

**IMPROVED VARNISH FILTER.**

Jerome Rich, Jackson, Mich.—This is a tube, in the bottom of which is a filter suitable for filtering the dust out of carriage varnish. Below the lower end, which is conical, is a conical cup valve attached to a rod sliding up and down the tube, to close the filter to prevent any gum or skins from entering it as it passes down to the bottom of the can for filling, also to open the filter and let the varnish in from the bottom of the can. It is intended to draw the varnish from the filter by a liquor thief, the filtering tube meanwhile to remain in the can, and to be corked at the top to protect the varnish from the dust of the atmosphere.

**IMPROVED ORE CONCENTRATOR.**

Charles Crane and David F. McKim, Parley's Park, Utah Ter.—This invention consists of an endless carrier, slightly inclined laterally, along the upper side of which, near the receiving end, are spouts with fan-shaped corrugations, for distributing the slime in thin layers on the carrier as it slowly passes along. Near the other end are spouts for discharging clear water, for washing the matters received from the other spouts while being carried along under stationary brushes arranged above the carrier for stirring the matters on it. Below the carrier is a sluice for receiving the tailings washed off from the lower edge of the carrier, and at the end is a box to receive the ore. The box is divided parallel to the longitudinal axis of the carrier, to separate the ore into two grades. Directly behind where the ore falls into the box is a perforated pipe for discharging jets of water up to the carrier, for washing off any particles that may adhere to it.

**IMPROVED APPARATUS FOR PUMPING SHIPS, ETC.**

Charles Huxford, Edgartown, Mass.—This consists of a paddle wheel mounted on a float and dragging astern of the ship, so as to be revolved by the water and having an endless rope fitted around it, and around a pulley on the ship, in such a manner that the rope is made to work the pump, and thus save the working of it by hand in ships not having steam power.

**IMPROVED CARTRIDGE BOX.**

Charles K. Howe, Hallowell, Me.—This box is so constructed as to allow only one cartridge to be taken out at a time. It may be attached to the shoulder rest of a pocket rifle, or carried in the pocket. It is formed of a ring-flanged block, having holes (for the cartridges) in different radial planes, and covered by a slotted centrally pivoted disk, that has a flange overlapping the flange of block. It is a convenient device for carrying revolver or pistol cartridges, as well as those of rifles and larger fire arms.

**IMPROVED SYRINGE.**

Reinhold Vander Emde, New York city.—This invention consists in improving upon the ordinary syringe caps, made of soft rubber, by using a centrally perforated exterior cap, provided with a flange that fits around the end, and an interior groove that fits over the rim of the barrel. This offers a better guide and stuffing box for the piston rod, and allows of the same being readily removed for refitting.

**IMPROVED DUMPING SCOW.**

Daniel Dailey, New York city.—This is an improved dumping scow, from which the refuse may be readily and conveniently dropped for submersion. It consists of a scow divided by a longitudinal center bulkhead and lateral brace walls into compartments, which are each closed by hinged bottom gates that are raised or dropped by chains winding on a top shaft.

**IMPROVED METHOD OF UNITING PIECES OF LEATHER, ETC.**

George V. Sheffield, East New York, N. Y.—This is a new method of uniting pieces of leather, cloth, etc., by looping an under thread through a loop of the needle thread and drawing the under thread loop up to the surface by the needle thread, thus quadrupling the lower thread in the work, and binding the same by the upper thread, and connecting these quadrupled threads from hole to hole by a thread on each side of the work. The method is mainly designed for uniting boot and shoe soles with a waxed thread.

**IMPROVED COMPOSITION FOR DENTAL PLATES, ETC.**

Cornelius Reagles, Schenectady, N. Y.—This is an improved compound for dental plates, and for the various purposes for which ivory, gutta percha, and hard rubber are used, which may be molded, pressed, sawed, turned, planed, carved, inlaid, polished, etc., shall not be liable to combustion, shall have great tensile strength, and in the liquid form will make a waterproof varnish of great toughness and brilliancy. The ingredients are pyroxylin, compound ethylated camphor, flexible lac, rubber shavings, Canada balsam, and white wax. The important feature is the combination of india rubber and cellulose.

**IMPROVED CENSER.**

Rev. James J. Dunn, Meadville, Pa.—This invention consists of a reticulated pocket, for holding the charcoal, with a lamp burner arranged under it for igniting the charcoal more conveniently and maintaining the fire longer than can be done in the close fire pot of the ordinary censer, in which the fire often dies out before the service is over for want of air.

