

(No Model.)

J. S. & E. L. ARNOTT.
PNEUMATIC OIL CAN.

3 Sheets—Sheet 1.

No. 496,843.

Patented May 9, 1893.

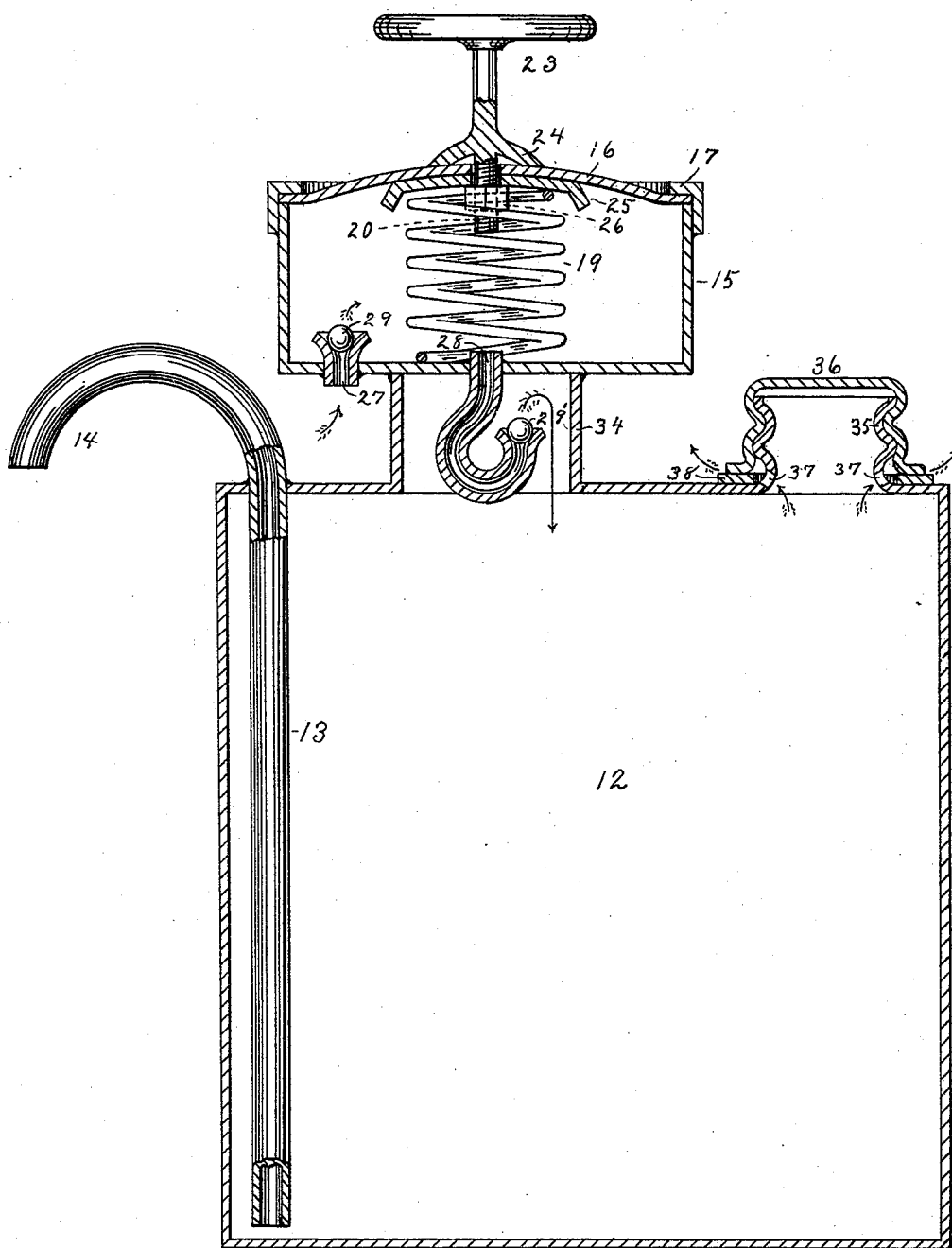


Fig. 1.

