W. DEPPERMANN.

POUR-OUT FOR BOTTLES.

APPLICATION FILED NOV. 29, 1913. RENEWED FEB. 24, 1919.

1,310,405. Patented July 15, 1919.

Fig. 1

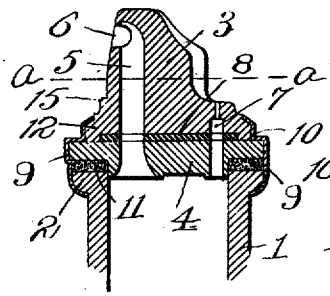


Fig. 2.

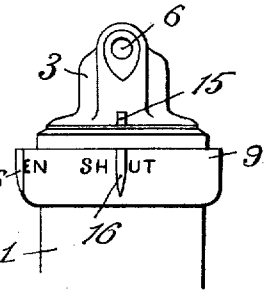


Fig. 3.

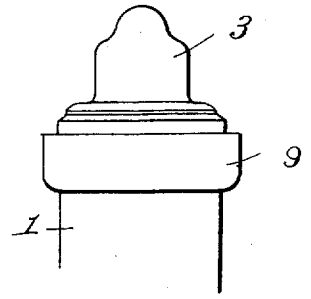


Fig. 4.

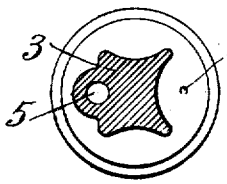


Fig. 5.

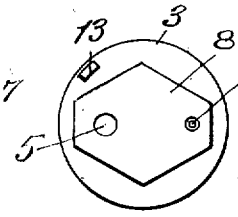


Fig. 6.

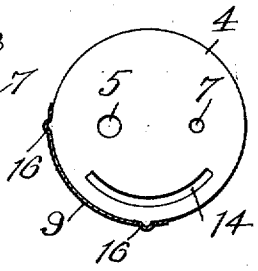


Fig. 7.

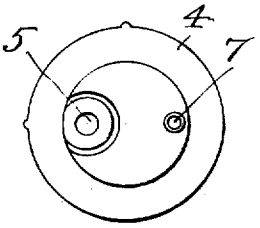


Fig. 8.

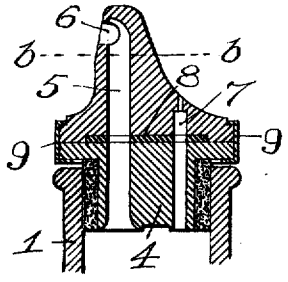


Fig. 13.

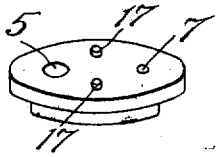


Fig. 9.

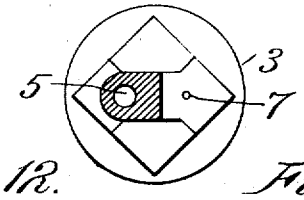


Fig. 10.

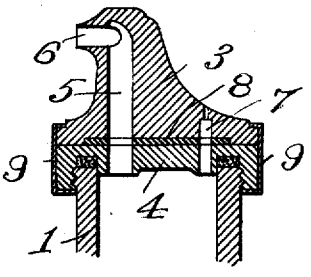


Fig. 12.

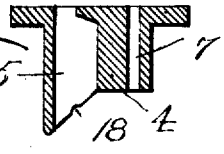
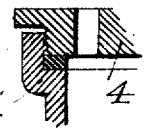


Fig. 11.



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POUR-OUT FOR BOTTLES.

1,310,405. Specification of Letters Patent. **Patented July 15, 1919.**

Application filed November 29, 1913, Serial No. 803,704. Renewed February 24, 1919. Serial No. 278,931.

To all whom it may concern:

Be it known that I, WILLIAM DEPPERMANN, a citizen of the United States of America, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Pour-Outs for Bottles, of which the following is a full and clear specification.

My invention relates to pour-outs for bottles or other containers for ink or the like. The invention relates particularly to that class of pour-outs in which the flow of liquid through the liquid vent is controlled by opening and closing an auxiliary air vent of relatively smaller diameter than the liquid vent. By placing the finger over the air vent the flow of liquid is effectually stopped.

An object of my invention is to provide a device of this character which will effectively seal the bottle, after filling with ink or the like, and prevent leakage when the bottle is being carried in other than an upright position. A further object is to provide means whereby a simple manipulation of a movable part will make the bottle ready for use. Further objects will be pointed out in the following description and claims.

