(No Model.). 2 Sheets—Sheet 1.

W. C. WINFIELD.

COMBINED VESSEL AND PUMP.

No. 441,530. Patented Nov. 25, 1890.

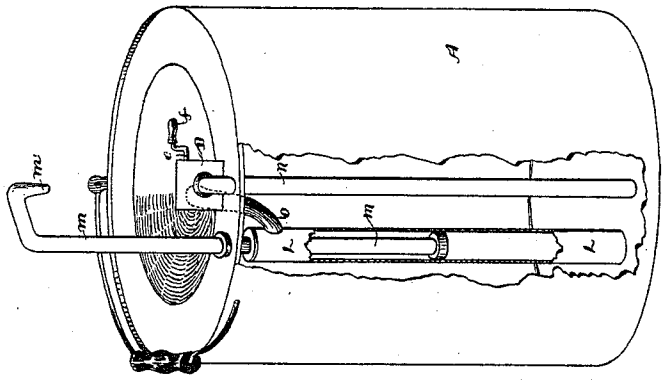


Fig 2.

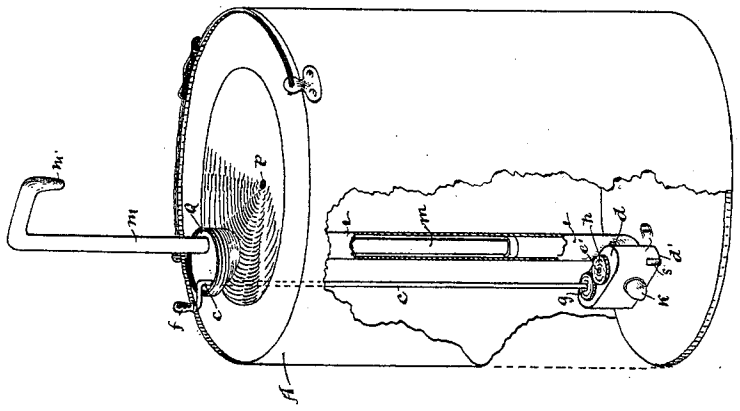


Fig 1.

Witnesses
H. S. Austutz
R. B. Moser

Wm C Winfield Inventor

By his Attorney H. T. Fisher

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

W. C. WINFIELD.

COMBINED VESSEL AND PUMP.

No. 441,530. Patented Nov. 25, 1890.

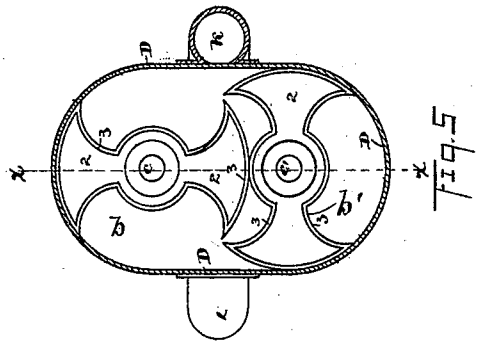


Fig. 5.

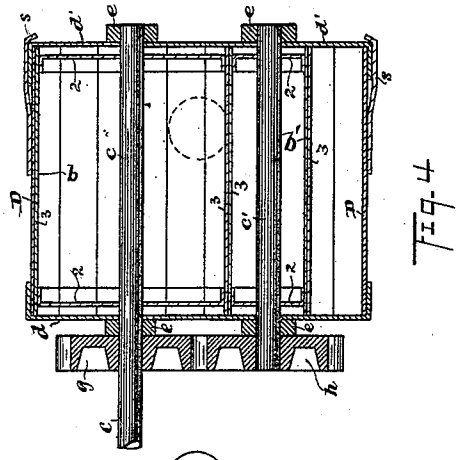


Fig. 4.

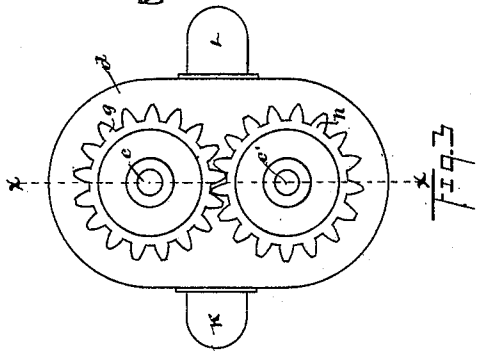


Fig. 3.