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By their Attorney *Eugene L. Arnott.*

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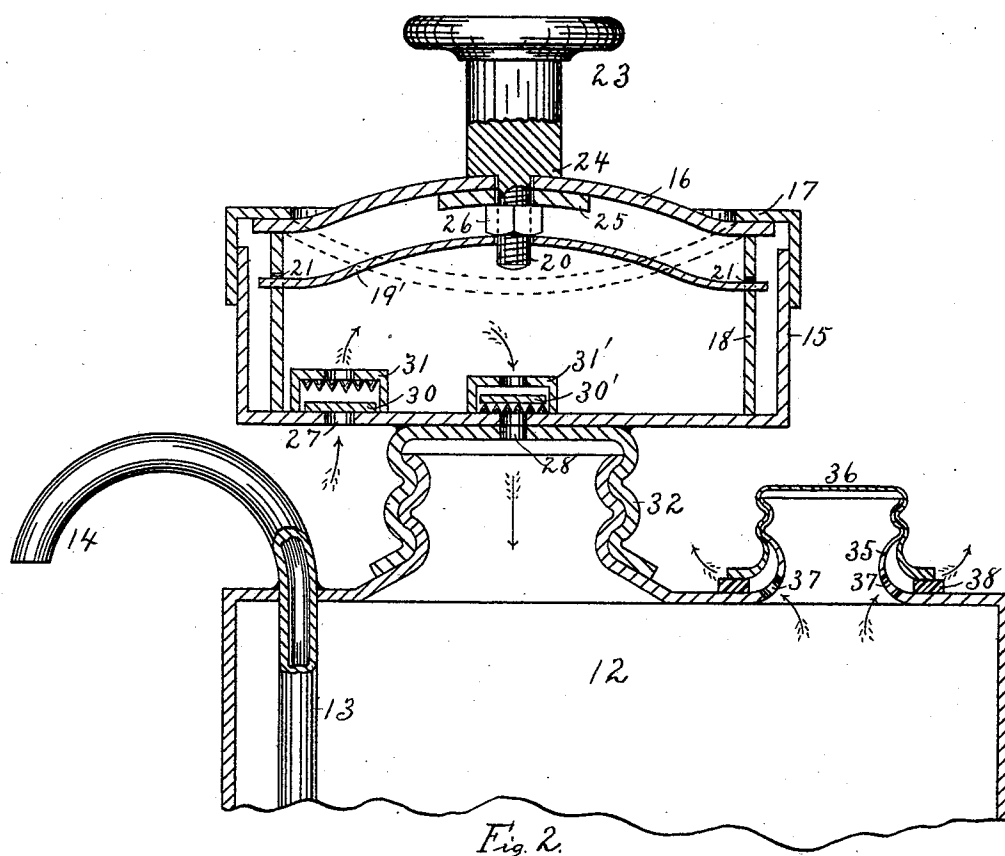


Fig. 2.

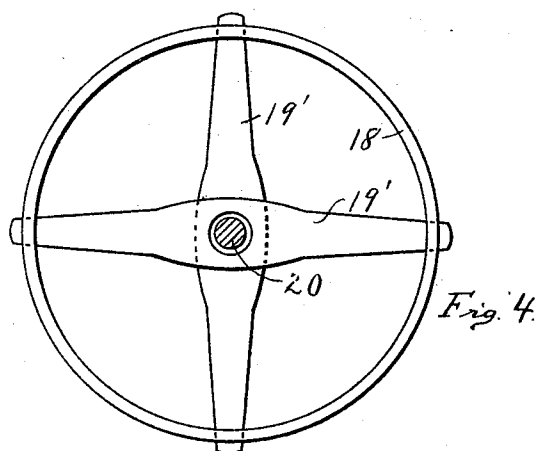


Fig. 4.