In the drawings I have illustrated a pour-out for ink bottles,—

Figure 1 representing in vertical section a preferred form of my device;

Fig. 2 is a front view of the same;

Fig. 3 is a rear view of the same;

Fig. 4 is a view in section on the line *a*—*a*, Fig. 1;

Fig. 5 a bottom view of the upper member of my device;

Fig. 6 is a top view of the lower member;

Fig. 7 a bottom view of the lower member;

Fig. 8 represents in vertical section a modification of certain features;

Fig. 9 a top view in section on the line *b*—*b*, Fig. 8;

Fig. 10 is a vertical section of another modification;

Fig. 11 is a detail vertical section of another modification;

Fig. 12 is a detail vertical section of another modification;

Fig. 13 is a perspective view of another modification;

The same reference characters are used to denote similar parts in all the views.

Referring more particularly to the form of the device shown in Figs. 1 to 7 inclusive, 1 is the neck of a bottle or other container, having the usual flange 2. The pour-out is divided on a horizontal plane into the upper member 3 and the lower member 4. Within the pour-out are located the liquid vent or passage 5 terminating in the spout 6, and the air vent or passage 7. Within the recess 8 on the bottom face of the upper member 3 I place a washer having two perforations to correspond in size and position to the vents 5 and 7. The washer may be readily secured to the upper member 3 by cement or the like or, as shown in Fig. 5, the recess 8 may be hexagonal or any other non-circular shape, the washer being cut in the same shape and size. It is essential that the washer 8 be in positive engagement with either the upper or lower member in order that the vents may be accurately thrown open or closed at will. Fig. 13 illustrates one of a number of additional ways in which this can be done. In this arrangement the view being a perspective view of the lower member, the washer 8 (not shown) is adapted to be held by the lugs 17, making it possible to use a circular washer in a circular recess or omitting the recess altogether. Moreover the lug 17 may be put either on the lower member or on the upper member. It will be noted that the air vent 7 is enlarged for a portion of its length or in other words has a reduced finger closed inlet. Experiment has shown me that if the air vent 7 is made of uniform bore throughout, the flow of liquid from the liquid vent 5 is difficult to regulate, both as to quantity and direction, as the liquid will come out in a succession of spurts. I also find this construction of the air vent 7 desirable to prevent the closing of the air vent by any failure to register the perforation in the washer accurately with the air vent or by any roughness of the washer which might close the air vent if it were made narrow throughout its length.

Means for fastening the pour out to the bottle comprises an embracing ring 9 preferably of sheet metal. The lower edge of

the ring is turned in to engage the flange 2 of the bottle and is bent inwardly at 10 to hold the lower member 4 under pressure, against washer 11, thereby insuring a tight seal at this point. The upper rim of the ring is also turned inwardly to loosely engage the shoulder 12 of the upper member 3.

It will be seen that since the lower member 1 is rigidly clamped to the bottle neck and the upper member 3 is loosely held within the ring 9, the upper member 3 can be rotated on the lower member 4, thereby throwing out of register the sections of the vents 5 and 7. This operation coöperating with the washer 8 effectively seals the bottle. The upper member 3 is so shaped as to facilitate grasping it between the fingers, as shown in Fig. 2. It is obvious, moreover, that a very slight displacement of the parts will suffice to seal the bottle. I have found that a quarter turn of the upper member 3 is quite sufficient for this purpose. In order to insure the accurate registry of the vents in the upper and lower members, I have provided on the bottom of the upper member 3 a segmental lug 13, and on the top of the lower member 4 is a segmental recess 14. The segmental lug 13 is adapted to travel within the segmental recess 14. The vents can be quickly brought into registry by rotating the upper member 3 until the segmental lug 13 reaches the end of the segmental recess 14. The condition of the pour-out, whether open or shut, can be ascertained by reference to the indicator shown in Fig. 2, the position of the index 15 being noted in its relation to the words "Open" and "Shut" which are stamped into the ring 9. The index 15 being secured to the upper member 3 will turn with it and thereby indicate from its position whether the pour-out is open or shut. It is, of course, necessary for the accurate working of this indicator that the relation of the ring 9 to the lower member 4 should be determined. For this purpose I put one or more beads 16 on the lower member 4, these beads being adapted to fit into corresponding grooves on the ring 9, as shown in Figs. 6 and 7. For the purpose of preventing ink from being held in the liquid vent 5 by capillary attraction, I prefer to make the lower end of the liquid vent flaring. It is important that this liquid vent should be kept drained, otherwise any rise in temperature due to moving the bottle from a cold to a warm place, would generate a pressure within the bottle which may be sufficient to force a few drops through the liquid vent 5, as soon as it is opened.

