

No. 764,732.

PATENTED JULY 12, 1904.

R. W. LAMBERT.
OIL CAN PUMP.

APPLICATION FILED MAR. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

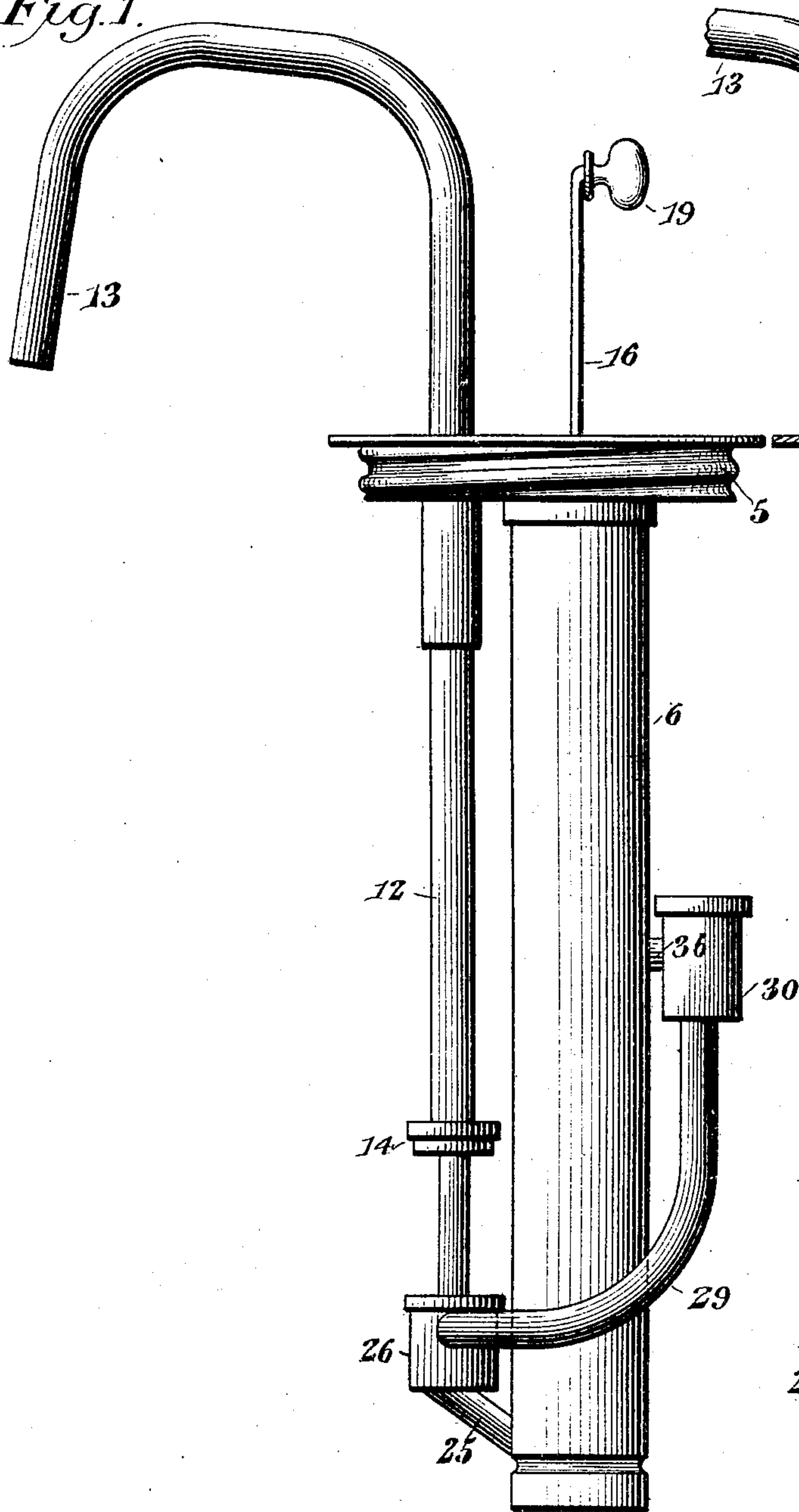
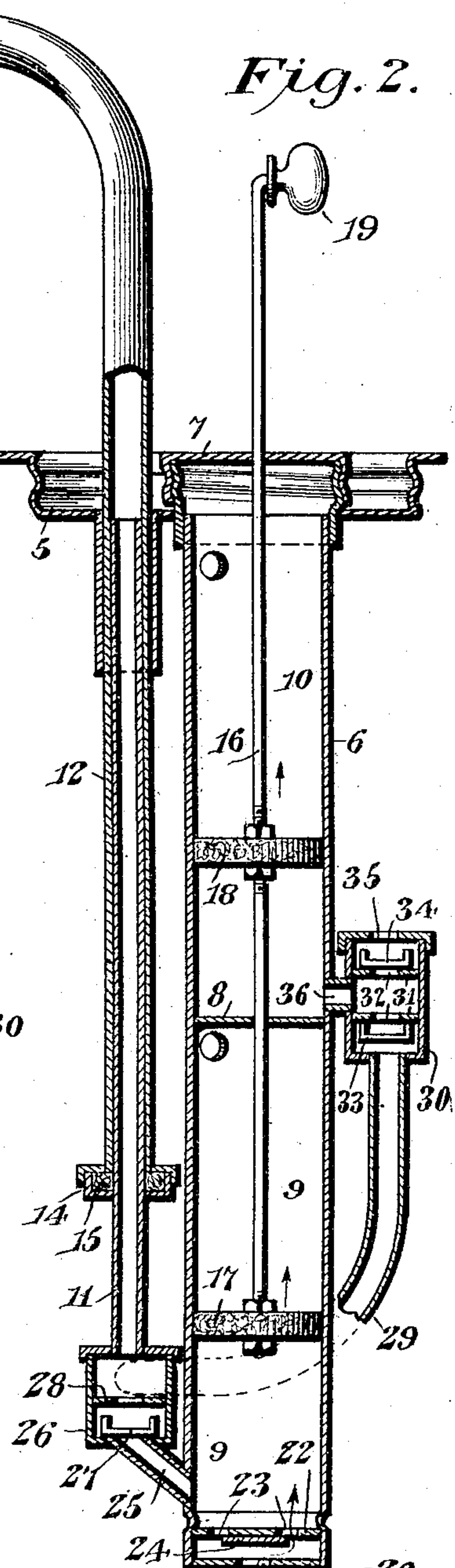


