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WASHBOARD—Silas M. Barrett, Rufus S. Lee, and Jabez M. Waters, of Cincinnati, Ohio: We claim the teeth, *d d d*, made and arranged as represented, to the edges of corrugated sheets of metal for washboards for increasing and holding the edges of the sheet of metal in and to the sides of the legs of the board, as represented, and for the purposes mentioned and described in the specification.

MACHINE FOR MEASURING, REGISTERING, AND REVERSING GRAIN DIRECT FROM THRESHING MACHINES—Peleg Barker, of Moscow, Mich.: I claim the combination and arrangement of the parts, substantially as described, for receiving, measuring, and registering grain direct from threshing machines.

I also claim in combination with the machinery for registering, substantially as described, two or more measures or boxes, constructed and operated as described, for receiving the material to be measured.

RACKING ATTACHMENT TO HARVESTERS—John A. Barrington, of Fredericktown, Ohio: I claim the reciprocating or vertically moving rack piece, *R*, operating substantially as described, in combination with the shaft, *B*, having an intermittent connection with the crane, and the rakes, *f f'*, operated from the rotation of the shaft, *A*, operating substantially as and for the purposes specified.

I also claim the combination of rakes, *f f'*, slides, *b*, to which they are hung, and the grooves, *g*, of the crane arm, substantially as and for the purposes set forth.

LOCK—Joseph A. Braden, of La Grange, Ga.: I claim the slides, *G*, placed relatively with the bars, *B B*, as shown, and provided with the stationary teeth, *h*, and yielding teeth, *h'*, in combination with the bits, *H*, placed on separate arbors, and arranged to operate as and for the purposes set forth.

[This invention consists in the employment of a series of slides provided with teeth or racks, and arranged relatively with a bifurcated bolt, into the parts of which the ends of the slides work, these parts being used in connection with a series of bits attached to separate arbors, placed one within the other, and operated by means of keys or knobs, so that the lock is rendered unpickable, and at the same time perfectly simple in construction.]

APPARATUS FOR SUPPLYING WATER TO STEAM BOILERS—George Brodie, of Little Rock, Ark.: I claim the arrangement and combination as shown and described, of the cylinders, *B B*, pistons, *D D E E*, and cisterns, *C C*, for the purposes set forth.

[A notice of this improvement will be found in another column.]

BEDSTEAD FASTENINGS—George Burket, of Crogham, Ohio: I claim forming a bedstead fastening by a straight pin through the tenon, and two oblique pins through the mortise, as set forth and represented.

MOWING MACHINE—John Butter, of Buffalo, N. Y.: First, I claim the combination and arrangement of the jointed levers, *C D E*, for the purpose of supporting the driving wheel, and giving flexibility to the machine, substantially as set forth.

Second, I claim the arrangement of the carrying wheel, *L*, near the heel of the cutter bar, so that the finger bar will pass through the wheel, and the cutter bar (or connecting rod) also vibrate through the wheel, substantially as described.

Third, I claim constructing the guard fingers so that they may be connected to the finger bar, and support it clear from the ground, and also allow the cutter bar to work on the underside of the finger bar, as set forth.

Fourth, I claim the sleeve, *W*, when connected with the spring bars, *H H*, for the purpose of supporting and adjusting the driver's seat on the axle of the driving wheel, as described.

Fifth, I claim the arrangement and support of the raker's seat on the lever, *C*, as set forth.

Sixth, I claim supporting and carrying the outer end of the finger bar, by means of the specific arrangement of the divider, *N*, wheel, *L*, and spring, *O*, as described.

METHOD OF ATTACHING ORNAMENTS TO THE EAR—William B. Carpenter, of Brooklyn, N. Y.: I claim the mode of attaching ornaments to the ear without boring or piercing holes therein by the use of the hooked shaped wire, *B*, in connection with the wire, *A*, and the spring, *C*, substantially as and for the purpose as described.

SEWING MACHINES—David W. Clark, of Bridgeport, Conn.: I claim regulating the extent of the feed by expanding or contracting the rear end of the lever, *E*, substantially as described.

WASHING MACHINES—Edward B. Clement, of Barnet, Vt.: I claim the adjustable foot brake, *V*, in combination with the slatted elbow brakes, *L L*, and connecting rods, *U U*, the whole made and operating substantially as described, and for the purpose set forth.

ADMITTING LIGHT AND AIR THROUGH STEPS, &c.—John B. Cornell, of New York City: I claim as a new manufacture an illuminating and ventilating riser for door-sills, &c., composed of a perforated and partially glazed front plate, *E*, combined with an inner inclined glazed sash, *C*, substantially as set forth.

PRESERVE CANS—H. G. Dayton, of Maysville, Ky.: I claim the employment of the rubber band in combination with a metal cover and metal clamp, substantially as set forth.

[This invention consists in the employment of an india rubber band attached permanently to the cover, in such a manner as to enable it to lap over the sides of the can and cover the joint, and keep the latter closed tightly by the shrinking consequent upon its elasticity. It further consists in the employment of an elastic metal clasp around the india rubber band to secure it in place upon the can. It is an excellent improvement, and will be illustrated in our columns in a few weeks.]

