W. B. HEWITT.

PUMP.

APPLICATION FILED JUNE 12, 1912.

1,183,973.

Patented May 23, 1916.

Fig. 1.

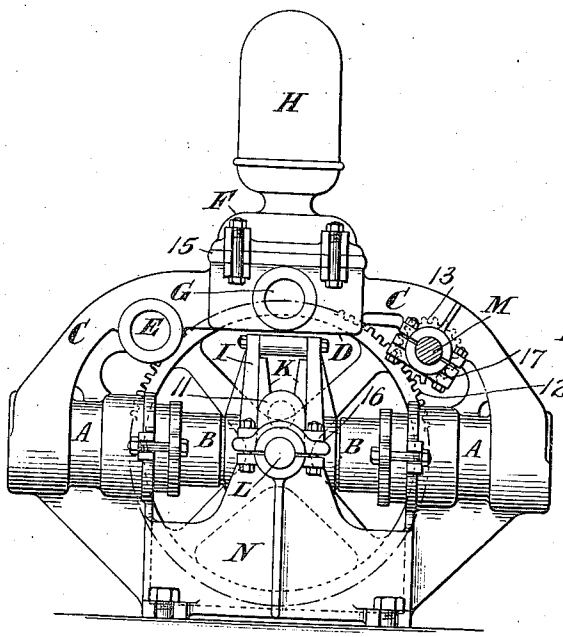


Fig. 2.

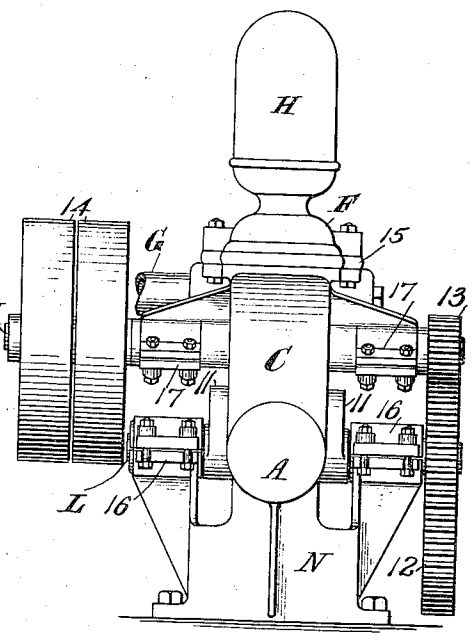


Fig. 4.

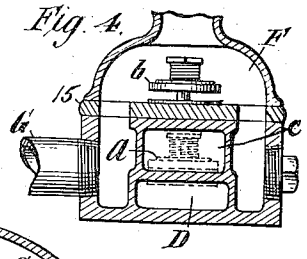


Fig. 3.

Witnesses:
J. J. Donovan
S. E. Brown.

Inventor:
William B. Hewitt
by his Attys:
Pierce Lawyer Price & Kennedy

UNITED STATES PATENT OFFICE.

WILLIAM B. HEWITT, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WORTHINGTON PUMP AND MACHINERY CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF VIRGINIA.

PUMP.

1,183,973. Specification of Letters Patent. Patented May 23, 1916.

Application filed June 12, 1912. Serial No. 703,135.

To all whom it may concern:

Be it known that I, WILLIAM B. HEWITT, a citizen of the United States, residing at Holyoke, county of Hampden, and State of Massachusetts, have invented certain new and useful Improvements in Pumps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved pump of that class of single double acting pumps designed especially for the use of farmers, stockraisers and the like. Such pumps should be simple and rugged in construction, low in cost of manufacture and operation, fitted for intermittent use, convenient for packing and repair, and provide for convenient repacking and replacement of valves without skilled labor. Such pumps have heretofore been of the inside packed piston pattern, in which the piston is not readily accessible for repairs or repacking, and leakage is impossible of observation without removal of parts. The volumetric efficiency of these pumps, therefore is very low after short service and the power used for work done excessive. For cheapness of construction, also, it has been the custom to make many bearings non-adjustable, which affects the life and efficiency of the machine.

The especial object of the present invention is to provide a simple, strong, cheap and durable pump having outside packed plungers, readily accessible for observation of leakage and for repacking, and in which inaccessible interior parts required to be adjusted or renewed shall be avoided and by which high efficiency and low cost of manufacture, operation and up-keep shall be attained.

In the accompanying drawings forming a part of this specification, a pump of the preferred form embodying all the features of the invention is shown, and this construction will now be described and the features forming the invention then specifically pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the pump. Fig. 2 is an end elevation of the pump. Fig. 3 is a vertical central section longitudinally of the pump plungers. Fig. 4 is a detail transverse sectional view through the discharge chamber.

Referring to the drawings, A A are the pump cylinders forming the opposite ends of the double acting pump, B B the pump plungers, C the pulsation chambers and passages, D the suction chamber connected with suction pipe E, F the discharge chamber connected with discharge pipe G, H the discharge air chamber, *a* the suction valves and *b* the discharge valves. The suction and discharge may be at either side of the pump. The plungers B are outside packed by packing 10 of any suitable form and are cast integral with or attached to their respective cross heads I actuated by the sliding block K between the cross heads I, reciprocated by the crank 11 on crank shaft L shown as driven by gear 12 and pinion 13 on shaft M shown as actuated by tight and loose pulleys 14. The pump is preferably of the submerged plunger type, that is, both the suction and discharge valves are above the cylinders, so that the pump is always in condition to start without priming, even after long periods of disuse. A dripping pan or basin N preferably extends below the packing 10 and cross heads, arranged to catch all leakage from the external stuffing boxes and oil from the bearings, so that the pump is suitable for house operation.

