No. 780,472. PATENTED JAN. 17, 1905.

J. BARDSLEY & T. N. McNISH.

OIL CAN.

APPLICATION FILED OCT. 14, 1903.

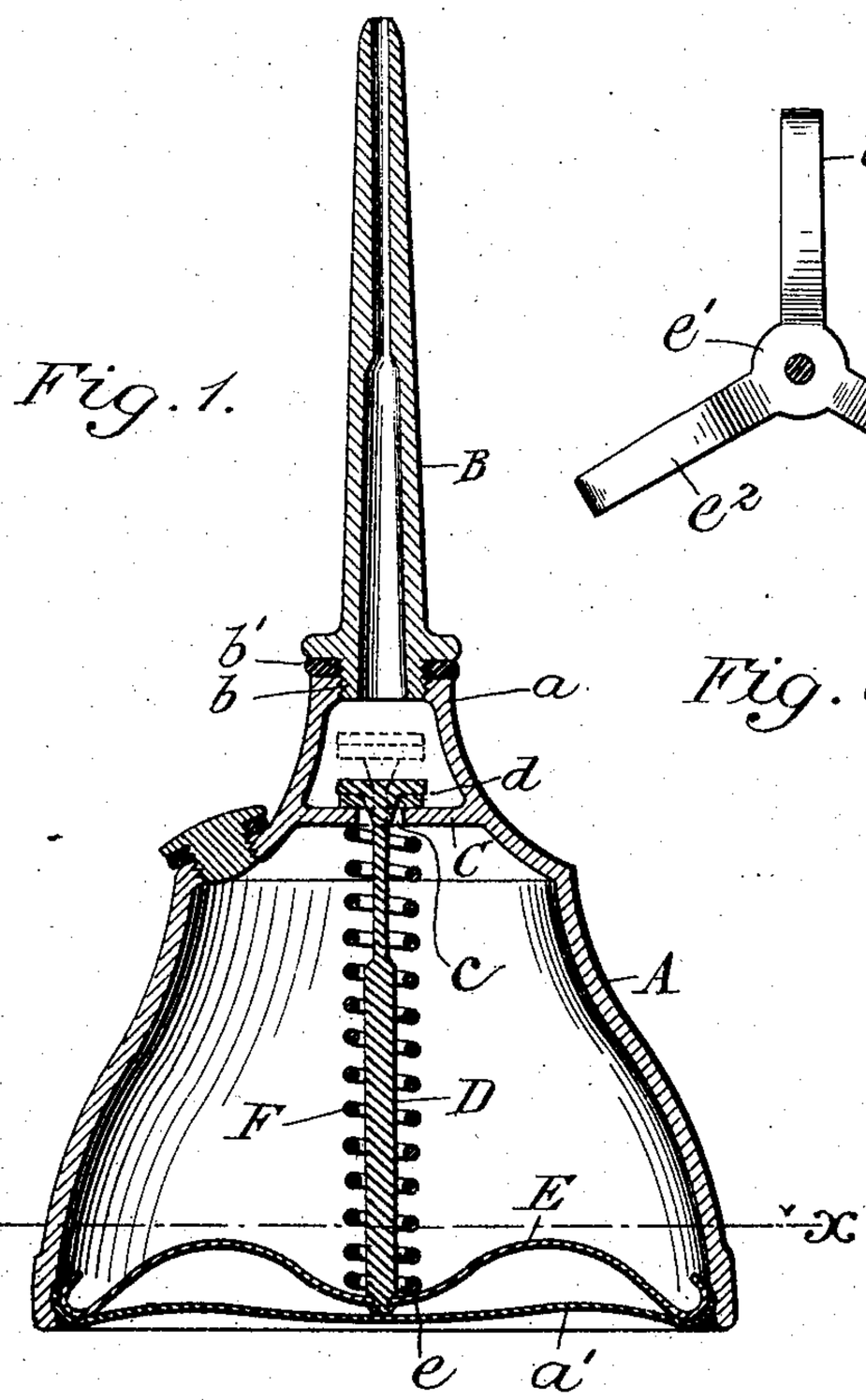


Fig. 1.

Fig. 3.

Fig. 2.