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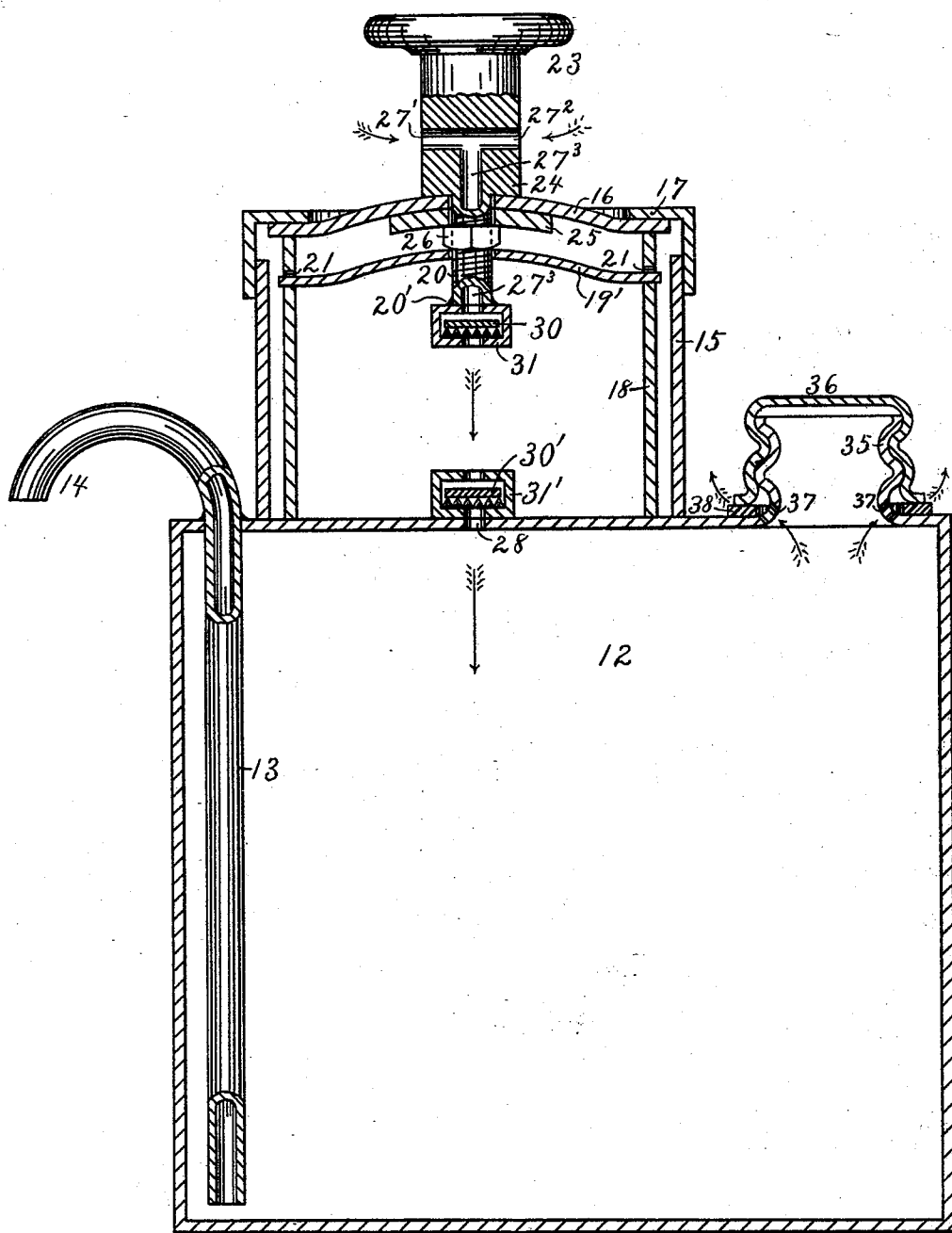
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Fig. 3.
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UNITED STATES PATENT OFFICE.

JOHN S. ARNOTT AND EUGENE L. ARNOTT, OF GREENFIELD, OHIO.

PNEUMATIC OIL-CAN.

SPECIFICATION forming part of Letters Patent No. 496,843, dated May 9, 1893.

Application filed February 15, 1892. Serial No. 421,561. (No model.)

To all whom it may concern:

Be it known that we, JOHN S. ARNOTT and EUGENE L. ARNOTT, citizens of the United States, residing at Greenfield, in the county of Highland and State of Ohio, have jointly invented a certain new, useful, and Improved Pneumatic Oil-Can, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of an oil-can embodying our invention. Figs. 2 and 3 are similar views, in which the position and construction of some of the parts are slightly varied from those in Fig. 1, and the lower part of the can is cut away in Fig. 2. Fig. 4 is a detail showing a top or plan view of the spring and its supporting cylinder.

In the drawings, 12 designates an oil-can with a discharge tube 13 extending from a point near the bottom of the can and passing out through the top, being soldered or otherwise secured thereto, and terminating in a spout as at 14. The can is provided with an air-compressor or bellows consisting of a box 15, preferably made of tin or other inflexible material, and said box 15 has a flexible top or diaphragm 16. This top or diaphragm may be made of leather, india-rubber, or other suitable material. The lid 17, which has a large central opening, as shown, presses upon the flexible top 16, thus clamping it upon the top of box 15 and securely holding it in position. In case top 16 does not exactly fit the top of box 15 a cylinder 18 may be placed inside the box. This cylinder should extend a little higher than the side of the box, so that lid 17 will press top 16 firmly upon the top of cylinder 18. In either case the air is prevented from escaping around top 16. The lid 17 should be soldered or otherwise secured to box 15. The flexible top 16 is preferably supported at the center by a spring.

