

IMPROVED GAS TORCH.

Albert R. Weiss, Brooklyn, N. Y.—This consists of a gas-lighting torch worked by a fulminate ribbon, whose pellets are fed and ignited by a suitable mechanism. The latter consists of a sliding sectional piston rod, operated from a trigger of the handle guided in a curved tube, and reset by a spring of the feeding device.

IMPROVED REIN SUPPORT.

Joseph L. Ryder, Islesborough, Me.—This device is made of a single piece of metal bent to form a central guide piece, eyes, and guard tongues. It prevents the reins getting entangled under the whiffletree, or under the horse's tail.

IMPROVED MIDDINGS SEPARATOR.

Peter Muller, St. Charles, Mo.—This consists in suspending the frame of a middings purifier by straps, and providing it with a cam wheel, pawl, shaft, and springs, arranged to reciprocate and jar the frame transversely to the flow of the material.

IMPROVED ELECTRIC LIGHTING APPARATUS FOR LAMPS.

Prof. William H. Zimmerman, Chestertown, Md.—This is a novel construction of self-lighting lamp, based upon the general principle of the employment of a hydrogen gas generator, together with a galvanic battery, in which the battery current heats a platinum wire red hot to ignite the jet of hydrogen, the flame of which latter impinges against and ignites the wick of the lamp. The invention consists, mainly, in locating the gas generator and the battery in twin supporting sockets attached to the brachial slide carrying the lamp, and in rendering the various vessels to be filled capable of independent support in upright position while being filled; in addition to which, the invention further consists in novel means for simultaneously bringing into operation both the gas generating apparatus and the battery, and instantly effecting the generation of gas, the flow of the electric current, and the lighting of the lamp. The self-lighting devices may be applied with slight modifications to all forms of lamps as well as to gas brackets.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED HORSESHOE MACHINE.

John W. Chewning, Jr., Shadwell Depot, Va.—The present invention is an improvement upon that for which letters patent of the United States were granted to the same party August 26, 1876 (No. 181,641). The improvement relates to the construction of the contact surfaces of the swaging die and the combined former and ejector; also to the mechanism for reciprocating the swaging die.

IMPROVED CHAIN PROPELLER FOR VESSELS.

William B. Whiting, Milwaukee, Wis.—This invention is an improvement in that class of chain propellers in which the boat is bisected by a central longitudinal opening in which the chain propeller is arranged. The novelty consists partly in the improved construction of the propeller, designed with a view to strength and smoothness of operation; and also in arranging the endless chain propeller about an inclined compartment connecting the two portions of the boat upon opposite sides of the central channel, which compartment rises toward the stern so as to secure the double result of facilitating the return of the paddles to the forward end of the boat upon the inclined deck railway, as well as the withdrawal of the paddles vertically from the water, which obviates the carrying of "dead water."

IMPROVED QUILTING ATTACHMENT FOR SEWING MACHINES.

John Douglass, Millport, Mo.—The quilting frame is attached to and pendant from a traveling carriage, which is supported upon an extensible horizontal beam or frame, in such manner as adapts it to be used in connection with a sewing machine. The quilting frame is moved back and forth to carry the quilt under the needle and return, and may be hung up out of the way when not required for use. The beam on which the carriage runs may be easily taken down when required.

IMPROVED APPARATUS FOR CONVERTING MOTION.

Peter Gregersen, Wauzeka, Wis.—This is an apparatus for converting reciprocating motion to continuous rotary motion; and it consists in the combination of movable racks with a sliding frame that is attached to the piston rod of an engine. The device also consists in a mutilated pinion that meshes with the movable racks, and is provided with a double cam, by which the motion of the shaft rotated by the said racks is reversed.

IMPROVED MACHINE FOR SHEARING SHEET METAL.

George Summers, Niles, O.—Threaded rods are provided upon which the feet are formed. These feet are fastened to the fixed jaw of the shears by means of bolts, and project therefrom at right angles. Guide plates are fitted loosely to the rods, and are held in place by means of nuts. Several sets of guide plates may be provided, that increase in height as they are placed farther from the blade of the shears, so that a number of widths may be cut without readjusting the gage.

IMPROVED EARTH AUGER.

James McCullough, Pensacola, Fla.—By turning the center shaft in one direction, the auger is opened for work, taking in the sand, earth, and water, and retaining the same, by turning the shaft in opposite direction and closing the openings of the auger by a valve. The auger is then raised for being emptied, the center shaft being attached to the auger, to prevent displacement of the valve in vertical direction by a collar, keyed to the shaft below the yoke.

IMPROVED EARTH AUGER.