Fig. 2.



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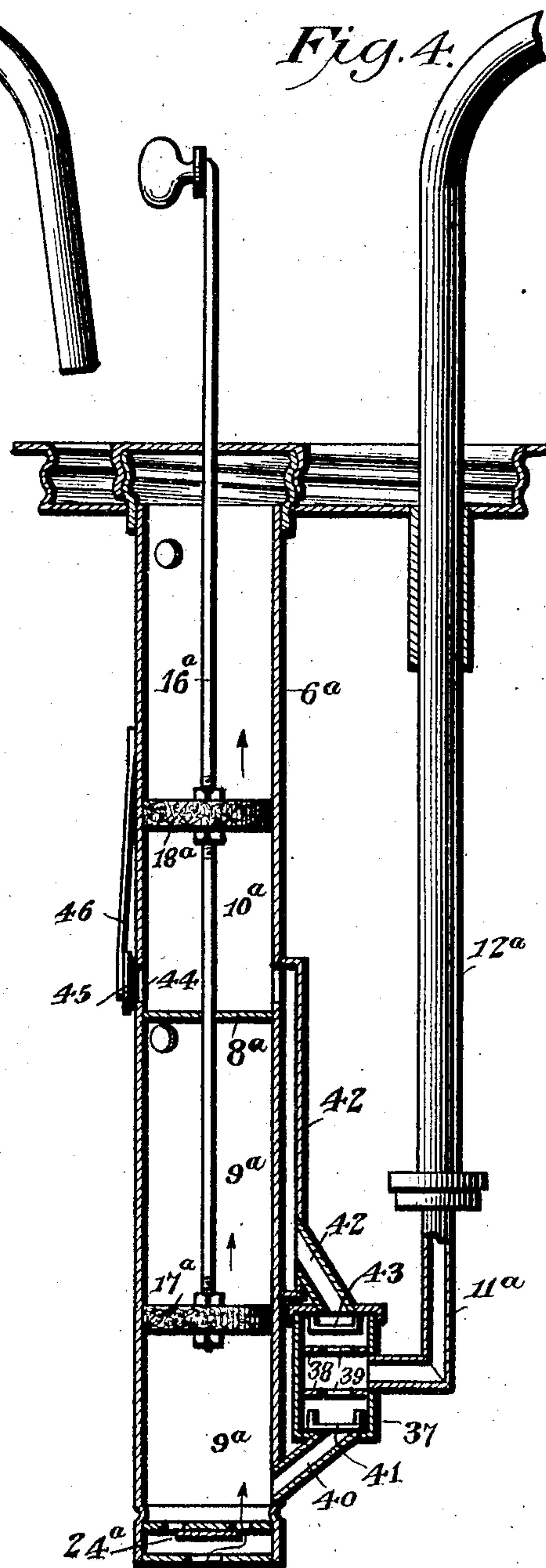