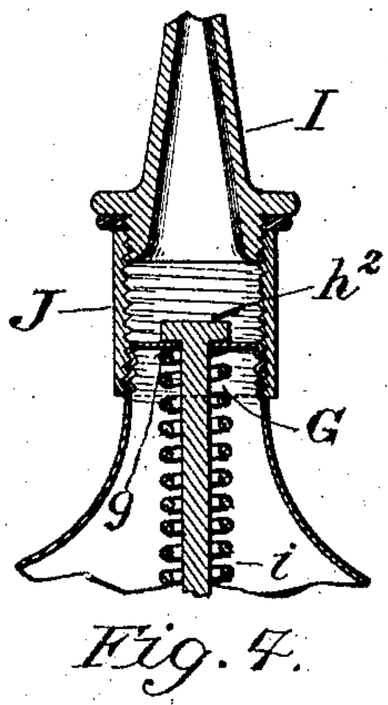


Fig. 4.

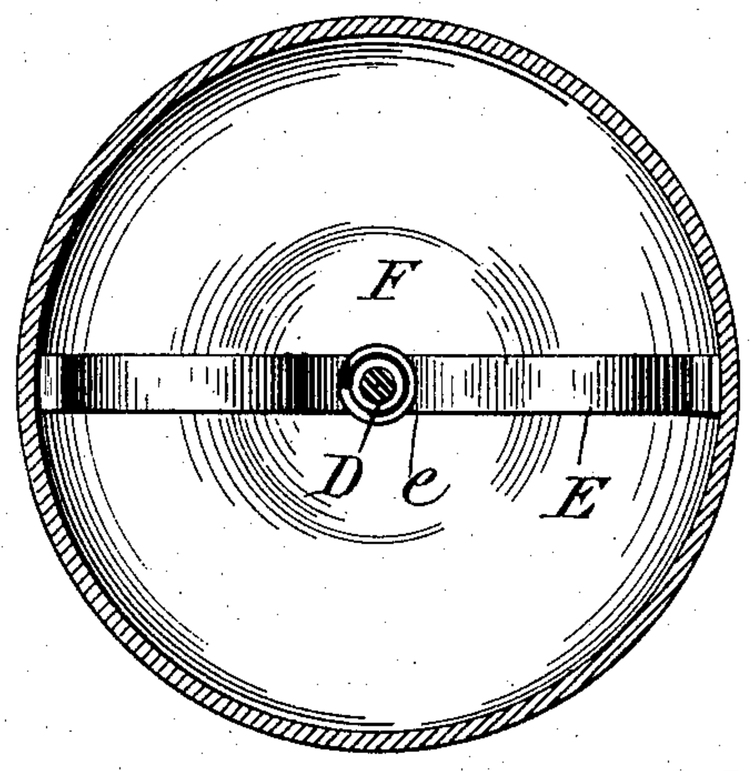


Fig. 5.

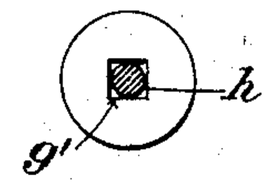
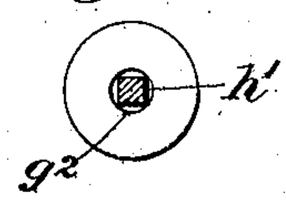


Fig. 6.



Witnesses
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By their Attorney, F. W. Barker

No. 780,472. Patented January 17, 1905.

UNITED STATES PATENT OFFICE.

JOSEPH BARDSLEY, OF MONTCLAIR, AND THOMAS N. McNISH, OF KEARNEY, NEW JERSEY; SAID McNISH ASSIGNOR TO SAID BARDSLEY.

OIL-CAN.

SPECIFICATION forming part of Letters Patent No. 780,472, dated January 17, 1905.

Application filed October 14, 1903. Serial No. 177,069.

To all whom it may concern:

Be it known that we, JOSEPH BARDSLEY, residing at Montclair, in the county of Essex, and THOMAS N. McNISH, residing at Kearney, in the county of Hudson, State of New Jersey, citizens of the United States, have invented a new and useful Oil-Can, of which the following is a specification.

Our invention relates to oil-cans and fluid-containers of various kinds; and its object is to provide means for preventing leakage of the contents of such vessels through the spout or other outlet thereof when not in use.

The invention further consists in the improvements in construction and arrangements of parts, as will be fully described hereinafter and pointed out in the claims.