BED BOTTOM—Benjamin Griffin, of Lawrence, Mass.: I claim the mortise bar, the open link, the lifter spring with the tapered slat, when combined and arranged for a bed bottom in the form and manner as specified.

WRITING DESK—Joseph H. Grimesley and Perry J. Aukney, of New Lexington, Ohio: We claim the application to, or construction of, writing tables or desks, in the manner substantially as set forth and described.

[We publish the above just as it comes to us; but it evidences an omission of the copyist.]

MACHINE FOR CUTTING OUT STUMPS—Frederic Ketter, of Milwaukee, Wis.: I claim the circular frame, *A*, and the revolving frame, *E*, in combination with the cutting apparatus, substantially in the manner and for the purposes set forth.

APPARATUS FOR THE MANUFACTURE OF BEER—Geo. Habich, of Roxbury, Mass.: I claim the combination, arrangement, and connection of the copper, the mashing tun, the filtering vessels or vessels, and the hop vessel, substantially as specified, whereby the several operations connected with each of such parts, can be conducted through the agency of the heat, from one furnace, and steam from its copper, substantially as specified.

I also claim combin g and arranging the wort warmer with the copper, the hop vessel, the filtering vessel or vessels, and the mashing tun, so as to operate therewith substantially as set forth.

I also claim the combination of the condenser, *d*, the hop vessels, the copper, the filtering apparatus, and the mashing tun, as connected and arranged so as to operate together, substantially as specified.

I also claim the arrangement and combination of the water heater, the mashing tun, the filtering apparatus, the hop vessel, and the copper, as connected and made to operate together, substantially as set forth.

EXTENSION TABLE—William Heerd, of New York City: I do not claim, broadly, the employment or use of metal plates in the construction of slides or guides for extension tables, for they have been previously used, although, so far as I am aware, not in connection with wooden bars.

But I claim the metal plates, *a b*, attached to the upper and lower surfaces of the bars, *B B'*, *C*, swaged or so formed as to be provided with ledges and grooves, *c d*, which fit one into the other, the whole being arranged as and for the purpose set forth.

[This is an improvement in the slides or guide bars of the table, whereby the slides or guide bars are not only firmly connected with each other, but are also allowed to slide freely past each other, so that the table may be readily folded and extended, and still be kept perfectly firm in every position.]

MACHINE FOR GRINDING AND CUTTING—Franklin B. Hunt, of Richmond, Ind.: I claim the arrangement in the same machine of the two peculiarly constructed hinged adjustable troughs or boxes, *B C B'*, spring set bar, *s s'*, and cutter or grinder shaft, *E*, with spring key, *e e'*, and radial arms, *g g'*, substantially as and for the purposes set forth.

STEP WALK—Charles E. Jacot, of New York City: I claim the manner described of allowing motion to the independent train by a pin or its equivalent on the escapement lever acting on the arms of the "whip" or "fly," and letting one arm pass at each pulsation of the balance, as specified.

PLATFORM SCALES—J. F. Keeler, of Cleveland, Ohio: I claim the application of a device for leveling the bearings of platform scales, when arranged substantially as described.

I also claim combining with platform scales a weighted lever or indicator, in such a manner that the platform scales may be used either with or without it, substantially as set forth.

BENCH PLANE—H. L. Kendall, of Baltimore, Md.: I am aware that wedges have been inserted in plane mouths for compensating for wear on the under surface of the plane; such, therefore, I do not claim.

But I claim the compensating piece, *C*, formed as described, so as to be tightened by the gripe, and have its face, *f*, move parallel to itself, as specified, whereby the opening in front of the bit is not diminished by adjustment of the compensator.

DEVICE FOR ATTACHING BITS TO THE BRACE—Samuel U. King, of Windsor, Vt.: I claim the mode of fixing the tool or auger in its handle or bit stock, viz., by the projection, *b*, on the tool, in connection with the wedge *C*, and the spring, *D*, applied to the handle or stock, *A*, and the socket, *a*, thereof, substantially as specified.

REVOLVING FIRE ARM—Moses Kinsey, of Newark, N. J.: I claim furnishing the dog, *G*, with the additional tooth, *K*, arranged to operate in combination with square or equivalently formed bottom parts of the backs of the teeth of the ratchet wheel, *D*, in the manner and for the purpose described.

[The dog which is attached to the hammer is furnished with an additional tooth, so arranged relatively to the tooth which rotates the chambered cylinder, and to the ratchet wheel of the cylinder, as to act as a stop in combination with one of the teeth of the cylinder, to prevent the latter being rotated beyond the proper distance, the teeth of the ratchet wheel being properly formed for this purpose.]

CARRIAGE SPRINGS—David M. Lane, of West Philadelphia, Pa.: I do not claim, broadly, the combining of wood and steel in the manufacture of springs for vehicles, for this has been previously done.

But I claim providing the extremities of the plates, *A A'*, with sockets, *c*, to receive the ends of the wooden springs, *B B'*, as and for the purposes set forth.

[This a novel mode of constructing the elliptic spring for vehicles, whereby the spring is made lighter than usual, equally elastic, and as strong, and the cost is much reduced. The invention consists in constructing the spring of steel and wood combined—curved bars of elastic wood, such as hickory, being secured in a peculiar way to the inner and steel main plates.]