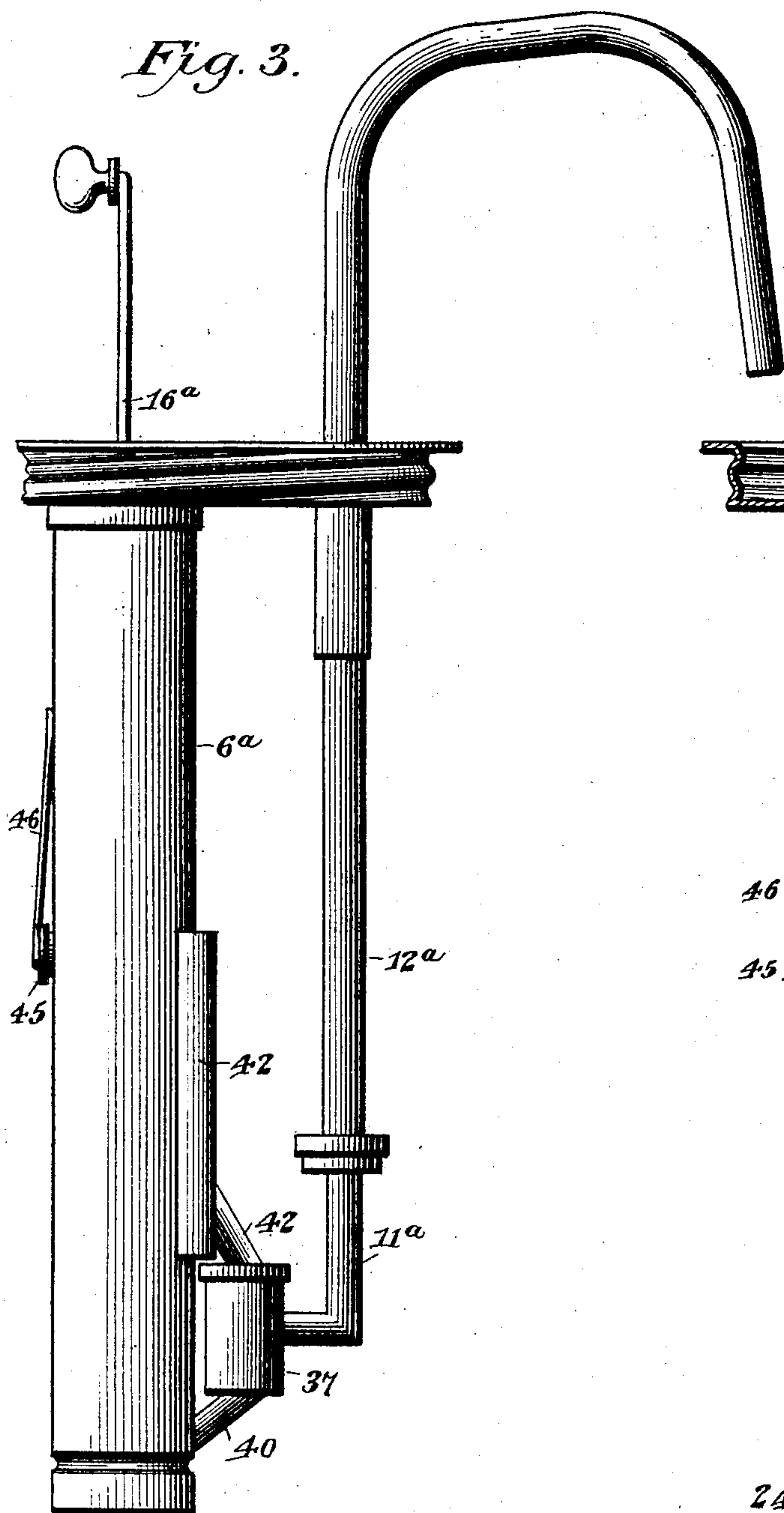
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UNITED STATES PATENT OFFICE.

