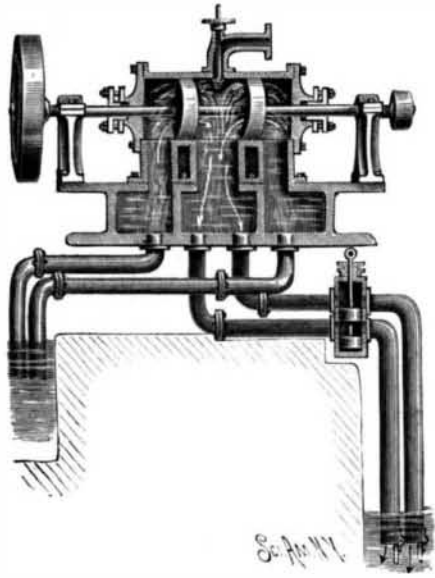


**AN IMPROVED HYDRAULIC MOTOR.**

The motor shown in the cut, patented by Mr. Hans P. Christiansen, utilizes in its operation the principle of a siphon, the valve and pipe shown at the top affording ready means of always keeping the siphon perfect, water being there admitted to fill all the pipes before the motor commences to work. The level of the water, as shown at the left in the illustration, being higher than at the right, the current flows from the left, as shown by the arrows, through the pipes to both ends of the main cylinder. The driving shaft passes centrally through this cylinder, and on it are mounted two turbine wheels, the wings of which are inclined in opposite directions. The wheels divide the interior of the cylinder into three compartments, both of the end compartments receiving a flow of water from the higher level, which, after passing through the wheels, and exerting its force upon the driving shaft, passes out of the central compartment and thence to the lower level. In the horizontal part of the pipes leading to the lower level is arranged a valve casing with valves by means of which the operator can at any time stop or start the motor, in ordinary operation, by simply closing or opening the valves.

For further information relative to this invention

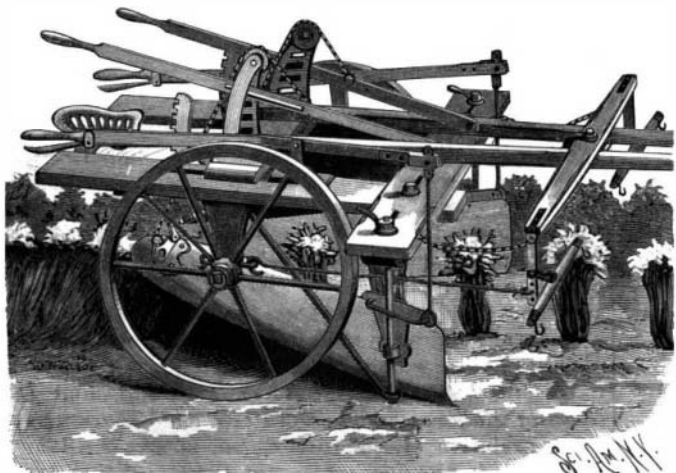


**CHRISTIANSEN'S HYDRAULIC MOTOR.**

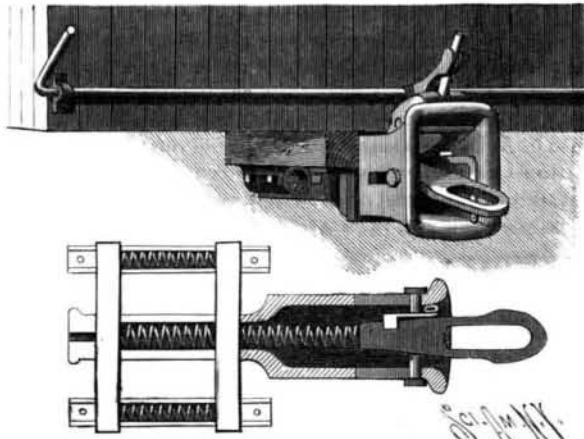
address Messrs. Jens Hansen & Co., No. 463 B Street, Oakland, Cal.