BURNERS FOR VAPOR LAMPS—C. B. Loveless, of Syracuse, N. Y.: I do not claim of itself the burner and chamber on which it is situated.

But I claim the crescent-shaped generating chamber, *d*, as described, and its arrangement with the siphon tube, chamber, *c*, and burner, *f*, substantially as and for the purposes set forth.

REFRIGERATING PITCHER—W. W. Lyman, of West Meriden, Conn.: I make no claim to a valve in the end of the nozzle, or on the lid of the pitcher, as valves have heretofore been placed there.

Nor do I claim a single valve located anywhere. But I claim in the manufacture of ice pitchers, the particular location of the valve, viz., in the throat of the nozzle, when said valve shuts into instead of against the opening, and is constructed with double sides, or made hollow, provided with a projection lip or shoulder, *f*, and having its seat provided with a lip or shoulder, *g*, substantially as shown and described.

PIANOFORTE ACTION—John V. Marshall, of Albany, N. Y.: I am aware of the existence of the patent issued to James A. Gray, March, 1857, for an action intended to effect a movement of the hammer somewhat similar to that described in my specification; but I expressly disclaim the use of mechanism like that set forth in his specification as constituting his claim, to make an action such as I produce upon the hammers of a piano-forte.

What I claim is, the formation and position of the but as described, and for the purposes set forth.

I further claim the combination of the butt spring, *S*, and back cheek, substantially as arranged, and for the purposes set forth.

DEVICE FOR OPERATING THE BOLT TO OBTAIN TAPER IN SHINGLE MACHINES—Elijah Morgan, of Morgantown, Va.: I claim the combination of the eccentric roller, *F*, the swings, *H H*, and the lever stop and switch, substantially in the manner and for the purpose set forth and described.

METHOD OF TANNING—Jesse Morgan, of Sumterville, S. C.: I claim the compound composed of saccharine matter, glauber salts, and muriate of soda, in about the proportions set forth, for the purpose of expeditiously completing the process of tanning, as described.

[A full description of this invention is given in another column.]

BREECH-LOADING FIRE-ARMS—George Wettorse, of Baton Rouge, La.: First, I claim the percussion rod in a movable breech piece, in combination with the sliding bolt, when so arranged that the lock in the act of firing, shall both make fast the breech-piece and fire the charge.

Second, I claim the construction and use of the globular surface on the front end of the movable breech piece, in combination with the end of the cylindrical cartridge case, for the purpose of more effectually preventing the escape of gas at the joint.

Third, I claim the construction and use of the lever, when arranged substantially as described, for the purpose of retracting the cartridge case.

BRAKE FOR WAGONS, &c.—Benjamin B. Munroe, of South Dansville, N. Y.: I claim, first, The brake bar, *B*, when jointed in the manner and for the purpose set forth.

Second, I claim the extension perch, constructed in the manner specified.

MACHINE FOR CUTTING IRREGULAR FORMS—William N. Oakes, of Dana, Mass.: I claim the combination of the two carriages, *B C*, having a rectilinear motion at different speeds, with the elongated pattern, tracers and cutter, for the purposes set forth; not intending to claim an elongated pattern as such, or combined with other machinery to cut irregular forms, but only its combined with two carriages having a rectilinear motion at different speeds, in the manner described.

IMPROVED HELIOGRAPHIC INSTRUMENT FOR TAKING THE SUN'S ALTITUDE—John Oakes, of New York City: I have stated that the main object of my invention is to find the altitude of the sun when the horizon is obscured; but I by no means intend to confine its application to that condition, as it is obvious that it can be used as well when the horizon is visible; but it is under the former condition that it possesses an advantage over the quadrant and sextant.

I do not confine myself to the use of any particular sensitive preparation for the concave surface of the hemisphere.

But I claim the hollow hemisphere having its concave surface prepared with a sensitive coating, and having an orifice in the center of its equatorial plane, through which to admit the sun's rays, to act upon the said sensitive coating, substantially as and for the purpose set forth.

And I also claim the graduated plate, *G*, with its appendages, combined with the hollow hemisphere, substantially as described, for the purpose specified.

[See description of this invention on another page.]

COMBINED UMBRELLA AND HEAD REST—Charles G. Page, of Washington, D. C.: I claim combining a head rest with an umbrella, as set forth.

BEE HIVES—Thomas Prosser, of Birmingham, Pa.: I claim the combination in bee hives of the labyrinthian passages, *a a*, suspended shafts, *H H*, and glass entrances, *G G*, when said parts are constructed and arranged relatively to each other, in the manner and for the purposes set forth.

RATCHET PRESSES—Philip H. Raiford, of Mobile, Ala.: I claim the combination of the eccentric pawl and ratchet with the platen of a press, substantially as described.

REVOLVING HEELS OF BOOTS AND SHOES—James H. Roome, of New York City: I claim the combination of the slotted or perforated slide, *F*, bent at its forward end as described, with the hub bed shank, *C*, and notched rim plate, *H*, arranged and operating substantially in the manner set forth.

[The nature of this invention and improvement consists in securing the revolving portion of the heel to the boot in such a way as to enable it to be readily attached and detached when desired, and revolved and secured fastened at every quarter revolution, to compensate for the inequality of wear.]