Witnesses
H. S. Ancelet
A. B. Moser

Wm C. Winfield Inventor

By Attorney H. Y. Dishon

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM C. WINFIELD, OF WARREN, OHIO, ASSIGNOR TO THE WINFIELD MANUFACTURING COMPANY, OF SAME PLACE.

COMBINED VESSEL AND PUMP.

SPECIFICATION forming part of Letters Patent No. 441,530, dated November 25, 1890.

Application filed February 15, 1890. Serial No. 340,601. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WINFIELD, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in a Combined Vessel and Pump; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a combined vessel and pump; and the object of the invention is to provide improved means for pumping oils and other liquids of like nature out of cans or other containing-vessels as used for filling lamps or other small containers and in what is commonly known as "store-tanks."

To this end the invention consists in the construction, combination, and arrangement of parts, substantially as shown and described, and particularly pointed out in the claims.

For the purposes of this application it is deemed sufficient to illustrate the invention as it is employed in or with an oil-can.

Figure 1 is a perspective view of an oil-can having a portion of the side broken away and disclosing a pump on the bottom of the can, the mechanism for operating the same, and the discharge-pipes. Fig. 2 is a perspective view of a similar can, with the pump on the top and showing suitable pipes to carry the fluid. Fig. 3 is a plan view of the pump as it appears, say, in Fig. 1, showing gear to operate the pistons. Fig. 4 is a vertical central section on line $x\,x$, Fig. 3. Fig. 5 is a bottom view of the pump, with the bottom or lower cap removed and showing the construction and arrangement of the pistons.

I am of course aware that cans for this and kindred purposes have been provided with pumps; but I am not aware that ever a can or other like vessel has been provided with a pump having the functions and performing the work of the pump embodied in this invention.

A is the can or vessel. This obviously may have the form here shown or some other form, and it may be filled with oils or other like liquids, as the case may be.

The pump used by me is what is known as a "rotary pump," and is located either in the can or other vessel on the bottom thereof, as shown in Fig. 1, or on the top, as shown in Fig. 2, or in some other convenient position. The preferred arrangement is that shown in Fig. 1. This pump is provided with two pistons b and b', supported on shafts or rods c and c', extending through the heads d d' of the casing D. The pistons b b' are similar in construction and are stamped or pressed up out of sheet metal, each piston consisting of a flanged head 2, having a central opening for the passage of the shaft, and the side shell or plate 3, formed to the desired shape and attached to the heads by soldering or other suitable way. The flanges of the heads 2 preferably extend inwardly, and the side plates 3 overlap the said heads somewhat, so that these edges are beyond the caps and come in contact with the ends of the casing. A single plate, or two or more plates together, may be used to form the side portion 3 of the pistons, or the side portions and one head may be pressed up in one piece. It will be seen by this construction that I get the advantages of lightness and cheapness combined with all the possible efficiency of a piston made in any well-known way. These pistons of course may be made solid, if desired, and from such metals as iron, babbitt, type-metal, or other ingredients.

To deepen the bearing-surface of the shafts c c', I fix collars e preferably on the outside of the pump-casing. Of course the pistons b b' are fixed on the shafts c c', so as to turn therewith. In this instance the axle c is the main axle, having a crank f to turn it and carrying a pinion g on the top of the pump, which meshes with a pinion h on the shaft c' and operates said shaft and piston. Thus the pistons are caused to revolve in opposite directions whichever way the crank is turned, and being turned one way will pump liquid out of the vessel and the other way will pump liquid into the vessel. In this connection it will be noticed that by reversing the motion of the pump any excess of liquid pumped into the lamp or other container may be returned directly to the vessel, or the contents of any container may be emptied into the vessel through and by the pump, which is not possi-

ble with a plunger-pump. The advantage of this feature is obvious and of practical value.