**AN IMPROVED MACHINE FOR HILLING CELERY.**

In the machine shown in the illustration the mold-boards are adjustable to suit the height of the plants, and laterally to correspond with the width of the rows, the machine being designed to crowd the earth from the bottom of the furrows under the leaves simultaneously upon both sides of the rows. It has been patented by Mr. Maurice M. Ranney, of Comstock, Mich. The side beams of the frame are adjustable laterally upon the cross beams, and from the under side of each side beam projects a pedestal with an attached spud axle upon which the drive wheels revolve. A post extends downwardly, from a bracket on the under side of each side beam, through a staple and eye formed on a plate attached to the forward end of the mold-board, each post being stayed by a brace bar, and the eyes and staples being large enough to move freely upon the post. For the vertical adjustment of the mold-boards, a link connects the staple on the forward end of each with the forward end of a lever fulcrumed upon an upright of the frame, a rack secured to one of the side beams being provided for each lever, which extends to within easy reach of the driver. A stirrup is bolted upon the outer face of each mold-board at its rear end, a chain from each stirrup passing over a friction pulley journaled on the upper end of a rack secured to the center cross beam, to attachment with a lever pivoted on the forward cross beam, and extending to the driver. The mold-boards are so hung that they



**RANNEY'S MACHINE FOR HILLING CELERY.**

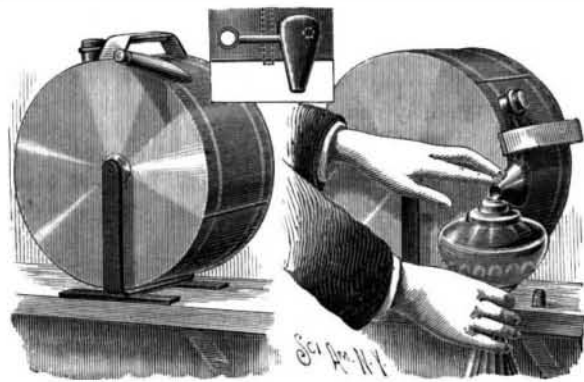


**McKERAHAN'S CAR COUPLING.**

are quite a distance apart at their forward ends, and nearer together at the rear, where the two boards are connected by a spiral spring, which spring is attached through short adjustable arms, whereby the spring may be lengthened when it is desired to only half hill the rows. The driver, by resting his feet in the stirrups of the mold-boards, can adapt them to any crookedness of the rows or irregularities of the surface, the machine being adjustable to rows from three to five feet apart and from six inches to two and a half feet in height.

**AN IMPROVED LIQUID HOLDING VESSEL.**

The accompanying illustration represents a vessel to hold oil or other liquids, and permit the contents to be readily and safely decanted into a lamp or other vessel with a small opening, the receptacle being also adapted to hold liquids for transportation or storage. This invention has been patented by Mr. Stewart R. Mace, of Moulton, Iowa. The holder consists of a horizontal cylinder pivotally supported in a suitable stand, the points of pivotal support of the vessel being above its axial center, whereby the weight of contained liquid will always retain the vessel in such position that the filler nozzle and discharge spout will be at the top, except when the vessel is turned in its journaled supports to discharge its contents. The filler nozzle projects from the cylindrical wall of the vessel on one side of the handle, and on the opposite side is the discharge spout, a small orifice from the interior opening into the inner lower portion of the spout, the opening from the interior being considerably less than the outer opening of the spout, so that there will always be an air space above the escaping stream. Intersecting the rear portion of the spout, above the wall of the vessel, is a transverse air passage, produced by the attachment of an arched piece of sheet metal, as shown in the small



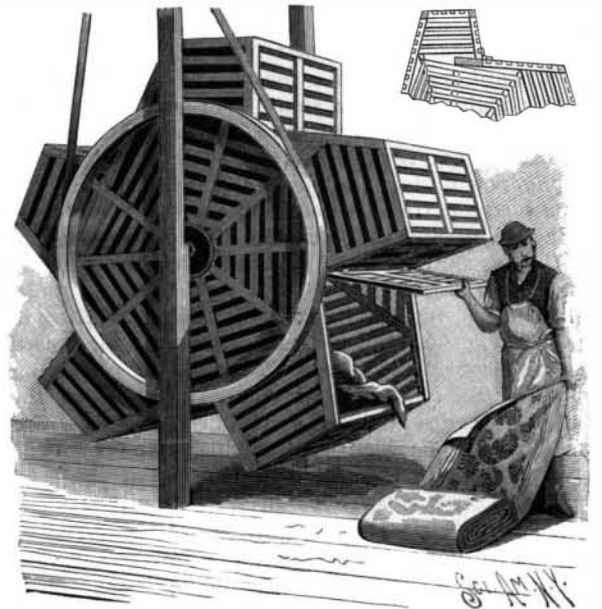
**MACE'S LIQUID HOLDING VESSEL.**

view, this air passage being in open communication with the vessel near the filler nozzle, so that there is a continuous air duct which will only be closed by the insertion of a stopper or cork in the outer end of the discharge spout. As a consequence the stream of oil or other liquid is caused to flow smoothly, and the spout is designed to be entirely free from drip.

