arranging and adapting a series of pulleys, b, b b, to the sides of drum hoops, for the purpose set forth.

**CORN-SHELLERS**—Daniel G. Greene, (assignor to himself and George H. Greene) of Bridgeport, Mass.: I am aware that a double tapering cylinder for shelling corn was patented by James Ross, April 12, 1833, and therefore I make no claim to said device.

But I claim the arrangement of the single tapering roll, b, concave shells, d, d', slots, f, f', spring, g, h, and spout, i, as shown and described, whereby the ear of corn is always kept in horizontal position, and the cob is prevented from being forced diagonally under the roll, and is thus saved from being crushed or broken, together with other advantages, all as set forth.

**METHOD OF GENERATING STEAM IN COMBINATION WITH ATMOSPHERIC AIR AS A MOTIVE POWER**—James Black, (assignor to Scott, Todd & Co.) of Philadelphia, Pa.: I do not wish to be understood as making claim, broadly, to generating a vapor or gas from atmospheric air holding moisture in suspension, as this will not produce the result contemplated by me.

But I claim generating a vapor or gas for mechanical purposes by injecting into a suitable heated vessel or generator a mixture of atmospheric air and water, in the proportions specified, and substantially in the manner and for the purpose specified.

**DRESS OR STONES FOR HULLING MILLS**—David Collins, (assignor to himself and W. L. Hanford) of Jersey City, N. J.: I do not claim dressing hulling stones with radial or curved furrows.

But I claim the runner stone, dressed with the radial polygonal furrows, 2 and 4, as specified, when combined with the bed-stone having radial furrows, 1, 1, and straight furrows, 3, 3, or their equivalents, substantially as and for the purposes specified.

**ATTACHING TOOLS TO HANDLES**—John Henn, of New Britain, Conn., (assignor to himself, Anton Dane, and Leopold Lauban, of Hartford, Conn.): I claim the arrangement and construction of the plate, w, with projection, D, acting against a spring in the back of a handle, in such a manner that, when opened, it will relieve said spring to allow a knife or tool to be attached to the upper end of said handle, and when closed, force the spring against the tool, so as to hold the same perfectly steady in the handle, substantially as described.

**DEVICE FOR PENTAGRAMIC ENGRAVING MACHINES**—John H. Hope, (assignor to himself and Thomas Hope) of Providence, R. I.: I claim combining with the main tracer of a pentagraphic engraving machine, a grooved tablet, A, or its equivalent, and an arm, D, and secondary tracer or guide, E, to run or work in the grooves of the tablet, and to govern the direction of the movements of the main tracer in producing the grounded lines of the engraved figures, as specified.

I also claim combining with the tracer, B, the rest, G, so as to operate therewith, as specified.

**MATCH MACHINE**—Samuel Miller, of Hammond, N. Y., and William Gates, Jr., (assignors to William Gates, Jr.) of Frankfort, N. Y.: We do not claim the endless chain clamps, C, nor the cutting tool, O, for they have been previously used as stated.

But we claim operating, or moving the chain of clamps C, intermittently, retaining it during the proper dwells, and opening the clamps during said dwells, by means of the cams, I, I, J, J, constructed and arranged substantially as described.

We further claim the guide, S, fitted in the gate, M, and used in combination with the grooved bar, R, for the purpose of guiding the match sticks, or causing them to be properly presented to the clamps.

We also claim the bar, R, with or without the guide, S, when said bar, R, is used in connection with the cutting tool, O, for the purpose of retaining the bolt in proper position as the cutting tool ascends.

[A notice of this will be found on another page.]

**WASHING MACHINE**—Henry Lawrence, (assignor to himself and J. M. Connel) of Newark, Ohio: I do not claim oscillating boxes for washing machines, broadly considered.

But I claim the combination as described of the stationary clothes-holder, with the oscillating box, B, and flexible rubbing system, connected therewith, made to pass over the said frame, f, substantially as set forth.

**RAISING DOUGH**—James Perry and Elisha Fitzgerald, (assignors to James Perry, Daniel Fitzgerald, and Horatio Bogart) of New York City: We claim the process of preparing dough or paste for making bread, cakes, or other farinaceous articles of food, by mixing the materials with gas, under pressure, in a closed vessel, substantially as described, as a means of leavening or raising the same, as set forth.

We also claim discharging the dough, as aforesaid, from the vessel, by the gaseous pressure, as it is required, substantially as and for the purpose specified.

**MACHINE FOR PICKING AND CUTTING HEELS OF BOOTS AND SHOES**—Edward S. Snell, (assignor to himself and Francis B. Washburn) of North Bridgewater, Mass.: I claim the arrangement of devices described, for picking the holes in boot and shoe heels, the same consisting of the block, g, furnished with a series of awls, h, the plate, k, and a pattern or bed piece, n, upon which the heel is placed, the whole operated substantially as set forth.

