No. 864,284. PATENTED AUG. 27, 1907.

J. S. & E. L. ARNOTT.

PNEUMATIC OIL CAN.

APPLICATION FILED FEB. 15, 1907.

3 SHEETS—SHEET 1.

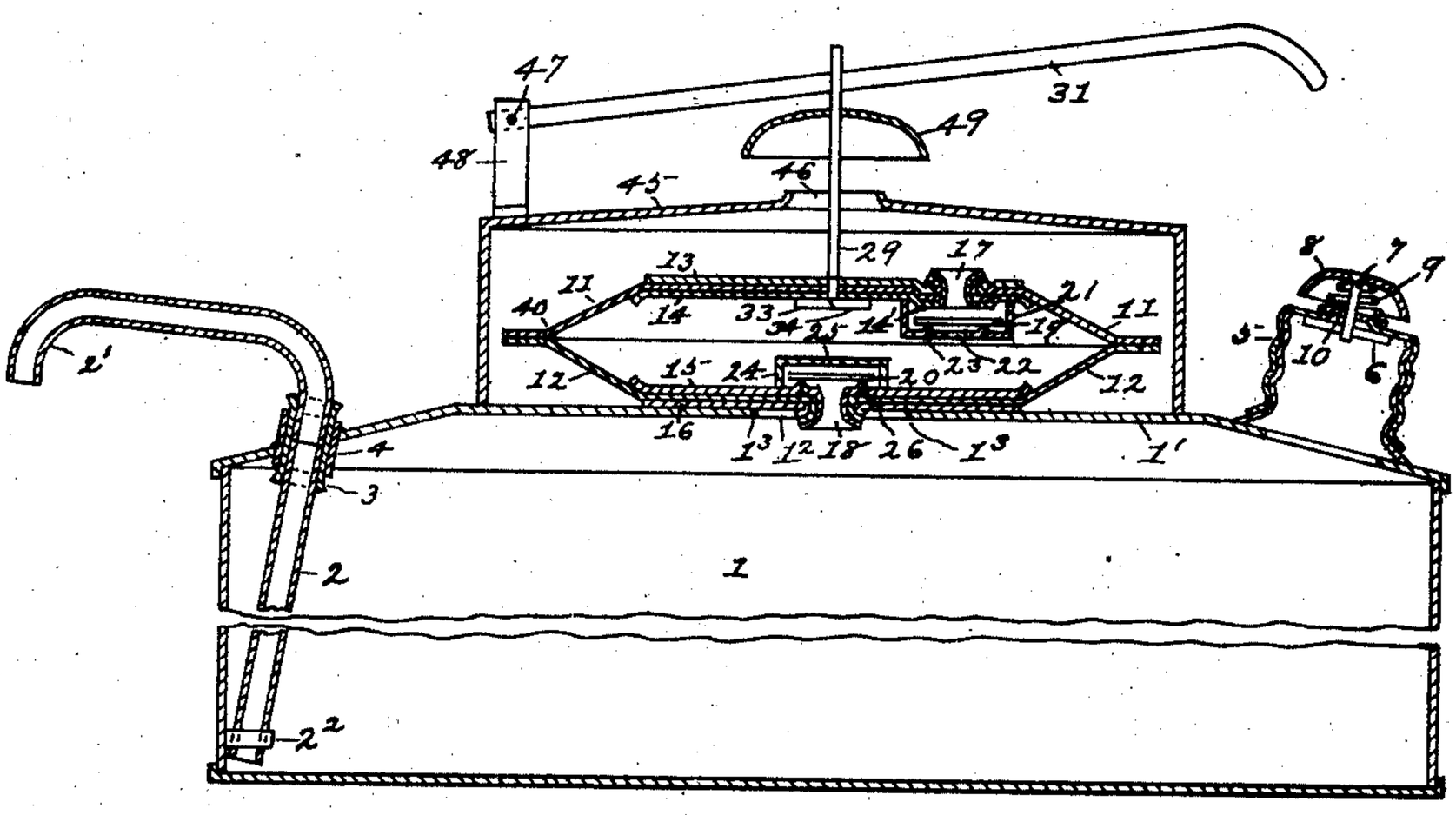


Fig. 1

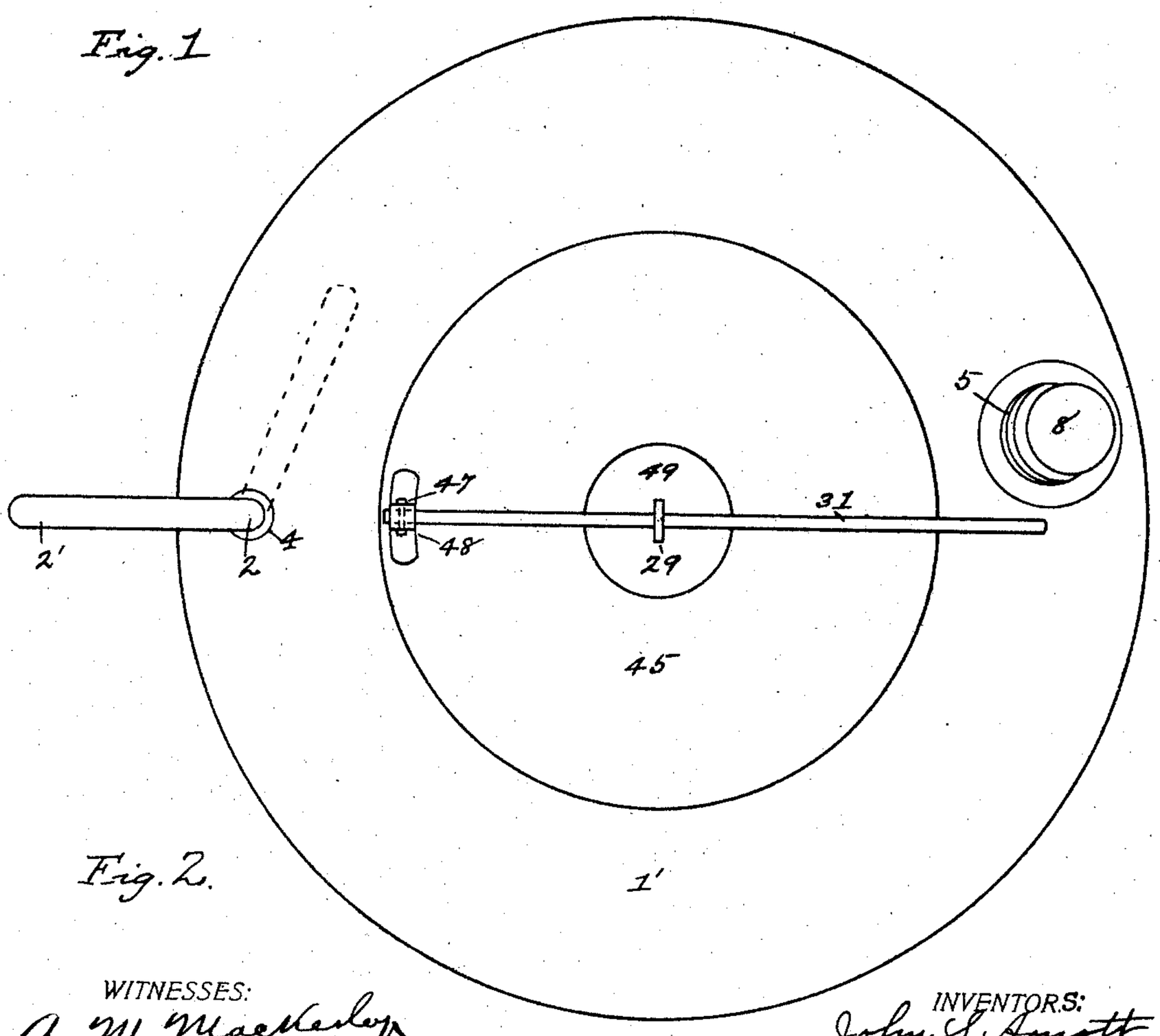


Fig. 2.

WITNESSES:
A. M. Mackelvey
Wm H Ruppel

INVENTORS:
John S. Arnott
BY Eugene L. Arnott
Eugene L. Arnott
ATTORNEY.

No. 864,284. PATENTED AUG. 27, 1907.

J. S. & E. L. ARNOTT.

PNEUMATIC OIL CAN.

APPLICATION FILED FEB. 16, 1907.