To these ends our improvements comprise, in brief, the formation of a valve-chamber intermediate the exit and the containing portion of an oil-can or the like, said chamber being bounded inwardly by a diaphragm or closure having an orifice therethrough. A valve-stem extends through said orifice and has a head that is normally seated against said diaphragm or closure, closing the orifice therein from within the valve-chamber, while a helical spring surrounding said stem within the vessel exteriorly of said valve-chamber exerts pressure between said diaphragm or closure and a yielding member that is located near the opposite end of the vessel, and to which the opposite end of the valve-stem is connected to normally tensionally hold said valve seated against the diaphragm or closure to close the orifice therein.

When ejecting oil from the vessel by the application of thumb-pressure directly applied to a flexible wall thereof, means are provided whereby such pressure is communicated to the helical spring aforesaid to compress same and to move the valve-stem to open the valve, the subsequent retraction of said spring serving to again close said valve.

In the drawings accompanying this application, Figure 1 is a vertical sectional view through an oil-can provided with our improvements. Fig. 2 is a top plan view of the flexible base of an oil-can, showing the tensional valve mechanism. Fig. 3 is a detail plan view of a modified form of support. Fig. 4 is a detail of a modified form of valve-and-nozzle connection, and Figs. 5 and 6 are respectively transverse sectional views of modified forms of valve orifice and stem.

While we do not intend to limit our invention to a particular usage, being aware that it is capable of a wide application with fluid containing and ejecting vessels, we have for convenience illustrated its employment in conjunction with an oil-can such as is commonly employed for containing and applying lubricating-oil.

The drawings show an oil-can having a flat base upon which it stands, with its spout disposed vertically. Were these oil-cans always placed upon their base when not in use, there would be no danger of leakage; but they are very often laid down sidewise with the spout inclined downwardly, when there is nothing to prevent the oil from flowing outwardly through the unobstructed spout. With our improvement such loss of oil is entirely obviated, as will be perceived from the following detailed description:

A indicates a usual conical form of oil can or receptacle having the interiorly-threaded neck *a* and a spout B, having a threaded end *b* screwed into said neck over a gasket or washer *b'*. Disposed within the neck portion *a* is a transverse diaphragm or partition, as C, having a circular orifice *c* therethrough, forming, with the wall of the neck portion *a*, an isolated chamber for the passage of oil from the body of the receptacle to the spout. A valve-stem, as D, disposed vertically within receptacle A, is introduced through the orifice *c* and has an annular head or valve, as *d*, that is adapted to be seated upon the upper surface of diaphragm C about the edge of orifice *c* to close the latter. The lower end of stem D is secured to a strip of flat spring metal, as E, that extends transversely across the receptacle A, near the flexible base *a'* thereof, said strip E being preferably provided with an intermediate depending curvature, as at *e*, which lies in close proximity to the base *a'*, whereby when the base is pressed

inwardly to expel the oil the stem D will be moved forwardly and will move its head away from the valve-seat, permitting egress of oil through the orifice *c* and thence through the spout B. A helical spring, as F, surrounds the stem D and abuts at its opposite ends, respectively, against the diaphragm C and strip E, being sufficiently contracted therebetween to exert tension necessary in firmly holding the valve *d* against its seat. The strip E, as seen in the drawings, is secured at its opposite ends to the base *a'*; but it may instead be secured against the lower side wall of the can, as is obvious.

Instead of the strip E we may employ a spider-frame, as E', (see Fig. 3,) composed of a central portion *e'*, having the radial arms e^2, which may be three or more in number, to permit pressure directed against the portion *e'* through the medium of base *a'* to be communicated in a true axial line to the stem D, whereby the operation of the valve is rendered more certain and effective. An important function pertaining to both the strip E and spider E' is to relieve the base *a'* of a major part of the strain developed by the tension of the valve-closing spring F.

