March 15, 1932. LE ROY H. LABAW 1,849,303

MOTOR PUMP UNIT

Filed July 11, 1928

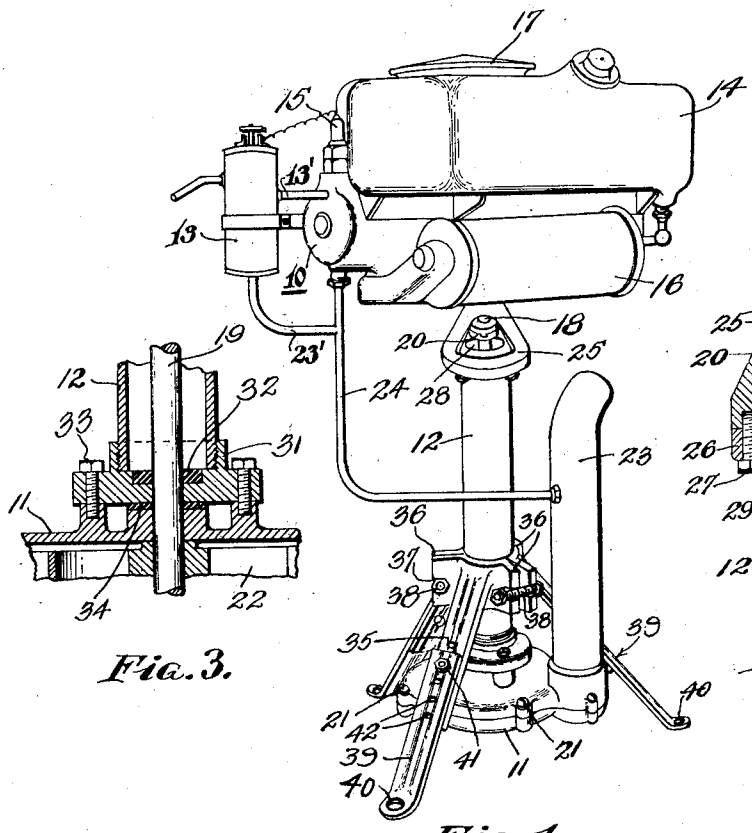


Fig. 1.

Fig. 3.

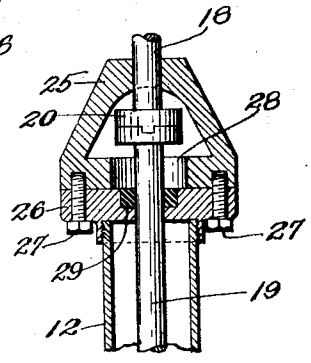


Fig. 2.

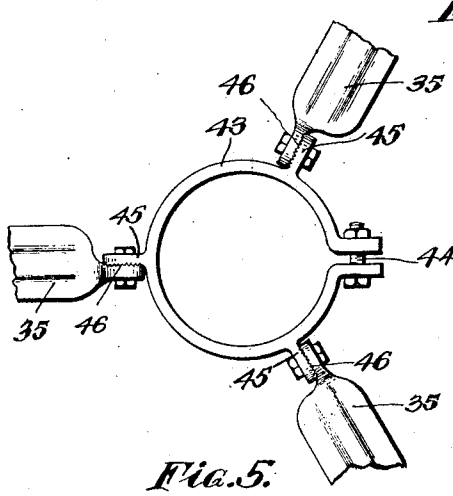


Fig. 5.

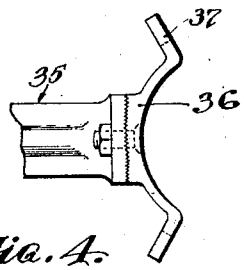


Fig. 4.

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UNITED STATES PATENT OFFICE

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MOTOR PUMP UNIT

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My invention relates to pumps, and more particularly to portable power pumps, in which a pump unit and a power unit are combined in a single unitary structure that may readily be carried from place to place wherever it is desired to carry on pumping operations.

A pump installation embodying my invention is particularly desirable for use in pumping out drainage wells, excavations and similar places where it is necessary to utilize a small and compact pump capable of handling large quantities of water. A pumping apparatus of this character is also desirable for use in those places where outside power such as electric current, compressed air or steam are not available or where it is impractical to use apparatus employing such power.

The object of my invention is to provide a pumping apparatus in which a pump unit and a self-contained engine unit are combined in a simple and compact portable structure and this object is accomplished by providing an improved supporting mechanism which shall enable the pump to be operated under a wide variety of working conditions.

Another object of my invention is to provide an improved standard for mounting the pump and power units whereby substantially all of the rotative parts shall be enclosed and protected to prevent injury thereto during the operation or handling of the device.

A further object of my invention is to provide an apparatus of the character designated in which an adjustable support for the pump structure shall be adapted to maintain the pumping apparatus in an upright position and in a stable equilibrium during the operation thereof.

A further object of my invention is to provide a unitary portable pumping structure which shall be simple in operation, durable in construction, cheap to manufacture and more efficient than similar apparatus heretofore employed.

These and other objects will be more apparent from the following specification and drawings, and specifically set forth in the claims.

In the drawings:

Figure 1 is a perspective view of a motor and pump unit embodying my invention;

Figure 2 is a detail view in section showing a coupling connection and bearing structure between the motor and pump shaft;

Figure 3 is a detail view in section showing the connection between the pump standard and pump casing;

Figure 4 is a fragmentary view showing a connection for securing legs to the pump standard; and

Figure 5 is a plan view showing a modification of the invention in which the legs are angularly adjustable relative to the pump standard.

