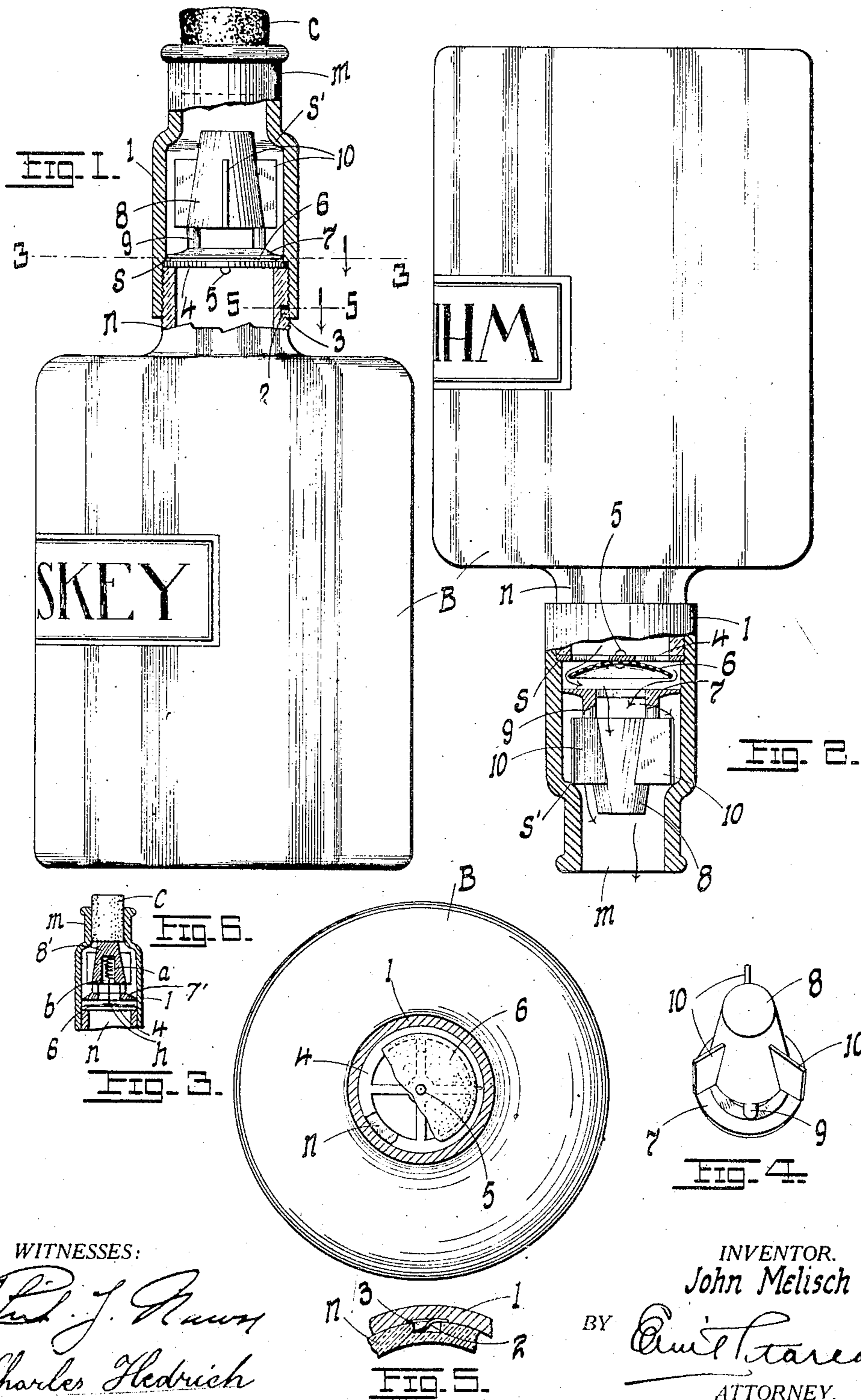


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BOTTLE CLOSURE.
APPLICATION FILED SEPT. 3, 1908.

920,771.

Patented May 4, 1909.



WITNESSES:

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BOTTLE-CLOSURE.

No. 920,771.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN MELISCH, a subject of the Emperor of Austria-Hungary, residing at Granite City, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Bottle-Closures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in bottle closures, and it consists in the novel construction of closures more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 shows a bottle in upright position with the neck-extension in section showing my invention applied thereto; Fig. 2 is a similar view with the bottle inverted; Fig. 3 is a horizontal section on line 3—3 of Fig. 1, parts being broken away; Fig. 4 is a perspective of the weighted annular base which holds the diaphragm to the spider for a closed position of the bottle; Fig. 5 is a sectional detail on line 5—5 of Fig. 1; and Fig. 6 is a sectional detail showing a modified form of closure.

The object of my invention is to construct a bottle closure which will automatically close the mouth of the bottle when the bottle is stood upright, and release the liquid when the bottle is inverted, the character of the closure being such as to make the bottle practically non-refillable when once emptied.

A further object is to accomplish these results with a minimum number of parts.

