

**IMPROVEMENT FOR DRYING FERTILIZERS, ETC.**

Asa P. Meylert, Brooklyn, N. Y.—This apparatus consists of a large drying chamber, having a series of sectional spaces at both sides, which are divided by partition walls, having communicating openings at alternately opposite sides of the main chamber. A series of cars are made to pass on a tramway through the drying chamber. These are constructed with inclosed vertical partitions and closed ends, having horizontal platforms or trays intervening between the partitions, which platforms communicate with the sectional side spaces, and the linear space between the vertical inclosed partitions occupied by the series of platforms is similar to the length of a side section in the drying chamber. The platforms or trays within the cars are placed in successive series, one platform being put above another in a series, with an intervening space between each two platforms in a series. Each of these platform spaces is open on both sides, to let the heated air pass through below and above the material to be dried, thus providing a free transit for the air from one side section of the apparatus to another opposite.

**IMPROVED HEDGE-FENCE LAYER.**

Ferdinando Poole and Wilson A. Pendergraft, Augusta, Kan.—The object of this invention is to furnish an improved machine for bending down and pressing together the Osage orange and other hedge plants, and holding them until tied, so that the hedge may be narrow and the upright shoots close together, making a close hedge. As the bent and compressed hedge plants come out at the rear end of the machine they are bound by a wire or tarred cord carried upon spools pivoted to the rear end of the frame work of the machine. The wire or cord is passed around the plants with a needle, through the eye of which it passed, and is then tied and cut off, the said wire or cord being never withdrawn from the said eye, but being slipped through the eye as each knot is tied. In this case the wire or cord is continuous, is secured to a plant or stake at the place of beginning, and is fastened with a half hitch each time it is passed around the plants. The hedge plants may be laid the first time close to the ground, and afterward laid one or more times at a higher level, so as to form a thick, close hedge with comparatively few plants.

**IMPROVED GATE.**

Aaron Hyre, Churubusco, Ind.—The object of this invention is to furnish an improved gate, which shall be so constructed that it may be readily opened and closed by a person in a vehicle or upon horseback, and which shall be simple in construction, convenient in use, easily operated, and not liable to get out of order. The gate slides open and shut upon a bar attached to the upper parts of the post, and which passes between the adjacent edges of two horizontal bars of the said gate and between the cross-bars attached to said horizontal bars. A series of levers are so arranged and placed in connection and pivoted to the upper ends of two posts, placed upon the opposite sides of the rear part of the gate, and at such a distance from it that a person sitting in a vehicle can reach and operate the levers, the forward ends of which project toward the roadway, to open and close the gate before the horses have come in contact with the gate, and after his vehicle has passed through the gateway.

**NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.****IMPROVED WAGON BRAKE.**

Christopher Heinen, Leavenworth, Kan.—The object of this invention is to furnish an improved brake for wagons, which shall be simple in construction, conveniently applied, and reliable in operation. To the end parts of the brake bar are secured the castings, upon the forward side of which are formed slightly wedge-shaped grooves to receive the wooden rub blocks, which are thus forced more firmly to their seats by the friction of the wheels. To the brake bar are attached the rear ends of two rods, which pass forward through the spaces between the rear axle and its bolster, and their forward ends are pivoted to the upper ends of short arms formed upon or rigidly attached to a shaft which works in bearings attached to the rear axle, and to one of its ends is rigidly attached, or upon it is formed, a longer arm, which projects upward at the side of the wagon box or body, and to its upper end is pivoted the rear end of a rod that extends forward along the side of the wagon box or body, and to its forward end is pivoted the lever, by means of which the force of the brake is applied to the wheels.