3 SHEETS—SHEET 2.

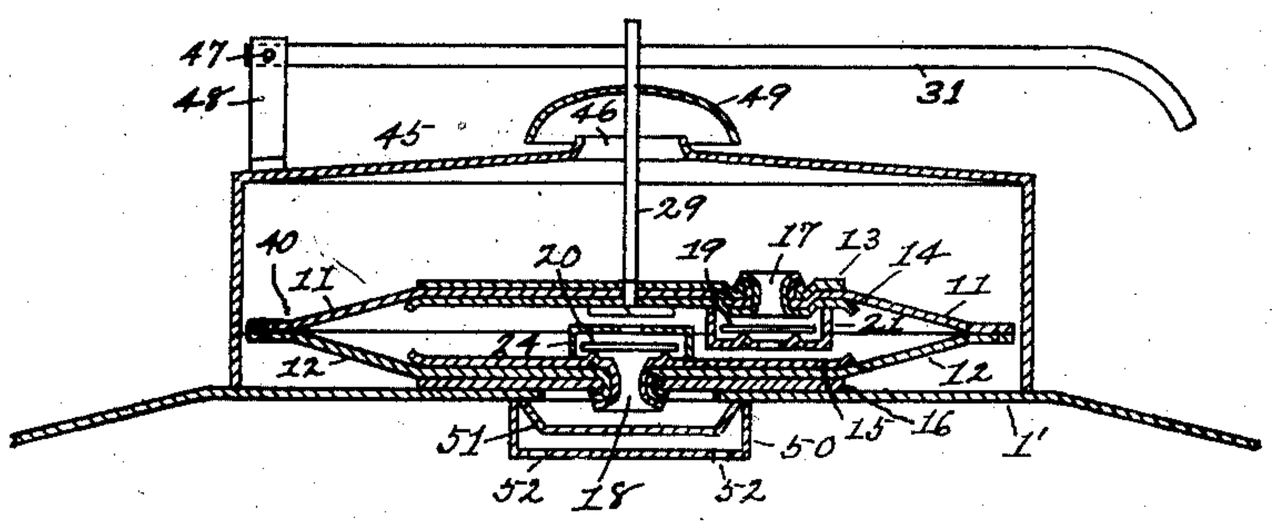


Fig. 3.

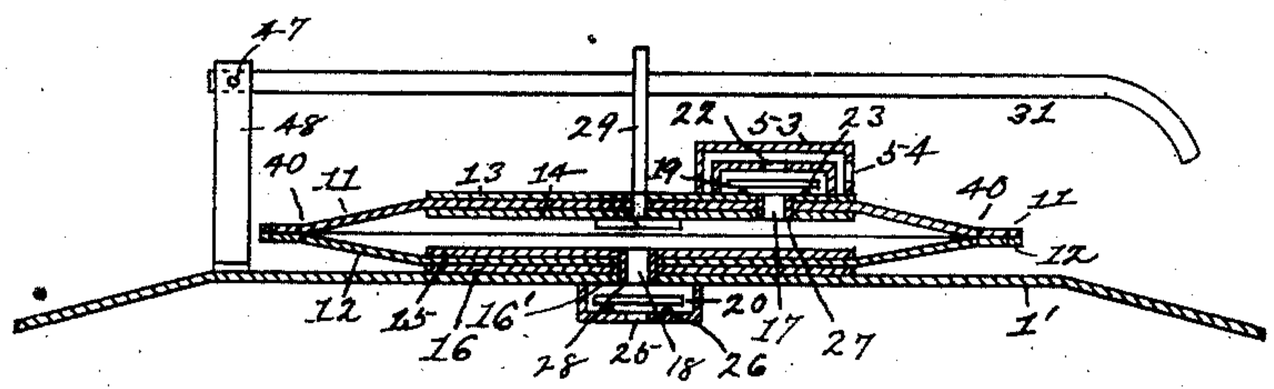


Fig. 4.

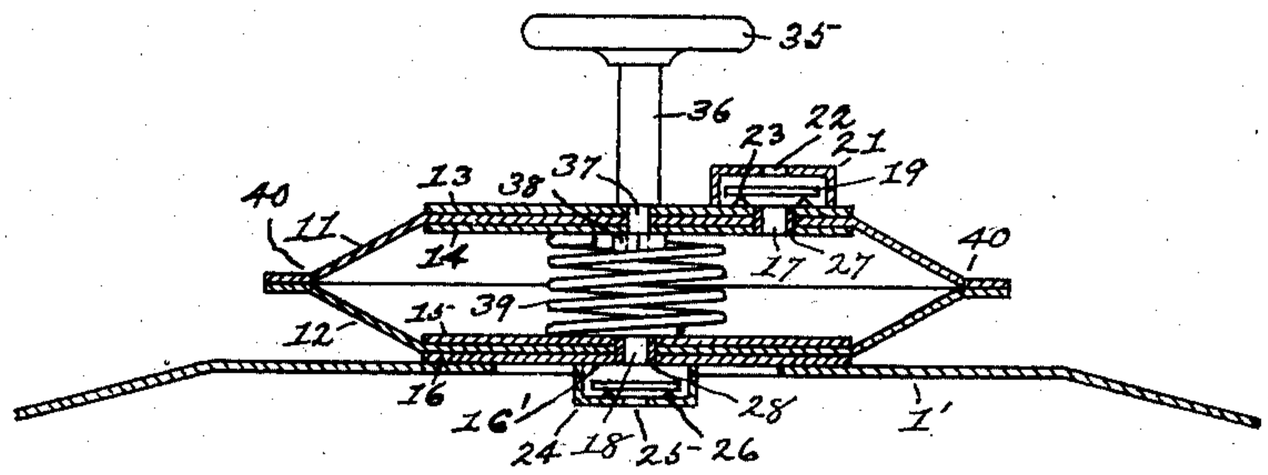


Fig. 5.