ROBERT WARREN LAMBERT, OF TOLEDO, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE DELPHOS CAN COMPANY, OF DELPHOS, OHIO, A CORPORATION OF OHIO.

OIL-CAN PUMP.

SPECIFICATION forming part of Letters Patent No. 764,732, dated July 12, 1904.

Application filed March 11, 1904. Serial No. 197,666. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WARREN LAMBERT, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Oil-Can Pump, (Case B,) of which the following is a specification.

My invention relates to pumping apparatus primarily intended for use in connection with oil-tanks for the purpose of pumping oil from the latter into lamp-fonts of that type in which means are provided for automatically preventing the overflow of the latter.

The object is to provide a simple structure wherein a single cylinder is employed in connection with a single discharge and return pipe and a positive discharge as well as a positive return of the liquid is secured through said pipe by means located in said single cylinder.

Two embodiments of the invention are illustrated; but said invention is not limited to these, as it will be evident that modifications of both may be made without departing from the spirit or scope of the invention as set forth in the appended claims.

In the drawings, Figure 1 is a side elevation of one embodiment of the invention. Fig. 2 is a vertical sectional view through the same. Fig. 3 is a side elevation of the other embodiment. Fig. 4 is a vertical sectional view through the same.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

Referring to the structure illustrated in Figs. 1 and 2, it will be noted that the usual screw-cap 5 is shown, which is adapted to be inserted in the top of an oil-can and has suspended therefrom a cylinder 6, which cylinder is preferably of comparatively great diameter when considered with respect to those ordinarily employed. The upper end of the cylinder is preferably open and under ordinary conditions is covered by a screw-cap 7. Substantially midway between the ends of the cylinder is located a transverse partition

