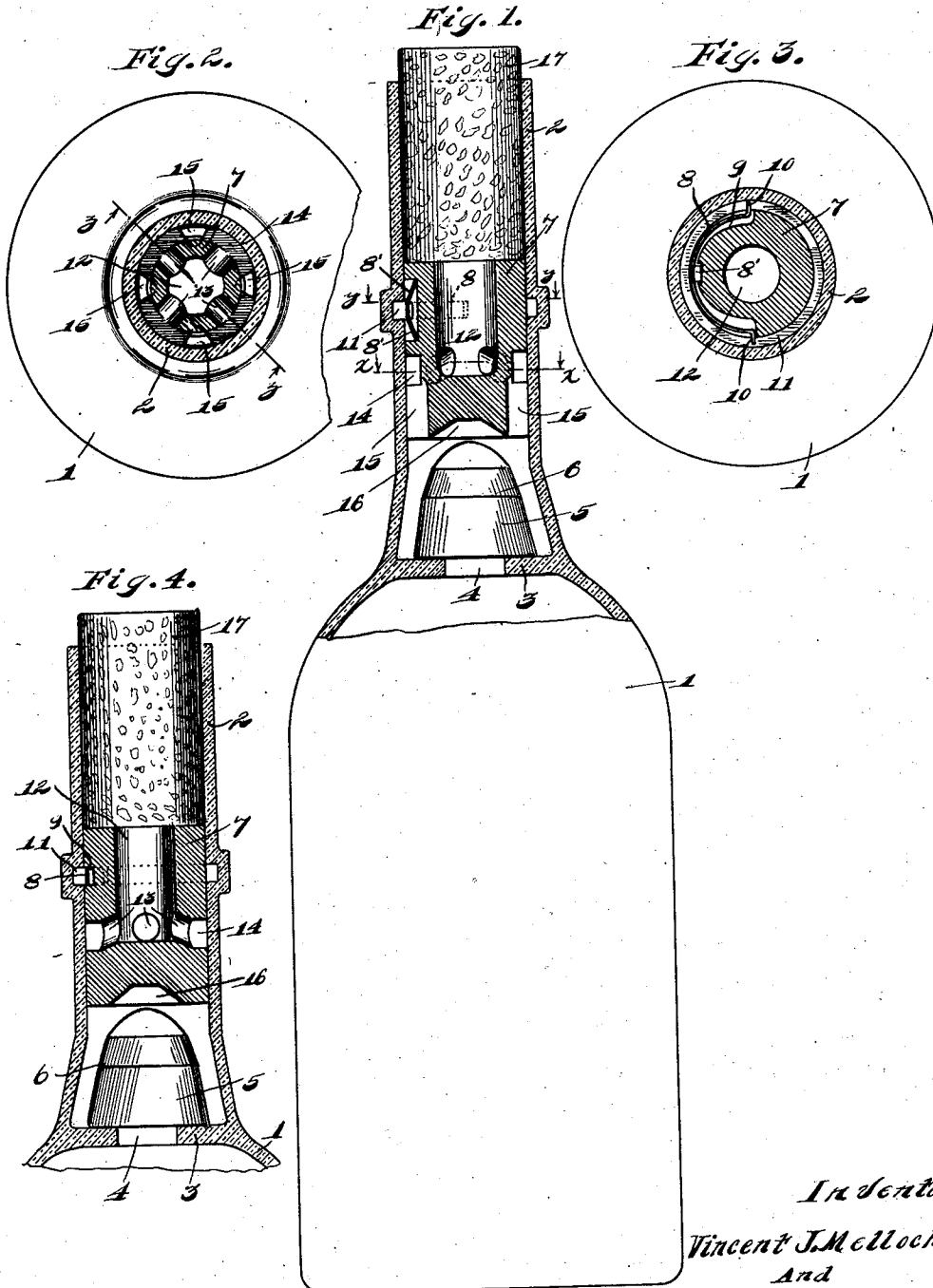


V. J. MELLOCH & R. D. LEWRY.
NON-REFILLABLE BOTTLE.
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Witnesses:
C. E. Russell.
A. A. Olson

Inventors:
Vincent J. Melloch,
And
Richard D. Lewry.
By *Joshua R. Horn*
their Attorney.

UNITED STATES PATENT OFFICE.

VINCENT J. MELLOCH AND RICHARD D. LEWRY, OF CHICAGO, ILLINOIS, ASSIGNORS OF
ONE-THIRD TO JOSEPH T. SPIKER, OF CHICAGO, ILLINOIS.

NON-REFILLABLE BOTTLE.

1,011,472.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, VINCENT J. MELLOCH and RICHARD D. LEWRY, citizens of the United States, and residents of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

Our invention relates to improvements in non-refillable bottles and has for its object the production of a device of this character which will be of economical construction and positive and efficient in its operation.