**IMPROVED THILL COUPLING.**

Frederick C. Potter, Poughkeepsie, N. Y.—The object of this invention is to furnish an improved thill coupling which shall be simple in construction, safe and noiseless in use, and easily coupled and uncoupled. To disconnect the thill irons from the clips the thills are raised to a vertical position, in order that the lugs may be drawn out of the notches in lugs. The function of a rubber block is to prevent rattling of the thill iron in the socket when the parts are in working position, the projecting end of the thill iron being then in contact with a leather plate. A cam projection comes in contact with the leather plate when the thills are thrown up into vertical position, and the friction serves to hold them in such position out of the way.

**IMPROVED SHUTTER BOWER AND FASTENER.**

Thomas B. Rogers, Jr., Brooklyn, N. Y., assignor to himself and Peter Cooper, New York city.—The object of this invention is to provide a convenient and reliable shutter fastener and adjuster. The shutter is adjusted by loosening a thumb screw, releasing a catch, and swinging the shutter open to the desired point, and clamping it by means of a screw. The engagement of the convex portion of the screw with the concavities of the bar insures the fastening of the shutter in any desired position. When the shutters are wide open the bar is engaged by a catch, which is pivoted between ears that project from a plate attached to the shutter. This catch is provided with a shoulder, which prevents it from dropping below a horizontal line drawn through its pivot, and the same shoulder projects sufficiently to touch the bar when the shutter is open, and throw the catch over in case the catch should remain in a vertical position when disengaged from the bar. A plate is attached to the window stool to receive the end of the screw when the shutters are closed.

**IMPROVED COMBINED AWNING AND SHUTTER.**

William A. Hoyt, Paris, Tex.—This invention relates to an improvement in the class of awnings which are hinged to a building front and supported at their outer ends upon pivoted posts, the awnings being thus adapted to fold against the side of the building to protect the same in case of fire. The improvement consists in the construction of the posts for supporting the awning and the means for attaching them to the awning and securing them to the pavement. The hooks are affixed to the outer sides of the posts, and the upper ends of the latter are cut off at an obtuse angle, to adapt them to fit against the under side of the awning, and thus support the same in the inclined position required. By this construction, when the posts have been attached to the awning and brought into vertical position, they are secured rigidly in place by pushing down sliding bolts. In case of fire in front of the building or upon the opposite side of the street, the two outer posts are first removed. The bolt is then drawn in the central one, and the awning is allowed to drop. By means of this improvement the glass and wooden portions of the front are covered, so that the fire cannot affect them. This device may be used instead of ordinary shutters, as it renders the front burglar-proof, and as an awning it is more durable and serviceable than those of canvas or wood.

**IMPROVED CARRIAGE.**

Warren H. Hancock, Augusta, Ga.—This is an improved carriage for agriculturists' implements, such as stalk cutters and the like. To the frame

of the carriage are fitted the axles and the wheels. With one wheel is connected a friction drum of conical form, and provided with a clutch that engages with teeth on the wheel. A conical drum on the crank shaft is arranged with its larger portion opposite the smaller portion of the friction drum. An intermediate wheel is placed on a rod that is supported by a vertically sliding frame, whose lower end passes through a mortise in the platform, and is connected with a lever and a ratchet bar, projecting through the platform. A spring bolt engages with ratchet, and has a disengaging lever that projects through platform. The intermediate wheel is grooved and provided with a clutch, moved by a lever acting through a lever and rod. The intermediate wheel is forced between the drums by pressure on a ratchet bar, and the motion of conical drum transmitted to friction drum and the wheel. The relative speed of the drums is varied by means of sliding the intermediate wheel on the rod.

**NEW HOUSEHOLD INVENTIONS.****IMPROVED CHURN.**

William H. Sterns, Humboldt, Neb.—The object of this invention is to furnish an improved churning apparatus which shall be so constructed that the milk may be thrown into violent agitation, so as to bring the butter in a very short time by the movement of the churn body, and which shall be simple in construction, effective in operation, and not liable to get out of order. The invention consists in a frame work to adapt it to receive the operating mechanism; in the combination of bars and hooks with the frame, and with a platform upon which the churn body stands; in the combination of bars, pivot, and a crank with the driving gearing, and with the platform that carries the churn body; in the combination of pivoted bars and a swinging bar with the frame and the platform upon which the churn body stands; and in the combination of pins with the base frame and with the platform upon which the churn body stands.