EXCAVATING MACHINE—Nathan Sanders, and F. T. Sherman, of Chicago, Ill.: We claim the extension fulcrum piece in combination with the dipper shaft, in the manner set forth, so that when the dipper shaft arrives at the point necessary for shifting the fulcrum, the fulcrum piece may be thrown into gear and be carried to the extremity of the crane for the purposes set forth.

INK ROLLERS—Alexander Schimmelfennig and Julius Ende, of Washington, D. C.: We claim to manufacture ink rollers out of elastic gums, such as caoutchouc or gutta percha, or of compounds of the latter in the modes described in the specification, or in any similar modes.

AUTOMATIC GRAIN-WEIGHING MACHINE—William and Thomas Schnelly, of Hackensack, N. J.: We do not claim to be the first inventors of weighing machines in which the weight of the grain was made to open and close valves for regulating the supply and discharge of the same, for many such machines have been made.

Neither do we claim, broadly, in weighing machines, the operating of the parts which control the supply and discharge of the grain by means of the scale beam, or by means of parts connected with the scale beam; many other machines have been made in which this feature is seen—the patent of W. H. Bramble, April 8, 1855, is an example in point. In this device a connection is made for one of the purposes just mentioned, with the scale beam; our connection is behind, or in the rear of the fulcrum. It is a great and important point to have the scale beam elongated in front, or in advance of the fulcrum, and to operate the parts which control the supply and discharge of the grain, by arms, *M M'*, in front of the fulcrum. This arrangement permits the discharge valves, *O O*, to be kept open for the full exit of the grain until the opposite tub, *I*, has been filled. The valves could not thus be kept open if they were operated by means of the rear end of the scale beam.

The use of the elongated arm in front of the fulcrum, and dispenses with the necessity of connecting rods and levers, lessens the number of points of friction, and promotes the probability of accuracy. We therefore claim the weighing of grain, &c., automatically, under a continuous flow or otherwise, without employing the gravity or weight of grain, being weighed for the purpose of checking or cutting off the supply of grain entering into the receptacles to be weighed, or for the purpose of discharging the grain from the receptacles in which it has been weighed, during the period of the process of weighing, or when the quantity of grain is being determined or weighed, substantially in the manner as set forth.

We claim providing the hopper with hinged valves, each having a lever with a weight on it, and attached thereto, when used in combination with projecting arms, which are made to operate the same, in the manner and for the purpose as set forth.

We claim the balanced valve in its location below the hopper, and above the stationary chute or bridge, when used in combination with projecting arms, cams, &c., and a pendulum with an adjustable weight, in the manner and for the purpose substantially as set forth.

We claim the toggle joints in combination with vertical hinged valves, when operated on and for the purpose as substantially as set forth.

STEAM POWER METER—George Schuh, of Madison, Ind.: I claim the combination of the one independent piston, *a*, working in its cylinder, *A*, and actuated in opposite directions alternately by the steam from opposite ends of the engine cylinder, acting successively on its opposite sides or faces, carriage, *B*, pendulum, *H*, main spring, *m*, secondary spring, *i*, friction wheel or roller, *c*, and disk, *E*, arranged for operation together, in the manner and for the purposes set forth.

Second, I also claim driving the disk, *E*, in both directions of its travel, by cords, *T*, operated by the engine, whereby the velocity corresponding to the velocity of the piston of the engine is at all times, and throughout both strokes, communicated in a positive and accurate manner to the friction wheel, *c*, for the purposes mentioned.

Third, And I further claim providing the driving cords, *T*, with compensating springs, *z*, when said cords and springs are combined for action with the re-

ciprocating disk, *E*, and reciprocating head-block, or its equivalent, of the engine piston rod, essentially as described, to prevent material pause of the disk at the end of each stroke, and irregularity in the action of the disk, by the driving pull on either cord, alternately producing stretch and the relaxing of either cord, when not acting as a driver, for the purpose of securing accuracy in registering, as specified.

HARVESTING MACHINES—Wm. H. Seymour and Dayton S. Morgan, of Brockport, N. Y.: We are aware that various modes of changing the gear and the velocity of the cutter have been used in which the adjustments are arbitrarily made, but these require skill and care on the part of the persons employed. These we do not claim.

But we claim, first, The combination of the changeable pinions and gear wheel actuating the cutters of reaping and mowing machines with their centers so situated relatively, that the changeable parts shall always exactly fit and gear when properly placed and not otherwise, the whole being arranged and operating substantially as set forth.

Second, The combination of the replacable pinions with the series of holes for the axle of the driving wheel of reaping and mowing machines, so arranged with relation to each other that while the rate of motion of the cutter is changed, the height of the cutter from the ground may be varied at the same time, the proper rate of motion for the different heights being always secured, and in such manner that the changeable parts shall always fit and gear when properly placed and not otherwise.

PUNCHING MACHINES—D. S. Sherman, of Lowell, Mass.: I do not claim the device shown in the patent of R. H. Cole, dated June 8, 1856.