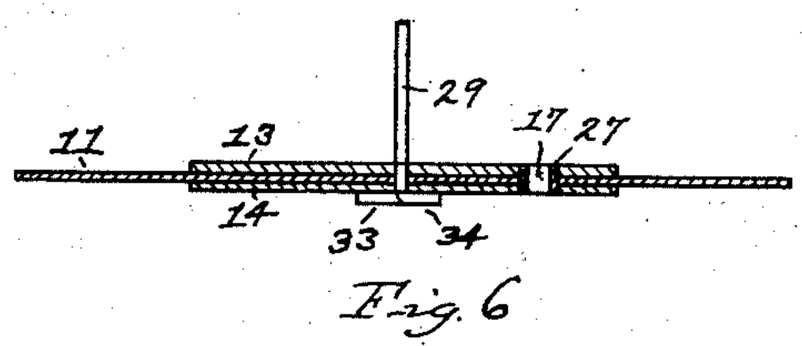


Fig. 6

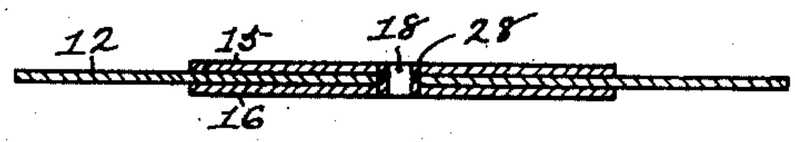


Fig. 7.

WITNESSES:
A. M. Mackelvey
Wm H Kupfle

INVENTORS:
John S. Arnott
BY Eugene L. Arnott
Eugene L. Arnott
ATTORNEY.

No. 864,284. PATENTED AUG. 27, 1907.

J. S. & E. L. ARNOTT.

PNEUMATIC OIL CAN.

APPLICATION FILED FEB. 15, 1907.

3 SHEETS—SHEET 3.

Fig. 8.

