Sept. 28, 1943. L. HATHAWAY 2,330,488

PORTABLE ENGINE-DRIVEN PUMP

Filed Dec. 1, 1941

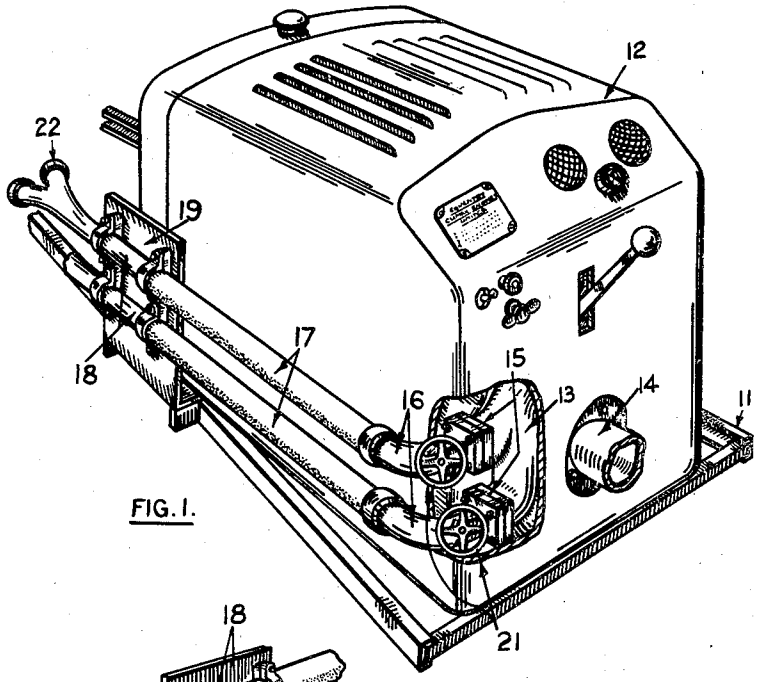


FIG. 1.

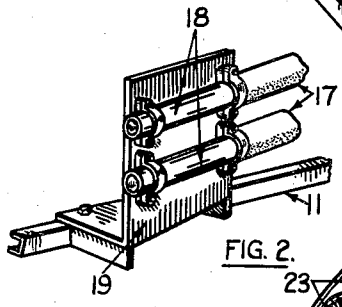


FIG. 2.

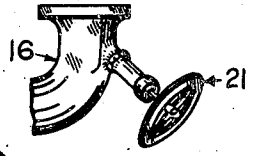


FIG. 3.

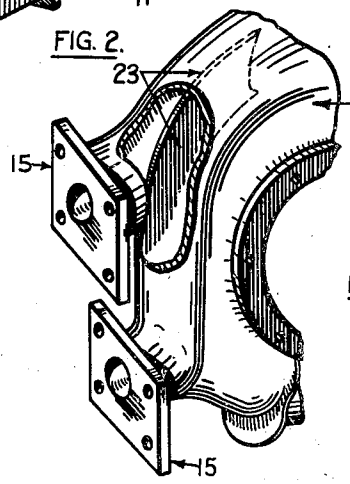


FIG. 4.

Inventor
Lawrence Hathaway
by Mawhinney & Mawhinney
Attorneys.

Patented Sept. 28, 1943 2,330,488

UNITED STATES PATENT OFFICE

2,330,488

PORTABLE ENGINE-DRIVEN PUMP

Lawrence Hathaway, Coventry, England, assignor to Coventry Climax Engines Limited, Coventry, Warwickshire, England

Application December 1, 1941, Serial No. 421,217
In Great Britain January 15, 1941

5 Claims. (Cl. 103—111)

This invention relates to a trailer or other portable engine-driven pump, particularly for fire-fighting purposes.

With the ordinary construction of such a unit, the pump, disposed at one end of the unit, has the inlet and outlet arranged adjacent one another, i. e., at the end remote from the towing end in the case of a trailer. As it is desirable, when the pump is drawing water from an open source (such as a pond), that it should be placed as near the source as possible, in order to reduce the length of the inlet passage, there is frequently little room left for the operator to control the delivery valve. Moreover, there is always a danger of the pump "working backwards" towards the source of supply, with the possibility of inconveniencing the operator, and the latter is subjected to leakage from the hose where it is joined to the pump outlet, the hose normally being sharply curled round through approximately two right angles in order that it may extend forwardly away from the source. Furthermore, in the case of a dual delivery pump, there is frequently congestion while a breeching-piece is being fitted.

These difficulties also apply in general in the case of a pumping unit connected in tandem with another.

It is the main object of the invention to avoid these disadvantages in a simple manner.

According to the invention, a portable engine-driven pump has a delivery pipe extending from the pump alongside the engine, and a control valve therefor disposed adjacent the pump but to one side thereof, the delivery pipe being adapted for connection to a hose or breeching-piece at its end remote from the pump. In the case of a centrifugal-type of pump the delivery pipe may be connected to one side of the volute chamber, having a plain angle-bend in it adjacent the pump in which the control valve is disposed.

Furthermore, in the case of a dual delivery pump, the volute chamber may be divided by a partition substantially in its plane to supply two delivery pipes arranged, with control valves, in the manner specified above. The delivery pipes for preference join the volute chamber at different levels on the same side of the chamber as well as on opposite sides of the partition. Naturally, in the vicinity of the pump each has a substantially-right-angled elbow portion carrying a control valve, and their forward ends may be disposed at or beyond the front of the engine. The pipes form, in effect, an integral part of the pump, their forward ends being mounted in a bracket fast with the chassis-frame or pumping unit.