But I claim the manner of punching a nut, washer, or other article from plate or bars, by forcing it half way out (or more or less) in one direction into a die, and then forcing it entirely out in the opposite direction into another die, for the purpose of making the outside edges of the nut perfectly square and free from a sharp or burr edge, substantially as described.

PROVISION CUTTER—Wm. Smith, of Cincinnati, Ohio: I claim the arrangement of the semi-cylindrical piece, *M*, and guide slides, *R*, arranged with the stock, *a*, and circular plate, *f*, all as constructed for feeding the provision to the cutters as mentioned.

I also claim the arrangement of the screws, *J J K*, and *S*, with the cutters, *h*, and plate, *f*, for adjusting the cutters from and to the plate, as represented, for purposes mentioned in the specification.

BEDSTEAD—Wm. St. Charles, of Fairmont, Va.: I do not claim, separately, any of the parts described.

But I claim the combination of the old devices newly arranged in the following manner—The collar, *L*, the tenons, *A B C D*, the holes, *A B C D*, the nuts, *e f g h*, and cylindrical bearded wire, arranged in combination with the construction of the head and foot board, *I L L*, the whole being arranged to operate conjointly as and for the purposes set forth.

TAILORS' PRESSING MACHINE—L. B. Storrs, of Canton, N. Y.: I do not claim, broadly, the application of a treadle to a pressing iron, for this has been previously done, and may be seen in hat pressing and analogous machines.

But I claim the lever, *C*, arm, *F*, "goose," *H*, and treadle, *D*, when connected together and arranged relatively with each other and the press board, *J*, so as to operate as and for the purpose set forth.

I further claim the particular manner of connecting the "goose," *H*, to the arm, *F*, as shown, viz., having the "goose" provided with the spindle, *m*, which passes loosely through the sphere, *K*, of the universal joint, *i*, whereby the "goose" is allowed an independent rotary movement, it being understood that I do not claim the sphere, *K*, and fork, *l*, with its shank fitting in the arm, *F*, for this is the usual universal joint, but only the peculiarity attending the connection of the "goose" to the sphere, as set forth, in connection with the sphere and fork.

[This invention was illustrated and described on page 312, Vol. XII, Sci. Am.]

METALLIC CAPS FOR BOTTLES, JARS, &c.—Wm. J. Stevenson, of New York City: I claim the construction of the cap, *B*, with the band, *d*, fitted and united to the exterior of a rim formed upon its head, and with a lap, *f*, which is fastened or simply tacked so as to be capable of being laid hold of to strip the band from the exterior of the head substantially as described, when it is desired to open the bottle or vessel.

[This invention consists in a certain construction of metallic caps for preserve bottles and jars and other vessels, which affords great facility for their removal after having been cemented on to the bottles or vessels for the purpose of sealing the same hermetically.]

SMUT MACHINES—Duncan M. Vance, of Urbana, O.: I do not claim the air suction apparatus, *e*, nor do I wish to be confined to its use in connection with the other parts of my invention, for though of advantage it can be dispensed with and external air be admitted directly into the ends of the fan case. Either one or both of the rubbers may have motion, though the best results are produced when both rubbers move in opposite directions.

What I claim is, first, The reciprocating wire cloth rubbers, *g* and *h*, in connection with a rotary fan, constructed and operating substantially as described.

Second, The double inclined grain screen, *c*, combined with reciprocating rubbers, substantially as described and for the purposes specified.

[An engraving and description of this invention will appear in a few weeks.]

HYDRAULIC RAMS—J. F. Warner, of Philadelphia, Pa.: I claim using the water after passing the puppet valve by conducting it to a vessel or cup or basin, having a waste opening, or openings in the bottom, and used as a power upon a lever or beam to overcome another power which is greater when the cup is empty, and less when the cup or basin is full. The conducting pipe, *D*, the closed valve chamber, *A*, the set screw, *I*, fixed over the valve, the fulcrum, *H*, and beam or lever, *G*, all the parts as substantially set forth or used in combination for the purpose of keeping any hydraulic ram to which it may be attached in motion.

DOOR LOCKS—L. Whitney, of Toledo, Ohio: I do not claim the sliding bolt, *C*, and tumbler, *D*, operated upon by a bit, *a*, for this is a well-known and common device used in the majority of locks.

Neither do I claim attaching a knob, *F*, to an arbor having a bit, *a*, at its inner end, for this or its equivalent is used in cases where the arbor passes entirely through the lock and door.

But I claim the combination of the slotted plate, *H*, arbor, *E*, and washer, *G*, as shown, and described.

[This invention is designed for an inside lock or bolt, and is intended to supersede the usual slide bolts and catches hitherto employed for such purposes. The invention consists in the peculiar manner of securing the arbor of the knob in the lock, said knob having a bit attached to its inner end, and operating the bolt as the arbor is turned, the device forming a neat and ornamental affair suitable for buildings of a superior class.]

HARVESTERS—Thos. Wendell, of New Albany, Ind.: I claim the arrangement of the rake, *c*, on the endless belt, *b*, operated around and below the stationary platform, *C*, in the manner set forth, in combination with the shaft, *c*, belt, *d*, and lever, *H*, when these several parts are constructed and arranged and operated in the manner and for the purpose set forth.

