

(No Model.)

A. O. FITZ-GERALD.

SHIPPING CAN.

No. 345,224.

Patented July 6, 1886.

Fig. 1.

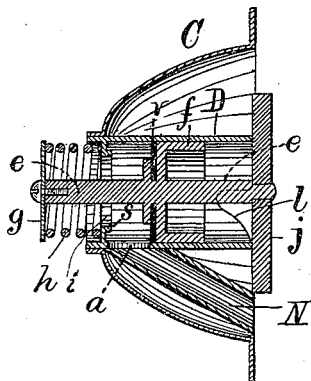


Fig. 2.

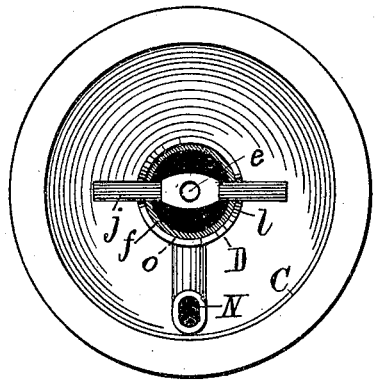


Fig. 5.

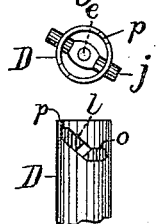


Fig. 6.

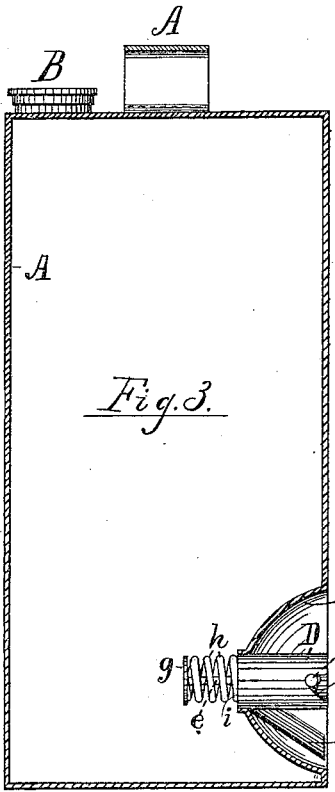


Fig. 3.

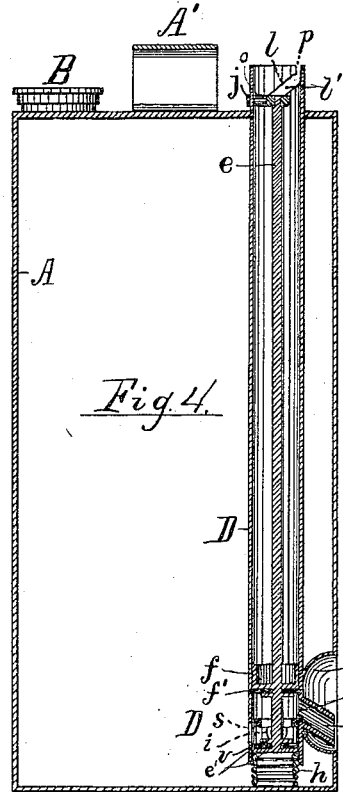


Fig. 4.

Attest:
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 per Crane & Miller attys

UNITED STATES PATENT OFFICE.

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SHIPPING-CAN.

SPECIFICATION forming part of Letters Patent No. 345,224, dated July 6, 1886.

Application filed February 28, 1885. Renewed June 15, 1886. Serial No. 205,294. (No model.)

To all whom it may concern:

Be it known that I, A. OGDEN FITZ GERALD, a citizen of the United States, residing in Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Shipping-Cans, fully described and represented in the following specification and accompanying drawings, forming a part of the same.

This invention consists in an improved construction for a valve for shipping-cans, the nature of which will be understood by reference to the annexed drawings, in which—

Figure 1 is a front view of a valve detached from the can and adapted for insertion in the side of the can near the bottom. Fig. 2 is a side view of the same with the separating-socket broken away to expose the valve-chamber. Fig. 3 is a vertical section of a can through the center of such a valve; and Fig. 4 is a vertical section of a can through the center of a valve of alternate construction, in which the valve-chamber is arranged vertically and extended to the top end of the can. Fig. 5 shows the upper end of the tube D, as shown in Fig. 4; and Fig. 6 is a side view of such upper end with the cross-bar and valve-stem removed.