8, subdividing said cylinder into a lower barrel 9 and an upper barrel 10, which are thus disposed in tandem. A single discharge and return pipe is employed, comprising telescoped sections 11 and 12, said pipe extending through the screw-cap 5, the upper section being provided with a depending spout or nozzle 13. The lower end of said upper section is furthermore provided with a boxing 14, containing packing 15, that prevents leakage between the sections. Operating longitudinally in the cylinder is a piston-rod 16, that passes through the partition 8 and carries separate pistons 17 and 18, that operate, respectively, in the barrels 9 and 10. The piston-rod 16 extends through the cap 7 of the cylinder and is provided with a suitable handle 19. The lower barrel and its piston constitute the means for discharging the liquid from the can, and said barrel is therefore provided with a bottom 20, having an inlet-opening 21 therethrough. A partition 22, located a slight distance above the bottom 20, has a series of openings 23 therethrough. In the compartment formed by the bottom 20 and partition 22 is located an inwardly-opening valve 24, that is adapted to cover the opening 21 but not the openings 23. A discharge-conduit 25 leads from the bottom of the lower barrel 9 to the lower end of the discharge and return pipe, said conduit including in its structure a valve-casing 26, containing an outwardly-opening valve 27, adapted to close the inlet-orifice in the bottom of said casing, but not the outlet therefrom, which outlet preferably is located in a diaphragm or partition 28, formed in the casing 26, the upper end of said casing constituting a support for and having secured directly to it the lower end of the pipe-section 11. A return-conduit 29 leads from the valve-casing 26 above the partition 28 and terminates at its upper end in a valve-casing 30. Said casing 30 is subdivided into three compartments by two intermediate spaced diaphragms 31, each having an opening 32 therethrough. In the lower compartment of the casing is located an upwardly or inwardly opening valve 33, while

in the upper compartment is arranged an upwardly or outwardly opening valve 34, said upper compartment having an outlet-opening 35 in its top. The intermediate compartment communicates, by means of a passage-way 36, with the lower end of the upper pump-barrel 10, which pump-barrel and its piston constitute the means for effecting the return of the liquid through the single discharge and return pipe. The operation of this pump is as follows: When the screw-cap is secured in the top of a can, the pump-cylinder 6 will be suspended therein, with its lower end a slight distance above the bottom of the can. Upon an upward stroke of the piston-rod it will be clear that oil or liquid is drawn through the bottom inlet of the lower barrel and will consequently fill said barrel. At the same time the upward movement of the upper piston creates a partial vacuum in the lower portion of the upper barrel 10. This vacuum is supplied by air flowing downwardly through the single discharge and return pipe, thence upward through the conduit 29, past the valve 33 into the intermediate compartment of the valve-casing 30, and thence through the passage-way 36 to the barrel. Upon the return stroke the liquid in the lower barrel must of necessity pass through the conduit 25 into the discharge and return pipe and thence to the lamp or vessel to be filled. At the same time the air drawn by the piston 18 into the upper barrel will be expelled past the valve 34 and through the outlet 35. This operation is continued until the level of the liquid reaches the discharge end of the spout 18, whereupon it will be evident that upon the upward stroke instead of air being drawn through the single pipe liquid will be returned. It will therefore be seen that a simple non-overflow pump is secured having a single cylinder and a single discharge and return pipe which efficiently performs both functions, the whole being capable of being cheaply manufactured.

The embodiment illustrated in Figs. 3 and 4 is very similar to that already described. The same pump-barrel 6^a is employed, having an intermediate partition 8^a, the single piston-rod 16^a, with the separate pistons 17^a and 18^a operating, respectively, in the lower and upper barrels 9^a and 10^a, formed by the partition 8^a. A single discharge and return pipe, consisting of sections 11^a and 12^a, is employed, which pipe is respectively connected with the discharge and return pump-barrels. These connections are in the present instance constructed as follows: A valve-casing 37 is employed having intermediate partitions 38, provided with passage-ways 39 therethrough. These partitions subdivide the interior of the casing into three compartments, and the lower end of the section 11^a of the discharge and return pipe is connected and communicates with the intermediate compart-