SASH FASTENER—J. B. Whitherle, of Upton, Mass. I claim the combination and arrangement of the retractor, K, the pall, or catch, g', the spring, h, and the lever, d, applied in the window sash and in relation to the rack, b, of the sash frame, as specified.

PLANING MACHINE—J. A. Woodbury, of Winchester, Mass. I claim, first, Protecting the face of the board in tonguing and grooving by pressure surfaces, constructed and operating with rotary cutters as described. Second, The swivel guide, L, when made to operate substantially as described.

Third, Placing the under cutter at or near the end of the frame for the purpose specified, substantially as described.

APPARATUS FOR SUPPORTING AND ADJUSTING GRAVERS FOR ENGRAVING MACHINES—John Hope (assignor to himself and Thos. Hope, of Providence, R. I.). I claim the curved arm or bar, B, and the graver carriage, D, as combined, together and with the graver lever, E, and made to operate therewith, substantially as specified.

I also claim the adjustable weighted arm, F, in combination with the balanced tracer arm or graver, E.

I also claim constructing the tracer carriage, D, in two parts, b, substantially as described, in order that the tracer or graver may be adjusted in a vertical direction to cylinders or rollers of different sizes.

I also claim making the arm, H, and the stop, L, adjustable on their shaft and rod as described, in order to bring them into proper positions to cause the elevation of the graver under any situation of it on the surface of the cylinder and when the lever, S, is moved backward.

I also claim making the weight, G, in two parts, I, m, for the purpose specified.

MACHINE FOR FINISHING SOLDERED TUBING—Edmund Jordan (assignor to the Benedict & Burnham Manufacturing Company), of Waterbury, Conn. I claim the files or cutters, c, c, attached to a tilting stock which is fitted to a reciprocating slide, F, and operated by means of the connecting rod, D, crank, C, and stops, G G', substantially as and for the purpose specified.

I further claim the clamp formed of the two plates, I, I, attached to the levers, H, H, which are connected to a treadle, K, the whole being arranged to operate as and for the purpose specified.

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

EXTENSION TABLE—George Pratt, of Boston, Mass., assignor to John A. Ellis, of Cambridge, Mass., and J. E. Hazleton, of Newton, Mass. I do not claim a spring catch, nor the mere duplication of such.

But I claim the combination of the auxiliary turning stop h, and its recess, g, or the equivalent thereof with the main stop, f, applied to one of the slides, and the rebate made in the other, the whole being as and for the purpose described.

I also claim the combination and arrangement of the two spring catches, m, n, catch bars, q, r, and the space, p, whereby during the motion of the supporter, S, on its hinges, one catch is made to pass between the two catch bars and one catch bar to pass between the two catches.

SEWING MACHINES—A. W. Sangster (assignor to V. M. Rice, Joel Taylor, James Sangster, and Eliza Remington), of Buffalo, N. Y. I do not claim the hook detachable from the shuttle, because I believe this has been made before; nor do I claim to have conceived the idea of making the rough or serrated foot piece, because serrated foot pieces are now in common use.

But I claim, first, The spring thread carrier, K, in combination with the stationary arm, L, and feeding mechanism operating together in the manner and for purpose specified.

Second, The combination of the shuttle, R, and hook, 7, fastened together, or their equivalents, operating substantially in the manner and for the purpose described.

Third, The shuttle carrier, U, the case, S, and the crosspiece, P, when operating together substantially in the manner and for the purpose described.

HOSE COUPLINGS—Charles Vander Woerd (assignor to Alvah Clark & Sons), of Cambridge, Mass. I claim the arrangement and combination of an elastic tube, E, with the heads of the couplings, A, B, so as to cover the joint, j, and allow the same to be kept tight by the pressure of the liquid, substantially as shown and described.

[This invention consists in the employment of an elastic tube or ring placed within the coupling, and arranged in relation to the other parts that the pressure of the water within the hose will keep the coupling water-tight. There is also a peculiar means for connecting the heads of the coupling together.]

MODE OF APPLYING THE POWER OF THE STEAM ENGINE—Jacob Widmer (assignor to himself and Howard Gilbert), of New Haven, Conn. I claim, first, The combination of the rack, d, with the cams, B, B, and grooves, b, when constructed, arranged and made to produce the result, substantially in the manner set forth.

Second, I also claim the combination of the levers, h and b, with the rack, d, and cams, g, and B, B, when the whole is constructed, arranged and made to operate substantially as described.

RE-ISSUE.

ELECTRO-MAGNETIC ALARMS—A. R. Pope, of Somerville, Mass. Patented June 21, 1853. I do not claim the communication of intelligence by the electric circuit and magnet as a part of my invention or the vibration of the armature for this purpose.

But I claim, first, The mode of breaking and completing the circuit, or vice versa, that is, by the spring circuit breaker operating to cause the vibration of the armature.

Second, So combining a hammer and bell with the self-vibrating armature, that the vibrations of the latter shall produce a continued ringing of the bell under circumstances substantially as described.

Third, The combination of these parts, namely, the circuit breaker, hammer bell, and vibrating armature, or their equivalent or equivalents, with a self-acting spring or key in a door or window to operate so as not only to bring them automatically into action when the door or window is open, but maintain a continuous or continued ringing of the bell by the interruption of the electric current without intervention of other machines.