**AN IMPROVED CAR COUPLING.**

The coupling shown in the illustration is designed to be automatic in its operation, and to permit the disconnection of the coupling from either side of the car, while it also possesses a longitudinally yielding link bar whereby injurious shock is avoided. It has been patented by Mr. Charles McKerahan, of No. 78 Middle Street, Alleghany City, Pa. The drawhead has a rearwardly extending portion of reduced diameter, and the front part of its top wall has a hollow projection or pocket that is longitudinally slotted to permit the vibration of an upright lever. The link bar is pivoted on pins in opposite longitudinal slots in the throat of the drawhead, thus adapting it to be inclined from a horizontal plane and have a sliding movement, and at its rear end is a stout spiral spring extend-

ing within the reduced rear portion of the drawhead body, as shown in the sectional plan view. At the side of this spring are two longitudinally slotted spring cases, each containing a spiral spring, the flat transverse guide bars of which extend through the intermediate slotted rear end portion of the drawhead body, the spring cases being secured upon stringers of the car frame. A heavy depending latch block, adapted to engage the opening in the link bar, is pivoted to swing in the pocket in the top wall of the flaring portion of the drawhead, and at its side is a spring dog adapted to maintain the latch block in normal position for coupling when the parts have been arranged therefor. The lower end of the upright lever in the slot in the top of the drawhead is secured to the latch block, its upper end being engaged by a rock arm upon a transverse shaft journaled in boxes attached to the end wall of the car body, this transverse shaft being rotated by crank arms at the sides of the car. A flat loop, its ends made fast to the car frame, engages the sides and bottom of the drawhead to hold it from displacement and allow it to slide longitudinally. When two cars having this coupling are to be connected, the latch blocks are raised, when, upon engagement of the link



**BOWMAN'S CARPET CLEANING MACHINE.**

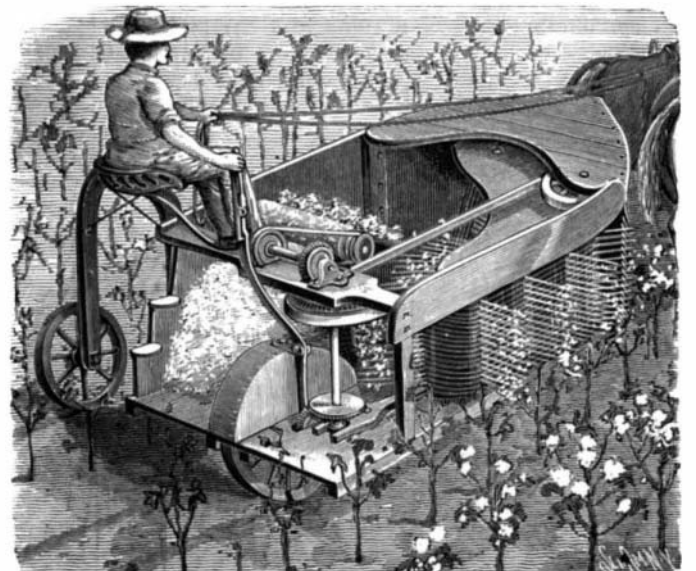
bars by the coming together of the cars, one bar slides above the other, and the top bar, by its contact with the spring dog, lets the latch block fall into locked engagement with the link bar that is on top, thus effecting a secure coupling, and one which permits of free lateral motion.

**AN IMPROVED CARPET CLEANING MACHINE.**

The cut shows a rotary machine designed to prevent the bunching of the carpets being cleaned in it, which forms the subject of a patent issued to Mr. William Bowman, of Battle Creek, Mich. The hub of the machine has two classes of radially extending spokes, one class of spokes extending outward to tangentially arranged strips which constitute retainers, while the others lead to tangential strips connected to the retainers. Upon the retainers and the strips are built up frameworks serving as supports for slats, whereby there are formed outer carpet-receiving chambers, while to the spokes are connected strips which act as barriers at the ends of the machine. One or more traps or lids are provided, for putting in and taking out the carpets, which, as the cleaner is revolved, fall from the upper chambers into the lower chambers, and thus are thoroughly beaten.

**AN IMPROVED COTTON PICKER.**

The illustration represents a machine designed to pick only the ripe cotton, without disturbing the bolls



**STEPHENSON'S COTTON PICKER.**