The valve consists in a leather washer pressed against a ridged annular seat by a spring and opened by turning a cross-bar which is attached to the valve-stem, and which works on inclined surfaces to press the valve open. The valve is located inside the walls of the can to avoid any outer projection from the body, and is shown provided with a spout projected toward the side of the can, but contained in a bowl or recess formed in the side of the can near the bottom.

Figs. 1, 2, and 3 show the valve-stem projected toward the mouth of the bowl, but Figs. 4, 5, and 6 show the valve-stem extended up to the top of the can inside a tube.

In Figs 1 to 3, A is the can; B, the filling-nozzle; C, the bowl, and D the tubular valve-chamber, attached to the center of the bowl and opening into the inside of the can by inlet *i*. *v* is the valve-washer; *e*, the valve-stem; *f*, a plunger or plug attached to the stem and having the washer *v* secured to its inner surface, and *s* the annular ridge valve-seat formed in the chamber D. N is a spout attached to the side of the chamber D, and *a* is a passage leading to the same from within

the chamber just forward of the seat *s*. *g* is a disk affixed to the inner end of the stem, and *h* a spiral spring inserted between the disk and the inner side of the valve-seat *s*, to press the valve automatically upon the seat. The tube D projects to the outer line of the can-body within the bowl C, and is provided with two opposite notches having each similar inclines, *l*, formed at one of its sides and leading to the outer end of the tube. *j* is a cross-bar pivoted upon the outer end of the stem and arranged to rest in the notches when the valve is closed, with its opposite ends projecting beyond the sides of the tube. The plunger *f* covers or partly covers the passage *a* when the valve is closed by the contact of the washer *v* with the seat *s*, but is moved away from the passage as the valve is opened, thus affording a discharge for the liquid by the nozzle, while preventing any leakage or flow of the same into the outer end of the tube or chamber D. The ridge *s* is provided around the mouth of the inlet *i*, to make a closer contact of the seat with the leather washer *v*, as the narrow ridge would obviously indent the leather, and thus make a closer joint therewith than a flat seat.

To open the valve, the operator turns the cross-bar around on the stem *e* by pressing its projecting ends in opposite directions toward the similar inclines, *l*, which then operate to draw the stem outward against the tension of the spring. Such turning thus opens the valve any desired amount, and if the operator wishes to leave it open he turns the cross-bar far enough to reach the ends of the inclines, which are formed transverse to the stem, and thus serve to retain the cross-bar at rest with the spring compressed and the valve entirely open. The operation of the inclines is precisely similar in Figs. 4 to 6, inclusive, wherein the tubular valve-chamber is constructed as tangent to the inner side of the bowl C, and is extended upward through the contents of the can, and through its top a sufficient distance for the formation of two slots, *l'*, upon opposite sides of the tube, the upper sides of such slots forming inclines *l*. The slots are, however, so constructed that the inclines serve to force the stem and valve toward the interior of the can, while the inclines formed in the open notches at the end of the valve-chamber, in Figs. 2 and 3, are arranged to draw the

valve and stem outward when the cross-bar is turned. These different constructions are thus adapted for opening the valve in opposite directions, and the valve-seat is therefore shown in Figs. 2 and 3 faced outward, with the valve located in the chamber outside of the seat and operating against the natural pressure of the fluid in the can when closed upon the seat by the spring *h*. It will be noticed that the spring is within the liquid and operates to pull the valve to its seat, instead of pushing the same, as has been done in previous constructions, which require a cap secured to the outer end of the valve-chamber to serve as an abutment for the thrust of the valve. The liquid pressure in this case operates to press the valve open in opposition to the spring; but in Fig. 4 the valve-seat is faced inward, and the valve located behind the seat inside the can, with a spiral spring inserted behind the valve, so that when brought to its seat by the spring the fluid-pressure tends to co-operate with the spring, and thus assist in preventing leakage.