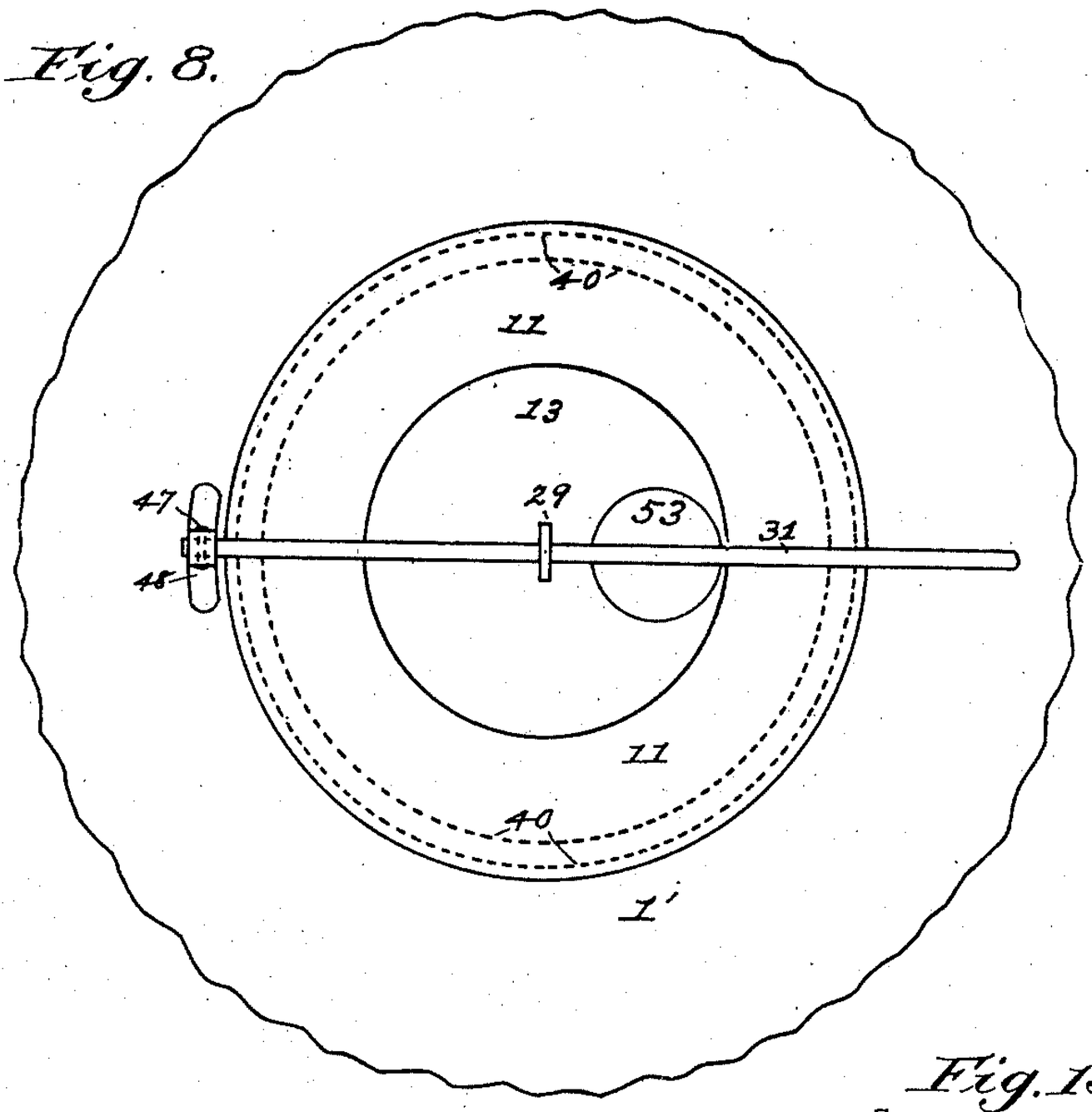
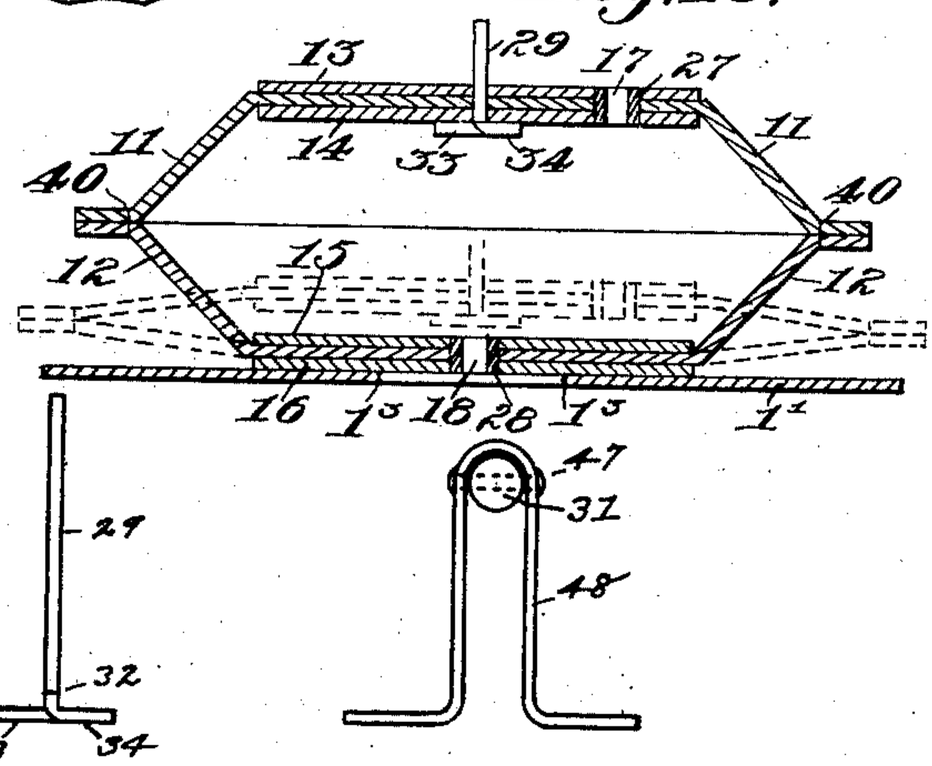


Fig. 13.



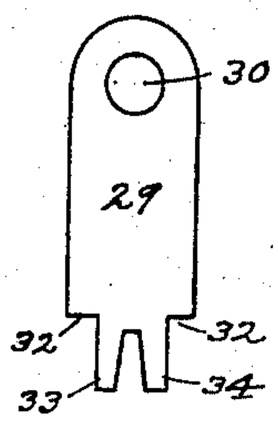


Fig. 9.

Fig. 10.

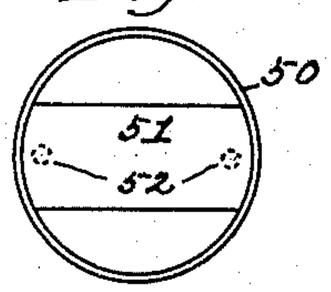


Fig. 12.