In Figs. 8, and 9, I have illustrated a modification in which the lower member 4 is made in the form of a cork which tightly fits within the neck of a bottle. The ring 9 rigidly engages and turns with the upper member 3 by the arrangement shown in Fig. 9, the ring being formed square at its upper edge and closely engaging the sides of the square portion of the upper member 3. The lower member 4 being in loose engagement with the ring 9, rotation between the members is permitted.

In Fig. 10 I have illustrated another method of fastening the pour-out to the bottle, an external thread being molded on the neck of the bottle and a corresponding internal thread on the lower member 4. In this modification the engagement of the ring 9 with the upper member 3 is rigid and with the lower member 4 is loose. In this figure I have also shown a modification of the spout 6 for filling fountain pen barrels or containers having small openings. It will be seen that the spout is extended out and tapered to enable it to be inserted in the pen barrel or the like.

As shown in Fig. 11, the arrangement may be reversed by putting the internal thread on the neck of the bottle and the external thread on the inserted portion of the lower member 4.

In Fig. 12 I have illustrated a variation of the means for draining the liquid vent 5 which consists in making an oblique termination to the liquid vent at its lower end, the draining effect being enhanced by a notch or notches 18. Without departing from the spirit of the invention I may also drain the liquid vent 5 by having it taper from the top to the bottom instead of flaring at the bottom as shown in Fig. 1.

While I have illustrated a bottle fitted with my pour-out device for dispensing ink, it will of course, be understood that the invention can be applied to various containers for dispensing various liquids.

I claim:

1. A pour-out for bottles comprising relatively rotatable lower and upper members having corresponding passages in a plane lateral to the axis of relative rotation, the upper member having a discharge spout leading from its passage, and a ring secured to the bottle, directly engaging each of said members and holding the lower member rigid and confining the upper member in rotative relation to the lower member.

2. A pour-out for bottles comprising in combination relatively rotatable lower and upper members having corresponding passages lateral to the axis of relative rotation, and an annular fastening member engaging the upper member and confining it in rotative relation to the lower member and also engaging the lower member to secure it against rotation and means for attaching said fastening member to the bottle.

3. A pour-out for bottles comprising in combination relatively rotatable lower and upper members having corresponding passages, and an annular fastening member en-

gaging upper member to secure it to the lower member while permitting its rotation relative thereto, and also engaging the lower member to secure it against rotation, interlocking elements formed upon the lower member and fastening member and suitable means for attaching said fastening member to the bottle.

4. A pour-out for bottles comprising in combination a lower and an upper member having corresponding passages and relatively rotatable, and a two part ring having one part engaging the upper member to hold it from vertical movement while permitting horizontal rotation, and the other part securing the lower member rigid to the bottle and interlocking means preventing relative rotation of the lower member and said ring.

5. A pour-out for bottles, comprising, in combination, a lower and an upper member having corresponding pour out passages and relatively rotatable, and the upper member having a vertically projecting laterally flattened finger piece through which said passages extend, and a two-part ring having one part engaging the upper member to secure it to the lower member while permitting it rotation relative thereto, and the other part securing the whole rigidly to the bottle.

6. A pour-out for bottles, comprising, in combination, a lower and an upper member, the upper member having a vertically projecting laterally flattened finger piece, a fluid outlet extending through said finger piece and opening at the front edge thereof, an air inlet extending through said finger piece and opening upwardly therein, the finger piece shaped to receive the finger adjacent said air opening, and the lower member having corresponding openings, the whole held to the bottle by a two part ring member, of which one part engages the rotatable upper member of the stopper so as to secure it while permitting its rotation, and the other part secures the whole stopper to the bottle.

7. In a device of the character described, the combination with a pour-out stopper having a liquid vent and an air vent, the said stopper divided into separate upper and lower members, of an embracing ring adapted to rigidly clamp the lower member to the bottle and hold the upper member loosely whereby the upper member is permitted to rotate on the lower member, an "open-and-shut" indicator comprising an index on the upper member and "open-and-shut" stations arranged on said securing ring, and means integral with the lower member coöperating with means integral with the securing ring, whereby the relation of the lower member to the ring is determined.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."