Edward Cox and Henry Cox, East St. Louis, Ill.—This consists of a box auger attached, by a yoke, to a vertical shaft, at the upper end of which another yoke is attached that is made to revolve by bevel gearing. The upper yoke is provided with a horizontal shaft, having at its outer end a pinion that travels upon a series of cogs formed at the edge of the circular openings in which the yoke is suspended. An endless chain, carrying buckets, passes over a pulley on the horizontal shaft and around a pulley in the yoke that supports the auger. The whole is supported by a derrick, which is provided with a windlass for raising and lowering.

IMPROVED COTTON CLEANER.

James A. Bowers and Milton Adar, Princeton, Ark.—This consists of a slotted and ribbed stationary concave and a revolving cylinder with beaters, combined with a feeding and discharging case, in which the cotton feeds from a hopper at the top and escapes at the side, while the dirt and trash which are beaten out of the cotton by the beater cylinder and ribbed concave fall through the spaces and escape.

IMPROVED WATER ELEVATOR.

John F. Long, Bridgewater, Va.—This consists in the arrangement of two pulleys, one placed in a curb over a well, and the other at the bottom of the well, over which runs an endless belt carrying buckets that dip up water and deliver it to the spout in the curb.

IMPROVED WATER ELEVATOR.

Thomas J. Reid, Lexington, Ind., assignor to himself and John Malick, of same place.—This relates to that class of elevators that employ a windlass and bucket for raising water. The windlass has two drums, of different diameter, journaled in the upper portion of the curb. Upon the larger drum a rope is wound, by which the bucket is raised or lowered, and upon the smaller drum a strap is wound in a contrary direction, which is attached to a curved lever, by which the elevator is operated. There is also an arrangement of wire guides for the buckets, that extend from the top to

the bottom of the well. A slide runs upon the said wires, to which the bucket is hinged, and a catch receives and retains the slide when the water is emptied from the bucket.

IMPROVED STEAM GAGE.

Frederick H. McIntosh, Atlantic, Iowa.—This invention consists of a steam gage, whose pressure-indicating spring rod is guided in a screw sleeve at the top, which screw adjusts the tension of the spring until indicating the correct pressure. A link is screwed on to the threaded end of the pressure rod to apply the scales to the gage.

IMPROVED WATER WHEEL.

Elisha B. Shattuck and Isaac Stahlman, Mount Pleasant, Mich.—In this device it is claimed that increased power is obtained, the water freely discharged, and a larger percentage of the water power utilized. The invention consists of a double wheel, in which the buckets of the upper wheel connect with an inner tube and spiral buckets around the shaft, while the lower wheel connects with an outer cylinder or tube. The wheel is concave or dishing, and provided with vent holes at the top to accelerate the discharge of the water.

IMPROVED PILE DRIVER.

John Gregg, Riverton, Iowa, assignor to himself and James Miller, of same place.—When this device is used as a pile driver, guy-ropes are fixed in eyes attached to the ends of the bolt, on which the pulley sheave works, and the derrick is inclined, so that its top is directly over the place when the pile is to be driven. A clamp is then loosened, and guides are allowed to swing into a vertical position, where they are secured by the clamp engaging braces. The weight is raised by turning the windlass by means of a lever, a rope being attached to it, and running over the sheave, and attached to the hammer moving in the guides.

IMPROVED METHOD OF PROPELLING BOATS.

Albert Belz, Appleton, Wis.—The paddle wheel shaft is provided with ordinary paddle wheels. A spur wheel, which is keyed to the shaft and takes its power from a similar wheel, which is fixed upon the shaft. Cranks are placed on opposite ends of the shaft, and are worked by hand levers. The whole apparatus may be easily detached from the boat when desired.

IMPROVED BALANCED VALVE FOR STEAM ENGINE.

William Jackson, Millerstown, Pa.—This consists of a valve the back of which is beveled, and whose central or exhaust space extends to the rear in a beveled cover placed at the back of the valve, between which and the valve seat the valve moves. The whole is inclosed in the steam chest, and all of the exposed sides of the valve are subjected to the same pressure, so that the valve is balanced, and little power is required to move it.

IMPROVED ROTARY ENGINE.

John C. Thomas, Carlinville, Ill.—The wheel or disk within the casing has deep transverse grooves in which radial pistons work, the rods of which pass through stuffing boxes in the wheel. The rods are attached to hollow boxes in which are springs which act upon bars. Said bars pass through slots in the boxes and through slots in the radial bars or spokes of the wheel and connect.

IMPROVED HEMMER FOR SEWING MACHINE.

Charles L. Goethals, Los Angeles, Cal.—This is an improved adjustable hemmer for sewing machines, by which folds of different widths may be hemmed and the fabric fed in regular manner to the needle after being started. The invention consists of a base part, with sliding folding part, that folds and feeds the fabric to the needle, and a pivoted guide piece, that regulates the folding of the fabric.