Fig. 11

WITNESSES:

A. M. MacKinley

Wm H Ruppel

INVENTORS:

John S. Arnott

BY Eugene L. Arnott

Eugene L. Arnott

ATTORNEY.

UNITED STATES PATENT OFFICE.

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

PNEUMATIC OIL-CAN.

No. 864,284. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed February 15, 1907. Serial No. 357,484.

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 new, useful, and Improved Pneumatic Oil-Can, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of oil cans wherein air pressure is used to force out the liquid through a discharge tube.

The object of the invention is to provide a pneumatic oil can which will be simple and cheap in construction and effective in operation.

In the drawings Figure 1 is a central vertical section of an oil can embodying our invention, the height of the can being broken and shortened in this view. Fig. 2 is a top or plan view of the can shown in Fig. 1. Fig. 3 is similar to Fig. 1, the handle of the air compressor or bellows being in a raised or elevated position in Fig. 1 and in a lowered or depressed position in Fig. 3. Figs. 4 and 5 are similar to Fig. 3, the position and construction of some of the parts being slightly varied from those in Fig. 3. Figs. 6 and 7 are sectional detail views of parts of the air compressor or bellows. Fig. 8 is a top or plan view of Fig. 4. Figs. 9 and 10 are detail views of the center link which connects the handle with the air compressor or bellows. Fig. 11 is a detail view of the bracket to which the handle is pivotally attached. Fig. 12 is a top or plan view of the device which breaks the splash. Fig. 13 is a central vertical sectional view of the air compressor or bellows, indicating the action of the edges of the flexible parts or pieces, the valves and valve cages or boxes being omitted.

The numeral 1 represents the body of the can or vessel, which may be made of any convenient size or shape. The discharge tube 2 extends from a point near the bottom of the can or vessel and extends out through the top, being bent to form the spout as shown at 2′. A loop or clip 2^2 is soldered or otherwise secured to the can or vessel near the bottom to hold the lower end of discharge tube 2. A collar 3 is soldered or otherwise secured on discharge tube 2. A collar 4 is placed on collar 3. The ends of collar 3 are preferably swelled or expanded as shown, thus holding collar 4 in position. Collar 4 is soldered or otherwise secured to the top of the can. The bearing between collars 3 and 4 is close enough to prevent the compressed air from escaping from the can, but free enough to permit the discharge tube 2 and spout 2′ to be turned around to the position shown in dotted lines in Fig. 2. Discharge tube 2 may be made in two parts, the ends of the parts coming together in the center of collar 3.

The screw cap 5 has its top stamped or flattened to form a valve seat. The disk valve 6 fits snugly against this seat, as shown. The stem 7 is secured in this valve, and the upper end of this stem is secured to the cap or cover 8. The compression spring 9 fits between cover 8 and screw cap 5, and serves to hold valve 6 in position. Screw cap 5 has a central perforation for stem 7, and small perforations 10 near the central perforation. The perforated portion of cap 5 is preferably stamped up so as to be out of contact with valve 6, as shown.

The air compressor or bellows consists essentially of the flexible parts or pieces 11 and 12, and the parts operating in connection therewith. The flexible parts 11 and 12 are preferably round flat disks and may be cut from an ordinary piece of leather or oiled canvas or other suitable material. Disk 11 has the large washers or disks 13 and 14, preferably made of metal, one on either side, as shown. Disk 12 has the large washers or disks 15 and 16, preferably made of metal, one on either side, as shown.

An air port extends through disks 13, 11 and 14, as shown at 17. An air port extends through disks 15, 12 and 16, as shown at 18. Valve 19 is held in position by the cage or box 21, which has an opening or air port 22, and is provided with the small points or elevations 23, Figs. 1 and 3, on which valve 19 rests. The cage or box 21 is secured to disk 14, as shown in Figs. 1 and 3, or to disk 13, as shown in Figs. 4 and 5. The disk 13 is provided with the small points or elevations 23, on which valve 19 rests, in Figs. 4 and 5. Disk 14 has a seat at 14′, for valve 19, in Figs. 1 and 3. Cage or box 21 has a seat for valve 19 in Figs. 4 and 5. Valve 20 is held in position by cage or box 24, which is secured to disk 15, in Figs. 1 and 3, and has an opening or air port 25. Cage or box 24 forms a seat for valve 20 in Figs. 1 and 3. The disk 15 is provided with the points or elevations 26, on which valve 20 rests. In Figs. 4 and 5 the cage or box 24 is placed beneath disk 16 and secured thereto, and in this case the cage or box 24 is provided with the points or elevations 26, on which valve 20 rests, while disk 16 has a seat at 16′ for valve 20. The forms and locations of the valves and valve seats may be varied considerably, as will be readily understood.