In connection with the above, I also claim the cutting apparatus, consisting of a knife, so arranged upon a sliding carriage as to keep up to the pattern, and furnished with a wheel that travels on the pattern in front of the knife, to adapt the knife to short curves in heels, whereby a heel is formed and pricked accurately, as set forth.

**SEWING MACHINES**—Chas. Raymond, (assignor to Willford H. Nettleton) of Bristol, Conn.: I wish it to be understood that I do not claim fixed and moving looping instruments, over both of which the thread is drawn to spread the loop for the needle to pass through, as this has before been used; but I am not aware of any previous device, in which the loop has been taken and directed to a double inclined spreading plate, on the sides of which the loop is spread, by the drawing up of the needle thread, thereby insuring the proper entrance of the needle into said loop in its next descent, and using but a very short loop close up to the bed supporting the material being sewed, at the same time the instrument taking the loop from the needle performs no duty in spreading the loop, but simply directs it to the stationary double inclined spreader, as specified: therefore—

I claim first, The combination of the thread guide, 3', clamping surface, 3, and the eye, 2, on the upper end of the needle bar, when said thread guide is fitted to move with the needle bar, and regulated by the stop, h, or its equivalent, so as to measure off the amount of thread for each stitch, substantially as specified.

Second, I claim a stationary double inclined spreading plate, u, over the sides of which the loop is drawn and spread when combined with a touching point, to direct the loop of needle thread to said spreading plate, as it draws up, as specified.

**INK STANDS**—Lucien F. Hicks, of Boston, Mass., (assignor to David C. Field, of Brooklyn, N. Y.): I claim the employment of the bottom, b, of a flexible inkstand, constructed substantially in the manner set forth, for the purpose of serving as a valve in its use with the tube, d, operating in the manner and for the purposes set forth in the foregoing specification.

RE-ISSUES.

**GAS TUBE JOINT**—Chas. Monson, of New Haven, Conn. Patented Jan. 19, 1859: I do not claim the invention of the well known universal joint composed of parts not tubular, or having no passage through it by which a fluid can pass from one part to the other connected by such joint. Nor do I claim the well known "ball and socket joint," so formed and applied to or made to connect two tubes, that there may be a passage through it leading from one to the other of such tubes.

But I claim a conduit universal joint, made substantially as described, viz: with the armed branches, g, h, and their connection cross jointed together and provided with one or more passages, so arranged in them as to open a communication from one leading tube, a, to the other, b, with which such conduit joint may be connected.

And I also claim the combination of the relief ring, c, or its equivalent, with the armed branches, g, h, and the connection cross, the same being arranged therewith substantially in the manner and for the purpose as specified.

ADDITIONAL IMPROVEMENTS.

**STEAM PLOWS**—Peirce Kingle, of Washington County, D. C. Patented Feb. 23, 1859: I claim the placing of clearets, S, S, in connection with the off-bearing wheel, B, of my steam plow, in such a manner that the one will fill back the furrow that the other has opened, they being arranged, constructed, and operated substantially in the manner and for the purpose described and set forth.

**CUTTING FLOUR MILLS**—Jonathan Burdge, of Cincinnati, Ohio. Patented June 19, 1856: I claim the doubly conical concavity in and cutting ridges on the face of the cutter head, arranged and acting as described, in combination with the concavity and ridges of the counter plate for the purpose specified.

I also claim extending the ridges, B, B, inward beneath the feeding aperture of the counter plate, in combination with the inner conical concavity of the cutter head, and with the counter plate, substantially as and for the purpose set forth.

DESIGNS.

**CARRIAGE HUB SAND BANDS**—James Ives, of Mount Carmel, Conn.

Coffee, Tea, and Cocoa.

**Messrs. Editors**—I have, on a former occasion, made some suggestions upon coffee-making; and in pursuing the same subject, to show how the use of this beverage has increased in 170 years, I may state that in that time the production of coffee has increased from 10,000,000 pounds annually, to 500,000,000 pounds, or fifty times the original amount. In Europe alone, during the last thirty-six years, the consumption has increased from 150,000,000, to 250,000,000 pounds.

It is a curious historical fact, that in Arabia, where the use of roasted coffee originated, it was used to keep awake the worshipers in the temples; and an immense number of coffee-drinkers were always to be found in the coffee-houses, especially in Constantinople (where the first coffee-house was established in 1554); so much so, that the churches were emptied, and therefore a tax was levied on coffee-drinkers by the Sultan. The first coffee-house was opened in London in 1652, by a Greek named Paqua, and shortly afterwards another one was opened in Paris.