ADDITIONAL IMPROVEMENTS.

POLISHING APPARATUS FOR WATCHMAKERS' LATHES—J. M. Bottum, of New York City. Patented March 13, 1855—additional improvement dated June 8, 1858. I claim the construction and arrangement of the polishing apparatus combined with the parts claimed in my former patent, as and for the purposes specified.

TIGHTENING THE TIBES OF CARRIAGE WHEELS—R. R. Scott, of Philadelphia, Pa. Patented March 23, 1858—additional improvement dated June 8, 1858. Disclaiming the exclusive use of two sets of taper keys for drawing together the two ends of the tire, I claim the ends, B and C, of the tire, with their respective slotted blocks, b and c, the taper keys, and the bolt, G, when arranged for joint operation substantially as and for the purpose set forth.

DESIGNS.

STOVE DOORS—R. H. N. Bates, of Providence, R. I., assignor to Isaac Backers, of Canterbury, Conn., and J. P. Barstow.

A New Gnomon.

A correspondent informs us that a friend of his has invented a new gnomon for sun-dials, which is simply a piece of thread or twine carried at an angle from the center of the dial to a post set at one side. This gives the time at noon with accuracy, which no other gnomon will do.

Dialing.

MESSRS. EDITORS—From the notice of sundials in a late issue of the SCIENTIFIC AMERICAN, I am led to make the following remarks:—

There is no more beautiful or ingenious instrument than the sundial; when correctly made and its use properly understood, it can present the true time with an unvarying exactitude to be found only in the works of the Divine Artificer, upon which its power depends. The only difficulty lies in the variable nature of the shadow's progress through the varying nature of the sun's course, which will give a different reading to the hour circle from the mean, or average or clock time. While the dial indicates solar time, varying with the season, the clock presents equable or mean time, being the precise or exact division of the hours and minutes to their equable length, yet there is no real difference between the two. They both come to the same conclusion, and both precisely accomplish in a given period their due degree. Hence with the smallest possible trouble it is easy to find the very thing sought, and at any time to discover the true clock time. The following table will answer for such indication to any person using a dial:

The sun's center is on meridian, and the dial shows noon on	H. m. s.
Jan. 1, when the clock times shows	12 4 3
Feb. 1, " "	12 13 57
Mar. 1, " "	12 12 32
April 9, " "	12 0 0
May 9, " "	11 56 55
June 9, " "	11 57 31
" 21, " "	12 0 20
July 1, " "	12 3 29
Aug. 1, " "	12 6 00
Sept. 1, " "	11 59 46
Oct. 1, " "	11 49 35
Nov. 1, " "	11 43 43
Dec. 1, " "	11 49 23

By this it will be easy to see how much difference should be allowed for the equation of time, and at any period to find the clock time by the dial indication.

It must be remembered, however, that a dial to be exact must be most carefully placed. Simply setting a dial north and south is not at all sufficient. Pains must be taken to secure a true meridian, and before the dial is located, that meridian should be found with great exactness, so that in setting the dial (if horizontal) the gnomon shall be perfectly adapted to the true meridian of the place where it is to stand.

It would seem that an agreeable and really useful accompaniment to the dial would be a prolongation of the horary circle, sufficient to allow the scale of signs to be inscribed, and the style to track out the sun's path through the heavens, and thus unerringly indicate his place in the ecliptic. If in either side of the astronomic signs the names of the months were written, it would be a most pleasing occupation to notice month by month the progress of the sun in his vibrations backward and forward, and to children it would show clearly the motion of that planet. R. W.

[The above communication on the construction of sundials is not only interesting but valuable, and the facts contained have the freshness of positive experiment, and are consequently of interest to our readers.—Eds.]

Inter-oceanic Canal to the Pacific.

MESSRS. EDITORS.—In the last number of your paper I notice an article on the "Inter-oceanic Canal to the Pacific," which, so far as the report of Lieut. Craven is concerned, is perfectly accurate, but is, I think, calculated to mislead those who are not acquainted with the previous history of the project; and as the subject is one of great and universal interest, it is important that no undue prejudice be raised against it.

The proposed route was originally explored by W. Kennish, Esq., C.E., whose plans and estimates were published on his return, and submitted to the consideration of eminent engineers, both of this country and in Europe. Their opinion as to the practicability of con-

structing a canal, without locks, sufficiently capacious for the passage of the largest vessels from ocean to ocean, was unanimously favorable, provided the data furnished by Mr. Kennish should be found correct. The expedition under Lieut. C. was therefore sent, not to survey any new route, nor to make further explorations, but merely to verify the statements of Mr. Kennish. He has not contradicted a single one of these statements so far, and his hasty condemnation of the project is, therefore, wholly without reason, for all the difficulties he urges against it were met and estimated for, in the report of the original survey. In this state of the case it is impossible to pronounce judgment until the report of Lieut. Michler, Topographical Engineer of the late expedition, shall have appeared, when the question will be settled by the scientific world.

These facts should be made known, in justice to the promoters of an enterprise of which, if successfully completed, the whole world may well be proud. Yours,

JAMES A. ROCKWELL.

New York, June, 1858.

A Pleasant Testimonial.