In practice the operator can stand just to one side of the unit, or at the rear if preferred, and work the control valves, which preferably extend to the side and rear. In this position he has ample room and he is naturally not subjected to leakage from the hose, which may be attached in an ordinary manner to the forward end of a delivery pipe. Furthermore, when a breeching-piece is to be fitted to either of the twin delivery pipes, he can still continue to control the valve for the other as necessary without being in the way of an operator fitting the breeching-piece.

In the accompanying sheet of drawings:

Figure 1 is a perspective view showing a portable pump unit enclosed in a casing, with twin delivery pipes arranged according to the invention;

Figure 2 is a perspective view from the front of the forward ends of the delivery pipes where they are supported by a bracket;

Figure 3 is a fragmentary view showing, to a larger scale, the angle-bend portion of one of the delivery pipes, in which is mounted the control valve; and

Figure 4 is a fragmentary view, also to the larger scale, of the volute casing of the pump.

The drawing shows at 11 a part of a framework which, in point of fact, is intended to be a part of the framework of the chassis disclosed in the specification of my co-pending patent application No. 421,215 filed herewith, and mounted thereon is a pumping unit comprising an internal-combustion engine connected to drive a centrifugal form of pump, preferably of the single-stage vaned-rotor type. In the present instance the unit is enclosed in a casing 12, the pump, of which 13 indicates the casing of the volute chamber, being at the rear. 14 is the inlet to the pump, disposed centrally of the volute casing according to ordinary practice.

In the past the pump outlet and control valve have usually been at the top of the volute chamber, facing the rear, in which case the hose connected thereto bends through two right angles when passing forwardly and is liable to leak at the bend. Furthermore, as mentioned above, if it be necessary to substitute a breeching-piece for the hose, the operator who works the control valve is handicapped or is in the way. This is particularly so in the case of a twin delivery pump.

In accordance with the present invention, however, the pump outlets are at the side of the

volute chamber, and they are provided with flanges 15 to which can be bolted the flanges of angle-bend pipes 16 connected to pipes 17 running forwardly alongside the unit. In point of fact the pipes 17 in this instance are formed of flexible material, though they are, as stated, an integral part of the pump. Their forward ends are engaged in the normal pump outlets 18 which in this case are supported by a bracket 19 secured in any convenient manner to the adjacent longitudinal of the framework upon which the pumping unit itself is supported. In the elbow pipes 16 are disposed the control valves, these having actuating wheels 21.

The drawing shows a breeching-piece 22 mounted in one of the delivery pipes, and it will be observed that this breeching-piece is well away from the control wheels 21, so that the man in charge of the latter is not interfered with, or in the way, if it should be necessary to substitute for a breeching-piece a length of hose, or vice versa. Furthermore, he can operate the control valves from the side of the unit, so that if the unit should "work backwards" there will be no danger of his being inadvertently pushed into a pond or other source from which the supply is being taken.

From Figure 4 it will be observed that the flanges 15, in addition to being at different levels, are also on opposite sides of the central plane of the volute chamber at right angles to the pump axis. The volute chamber is divided at this point by a central partition 23, the respective halves supplying the two pump outlets.

What I claim as my invention and desire to secure by Letters Patent of the United States is:

1. A portable engine-driven centrifugal pump having a volute chamber, a delivery pipe connected to one side of the volute chamber, an angle-bend portion in said delivery pipe adjacent the pump, a control valve disposed in said angle-bend portion and extending laterally away from the pump to be accessible from the side of the pump, said delivery pipe having a portion extending alongside the engine and adapted at its end remote from the angle-bend portion for connection to a hose or breeching-piece in known manner.

2. A portable engine-driven pump according to claim 1, characterized in that the portion of the delivery pipe which extends alongside the unit from the angle-bend portion is of flexible material.

3. A centrifugal pump having a volute chamber and an inlet disposed axially of the volute chamber, and having twin outlets at one side of the volute chamber, the said outlets being at different levels and on opposite sides of the central plane of the volute chamber at right angles to the axis thereof, said volute chamber having a partition in it in said central plane in the vicinity of the outlets.

4. In combination, an engine driven centrifugal pump mounted upon a framework, said pump having a volute chamber and an inlet arranged axially of the volute chamber, and said pump having an outlet at one side of the volute chamber, an angle bend portion connected to said outlet, a bracket supported by said framework at a point remote from said pump outlet, a rigid pipe outlet secured to said bracket and adapted for connection at one end to a hose or breeching piece, a flexible delivery pipe connecting the other end of the pipe outlet with the angle-bend portion, and a valve disposed in said angle-bend portion and extending laterally away from the pump to be accessible from the side of the pump at a point remote from the rigid pipe outlet.

5. In combination, an engine driven centrifugal pump mounted upon a framework, said pump having a volute chamber and an inlet arranged axially of the volute chamber, said pump having twin outlets at one side of the volute chamber, the said outlets being at different levels, an angle-bend portion connected to each outlet, a bracket supported by said frame work at a point remote from said pump outlets, spaced delivery pipes secured to said bracket and connected to the angle bend portions, said delivery pipes being adapted for connection to hoses or breeching pieces, and a valve disposed in each angle-bend portion and extending laterally away from the pump to be accessible from the side of the pump at a point remote from the pipe supporting bracket.

LAWRENCE HATHAWAY.