The coffee bean consists of a homogeneous tissue of cells, and contains from 15 to 20 per cent of a substance called *protein*, which is also found in the fibrin of the human body, and there is of the caffeine of coffee and tannin combined with alkali and caffeine, about 5 per cent, and 13 per cent of fat, sugar, and gum; the rest is lignin, albumen, and water. The process of roasting changes the tannic and coffee acids into an agreeable aroma, and according to the chemist Payen, most of the caffeine is formed at the same time. As the aroma exists in such small quantities, it is driven off at too high a temperature, and the fat and sugar is also destroyed, it will be seen that much of the flavor is due to the roasting, which yet requires some study to determine the exact temperature at which it should be performed; this much, however, is known, that when the heat is about 200°, much attention should be paid to the color, for *somewhere* about this is the proper temperature. Coffee may be improved by washing in cold water and being properly dried before roasting. I have previously explained the best method of performing this operation.

By the aid of chemistry it has been discovered that there is the greatest similarity between the beverages used as stimulants, and obtained from different plants in all parts of the world. For example, in 1820, the German chemist Runge, discovered the *caffein* of coffee, and a few years after, Oudry, the French chemist, discovered the *thein* of tea—both crystalline bitter substances, containing a great quantity of carbon and hydrogen, and

but little nitrogen or oxygen. Mulder, a German, first demonstrated their similarity. The cocoa bean was next investigated, and its essence discovered, and called *theobromin*, or "nectar for the gods."

Science, after showing that the principal beverages of the civilized world are alike, did not stop here, for the Bavarian naturalist Martius, found that the fruits of a plant in South America, known there as *guarana*, contains also a substance like caffeine, when roasted, and infusions made, as is done by the natives of the country where it grows, and it produces the same effect as coffee and tea. The same is also true of *mate*, or Paraguay tea, and of the leaves of the *camini*, also used there. If we compare particularly the roasted leaves of tea with the roasted beans of coffee, we find the difference consists in tea possessing more etheric or volatile oil, which is replaced in coffee by an empyreumatic oil; there is no albumen in either infusion.

Used to excess, coffee increases the pulsation, produces congestion of the brain, and a consequent excitement of the whole nervous system; the constant mutations of substances in the body is retarded, and less urea, chloride of sodium, and phosphates are found in the secretions, all of which is due to the empyreumatic oils. Both tea and coffee diminish the appetite, by retarding the processes of digestion; yet at the same time they improve the effect of the food, by lengthening the time of its change into substances necessary for assimilation with the body. The same remarks apply equally to theobromin, only that it is much richer in oils and fats. In Turkey, the sediments of coffee are used as food; on the shores of South America the leaves of tea are eaten, and also by some tribes in Asiatic South Russia, and in some parts of China. In this case it is the nitrogenous albumen which affords the nutriment.

L. R. BRELSACH.

Gold Washes.

Gold will not dissolve in muriatic acid alone, although it will be attacked by chlorine. To dissolve it in muriatic acid, therefore, a substance must be added to liberate the chlorine. Peroxyd of manganese does this, and the gold dissolved in such a solution is a sub-chloride. The most useful and important vehicle for dissolving gold is *aqua regia*, (royal water), composed of two parts of hydrochloric (muriatic) acid, and one part of nitric (aqua-fortis). Gold is dissolved readily in this liquid; the nitrous gas escapes in dense yellow fumes while the gold is being eaten up, or dissolved, and the chlorine is set free, and unites with the gold, forming the per-chloride of the metal. The per-chloride of gold dissolves in alcohol and ether, in which condition it is employed as a gold wash for steel instruments. By dipping a polished steel instrument into an ethereal solution of gold, on the evaporation of the ether, the metal is found in a pure state adhering in a fine thin coat; delicate cutting instruments are gilt in this manner.

Lackers are sometimes called gold washes, but there is not a particle of gold in them. They are made of lac varnish, colored yellow with turmeric, or gamboge. Applied to polished metal or wood, they resemble bright brass more than gold. They are made by dissolving lac in alcohol—about half a pound to the gallon of spirits, adding half a pound of turmeric and one ounce of gamboge, then straining the mixture, after it is about a day old, through a clean piece of cotton cloth. It is then ready for use, to be put on with a brush, or the article to be lacquered dipped into it.

Patent Law Reform.

We publish on another page a bill recently introduced into the Senate by Senator Evans, of South Carolina, to amend the defects in the existing patent laws. We have not the necessary space to give it attention this week, but we will endeavor to do so in our next number.