In Figs. 1, 2, and 3 the valve-washer is faced inward and affixed to the inner side of the plunger *f*, and both move outwardly when the valve-inlet is opened and the passage *a* uncovered, the washer serving not only to close the valve-inlet when pressed upon the annular ridge *s*, but, being made large enough to closely fit the bore of the chamber *D*, serves also to restrict the flow of the liquid outward and to confine its discharge exclusively to the passage *a*. In Fig. 4, however, the passage *a* is located in front of the seat *s*, and is behind the same, and the plunger *f* is therefore separately attached to the stem *e*, sufficiently in advance of the passage *a* to obstruct the tube *D* when the valve is opened, and to restrict the discharge of the fluid to the nozzle, as desired.

The plunger is shown provided with a leather disk, *f'*, to make a snug joint with the bore of the tube; but may be made exclusively of metal if fitted closely thereto; but the valve-washer *v*, when used apart from the plunger, as in this construction, is mounted upon the valve-stem by suitable disks, *e'*, attached thereto by solder or in any convenient manner.

The tubular chamber *D* is shown in Fig. 4 extended beyond the valve seat in the bottom of the can, to form a guide for the spring *h*, which is abutted against the bottom of the can, the tube being formed with holes *n*, to admit the fluid from the can to the interior of the chamber.

The means for holding the valve open in opposition to the spring, and which consists in seats *o*, formed at the ends of the inclines, are provided in Figs. 2 and 3 by the outer end of the tube *D*, in which the notches with the inclines *l* are formed, but are shown in Fig. 6 as the lower end of the slot *l'* cut in the sides of the tube, such end part of the slot being formed transverse to the valve-

stem, so as to retain the cross-bar when turned into contact therewith. Notches *p* are shown extended from the outer ends of the slots *l'* to the top of the tube, to insert the two arms of the cross-bar *j* into the slots.

I am aware of J. F. Brown's patent application No. 149,772, in which I hold a partial interest, and in which a valve-chamber and valve analogous to that shown in Figs. 2 and 3 herein, are claimed; but my invention differs from the same, first, in the means for operating the valve (whereby the operator is relieved from pulling the valve open against the tension of the spring) by the provision of the cross-bar *j* and the inclines *l*; secondly, in having means for holding the valve open automatically, when desired; thirdly, in the construction of the valve-seat with the annular seat *s*; and, fourthly, in the location of the spring behind the valve-seat, instead of in the front end of the valve-chamber, whereby I am enabled to dispense with a cap upon the outer end of the valve-chamber for the spring to butt against.

Having thus described my invention, I hereby disclaim the construction claimed in the said patent application No. 149,772, and claim my own improvements in the following manner:

1. The combination, in a can-valve, of a tubular valve-chamber having an outlet, *a*, and spout *N*, a valve seat provided with an inlet for the varnish, a leather valve-washer pressed upon the seat by a spring and carried upon a valve-stem, as described, and a cross-bar upon the valve-stem, and inclines upon the valve-chamber, operating to open the valve when the cross-bar is turned, substantially as shown and described.

2. The combination, with a shipping-can, of the chamber *D*, provided with the inclines *l*, and having inlet *i* at the end, and outlet *a* and spout *N* at the side, the valve-seat formed in the inside end of the chamber, the valve arranged inside of the seat, and a spring arranged and operated to close the valve upon the inner side of the seat, and a valve-stem and cross-bar operated by the inclines, as described, to compress the spring and to open the valve by pushing it into the varnish.

3. The combination, in a can-valve, of the tubular valve-chamber *D*, having the outlet *a* and spout *N*, the seat fixed in the same, and provided with inlet *i* and annular ridge *s*, as described, the leather washer *v*, mounted upon a valve-stem, as described, and a spring arranged and operated to press the washer upon the annular ridge, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

A. OGDEN FITZ GERALD.

Witnesses:

THOS. S. CRANE,
L. LEE.