**IMPROVED ARTIFICIAL LEG.**

Joseph B. Warner, North Dighton, Mass.—This invention relates to an improved knee joint, by which it is impossible for the joint to bend while the weight is upon it. The lower section of the artificial leg is suspended by a sliding strap from the upper section, in connection with a slotted guide band of the detached knee piece, supporting the upper section and causing it to bear tightly on the sliding band when the weight rests on the leg.

**IMPROVEMENT IN PLATING METALS.**

Charles S. Minchew, Taunton, Mass.—This invention consists in a new process of plating Britannia ware with silver, whereby the ware may be made much harder and lighter and the resonance of solid silver ware imparted to the plated goods. The invention extends generally to the plating of all of the baser metals with the more precious metals, and to the process has been given the name of "impulsive plating," to distinguish it from the ordinary methods of plating. The invention consists, first, in the method of cleansing the articles to be plated by nascent hydrogen liberated by the electric current from a hot alkaline solution; and secondly, in depositing a thin coat of the precious metal, then heating the coated article, and afterwards suddenly cooling it, the steps of depositing the metal, heating, and cooling being repeated in succession until a sufficient thickness of plate is obtained. When the coated metal is first heated, the pores of the base metal expand and a partial vacuum is produced. Atmospheric pressure forces the thin coat of the precious metal into the opened cists, and the sudden cooling produces a contraction of the under metal, which seizes and holds the precious metal that is driven in.

**IMPROVED PILL MACHINE.**

Jacob Dunton, Philadelphia, Pa.—This invention relates to an improved machine for making pills by compression, and it consists in a movable or detachable compression chamber or powder receptacle, in combination with two movable dies having concave ends, the upper one of which forms the plunger, and the lower one of which is made short and is adapted to be driven through a hole in a base piece together with the pill. The invention also consists in the construction of the base piece, which is provided with a

hole terminating in a laterally discharging curved chute, through which the pill and lower die are driven out of the chamber into a convenient position; and it also further consists in the combination with the powder receptacle of the base piece provided with guides, which permit the powder receptacle to be shifted from its position for compressing to its position above the hole for discharging the pill without misplacement and without the delicate adjustment which would be otherwise required.

**IMPROVED DEVICE FOR DETACHING HORSES.**

Josephus T. Willis, Pushmataha, Ala.—This consists of locking sleeves, sliding at the ends of the whiffletree to lock or release the catches that retain the traces. The bands are moved by levers connected to a fulcrumed center lever, governed by a forked lever and strap from the carriage. A pin strap extends from the main strap to a hole of the whiffletree, to lock the sleeve and allow the detaching of the traces only after withdrawing the pin.

**IMPROVED AIR GUN.**

Wilhelm Hebler, New York city.—This air gun is designed to reach the range of an ordinary rifle. The essential feature consists in a novel combination and arrangement of valves and other devices, in connection with the air-compressing chamber, whereby a very large amount of air may be compressed, which by its high expansive force throws the ball a long distance.

**IMPROVED PHOTOGRAPHIC PRINTING FRAME.**

Claude Léon Lambert, Paris, France.—This invention relates to certain improvements in photographic presses for working off positive proofs from the negative; and it consists in a casing having openings covered with glass of the size and shape of the outlines of the picture, upon which glass openings the negative is placed. A hinged leaf, provided with apertures corresponding to the openings, but a trifle smaller, is then fastened down upon the negative; and the sensitized paper being placed in little compartments above these apertures, a set of little doors, lined with felt, are shut down, and held in place by bearing springs on the lid, which, being fastened, holds the press tightly together.

**IMPROVED TRUNK.**

William J. Large, Brooklyn, N. Y.—This trunk is so constructed that the tray may be conveniently raised to obtain access to the body of the trunk, which may be conveniently moved from place to place. To the tray are connected vertical slides, which traverse ways in the sides of the trunk, and which support it when lifted above the body of the trunk, to allow access with the latter. There are several ingenious devices connected with this general feature.

**IMPROVED ORNAMENTAL LINKS FOR NECKLACE CHAINS.**

Shubael Cottle, New York city.—This invention consists in long hollow links, having holes at the ends of the slots of a larger diameter than the end parts of said slots, and having a small plate inserted in one end to receive the ends of the open ring. In this way a strong and beautiful necklace is produced from a comparatively small amount of material, while at the same time it has the appearance of being very heavy.