As shown in Fig. 1, the pump-casing has an inlet beneath the hood *k*, the lower edge of which hood is above the edge of the casing to admit the fluid, and an outlet at the rear through pipe L. This pipe L may be, as shown in Fig. 1, of such size in cross-section that the discharge-pipe *m* will be adjustable closely therewith; or, as shown in Fig. 2, where the outer pipe L is of such diameter as to leave a chamber or free annular space between it and the said discharge-pipe *m*. The discharge-pipe *m* may be of length shown in Figs. 1 and 2, and have an up-and-down and rotary adjustment or may be short enough to simply enter pipe L and have only a rotary adjustment to discharge over the side of the vessel. In Fig. 2 the said chamber is necessary to form a passage for the fluid to the discharge-pipe from the short pipe above.

It will be seen in Fig. 2 that a separate draft-pipe *n* extends through the can-head from the pump to about the bottom of the can, through which the oil is drawn into the pump. On the opposite side of the pump is a connecting-pipe *o*, which empties into the stand-pipe L. The discharge-pipe *m*, as shown in Figs. 1 and 2, has such length that when the nozzle *m'* thereof is inserted in the opening *p* in the head of the can by pressing the said pipe downward the lower end will be well down near the bottom of the can. I am aware that, broadly, an adjustable discharge-pipe substantially as shown here is not new; but I am not aware that it has ever before been used in the novel combination herein described.

In Fig. 1, Q represents a screw-cap through which the pipe *m* and shaft *c* enter the can, and the opening in the can is designed to be large enough to introduce and remove the pump.

The top cap or cover of the pump-casing *d* is soldered to the body so as to be permanently fastened, or may be pressed up in one piece, while the bottom or loose cap *d'* is removable and in this instance is held in position by spring-catches *s*. This affords opportunity to get at the inside of the pump when for any reason this becomes necessary. This bottom may of course be fastened permanently to the body, if desired.

A number of advantages are obtained by the use of a rotary pump of this character that are not possible by any other style of pump hitherto used in this art. In the first place, it gives a steady and natural flow of the liquid, like pouring it out, and the volume is wholly dependent on the rapidity with which the pump is operated. The instant the pump is stopped the flow stops. No special skill or experience is required to operate the pump, and a child can use it. Again, it is equally as useful and available to fill the vessel as to empty it by merely reversing the movement of the pump. In this case hose can be attached to the nozzle of the pipe *m* and connect with the source of supply. This function of course is not possible with any form of valve force-pump, and in said pumps there must be a large amount of air exhausted before the pump begins to work. A further objection to valve or force pumps is that their action is irregular, and that they will continue to discharge more or less after operation ceases, the flow being in spurts under pressure, and thus frequently overflowing the lamp. No such result will occur with a rotary pump, and a slight reverse movement of the pump will force the oil therein or in the pipes outside back into the can. It is therefore apparent that very material advantages are secured by this novel adaptation of a rotary pump, and it is made to perform functions not hitherto obtained and not possible by other pumps used in this art.

In Fig. 2 the stand-pipe is closed at the bottom and is supplied through pipe *o*; but in Fig. 1 it opens into the pump.

It should have been stated that Figs. 3, 4, and 5 are drawn to the full size of the devices therein represented, showing, of course, that the pump used in an ordinary oil-can is exceedingly small as compared with the size of the can, and being made of light material—such, for example, as sheet-tin—must of course be both light and cheap, and hence will add no special expense to the can to which it is attached and with which it is offered in the market for sale.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An oil can or vessel having a pipe L and an adjustable pipe *m* connected therewith, in combination with a double piston rotary pump connected with said stationary pipe, said pistons meshing with one another and constructed to force oil into the can or out of the same, and a shaft extending from the pump to the top of the can to operate the pump, substantially as described.

2. The oil can or vessel A, the pump-casing D, set in the bottom of the can or vessel and having a pipe L opening into the said casing at one side and an inlet or outlet opening opposite said pipe, and a pipe *m*, adjustably connected with pipe L, in combination with a rotary pump in said casing having pistons *b b'* and shafts *c c'*, pinions *g* and *h* on said shafts, and the shaft *c*, provided with a crank outside the can or vessel to operate the pump, substantially as described.

Witness my hand to the foregoing specification this 8th day of February, 1890.

WILLIAM C. WINFIELD.

Witnesses:

J. H. EWALT,

H. Q. STILES.