**IMPROVED BAKING OVEN.**

Samuel Axford, Freeport, Ill.—This invention relates to baking ovens, and it consists in a baking oven of circular form, having a revolving shelf or table, and constructed with a furnace outside of the main wall, and with three flues leading one each from the furnace door, the oven door (outside thereof), and the body of the oven. The heat and unconsumed products of combustion then pass into the oven through an opening in the furnace side thereof, thence out through opening and flue into the chimney.

**IMPROVED IRONING TABLE.**

Charles W. Barber and George Lenox, Lindleytown, N. Y.—The object of this invention is to furnish an improved device which shall be so constructed as to serve as a receptacle or basket to receive the clothes to be ironed, as clothes bars to air or dry the clothes, and as a table and a shirt board for ironing them, and which may be folded into small compass for storage and transportation. To the bars at one end of the device is hinged the end of a board, which forms the shirt board, and which is supported in place, when raised, by bars, the upper ends of which are hinged to the lower side of the outer part of the board. The lower ends of these bars are notched or have hooks formed upon them to hook upon the hooks or pins attached to the lower parts of the bars hinged to the end of the board.

**IMPROVED WASHING MACHINE AND CHURN COMBINED.**

Wiot H. Clarke and William Collins, Council Grove, Kan.—The object of this invention is to furnish an improved machine which be so constructed that it may be used as a clothes washer or as a churn, and which shall be simple in construction, convenient in use, and noiseless and effective in operation. When the machine is to be used as a churn, a churn body is placed within the suds box to receive the milk. The churn body is provided with a closely fitting cover, through the center of which the dasher shaft passes. This construction allows hot or cold water to be put into the suds box, around the churn body, to temper the milk as required. When the machine is to be used as a washer, the dasher and the churn body are removed.

**NEW MECHANICAL AND ENGINEERING INVENTIONS.****IMPROVED DRAFT-EQUALIZING DEVICE FOR HORSE POWERS.**

John R. Dickinson, Ida, Mich.—The object of this invention is to furnish a draft attachment for horse powers which shall be so constructed as to compel all the teams to draw equally, which may be so adjusted as to prevent a weak horse or team from being drawn too far back, and which shall be simple in construction, easily applied, and reliable in use. In case a weak horse or team be used, a pawl is pivoted in the outer part of the box, to which is attached a short chain, a part of which is formed by a spiral spring, and which has a hook attached to its outer end, to be hooked into the main draft chain, so that if the weak horse or team is drawn back by the said chain the pawl may be drawn against the chain to clamp it, and prevent the said weak horse or team from having to draw against the others. The spring is designed to prevent the chain from being broken should the pawl slip upon the chain. The chain passes round a pin attached to the box, and which is provided with a ferrule or tubular washer to prevent wear. The chain can be readily detached or allowed to hang, and the pawl turned back or detached when not required for use.

**IMPROVED LIFT PUMP.**

Emory Barnes, Mount Pleasant, Mich.—This invention has relation to means for raising water, and the nature of the invention consists in combining, with a submerged cylinder, a piston which is depressed by a helical spring and raised by means of a treadle and a chain, which is attached to the piston rod and passed over a pulley attached to the discharge pipe. By depressing the treadle the piston will force water up through the discharge pipe. At the foot of this pipe is a check valve, which allows piston to force water up the pipe, but prevents it from returning.