IMPROVED PUMP.

Swan Petersen, Knoxville, Ill.—The lower and the upper pump stock are coupled together by a tube joint. A rim extends around the tube immediately between the ends of the pump stocks, which are tightly seated against the rim by packing rims. The strong and rigid connection of the pump stocks is obtained by projecting metallic lugs, secured by bands extending around the ends of the pump stocks. The lower pump stock is secured to the walls of the well by a brace, which is rigidly wedged in place. The convenience of releasing the brace and taking out the lower pump stock for repairs, as well as the reliable and effective working of the pump when properly coupled at the tube joint, furnishes a pump of substantial, durable, and convenient construction.

IMPROVED ROTARY ENGINE.

Hodgen I. Willson, Harrisville, Tex., assignor to himself and L. J. Russell, of same place.—The operation of this rotary engine is as follows: Steam passes through a passage in a rocking valve on the upper side of the cylinder, and through one or two passages in said cylinder into the steam chest; thence through a port in a side valve, and through a passage in a guide, and into the cylinder by way of a passage in the abutment. When the piston has moved through a half revolution, a cam quickly shifts the rocking valve, so that steam is admitted to the other of the two passages. The steam acts upon the piston, shifting the abutment, and admitting steam to the cylinder, forcing the piston through the remainder of the stroke. While this takes place the steam from the first passage is allowed to pass into the exhaust.

IMPROVED WATER WHEEL.

Nelson L. Greene, Edmeston, N. Y.—By new devices in this wheel, a body of water of varying cross section may be thrown without obstruction or diminution of power on the wheel. The escape of water at the top of the casing is also prevented, and a full utilization of the reaction of the water at the lower part of the wheel is claimed to be obtained.

IMPROVED TRUSS BRIDGE.

Lyman W. Densmore, St. Joseph, Mo.—The principal novel features of this bridge are: First, forming the truss chord of metallic rods having their ends extended past each other and through the girders or couplings, and fastening them upon the opposite sides of said girders or couplings by means of nuts; the chord rods being increased in number toward the center, but always arranged about a common center of tension; and secondly, the fastening of one of the tension rods in each panel, whose strut carries a cumulative horizontal thrust to an independent angle block carrying said strut; and thirdly, the particular arrangement of a detachable girder beneath the couplings.

NEW AGRICULTURAL INVENTIONS.

IMPROVED CORN HARVESTER.

James Pienkharp, Columbus, O.—The corn stalks are severed close to the ground and carried back on to a platform by means of a rotating shaft, and a vibrating carrier provided with hooks or curved arms. The platform is made in two parts, of elliptical form, each of which turns horizontally, and tilts to discharge the "shock" upon the ground. The platform is tilted by a suitable device under the control of the driver.

IMPROVED SEED PLANTER.

James H. Sale, Boydsville, Ky.—This invention belongs to that class of seed planters in which a given quantity of seed are lifted from the hopper by means of a pivoted reciprocating seed cup, and are dumped into a pipe or chute leading to the furrow. The improvements consist, mainly, in the particular construction and arrangement of the feed bars, hollowed out at their upper ends to form seed cups, which bars are pivoted below to the cranks of the main driving axle and extend upwardly through openings in the bottom of the seed box, in which openings they loosely slide, and about which point the feed bars also oscillate as a fulcrum from the revolution of the

cranks carrying the bars below, so that the upper ends of the bars, provided with the feed cups, have a compound motion which causes them alternately to rise and move forward to dump the seed, and then recede toward the center of the box and descend to be filled again.

IMPROVED RECIPROCATING CHURN.

John Henry Sheffer, Cairo, Ky.—This relates to gearing for converting the rotary motion of a hand crank into the reciprocating motion required for driving the dasher. It consists in a crank disk that is attached to a shaft that is journaled in a standard attached to the churn cover, and driven by spur gearing turned by hand power. There is also a slotted cross head that is driven by the crank, and is connected with a jointed dasher rod.

IMPROVED HARROW.

Charles Keehner, Roseville Junction, Cal.—The new feature here is a harrow section formed of converging rods connected by cross rods, the other rods having their nearer ends hooked, and the inner having their farther ends hooked. The middle rod is provided with a hook at one end and an eye at the other end, so that by alternately reversing the sections they may be connected at the sides as well as in alignment.

IMPROVED CORN PLANTER.

August J. Hintz, Lemont, Ill.—In using this planter, the jaws are thrust into the soil up to a stop attached to a stationary jaw. The upper end of the planter is then carried forward, which swings the stationary jaw backward, allowing the seed to drop into the soil, and, at the same time, loosening the soil, so that it will fall into the hole formed by the jaws as the same are withdrawn. As the jaws are withdrawn from the soil a spring closes the said jaws, ready to be again thrust into the soil, and, at the same time, draws forward an arm, bringing the dropping hole within the body, to be again filled with seed.