Referring to Figure 1 of the drawings, there is shown a portable motor-driven pump unit embodying my invention in which a self-contained internal combustion engine power unit 10 is rigidly connected to a centrifugal pump 11 by means of a tubular support standard 12.

The power unit which I employ for driving the pump includes the internal combustion engine having a fuel tank 14, ignition device 15 and muffler 16, all associated therewith to form a complete operative power unit that may be used independently of any other power systems. The engine is provided with a flywheel indicated at 17 and connected to a vertical crank shaft, the lower end of which is indicated at 18, Fig. 2. The crank shaft is directly connected to a pump shaft 19 by means of a thrust coupling 20 arranged and constructed so as to permit the shaft to be readily disengaged when it is desired to remove the engine from the standard for any reason.

The pump unit comprises a horizontal cen-

trifugal pump 11 having a divided casing in which the casing members are secured together by bolts 21. Located within the casing is a pump runner or impeller 22 and secured to the lower end of the pump shaft 19 as shown in Fig. 3. The pump casing is provided with a central inlet, not shown, and a discharge outlet indicated by a pipe 23. Cooling water is supplied to the engine 10 by means of a conduit 24 which communicates with the engine cylinder water jacket and the discharge pipe 23 of the pump.

The feature of taking a portion of the fluid discharged from the pump for cooling the engine provides an efficient cooling system for the engine and further provides a convenient means for operating a float regulator 13, which is connected with the water jacket of the engine 10 by branch pipes 13′ and 23′. The arrangement is such that when the supply of pumped fluid is exhausted, the depletion of cooling fluid in the regulator tank operates a float to cut off the ignition and stop the engine.

The pump unit and motor assembly are supported in fixed relation by the tubular standard 12 which provides a rigid connection between the pump and engine units. The engine is supported on the upper end of the standard 12, Fig. 2, by a hollow casting 25 and a flange member 26 threaded to the standard. The casting and flange member are secured together by tap bolts 27, which permit ready separation of the parts whenever it is desirable to remove the engine for any reason. To further facilitate removal of the engine from its support, the base of the casting 25 is provided with an aperture 28 which is large enough to permit the coupling parts to pass through when the structure is dismounted. The flange 26 is also adapted to provide a bearing structure for the upper end of the pump shaft, and is arranged to accommodate a suitable packing 29 for lubricating the bearing.

The lower end of the support standard 12 is provided with a threaded flange 31, which is adapted to form a bearing for the lower end of the pump shaft, and is also provided with a packing 32 for lubricating this bearing. This flange is secured to the upper portion of the pump casing by tap bolts 33 and the connection is made water-tight by means of a gasket 34.

The pumping unit is maintained in an upright position and stable equilibrium by means of a tripod support having diverging legs 35 shown in Figs. 4 and 5. These legs are connected to the vertical standard so as to provide for adjusting the pump unit vertically relative to the fluid which it is desired to pump or for rigidly mounting the pumping unit to any form of subbase.

In the preferred embodiment of my invention, the upper ends of the leg members 35 are provided with wing portions having arcuate shaped central portions which permit the legs to fit the standard and be clamped thereto. The ends of the wing portions are provided with slots 37 adapted to receive bolts 38 which serve to clamp the legs to the standard and thereby form a rigid support which may be readily adjusted to secure the pump in any desired operative position.

It is frequently necessary to employ a support in which the length of the legs may be separately adjusted and in order to accomplish this desired result, each leg may be provided with an extension member 39 having an anchor foot 40. When this construction is employed, the two leg sections are secured together by a bolt 41 engaging aligned holes 42 in the leg members. Referring to the modifications shown in Figs. 4 and 5, provision is made whereby each leg section 35 may be angularly adjusted relative to the winged head 36.

In the modification shown in Fig. 5, there is provided a clamping ring 43 having projections 45 adapted to connect with leg members 35. The ends of the ring are drawn together by a bolt 44, which rigidly clamps the tripod to the standard 12. The faces of projections 45 are provided with serrations 46 which serve to assist in holding the legs in the adjusted position.

While I have shown a separate clamp for adjustably mounting the legs to the standard, it is obvious that the projections for mounting the legs may be formed integral with the standard 12 and the necessary adjustments of the legs effected by the adjustments heretofore described.

It is obvious that various changes may be made therein without departing from the scope of the invention as set forth in the claims.

What I claim is:

1. A tripod support for a cylindrical pump standard including a plurality of individual leg members angularly disposed to said standard, each leg member comprising a head portion having a bearing surface adapted to engage the standard and another bearing surface adapted to receive the upper end of a corresponding leg portion, flange members extending outwardly from the lateral edges of the bearing surface adjacent the standard and at an angle to the flange of an adjacent head portion and pivot connections between each leg and its corresponding head portion for adjustably securing each leg in a different lateral angular position relative to the standard, whereby each individual leg may serve as a lateral brace for the pump standard.

2. A tripod support for a cylindrical pump standard including a plurality of individual leg members angularly disposed to said standard, each leg member comprising a head portion having a bearing surface adapted to en-

gage the standard and a serrated bearing surface adapted to receive the upper end of a corresponding leg portion, flange members extending outwardly from the lateral edges of the bearing surface adjacent the standard and at an angle to the flange of an adjacent head portion and pivot connections between each leg and its corresponding head portion for adjustably securing each leg in a different lateral angular position relative to the standard, and positively maintaining such adjustment, whereby each individual leg may serve as a fixed lateral brace for the pump standard.

In testimony whereof I have affixed my signature.

LE ROY H. LABAW.