In Fig. 4 we have shown the oil-can as terminating in a contracted exteriorly-threaded portion, as G, having a transverse closure *g*, provided with an orifice, which latter, as seen in Fig. 5, may be square, as at *g'*, to receive a valve-stem *h*, that is circular in cross-section, or, as seen in Fig. 6, that is circular, as at g^2, to receive a square valve-stem, as *h'*. The valve-stem is headed with a valve, as h^2, that is adapted to be seated against the outer surface of closure *g* to close the orifice therethrough. I indicates a discharge nozzle or spout whose inner end is provided with an exterior thread, and J indicates a tubular union or coupling member having an interior thread. It will now be perfectly obvious that through the provision of the thread upon said union or coupling J the nozzle may be screwed thereto, and also the oil-can, by its contracted threaded portion G, may be screwed into the opposite end of said union or coupling. The advantage of this form of our invention is that it is economical to manufacture, as the can may be pressed out of sheet material or otherwise cheaply produced, and by means of the simple form of coupling indicated the members may be easily and quickly united, the coupling I also serving as the valve-chamber. By constructing the valve-stem of a section different from the orifice in the closure, as indicated, or otherwise, a passage is provided in said orifice past said stem, whereby the orifice serves as a contacting guide for the stem and also forms a passage for the fluid contents of the oil-can when the valve h^2 is removed from its seat. A helical spring, as *i*, surrounds the valve-stem I and exerts pressure between the closure *g* and the base of the oil-can to hold said valve normally seated to close the orifice in said closure.

Having now described our invention, we declare that what we claim is—

1. In an oil-can having a discharge-outlet and a thumb-operated flexible base to eject its fluid contents, a valve-passage anterior to said outlet, and a valve to close said passage, together with a valve-stem, a helical spring, an upper, rigid support therefor, and a lower, retractile support for said valve-stem and helical spring arranged to yield in the plane of movement of said flexible base.

2. In an oil-can having a discharge-outlet and a thumb-operated flexible base to eject its fluid contents, the combination of a diaphragm anterior to said outlet, an orifice in said diaphragm, a valve to close said orifice, a valve-stem, a helical spring surrounding said valve-stem and bearing upwardly against said diaphragm, and a transverse, retractile support for the lower ends of both said valve-stem and helical spring, said support being arranged in the path of movement of the thumb-operated base, to communicate pressure therefrom to unseat said valve.

3. In a fluid-containing vessel having an integral interiorly-threaded, contracted portion near its outlet, a discharge-nozzle fitted therein, a diaphragm integral with said vessel across the contracted portion thereof, forming a valve-chamber between said diaphragm and nozzle, said diaphragm having an orifice, a tensionally-seated valve normally closing said orifice, and pressure means to hold said valve unseated during egress of the fluid.

4. In a vessel having an integral interiorly-threaded, contracted portion provided with an outlet, and a wall capable of being flexed to eject fluid matter therefrom, an integral partition having a valve-orifice disposed interiorly of the vessel providing a valve-chamber intermediate said vessel and said outlet, a valve normally closing said passage, and means for automatically opening said passage with the flexing of said wall.

5. In a vessel having an outlet and a wall capable of being flexed to eject fluid matter therefrom, an integral partition having a valve-orifice intermediate the interior of said vessel and said outlet, a valve normally closing said passage, a valve-stem, a retractile support therefor in the plane of movement of said wall, means for unseating said valve to open the passage as said wall is flexed, and independent means for automatically reseating said valve, to close the passage, with the relaxation of said wall.

6. In an oil-can having a contracted neck portion with a nozzle screwed therein, and a flexible base, a diaphragm extended transversely across said neck portion, and an orifice through said diaphragm; together with a valve-stem entered through said orifice and provided with a valve to close said orifice, a

transverse, flexible support for said stem at its lower end, a helical spring intermediate the diaphragm and said support to tensionally hold said valve against its seat, and means whereby the flexing of the base contracts said spring and releases the valve from its seat.

7. In an oil-can having a flexible base and an integral threaded closure portion provided with an orifice, a valve to close said orifice, a valve-stem passed through said orifice, and tensional means to normally hold said valve to its seat, a separable nozzle having a threaded end, and a threaded coupling member adapted to be screwed to both said closure portion and said nozzle to unite them and provide a valve-chamber between the said closure portion and the nozzle.

8. In an oil-can having a flexible wall and an opposite outlet, a spring-operated valve to normally close said outlet and a valve-stem permanently encompassed by and contactingly slidable within said outlet and arranged to be operated by said wall, the continuous cross-sectional area of said valve-stem being of a configuration different to that of the outlet, to provide a permanent passage between said stem and outlet.

Signed at New York this 13th day of October, 1903.

JOSEPH BARDSLEY.
THOMAS N. McNISH.

In presence of—
F. W. BARKER,
FREDERICK C. BONNY.