The advantages of the invention will be better apparent from a detailed description thereof which is as follows:—

Referring to the drawings, and for the present to Figs. 1 to 5 inclusive, B, represents the body portion of a bottle, and *n*, the neck thereof which in this instance is exteriorly screw-threaded. Secured to the neck is an extension 1 provided at the bottom with a locking spring 2 which, when the extension is screwed to the neck its full extent automatically engages a depression or socket 3 whereby the extension becomes locked against any possible unscrewing. Carried by the extension 1 immediately beneath the annular shoulder *s* is a spider 4 which rests on the upper edge of the neck being firmly held thereto by the shoulder *s* as

the extension 1 is driven home. Secured centrally to the spider 4 by means of a rivet 5 is a rubber diaphragm or closure-disk 6 the edge of which rests on the outer rim of the spider, the periphery of the disk just reaching to the inner wall of the extension 1. Resting on the rubber disk 6 is the annular flaring base 7 of a conical weight 8, said base being spaced from the weight by connecting posts 9. The weight 8 is provided, with wings 10 which bear against the inner walls of the extension 1 confining the weight and its base to a rectilinear movement with any tilting of the bottle. When the bottle is fully inverted the weight is arrested by the bases of the wings engaging the upper annular shoulder *s'* formed at the base of the mouth *m* of the extension which mouth may be initially closed by an ordinary cork or stopper *c*.

The operation of the device may be described as follows:—With the bottle in an upright position, the weighted base 7 rests upon the disk 6 and thus closes the neck *n* of the bottle. When the bottle is inverted, the part 7, 8, slips toward the mouth *m* allowing the pressure or weight of the liquid in the bottle to force the outer edges of the rubber disk 6 away from the spider 4, and permitting the liquid to pass through the spider into the opening of the base 7 thence through the space between the body of the weight 8 and the inner walls of the extension 1 between the wings 10, and out through the mouth *m*, the cork *c* having been previously removed, (Fig. 2). When the bottle is again righted the parts resume their original position and the bottle is again closed (Fig. 1).

It will be observed that the rubber diaphragm 6 is extremely pliable and sensitive, responding to the slightest pressure of liquid from within the bottle; and this sensitiveness causes it to instantly resume its position against the disk by any pressure from the opposite direction. So that should an attempt be made to force liquid into the bottle when once emptied, such pressure would force the diaphragm 6 against the spider 4 and cut off any passage or flow of the liquid into the bottle. Besides no provision would be made to allow for the escape of air which is within the bottle, thereby making the present bottle practically non-refillable. The form of the weight 8, and the character of guide-wings

10 may obviously be departed from without in any wise affecting the nature or spirit of my invention. The annular weighted member 7 it will be seen protects the outer edges
5 of the diaphragm from being tampered with by unauthorized persons who might be tempted to refill the bottle.

In Fig. 6 I have shown a closure specially applicable to medicine bottles, or bottles of
10 small capacity, where the weight of the piece 8 might be insufficient to release the diaphragm when the bottle is inverted. In that case, I provide a weight or plug 8' with a
15 spring *a* inserted into a socket *b* of the plug, the projecting head of the spring having an expanded head *h* which bears or rests against the diaphragm 6. The spring being an ex-
20 panding one, it forces the plug 8' and its annular base to releasing position, that is to say, away from the yielding edges of the diaphragm, allowing the contents of the bottle to be removed. Of course, in that case the
25 cork *c* is depended on to close the bottle as shown in Fig. 6, or, the cork if driven far enough into the bottle will drive the base 7 of the plug against the diaphragm the same as is the case in Fig. 1.

In Fig. 6, the shoulder at the base of the extension 1 is dispensed with, the frictional
30 engagement and close fit between the spider and extension serving to hold such spider in position without the employment of a shoulder.

Having described my invention, what I
35 claim is:—

1. In combination with a bottle having a neck, an extension secured to the neck, a spider having an outer rim, resting on the edge of the neck within the extension and held in
40 position by the latter, a yielding diaphragm

carried by and resting over the spider and engaging the outer rim thereof, an annular member adapted to bear against the diaphragm, a weight secured to the annular member and spaced a suitable distance
45 therefrom, guides on the weight engaging the inner walls of the extension, the latter having formations for arresting the guides upon the falling of the weight in an inverted position of the bottle, substantially as set forth. 50

2. In combination with a bottle having a neck, a spider having an outer rim engaging the edge of the neck, a yielding diaphragm carried by and resting on the spider and engaging the outer rim thereof, and a spring-
55 controlled reciprocating plug above the diaphragm adapted to be forced to releasing position by the action of the spring, substantially as set forth.

3. In combination with a bottle having a
60 neck, a spider having an outer rim engaging the edge of the neck, a yielding diaphragm carried by and resting on the spider and engaging the outer rim thereof, a reciprocating plug having a central socket, an expanding
65 spring inserted in said socket and having a projecting end bearing against the center of the diaphragm, a basal annular closure member coupled to the plug, the spring serving to automatically force said annular member out
70 of engagement with the diaphragm upon release of the plug by the cork of the bottle, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN MELISCH.

Witnesses:

EMIL STAREK,
CHARLES HEDRICH.