ment. The lower pump-barrel 9^a has the usual valved inlet 24^a, and an outlet-conduit 40 connects the lower end of said barrel 9^a with the bottom of the lower compartment of the casing 37. Within the lower compartment is placed an upwardly or outwardly opening-valve 41. The upper compartment of the casing 37 has a communication through its top with the conduit 42, leading to the bottom of the upper barrel 10^a, the passage-way through this conduit being controlled by an upwardly or inwardly opening valve 43. An outlet 44, formed in the lower end of the barrel 10^a, is controlled by an outwardly-opening valve 45, shown in the present instance as secured to a spring 46, that is fastened to the side of the cylinder. The action of this modification is substantially the same as that of the embodiment shown in Figs. 1 and 2, and the operation of the parts may be briefly outlined as follows: When the piston-rod 16^a is elevated, the pistons 17^a and 18^a will be moved in a corresponding direction. Liquid will therefore be drawn into the lower barrel, and air will be in like manner sucked into the lower portion of the upper barrel, said air finding its entrance through the nozzle of the combined discharge and return pipe and its passage through said pipe, the valve-casing 37, and the conduit 42. Upon the downward stroke the liquid will be forced from the lower barrel through the pipe and from the nozzle thereof. At the same time the air introduced into the upper barrel will be expelled through the opening 44 past the valve 45. This action will continue until the liquid reaches the spout, whereupon said liquid will be intermittently returned through the upper barrel.

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

1. In an oil-can pump, the combination with barrels arranged in tandem, of separate pistons operating in the barrels, an inlet to one barrel on one side of the piston, a discharge from said barrel on the same side of the piston as the inlet, a return having an inlet to the other barrel on the corresponding side of the piston thereof to the inlet and discharge of the first-mentioned barrel, an outlet from said other barrel on the same side of the piston as the inlet, and a nozzle having communication with the discharge and return and constructed to be inserted into the mouth of a receiving vessel.

2. In an oil-can pump, the combination with barrels arranged in tandem, of separate pistons operating in the barrels, an inlet to one barrel on one side of the piston, a discharge from said barrel on the same side of the piston as the inlet, a return having an inlet to the other barrel on the corresponding side of the piston thereof to the inlet and discharge of the first-mentioned barrel, an outlet from said other barrel on the same side of the piston as

the inlet, and a single discharge and return pipe having communication with said discharge and return of the barrels.

3. In an oil-can pump, the combination with
5 barrels arranged in tandem, of separate pistons operating in the barrels, an inlet to one barrel on one side of the piston, a discharge from said barrel on the same side of the piston as the inlet, a return having an inlet to the
10 other barrel on the corresponding side of the piston thereof to the inlet and discharge of the first-mentioned barrel, an outlet from said other barrel on the same side of the piston as the inlet, a single discharge and return pipe,
15 and conduits connecting the pipe with the said discharge and return of the barrels and having transversely-operating valves.

4. In an oil-can pump, the combination with
20 barrels arranged in tandem, of pistons operating in the barrels, a single discharge and return pipe having communications with the barrels, and oppositely-arranged valves controlling the said communications.

5. In an oil-can pump, the combination with
25 barrels arranged in tandem, one of said barrels having a valved fluid-inlet, the other having a valved outlet, of pistons operating in the barrels, a single discharge and return pipe, a valved discharge connecting the barrel having
30 the fluid-inlet and the pipe, and a valved return connecting the pipe and the barrel having the outlet.

6. In an oil-can pump, the combination with a single cylinder having a transverse partition between its ends forming independent barrels, 35 of a piston-rod operating longitudinally in the cylinder, pistons carried by the rod and operating respectively in the barrels, a single discharge and return pipe, an inlet to one barrel, a discharge from said barrel communicating 40 with the pipe, a return connecting the pipe and the other barrel, and an outlet from said other barrel.

7. In an oil-can pump, the combination with a single cylinder having a transverse partition 45 between its ends forming separate barrels, of a piston-rod operating longitudinally in the cylinder and passing through the partition, solid pistons carried by the rod and operating respectively in the barrels, a single discharge 50 and return pipe, a valved fluid-inlet to the lower end of the lower barrel, a valved discharge connecting the lower end of the lower barrel with the pipe, a valved return-conduit connecting the pipe and the lower end of the 60 upper barrel, and a valved outlet communicating with the lower end of said upper barrel.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT WARREN LAMBERT.

Witnesses:

CLEM V. WAGNER,
L. M. WILLIAMSON.