

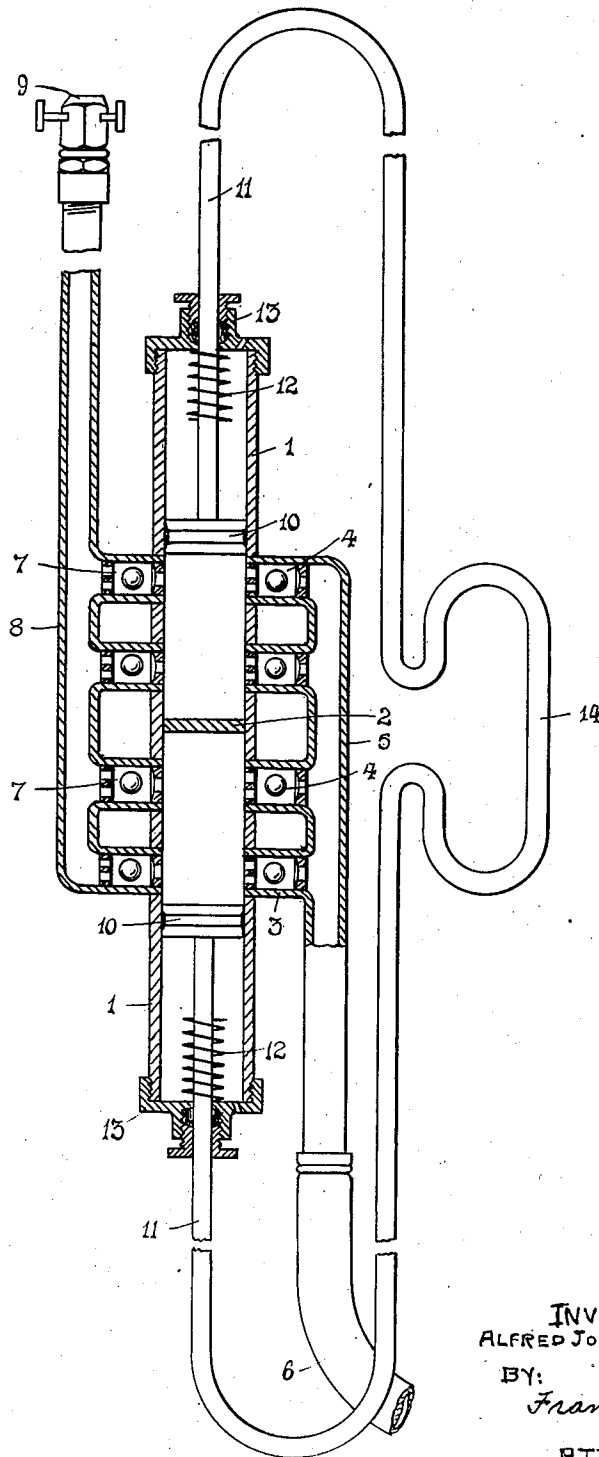
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PORTABLE HAND-OPERATED PUMP

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PORTABLE HAND-OPERATED PUMP

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This invention has reference to portable, hand-operated pumps and has for its object to provide a pump which can be operated by one person who is directing the jet.

At present portable pumps are connected to a water container, either by being put into a bucket of water or connected to a knapsack or other container and the water is pumped through a hose pipe at the end of which is a nozzle by which the water is directed. To do this there must be a person at the nozzle end of the pipe, and if the pipe is more than a few feet in length there must also be someone to work the pump; even if the pipe is so short that one person can both work the pump and direct the jet it is a matter of difficulty to do both things well.

The present invention overcomes these objections by providing a pump which can be worked by the person directing the jet, and according to this invention, a portable hand pump comprises a pump barrel divided into two cylindrical halves in each of which there are valve controlled intake and outlet openings respectively connected to a common source of water supply and to a delivery pipe provided with a nozzle, each cylindrical half of the barrel having a plunger and the two plungers being connected by an external rod, which constitutes a handle for operating the plungers, whereby when the barrel is held in one hand to direct the jet, the plungers are reciprocated by the other hand, moving the external rod, the water thus being drawn from the source of water along the hose pipe and ejected directly from the delivery pipe nozzle.