**NEW MECHANICAL AND ENGINEERING INVENTIONS.****IMPROVED PUMP.**

George Washington Johnson, Yarmouth, Canada.—This invention improves the construction of the pump known as the Sluithour pump, so as to adapt it to be used on shipboard, and in other places where the pump should work continuously without danger of stoppage or delay from choking. A number of useful improvements are added to allow any obstruction to be conveniently removed from the valves or suction pipe, to enable the pump to work smoothly, to be conveniently sounded, and to admit of an even motion of the pump buckets to be produced when worked by a crank and fly wheel.

**IMPROVED GRINDING AND HULLING MILL.**

Elam Morrison Query, Harrisburgh, N. C.—This invention consists in constructing a grinding and hulling machine with reversible and, therefore, self-sharpening teeth on the cylinder and concave.

**IMPROVED AUTOMATIC STOP MOTION.**

Augustus A. Hagen, New York city.—This is an improved automatic stop motion for feed wheels in tobacco-cutting and other machines; and it consists of a fulcrumed lever, that operates by contact with a raised part of the feed screw, a transverse slide piece, and, by a connecting swinging slide, the spring pawl of the ratchet feed wheel, so as to throw the same out of gear.

**IMPROVED NUT LOCK WASHER.**

Isaac Van Kuran, Omaha, Neb.—This is an improved elastic washer for the nuts of rail joints and similar purposes, and consists of the base plate of the washer, with a large central opening, holding by side lips the elastic top plate in a central position. The device is cheaply made, and the drilling of holes and riveting is avoided.

**IMPROVED LOCOMOTIVE ROCKER SHAFT AND BOX.**

John T. Crowther, Carbondale, and William J. Crowther, Urbana, Ill.—This invention consists in an open bushing, made in one or two pieces, and provided with three sets of oil holes, in combination with the rock shaft and the box; and in the rock shaft made with three key seats in each end, the key seats in the one end being opposite the centers of the spaces between the key seats in the other end, to enable the shaft to be adjusted in six different positions. It is well known that the rocker shafts of locomotive engines soon wear oblong, which causes a loss of motion to the valves, and a corresponding loss of power to the engine. The present device enables the shaft to be repaired easily and quickly, and without disarranging in the least the valve motion.

**IMPROVED PUNCHING AND SHEARING MACHINE.**

Austin W. Comstock, Mount Pleasant, Iowa.—This machine is adapted for punching and shearing off flat and round iron, plates, bars, and rods. It consists of two levers fulcrumed to supporting standards, and provided with front jaws, having punch and die for perforating the plate, which is held by hooks of the lower jaw. The rear ends of the levers have square recesses for shearing off round and flat bars.

**IMPROVED CRIMPING MACHINE FOR LEATHER.**

Chas. M. Robinson and John F. Lister, Newton, Iowa.—The purpose of this invention is to provide a machine for shoemakers' use, to facilitate the work of crimping the leather for the uppers, cutting out the soles, and pressing the same into the proper form to fit the last without lap hammering. The invention consists in a table having a lever pivoted thereto at one end by means of links, and operated at the other end in vertical direction, to produce the necessary pressure by means of a secondary lever, to be worked by hand, which lever carries a crosshead, one end of which is pivoted to the first lever, and the other end to a set of links, pivoted at their lower ends to the table, which arrangement gives a compound motion for the operating lever, between which and the table the crimping, stamping, and pressing devices are contained.

**IMPROVED COCK AND FAUCET.**

Charles K. Dickson, Jr., St. Louis, Mo.—This invention consists in the combination of a three-armed head with the plug of a three-way cock, in such a way that the said arms may be directly

over the openings of said plug, to indicate the position of said openings with reference to the three pipes of the cock. This device, we learn, has already been adopted by the Water Commissioners of St. Louis, Mo.

**NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.****IMPROVED DOOR CHECK.**

Edsell W. Chamberlain, Sullivan, O., assignor to himself and J. W. Spencer, same place.—This invention consists in forming a reversible door check of two pieces, one of which has a pivot, base-plate, and check studs, and the other a latch and check; the whole to be used in connection with a spring. The device is composed of but two castings, ready to receive the spring and to be applied to doorways without drill, file, or other tool, at very small expense. It serves as a right or left check by simply changing sides.

**IMPROVED SASH FASTENER.**

Lloyd J. Earl, Pittsburgh, Pa.—This invention relates to certain improvements in that class of sash locks which have an arched head or binding surface, which bears either against the window sash or is pivoted to the window sash, and binds against the window frame, for the purpose of holding the window sash in any desired position; and it consists in means for tightening a continuous band of leather or rubber about the face of the holder to prevent scratching the paint. The invention also consists in a sliding bolt passing through a lug on said holder, so as to enter a socket of the window frame, and having a shoulder upon one side, so that, when the bolt is in the socket and turned, it cannot be withdrawn. The invention also further consists in the particular form of the socket made to receive the bolt, the same being made in the form of a wedge with a hollow head and flat face, which socket is to be driven into the window frame.