In Fig. 1 a coiled spring 19 is shown. A flat spring 19', as shown in Figs. 2, 3 and 4, is deemed preferable, consisting of one or more strips of metal having a central opening to receive the rod or projection 20, the free ends of the strips being projected through slots 21 in the cylinder 18. A handle 23, having a circular flange or shoulder 24 and a threaded rod or projection 20, is secured to the flexible top or diaphragm 16. The top 16, although hav-

ing a central opening to receive the rod or projection 20, is rendered air-tight by the circular flange or shoulder 24 extending over the opening, and the washer 25 pressing the flexible top firmly against the circular flange or shoulder 24, said washer being forced upward and held in position by the nut 26. The box 15 has two air-ports, as shown in Figs. 1 and 2 at 27 and 28, and in Fig. 3 at 27³ and 28. One of these ports serves as an air-induction port and the other as an air-eduction port. Two check-valves, one opening inwardly and one opening outwardly with reference to box 15, operate in connection with these ports. The ball-valve 29 or 29', shown in Fig. 1, or any well-known form of valve may be employed. We prefer a disk-valve, as shown at 30 or 30', in Figs. 2 and 3, inclosed in a small box 31 or 31', said box having an opening in either side, and projections extending inwardly from the upper or under side, as the case may require, in order to prevent the valve from closing both inwardly and outwardly with reference to box 15. When the disk-valve is used the outwardly-opening valve, being normally open, as shown, is closed by the reflex action of the compressed air. The ball-valve closes by gravitation.

In Fig. 3 the threaded rod or projection 20 of handle 23 is made hollow or tubular, thus forming an opening or air-port 27³ which, being extended to the sides of the handle at 27' and 27², as shown, admits air to box 15. A check-valve 30, confined in box or cage 31, operates in connection with air-port 27³. Box or cage 31 is preferably soldered to rod or projection 20, the solder being shown at 20'. Box 15 may be attached to the top of a screw-cap 32, as shown in Fig. 2; or it may be connected with the can by means of a cylinder 34, as shown in Fig. 1; but it is preferably attached directly to the top of the can, as shown in Fig. 3. In the last case the air-port having the inwardly-opening check-valve must be made in the side or top of box 15, and the form of handle shown in Fig. 3 is desirable.

A vent-valve should be used, especially in large cans. For this purpose a threaded collar 35, bearing a screw-cap 36, should be secured around an opening in the top of the can. The threaded collar serves for a filling-orifice as well as for an exit-orifice for the air.

The threaded collar is perforated at points 37 near the top of the can, and the rim of screw-cap 36 extends over said perforations and presses firmly upon an elastic washer 38.

5 The parts of our improved can, except the flexible top 16 and the handle secured thereto, are preferably made of tin and secured together, wherever a permanent juncture is required, by means of solder; but other materials may be used if desired.

10 The operation of our invention is simple and effective. The hand being applied to the handle 23, and the central part of the flexible top or diaphragm 16 being pressed down to the position shown in dotted lines in Fig. 2, the check-valves operate in a manner that is well understood; that is to say, the inwardly-opening valve closes, or if normally closed, remains closed, while the outwardly-opening valve opens, or if normally open, remains open, and at the same time a portion of the air contained in box 15 is forced into can 12. When the pressure of the hand upon handle 23 is released the spring 19 or 19' carries the flexible top back to its upper or normal position; and at the same time the outwardly-opening valve closes, thus preventing the compressed air in can 12 from passing back to box 15, and the inwardly-opening valve opens, thus allowing box 15 to be supplied with air from without. By continuing this operation a sufficient air-pressure is created in can 12 to cause the liquid contained therein to rise in tube 13 and flow out at the top at 14. Hence lamps or other vessels may be readily filled. When the bowl of the lamp is almost filled or for any reason it is desired that the flow of oil from discharge tube 13 shall cease the screw-cap 36 is turned say one half revolution so that it is carried slightly upward on the threaded collar 35 and the air passes through perforations 37 and between the rim of the screw-cap and washer 38. By

this means the air-pressure in can 12 is instantly relieved.

We have embodied our invention in a lamp-filler or oil-can; but we want it to be understood that it may be used with advantage wherever an efficient and economical pump is required.

We are aware that prior to our invention oil-cans have been made in which the oil is forced out of a discharge tube by means of air-pressure created in the can through the instrumentality of an air-compressor or bellows. We therefore do not claim such a combination broadly; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, of a can or vessel having a discharge tube, and an air-compressor or bellows secured to said can or vessel, said air-compressor or bellows consisting of a box having rigid or inflexible sides or side walls, and a flexible top or diaphragm, and two check-valves operating in connection with air-ports, one of said air-ports serving as an air-induction and the other as an air-education, substantially as set forth.

2. The combination, of a can or vessel having a discharge tube, and an air-compressor or bellows consisting of a box having a flexible top or diaphragm with a handle secured thereto, said handle having an opening or air-port for admitting air to the box, and a check-valve operating in connection therewith, and the top of said can having an opening or air-port interiorly connecting or communicating between said air-compressor and can, with a check-valve operating in connection with said opening or air-port, substantially as set forth.

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