In Figs. 1 and 3 the air port 17 is preferably formed by means of dies, the first operation piercing the disks and the second operation turning the pierced portion back and forming the valve seat, as shown. This clamps the flexible disk very tightly and forms an air tight connection.

In Figs. 4 and 5 the short tubes or eyelets 27 and 28 are shown, forming the air ports 17 and 18, and these tubes or eyelets may be soldered or otherwise secured to disks 13, 14, 15 and 16 so as to form air tight connections.

A center link 29 is secured to disks 13, 11 and 14. Link 29, Fig. 9, has an opening 30 to receive handle 31, and shoulders 32 with the projections 33 and 34. The

projections 33 and 34 are inserted in central slots in disks 13, 11 and 14, and the ends are turned in opposite directions and pressed firmly against disk 14, thus forcing disk 13 firmly against shoulders 32. This clamps the disks very firmly together and forms an air tight connection. Link 29 may also be soldered to disk 13, and the projections 33 and 34 may be soldered to disk 14, if desired.

In Fig. 5 a modified form is shown. The handle 35 has a stem 36 with a reduced portion 37 which extends through a central opening in disks 13, 11 and 14 and is threaded to receive the nut 38. Nut 38 clamps disks 13, 11 and 14 firmly against stem 36, thus forming an air tight connection, as shown. A compression spring 39 may be inserted between disks 14 and 15.

In some cases the washers 13 and 14 may be considerably smaller than shown, or even dispensed with entirely. It is obvious that in Fig. 5 the flexible material 11 could be firmly clamped between nut 38 and stem 36 thus forming an air tight connection in case the washers 13 and 14 were dispensed with. The valve 19 and the valve seat would have to be connected with or inserted in the flexible material 11 in a suitable manner. In this case, however, it is obvious that the central part of the flexible piece 11 would be raised higher, assuming a dome shape, and the handle would have a longer stroke than when the large washers 13 and 14 are used.

Disks 11 and 12 are secured together preferably by being sewed all the way around near their edges with a sewing machine, the stitches being represented by the dotted lines at 40. One or more seams may be made. It is obvious, however, that disks 11 and 12 may be glued, cemented or otherwise secured together around their edges. When disks 11 and 12 are secured together around their edges they form a pocket or air bag which is closed except at the air ports 17 and 18.

The top $1'$ of the can may have a central opening at 1^2 and the air compressor or bellows is preferably secured to the top of the can by soldering disk 16 to top $1'$ at 1^3, as shown. However, it is obvious that other means may be used for connecting the air compressor or bellows with the can.

In Figs. 1 and 3 a box or cover 45 is placed over the air compressor or bellows to protect it from the weather. This box is soldered or otherwise secured to the top of the can. It has a central opening at 46, and center link 29 extends up through this opening. Handle 31 extends through hole 30 in link 29. The end of handle 31 is pivotally attached at 47 in the bracket 48, which is soldered or otherwise secured to box 45. A cap or cover 49 is soldered or otherwise secured upon link 29, and covers the opening 46 in box 45.

A splash guard may be used, if desired, consisting of a box 50 and a curved piece 51, as shown in Figs. 3 and 12. Box 50 and piece 51 are soldered or otherwise secured to the top of the can, in suitable position to protect the air port 18 and valve 20 from the splash within the can. Box 50 has the openings or air ports 52. The strip 51 is placed directly above these openings. Strip 51 is not as wide as box 50 and hence the air passes around this strip. This form is found to be effective in preventing the splash of the oil from entering the air compressor or bellows.

In Figs. 4 and 8 the box 45 is not used, and the bracket 48 is soldered or otherwise secured to the top of the can. In this case a box or cover 53 may be placed over valve box 21 to protect it from the weather. An opening or air port 54 in the side of box 53 admits the air to the valve box 21.

The operation of the invention is simple and effective. When the handle is raised, as in Fig. 1, the air compressor or bellows is filled with air, through opening 46 and air port 17. The points or elevations 23 prevent valve 19 from closing downwardly. When the handle is pressed down, as in Fig. 3, the valve 19 will close the air port 17 or 22, and the air will be forced through air port 18 into the can or vessel 1. The points or elevations 26 will prevent valve 20 from closing downwardly. When the handle is again raised the valve 19 will open and the valve 20 will close the air port 18 or 25. Each stroke of the handle will operate the air compressor or bellows and will force air into the can or vessel 1. The compressed air will force the liquid out through the discharge tube 2.