**NEW AGRICULTURAL INVENTIONS.****IMPROVED GRAIN BINDER.**

Joshua A. Kay, Melbourne, Colony of Victoria.—This is an apparatus for tying knots in single or double string, being mainly intended to be used in grain binders for tying knots in strings around sheaves of grain. The invention consists of certain tools, implements, or devices for tying knots together, with the mechanisms for imparting the necessary motion thereto. These devices consist, primarily, of a prolonged looper, a horizontally sliding hook, a rotating hook, and a hooked finger and thumb; and secondarily, of a needle, a knot slipper, a fixed hook, a top, bottom, and middle cord catcher, a holder, and a cutting knife, by the joint working of all of which inside of an oblong casing or knotting box the knots are produced.

**IMPROVED PLOW SHOULDER.**

Joseph G. Blount and Elias Haiman, Columbus, Ga.—This consists of a shoulder for the upper end of the plow plate to rest against, which may be adjusted as a longer or shorter plow plate is used, or as the plow plate wears away.

**IMPROVED CORN PLANTER.**

Charles A. Andersson, Mineral Ridge, Iowa.—This is an apparatus which plants the corn accurately without previously marking the land, and can be readily changed from a self-dropper to a hand dropper, as desired. The new features consist in combining, with a seed hopper having perforated walls and false bottom, a spring having points that pass through and hold the bottom; also, in combining seed plates and crank levers, connected by a rod having pairs of arms, with a rotary wheel having two inclines diametrically opposite and on different sides. The two rims and the alternate arms insure the uniform revolution of the wheel, even when the ground is rough.

**IMPROVED CULTIVATOR.**

Silas Walton, Moorestown, N. J.—This invention relates to an improved cultivator, so constructed as to pulverize the soil and pass clods and rubbish without clogging, having the blades so extended from the frame and so placed that they lift and pass under the vines and lateral parts of plants, thus allowing the earth to be thrown under them, and so adjusted as to be used as a cultivator only, by pulverizing the soil and leaving it flat, or used as a cultivator and plow combined, by both pulverizing and ridging the soil at the same time, either to or from the rows of plants, as desired. It consists in the combination, with the main beam and hinged arms of a cultivator, of certain standards which are in shape and position curved, downward and outward, terminating at the outward end with a vertically inclined stem, made concave on its upper edge, to carry reversible metallic hoes or blades.

**NEW HOUSEHOLD ARTICLES.****IMPROVED BROILER.**

Frederic Martin, Jr., West Jefferson, O.—This is an improved culinary vessel, that may be employed for broiling and baking, roasting coffee, and other purposes. It consists in a flat-bottomed case, having a lid with a central hole, provided with a pan having central bottom hole, and having a vertical crank shaft with stirrers thereon.

**IMPROVED COMBINED TABLE KNIFE AND SPOON.**

James Higgins, Detroit, Mich.—This inventor has arranged a spoon bowl-shaped cavity in the blade of a table knife, near the point, but without destroying the integrity of the edge, point, and back of the blade, so that the latter remains in suitable form for its functions.

**IMPROVED HEATING STOVE.**

Marius C. C. Church, Parkersburg, W. Va.—This invention relates to certain improvements upon the heating stove, for which letters patent No. 167,497 were granted the same inventor September 7, 1875, and it consists in the particular construction and arrangement of the parts in which the smoke pipe is connected with the back part of the fire chamber, instead of the top, and the upper tapered portion of the heating chamber is expanded into a closed drum, surmounted by a water vessel at the point of exit for the hot air through the detachable cover. An extra back plate of brick or metal forms the back of the fire pot, and a perforated partition of the same material rests thereupon and divides the heating chamber from the fire pot.

**IMPROVED MATCH SAFE.**

William Dawson, Philadelphia, Pa.—The object of this invention is to provide a convenient receptacle for the stubs or burnt ends of matches. After the match has been used, the disposal of the burnt end is always a source of more or less trouble. It either has to be thrown on the floor, producing in consequence a litter and an unsightly appearance, or it has to be thrown into the stove or carried out of the room, either of which involves more trouble than the insignificance of the object justifies. The invention consists in constructing a match safe with two compartments in the same containing case, one of which is provided with a lid and employed for holding the matches, and the other of which presents an opening through which the burnt ends or stubs are inserted, the said latter receptacle having also a door or slide, through which the accumulated stems may be removed.