**IMPROVED CARPET-SEWING MACHINE.**

Joseph Hesse, San Francisco, Cal.—The object of this invention is to furnish an effective and readily operated hand sewing machine, by which carpets may be readily and evenly connected by a loop stitch formed of one thread. The invention consists of a bent main plate or saddle straddling the edges of the carpet, and having a rectangular plate, to control the distance of the stitch from the edges and compress them for the needle. A presser spring, with a lifter and feed roller, is attached to the inside of the main plate. The feed bar, needle bar, and devices for imparting motion to the reciprocating hook receive their motion from a hand crank wheel and driving shaft geared therewith, the feed bar operating two feed pawls and rollers, working independently of each other. The compound motion of the thread hook is imparted by a top plate with guide grooves and the beveled upper end of the hook stem, in connection with pins and a bevel plate of the connecting rod of needle bar and driving shaft.

**IMPROVED VALVE.**

Seth Lloyd, Conshohocken, Pa.—Hitherto it has been the experience in valves for steam and water pipes that, by the frequent screwing and unscrewing of the same, the screw portions are worn out while the other parts of the valves are still in good condition. The valves need also re-packing from time to time, which is troublesome and expensive. Valves are also frequently placed at points which are reached only with difficulty for the purpose of packing. Now, the object of this invention is to furnish a valve with improved stem, that produces a steam or water tight fitting without requiring any packing for the stuffing box, and which has no parts that wear out by use, being capable of application directly for use as they are furnished by the manufacturer. The invention consists of a compound and spring-acted valve stem, of which the upper handle section is connected to the lower valve-operating section by a kind of coupling or

clutch, both sections having conical valves that are forced by an interposed spring against seats of the casing or box to produce the tight fitting of the stem.

**IMPROVED HORSE POWER.**

Thomas C. Churchman, Sacramento, Cal.—The object of this invention is to furnish an improved horse power for thrashers, separators, and other machinery, which shall be so constructed as to give two motions at each revolution of the traction wheel, which shall be free from the jerking motion which always accompanies the action of a crank, and which shall be simple in construction and convenient in use. The invention consists in an improved horse power, formed by the combination of the step, the spindle having a bearing or box upon its upper end, the guide standard provided with a ring at its lower end, the grooved disk, the sliding T blocks, and the pitman bent twice at an angle, with each other and with the shaft and the traction wheel.

**IMPROVED HORSE POWER.**

Isaac D. Albin, Sr., Chilhowee, Mo.—The object of this invention is to furnish an improved portable horse power for thrashers, separators, and other agricultural machinery, the power having the advantage of being run with double reversible draft and any desired number of horses, from two to fourteen, according to the machinery to be driven. The horse power may also be as a single power, and the transmitting shafting be arranged in elevated position above the horses, or in a position near the ground, as desired. The double reversible draft frames of the power produce the balancing of the apparatus so as to dispense with the staking or chaining down of the same, and admit, therefore, a lighter construction and its mounting on a wide truck or common farm wagon, all of which serve to render this horse power of great advantage for the various applications. The invention consists of a master wheel and frame, having a number of draft levers that are driven in one direction, and of a pinion frame, with levers that are drawn in opposite directions, the draft levers of the pinion frame being elevated to admit the horses of the master wheel to pass under them, inside of the track of the horses attached to the pinion frame. The pinion frame transmits the power by suitable gearing to a crown wheel, and by an intermeshing speed pinion to the driving line shaft, that is supported in a triangular top frame.

**IMPROVED CAR COUPLING.**

James R. Lamb, St. James, Minn.—This invention refers to that class of car couplings that may be coupled without danger automatically, the link being held in a horizontal position for entering the approaching drawhead, and the pin dropped on the entrance of the link. The entering of the link pushes the follower back and drops the pin, so as to couple thereby the cars. The follower presses on the link and forces it against the pin, holding the link by the curved and concave top part in horizontal position for the coupling, so as to readily enter the mouth of the drawhead to be coupled. The follower gives the link the necessary play, so as to work free in the drawhead when coupled. The pin is supported stationary in the curved end of the slide piece without being released by the forward motion of the follower, so as to allow the backing of a lot of loose cars on side track, or other operations in which cars are not required to be coupled.