IMPROVED CORN PLANTER.

Jesse G. Stokesbary and John H. Stokesbary, Millersburg, Iowa.—This corn planter is so constructed as to drop the seed automatically as the machine is drawn forward. It is easily controlled, and enables the hills to be planted in accurate check row.

IMPROVED HAY GATHERER.

Harlin Butner and James J. Ray, Clarence, Mo.—This is a rake for collecting the hay and drawing it to the stack. It is so constructed that the weight of the load will raise the points of the teeth from the ground, so that they will not catch, and so that it may be readily withdrawn from the load when desired.

IMPROVED SHOVEL PLOW.

Thomas H. C. Dow, Tampico, Ill.—This implement is so constructed that it may be adjusted for use as an ordinary shovel plow, or turned toward either side to form a right or left hand plow, as the particular work to be done may require.

IMPROVED COTTON PLANTER AND FERTILIZER DISTRIBUTER.

Joseph A. Shine, Mount Olive, N. C.—This machine is so constructed as to open a furrow, distribute cotton seed and guano into it, and cover the seed. It includes a new construction of the hopper and attached mechanism.

IMPROVED FARM FENCE.

Charles Cremor, Red Bluff, Cal.—This fence is made without posts or nails, and is so constructed that it may be used as a stock fence, as a protector for young hedges, and as a sheep shed. It is not liable to be pushed or blown over. To the notched outer edges of the supporters the side boards are attached. Said boards are beveled at their ends to overlap each other edgewise in said notches, and are secured to each other and to said supporters by wires.

NEW HOUSEHOLD INVENTIONS.

IMPROVED FOLDING CHAIR.

John A. Ware, Morris, Ill.—It consists of a chair having the rear legs and back made in one piece with a seat hinged to the same at the rear and free to fold upwardly at its front; in connection with which elements are arranged a set of front legs with tenons at their upper ends which enter mortises in the chair seat, the said front legs being connected with the seat and back by means of side braces pivoted to the front legs, the middle part of the seat, and the back of the chair, and provided with an upwardly folding toggle joint whereby the parts of the chair may be folded compactly, and in such manner as to stand alone upon its four legs.

IMPROVED FRUIT JAR.

Adam Dicker, Middletown, O.—This is a fruit jar composed of black opaque glass, which excludes light from its interior. It combines all of the advantages of transparent glass, metal, and earthenware, with none of their disadvantages—i. e., it prevents the fading and deleterious effect of light upon the fruit incident to transparent jars, obviates the corrosive action and metallic taste produced by the acids of the fruit upon metal cans, is free from the clumsiness of earthenware jars, and the objectionable action of the acids upon the glaze on the one hand, or the difficulty of removing the germs of ferment on the other when left porous.

IMPROVED BUTTER DISH.

Westel E. Hawkins, Wallingford, Conn., assignor to Simpson, Hall, Miller & Co., of same place.—In this butter dish the cover of metal is made in two parts, pivoted at their angles to the opposite sides of the body of said dish, so that they may be turned down upon the outside of said body. Segmental gear wheels at the angles of the parts of the cover cause said parts to move together upon their pivots. Suitable devices are provided for fastening the cover in desired position.

IMPROVED BLANKET.

Nathaniel Wickliffe, Waterproof, La.—This consists of a couple of light blankets of wool with a lining between or outside of them of paper, laid on a sheet of gauze adapted to strengthen the paper, to prevent it from tearing by the handling of the blankets. The paper and the cloth layers are suitably fastened together detachably by buttons, to take them apart to remove the paper for washing the cloth. The paper, being of such close texture as to prevent the passage of air, makes the blanket much warmer for a given weight of material.

IMPROVED WASHBOARD.

Westly Todd, Wauseon, O., assignor to himself and H. H. Williams, of same place.—The object here is to improve the construction of the washboard for which letters patent were granted to same inventor July 18, 1876, so as to make it stronger and more durable without increasing the cost of manufacture. The improvement consists in short parallel corrugations formed along the side edges of the zinc facing, between or within them main corrugations.

IMPROVED ROCKING CHAIR.

William Shaub, Nashville, Tenn.—This consists of a rocking swing, made of round rockers secured centrally to the posts of the seats, and at the ends to the extended foot and seat rests. The seat rests are braced by interior strengthening pieces. The swing cannot upset, and is readily portable from place to place.

IMPROVED WASHING MACHINE.

John W. Modlin, Albion, Iowa, assignor to himself and Simon C. Gillespie, of same place.—By means of a lever, a corrugated rubber is caused to work over a concave bed of rollers. By suitable construction the rubber accommodates itself to the thickness of clothes beneath it.