In the smaller sizes, the pump may and preferably will be constructed as shown, that is, with the drip pan, pump cylinders, pulsation and suction chambers, and the suction valve plate integral, thus providing a very simple, cheap and strong construction. In the larger sizes, however, the pumps may be formed in two or more pieces and cast and assembled in any suitable manner. The discharge valves *b* are carried in a separate plate 15 above the suction valves, as shown, and the discharge chamber F and air chamber H are preferably formed integral as a cover over the discharge valves, the cover and discharge valve plate being secured to the pump in any suitable manner, being shown as bolted in slotted openings.

The pulsation passages C connecting the pump cylinders with the valve chambers above the plungers form an open frame supporting the valve chambers and air chamber, and provide for the freest access to the packings and operating crank shaft. The crank shaft L is suitably supported in bearings 16 on the basin casting, and the pinion shaft M in bearings 17 below the pulsation chamber at one end of the pump.

It will be seen that the pump is very simple, strong and durable, and provides for convenient access to and replacement or repair of all parts liable to require this, and is admirably fitted for use where the attention of a skilled engineer or machinist is not available. Both the suction and discharge valves may readily be removed and replaced without disconnecting the suction or discharge pipe from the pump, so that these connections are permanent and are not interfered with by valve replacement.

It will be understood that the invention is not limited to the special center crank arrangement or special form of valves shown, but that these parts, as well as other details of the construction, may be varied while retaining the invention defined by the claims.

What I claim is:

1. A pump having a base carrying substantially horizontal opposed cylinders forming the pump chambers, outside packed pump plungers in said cylinders connected together at their adjacent ends, a central power operating crank shaft and crank for actuating said plungers, pulsation passages extending upward and inward from the outer ends of the pump cylinders, and suction and discharge chambers located in line and carried by the inner ends of the pulsation passages.

2. A pump having a base carrying opposed cylinders forming the pump chambers, outside packed pump plungers in said cylinders connected together at their adjacent ends, a central power operating crank shaft and crank, pulsation passages extending upward and inward from the opposite ends of the pump and forming a frame open on the sides above the pump cylinders, suction and discharge chambers carried by the adjacent ends of the pulsation passages above the pump plungers, and valves in said suction and discharge chambers.

3. A pump having a base carrying opposed cylinders forming the pump chambers, outside packed pump plungers in said cylinders and in alinement with each other, each plunger having an integral yoke member at its outside end, means for connecting said yoke members to form a yoke, a central power-operating crank-shaft and crank, said crank engaging the yoke, pulsation passages extending upward and inward from the opposite ends of the pump and forming a frame open on the sides above the pump cylinders, suction and discharge chambers carried by the adjacent ends of the pulsation passages above the pump plungers, and valves in said suction and discharge chambers.

4. A pump having a base carrying opposed cylinders, forming the pump chambers, outside packed pump plungers in said cylinders connected together at their adjacent ends, a central power operating crank shaft and crank for actuating said plungers, pulsation passages extending upward and inward from the opposite ends of the pump and forming a frame open on the sides above the pump cylinders, suction and pulsation chambers carried by the adjacent ends of the pulsation passages above the pump plungers, a removable discharge valve plate on the pulsation chamber above the suction valves and a removable cover forming a discharge chamber above the discharge valves.

5. A pump having a base carrying opposed cylinders, forming the pump chambers, outside packed pump plungers in said cylinders connected together at their adjacent ends, a central power operating crank shaft and crank for actuating said plungers, pulsation passages extending upward and inward from the opposite ends of the pump and forming a frame open on the sides above the pump cylinders, suction and pulsation chambers carried by the adjacent ends of the pulsation passages above the pump plungers, suction and discharge pipe connections carried by the pulsation passages, a removable discharge valve plate on the pulsation chamber above the suction valves and a removable cover forming a discharge chamber above the discharge valves and having a passage extending downwardly outside the pulsation chamber to the discharge pipe.

6. A pump having a base forming the drip pan N, opposed cylinders A on said base forming the pump chambers, outside packed pump plungers B in said cylinders carrying inner cross heads I connected together, sliding block K between said cross heads, crank shaft L carrying crank 11 actuating said block, pulsation passages C extending upward and inward from the pump chambers and carrying suction chamber D and discharge chamber F above the pump plungers, and carried by the inner ends of pulsation passages C, driving shaft M mounted in bearings on pulsation passage C, and gearing between the driving shaft M and crank shaft L.

7. A pump having a base, substantially horizontal opposed cylinders A on said base forming the pump chambers, outside packed

pump plungers B in said cylinders, crank shaft L, crank 11 and connections for actuating said plungers, pulsation passages C extending upward and inward from the pump chambers and forming a frame open on the sides above the pump cylinders suction chamber D and discharge chamber F above the pump plungers, and carried by the inner ends of pulsation passages C, said base, pump cylinders, pulsation passages and suction chamber being formed integral.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM B. HEWITT.

Witnesses:
FRITZ GIEHLER,
F. J. NEWCOMB.