**IMPROVED CHANNELING MACHINE.**

George W. Bacon, South Groveland, Mass.—The object of this invention is to produce an effective cutter for sole-channeling machines. The channeling knife has a chisel shaped cutting edge at its projecting end, near which the grooving knife is placed, its cutting edge projecting below the channeling knife. When in use this knife is prevented from springing downward and backward by a grooved block which receives the tongue of the knife. The knife thus secured cuts evenly and forms a uniform groove and channel.

**IMPROVED NUT-TAPPING MACHINE.**

Samuel L. Worsley, Taunton, Mass.—In front of the mandrel that carries the tap there is a nut holder, having in it a mortise of the thickness and width of the nuts to be tapped, which extends horizontally through the holder at right angles with the mandrel. A follower is fitted to the holder, and is forced by a spring against the nut in the holder. The nut blanks are fed to the mortise in the holder through a chute, and are carried by a follower. The feeder has in its upper edge a groove, which receives the nut blanks from the hopper when the feeder is dropped down, and delivers the blanks to the chute when the feeder is raised up. The time of the movement of different parts is governed by cams and by change wheels on the machine, which are proportioned to the different sizes of nuts. The blank holder is provided with the removable portions, which are changed when the holder is adapted to different sizes of nut blanks.

**IMPROVED STEAM ENGINE.**

Jacob J. Anthony, Sharon Springs, N. Y.—The object of this invention is to furnish an engine that is simple in construction, compact in form, and efficient in operation, which may be adapted to any of the purposes for which ordinary engines are used; but it is especially designed for locomotives and steam boats. The operation of this improved engine is as follows: Steam is admitted to the chest through an opening, whence it passes through ports to the steam chest and through one of the ports into a cylinder. The valves, by their connection with a lever, are made to move in opposite directions, so that when one of the supply ports is opened the exhaust port below it in the same end of the cylinder is closed, while at the opposite end of the cylinder the exhaust port is open and the supply port is closed. The piston is propelled by the steam toward the end of the cylinder until it strikes one of the ribs, when the valves are shifted and the piston is moved toward the opposite end of the cylinder. The reversing of the engine is effected by admitting steam to the valve chest to start the engine on one side of a partition, and afterward admitting it to the other side. All of the cylinders may be used in connection, or by disconnecting the coupling they may be used in pairs. When the engine is applied to steamboats one pair of cylinders may be connected with each wheel, and by the action of the engine alone the boat may be steered.

**IMPROVED CAR HEATING APPARATUS.**

James F. Callaway, Louisville, Ky.—A steam pipe leads from the dome of the locomotive back to and through all the cars of the train. It is laid in convolutions over the floor of each car, and valves control admission of steam and escape of water of condensation. Suitable flexible couplings connect the pipe sections between the cars.

**IMPROVED DITCHING AND EXCAVATING MACHINE.**

Samuel A. De Force, Crockett, Tex.—The object of this invention is to furnish an improved machine for making ditches and other excavations, which shall be so constructed as to separate the slice from the soil, raise it and deposit it at the side of the cut, which will feed itself forward automatically, shall be simple in construction, and easily guided and controlled. The invention consists in the combination of a rotating cutter and a reciprocating holder with the shaft upon which they are hung and with the frame work of the machine; in the combination of segmental gear wheels and bevel gear wheels with the shaft and the bevel gear wheel that carries the holder and the cutter; in the combination of a spout with the cutter, a holder, and an endless carrier; in the combination of a spring and arm with the shaft, to which the spout is attached, for moving the spout forward to receive the dirt; in the combination of an arm, lever, and stop pin with the cutter and the shaft, to which the spout is attached, to move the spout back to allow the cutter and holder to pass; in the combination of stops, a latch, and stop pins with the shaft, the frame, and the cutter, for controlling the movements of the holder from the movement of the cutter; in the combination of a tooth, sliding rod, spring lever, and gear wheel with the bevel gear wheel and the axle of the carriage; in the combination of gear wheel, a clutch, sliding bar, and lever with the driving shaft and frame.