The invention is more particularly set forth with reference to the accompanying drawing wherein a sectional elevation of a pump is shown in the single figure.

As shown in the drawing the pump comprises a long barrel 1 divided across the middle into two separate, cylindrical parts by a division 2. Above and below this division 2 and on one side of the barrel wall are openings to which short tubes 3 are attached, projecting radially, each tube having a one-way inlet valve 4, all the inlet valve tubes 3 being connected to a common external tube 5 which by means of a hose pipe 6 is connected to a water supply. Opposite to the inlet valves 4 are one-way outlet valves 7 all connected to an external tube 8 arranged oppositely to the inlet tube 5 and which terminates in a nozzle 9 projecting at the end.

In each of the separate cylindrical parts is a plunger 10 each attached to a valve rod 11 surrounded by a spring 12 between the plunger and

the outer end of the part in which it works, this rod passing through screw caps 13. Actually the valve rods are opposite ends of one long rod which is outside the pump and is bent over at each end parallel with itself, the bent-over ends passing through the screw caps 13 and being secured in plungers. The part of the rod outside the pump is provided with grips or handles 14 whereby it can be reciprocated and the plungers 10 are arranged so that when one is near the central division 2 the other is near the screw cap 13, the springs 12 preventing any jarring at the ends of the stroke.

During each outward movement of the plungers 10, that is to say away from the division 2, water is sucked into the part through the one way inlet valves 3 and during the inward stroke and toward the division 2 is forced out by the one-way delivery valves 7, and consequently as long as the valve rod is reciprocated a continuous supply of water is provided at the outlet, due to the two plungers working alternately on the suction and compression stroke.

When the pump is in use the first few strokes exhaust the air from the pump and pipes 5 and 6 after which a constant stream of water is ejected from the nozzle 9 which can be directed as required by the person working the pump, who can also, by the speed of working, increase or decrease the pressure.

Any suitable type of non-return valves may be used but a simple and convenient form comprises a ball 14 mounted in connecting tubes between the supply and outlet pipes and the pump barrel, which closes the passage when moved in one direction against a hole 15 and does not close it when moved in the other, the ball however being retained in place by a gridded or perforated opening 16 on the delivery side of the valve.

It will be appreciated that by means of this invention one person can both pump the water and direct the jet instead of two separate persons doing the two things as at present.

What I claim as my invention and desire to secure by Letters Patent is:

1. A pump to be carried by the user and also to be worked by him while directing the jet in line with the pump, and capable of drawing water to the pump from a distance, comprising a cylindrical barrel, a rigid supply pipe on one side of said barrel and parallel therewith for connection to a source of liquid supply, and directed toward one end of said barrel, a rigid delivery pipe on the opposite side of said barrel, said pump barrel being divided midway of its length into two sep-

arate chambers, each of said chambers having one way inlet-valves connected to said supply pipe, and opposite thereto one way valves connected to said delivery pipe, each chamber of said pump barrel having a plunger and both being operated in different directions at the same time by a handle operated by one hand while the pump is held and the jet directed.

2. A pump to be carried by the user and also to be worked by him while directing the jet in line with the pump and capable of drawing water to the pump from a distance, comprising a cylindrical barrel, a rigid supply pipe on one side of said barrel and parallel therewith for connection to a source of liquid supply and directed to one end of said barrel, a rigid delivery pipe on the opposite side of said barrel directed toward

the other end thereof, said pump barrel being divided midway of its length into two separate chambers each of said chambers having one way inlet valves connected to said supply pipe and opposite thereto one way valves connected to said delivery pipe, each chamber of said pump barrel having a plunger, and both being operated in different directions at the same time by a handle formed in a rod whose ends engage the two plungers and which is bent round parallel to the pump barrel so that the handle can be operated and the plungers reciprocated by a to and fro movement in the direction of the barrel, the pump thus being held and pumped and the jet directed by both hands working together.

ALFRED JOHN GROCOTT.