MESSRS. EDITORS—I took out two patents through the Scientific American Agency, bearing date April 21st and July 21st of last year, and I now wish to return you my sincere thanks and good-will for the reliable and beneficial information I received from you and your Examiners. You gave me no trouble in securing my rights; and I now discover that you have made my claims to cover both inventions much broader than I expected, which has made my claims of much more value to me. I shall soon have another case, and shall surely call at your Patent Agency to have it prepared.

JOHN WOODVILLE.

Chillicothe, Ohio, June, 1858.

[We are gratified to receive this pleasant testimonial from our client, and to learn from him that, in consequence of the care taken in the drawing up of his claims, his patents are, on this account, much more valuable to him. It is notorious that inventors who undertake the preparation of their own cases are generally not only bothered very much by the Patent Office before their claims can even be examined, in consequence of defective papers, but when they do succeed, it is rarely, if ever, that their claims can stand a litigation.—Eds.]

Successful Copper Mining in Australia.

On the 29th of September, 1845, the work at the famous Burra Burra mines was commenced by twelve miners; they now give employment to 1,031 miners, and support a population of nearly 5,000 persons. Since the commencement of the working, the mines have produced 128,400 tons of copper ore, yielding 25,700 tons of copper, which, at the present moment, would be worth in Adelaide \$13,415,000. The wages distributed in these mines amount to \$4,125,000, while the dividend paid on each \$25 share amounts to \$1,000. The present value of its shares is \$1,600,600. Such an instance of successful mining operations has rarely, if ever, been witnessed in any country.—*American Mining Chronicle.*

Cotton Mills in Saxony.

The kingdom of Saxony possesses, as the mother of the German cotton mills, the largest number of any of the German States, viz., 139 mills, working 554,646 spindles, with a yearly consumption of 34,200 bales of North American cotton, and 34,000 bales of other kinds. A large mill has just been built which will run 50,000 spindles, and consume yearly about 3,500 bales of North American cotton, and 2,000 bales of other kinds. The total number of mills now in working order is 134, running 604,646 spindles, and consuming annually 36,700 bales of North American, and 36,000 bales of other kinds. The largest mill has 50,000 spindles in working order, and the smallest 120 spindles.

Uses of the Potato.

This valuable and nutritious esculent is not only useful to us in the many tempting forms in which it is presented in its unmistakable character, but the farina extracted from it is largely used for other culinary purposes. The famed gravies, sauces, and soups of France are largely indebted for their excellence to that source, and its bread and pastry equally so; while a great deal of the so-called Cognac imported into America from France is the product of the potato, and imbibed as the pure essence of the grape. The fair ladies of our country perfume themselves with the spirit of potato, under the designation of *eau de cologne*. But there are other uses which this favorite esculent is turned to abroad. After extracting the farina, the pulp is manufactured into ornamental articles, such as picture frames, snuff-boxes, and several descriptions of toys, and the water that runs from it is a most excellent scourer. For perfectly cleaning woollens and such like articles, and curing chilblains, it is also successfully employed.

Recent Patented Improvements.

The following inventions have been patented this week, as will be found by referring to our List of Claims:—

FEEDER FOR STEAM BOILERS.—George Brodie, of Little Rock, Ark., has invented a new feeder for boilers, the object of which is to gradually supply steam boilers with water equal at all times to the amount evaporated, and used so that the water within boilers will be constantly kept at a given height, and by the most simple means, requiring the least possible expenditure of power for its operation.

MACHINE FOR FINISHING SOLDERED TUBING.—Edmund Jordan, of Waterbury, Conn., has invented an improved machine for finishing soldered tubing, in which a peculiar means is employed for operating a file or cutter for the purpose of filing or finishing off the soldered seams of the tubes, and there is also a clamp for holding tubes while being operated upon by the cutters. The inventor has assigned his invention to the Benedict and Burnham Manufacturing Company of the same place.

IMPROVED PROCESS OF TANNING.—Jesse Morgan, of Sumterville, S. C., has invented an improved method of tanning leather, which consists in treating hides or skins when they have been partly tanned by the usual process, with a compound of sugar or other saccharine matter, glaubers salts and chloride of soda, for the purpose of completing the tanning process more expeditiously than when it is completed in the usual way, and at the same time making leather equal in quality, weight and durability to that tanned entirely by the old process.

HELIPSOMETER.—This is an instrument for taking the altitude of the sun at sea or on land, to which the inventor, J. Oakes, of New York, has given the above name. The end attained by this instrument is, that with it the altitude of the sun can be taken when the natural horizon is obscured by fog or is invisible from other causes. It consists of two parts, one of which is employed to record the altitude by the action of the sun's rays upon a sensitive coating of similar nature to those employed in photographic processes, and the other to measure the altitude thus recorded. The first mentioned portion of the instrument consists of a hollow hemisphere whose equatorial plane is kept in a horizontal position or as nearly so as possible, and has a small orifice in the center, and whose concave is prepared with the sensitive coating. The rays of the sun being admitted through the orifice produce a mark upon the sensitively prepared concave surface, and by applying the measuring portion of the instrument to measure the distance in degrees of a circle from the equatorial plane of the hemisphere, the altitude is obtained, being represented by the said distance in degrees.