It is obvious that when the handle 31 of the air-compressor or bellows is raised or elevated and the flexible pieces or disks 11 and 12 have their central portions widely separated, as shown in Fig. 13, the outer edges of said flexible pieces or disks 11 and 12, and the seam 40, will approach toward the center of the air compressor or bellows, being drawn in toward the center, as will be readily understood. When the handle 31 of the air compressor or bellows is lowered or depressed and the flexible pieces or disks 11 and 12 have their central portions brought close together, as indicated in dotted lines in Fig. 13, the outer edges of said flexible pieces or disks 11 and 12, and the seam 40, will recede from the center of the air compressor or bellows, as will be readily understood. This free action of the sewed edges of the flexible pieces or disks 11 and 12 gives the handle 31 a much longer stroke and gives the air compressor or bellows much greater capacity and hence renders it much more effective than if the edges of pieces or disks 11 and 12 were held in an immovable position or were prevented from approaching toward the center of the air-compressor or bellows; especially is this the case if the pieces or disks 11 and 12 are made of cheap non-elastic material. If the flexible pieces or disks 11 and 12 have their edges secured in a fixed or immovable position it is obvious that said flexible pieces or disks must be stretched if their central portions are widely separated. It is obvious that the flexible pieces or disks 11 and 12 may wrinkle somewhat, if made of non-elastic material, when their central portions are widely separated, and their edges approach toward the center of the air compressor or bellows. This slight wrinkling, however, will not be seriously objectionable if said pieces or disks are made of reasonably soft material.

When using the form of bellows or air compressor shown in Fig. 5 the handle 35 is pressed down, and the spring 39 will return the handle to the raised or elevated position shown.

When it is desired to stop the flow of liquid the cap or cover 8 may be depressed, thus forcing the valve 6 away from its seat, whereupon the air will escape through the openings 10 in top of the screw cap, thus releasing the compressed air pressure, whereupon the flow of liquid through discharge tube 2 will immediately cease. If the end of spout $2'$ is under the surface of the liquid in the receiving vessel and the dis-

charge tube 2 is full of liquid when cap 8 is depressed the liquid in the receiving vessel will be siphoned back into can or vessel 1. Hence if a lamp is filled too full the surplus amount may be siphoned back into the can or vessel 1 by the method above described.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is—

1. The combination, in an air compressor or bellows, of flexible parts or pieces secured together at their edges, said edges being free to approach toward and recede from the center of said air compressor when the latter is operated, and valves operating in connection with air ports, substantially as set forth.

2. The combination, in an air compressor or bellows, of flexible parts or pieces sewed together at their edges, said sewed edges being free to approach toward and recede from the center of said air compressor when the latter is operated, and valves operating in connection with air ports, substantially as set forth.

3. The combination, in an air compressor or bellows, of flexible parts or pieces secured together at their edges, said edges being free to approach toward and recede from the center of said air compressor when the latter is operated, a spring between said flexible parts or pieces, and valves operating in connection with air ports, substantially as set forth.

4. The combination, of a can or vessel having a discharge tube extending from a point near the bottom of said can or vessel and passing out through the top, an air compressor or bellows secured to said can or vessel, said air compressor or bellows having flexible parts or pieces secured together at their edges, said edges being free to approach toward and recede from the center of said air compressor when the latter is operated, and valves operating in connection with air ports, substantially as set forth.

5. The combination, of a can or vessel having a discharge tube extending from a point near the bottom of said can or vessel and passing out through the top, an air compressor or bellows secured to said can or vessel, said air compressor or bellows having flexible parts or pieces sewed together at their edges, said edges being free to approach toward and recede from the center of said air compressor when the latter is operated, washers secured to the central portions of said flexible parts or pieces, and two valves operating in connection with air ports, one of said air ports serving as an air-induction with reference to said air compressor or bellows, and the other of said air ports interiorly connecting or communicating between said air compressor or bellows and said can, substantially as set forth.

6. 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 having flexible parts or pieces secured together at their edges, washers secured to said flexible parts or pieces, said flexible parts or pieces and said washers having air ports, said air ports being formed by said washers and flexible parts being pierced and the metal turned back and stamped so as to clamp the flexible material in an air tight manner and form the valve seats, and valves operating in connection with said air ports, substantially as set forth.

7. 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 flexible parts or pieces, each of said flexible parts or pieces having a reinforcing washer secured on either side, air ports extending through said flexible parts or pieces and through said washers; and valves operating in connection with said air ports, substantially as set forth.

JOHN S. ARNOTT.
EUGENE L. ARNOTT.

Witnesses:
A. M. MacKesley,
Wm. H. Rupple.