Other objects will appear hereinafter.

With these objects in view our invention consists in a non-refillable bottle characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter fully described and more particularly pointed out in the appended claim.

Our invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation of a bottle embodying our invention, the neck thereof being shown in section, Figs. 2 and 3 are transverse sections taken on lines $x-x$ and $y-y$ respectively of Fig. 1, and Fig. 4 is a section taken on line $z-z$ of Fig. 2.

The preferred form of our construction as illustrated in the drawing comprises a bottle having a body 1 which may be of any ordinary or preferred form, and a substantially cylindrical neck 2 upwardly projecting therefrom. Formed at the base of the neck 1 integral therewith is an annular inwardly projecting flange 3 forming a restricted central opening 4. Arranged above the flange 3 is a valve 5 of a substantially conical form as shown, the base of said valve which is perfectly flat resting upon the upper surface of said flange, said surface being correspondingly formed so that when said bottle is in upright or non-pouring position said plug will serve to effectually close the opening 4 preventing the entrance of liquid to the body 1. The base portion of the neck 1, that is that portion which is adjacent the valve 5 is conically formed to correspond with the form of said plug. With this arrangement the plug 5 will be maintained in operative or closing position by reason of

the corresponding conformation of the inner surface of said neck engaged thereby until the bottle when tilted has reached the pouring position, that is with the mouth thereof positioned in a horizontal plane below the bottom thereof. Said plug 5 is formed intermediate its extremities with a circumferential corner or edge 6 upon which said plug is adapted to rock when the bottle is in pouring position, to uncover the opening 4 to permit of discharge of the contents of the bottle.

Arranged above the valve plug 5 is a cylindrical plug 7 which snugly fits within the neck 2. Provided in the lateral surface of the upper end portion of the plug 7 is a circumferentially disposed leaf spring 8, the same being positioned in a recess 9 formed in the plug 7 for the reception thereof. The extremities of said spring 8 are disposed outwardly, as clearly shown in Fig. 3 for engagement with a circumferential annular groove 11 formed in the inner surface of the neck 2 intermediate the extremities of the latter. The recess 9 is so formed as to permit of depression of the ends 10 so that the outer ends of the latter will be flush with the lateral surface of said plug 7; this provision being made in order to permit of insertion of the plug 7 into the neck of the bottle. In such insertion it is understood that the ends 10 are depressed as mentioned so that the same will pass the outer extremity of the neck. The plug is then lowered to the position shown, the ends 10, when said plug has reached this position, being forced outwardly by reason of the resiliency of the spring 8 into engagement with the groove 11, thereby obviously permanently locking said plug in position, removal thereof being impossible without breaking the neck of the bottle. In order to further aid in the insertion of said plug 7, the central portion of the spring 8 is provided at its opposite edges with inwardly projecting ears 8', the inclination of said ears, more particularly of the lower one, evidently serving to effect ready passage of the medial portion of the spring beyond the upper extremity or edge of the neck, as will be readily understood. The plug 7 when in operative position evidently serves as a means of imprisoning the valve plug 5, the arrangement being such that limited

longitudinal movement of the valve plug will be permitted.

Formed in the upper end of the plug 7 is an axial opening 12. Leading from the lower end of the opening 12 are substantially radially disposed passages 13 which communicate at their outer ends with a circumferential groove 14, longitudinally extending grooves 15 extending downwardly from said groove 14 into communication with the valve plug chamber. Thus communication is established between the valve plug chamber and the open upper end of the neck 2 so that upon pouring from the bottle, the liquid will first pass through the opening 4 into the valve plug chamber whence the same will pass successively through the grooves 15 and 14, passages 13, and the terminal opening 12 to the open mouth end of the neck. The grooves 15 are arranged preferably in staggered relation with the passages 13 so as to preclude the possibility of the insertion of wires or other instruments for the purpose of tampering with the operation of the valve plug. Also the passages 13 are inclined as shown so that in the event of a hooked instrument being lowered into the opening 12 into engagement with said passages in an effort to remove the plug 7, the hooked end of the instrument engaging said passages will more readily slide out of engagement therewith and thus frustrate the attempt.

Provided in the lower end of the plug 7 is a recess 16 preferably of truncated conical form with which the apex of the valve plug is adapted to engage when the latter is unseated as in the event of pouring from the bottle. Said recess 16 serves as a means of maintaining the valve plug in its proper position in the valve chamber when in unseated position and in the act of pouring from the bottle and so that the valve plug, when the bottle is righted, will readily drop to operative or closing position over the opening 4. By reason of the peculiar form of the recess 16 the apex of the valve plug in engaging therewith will contact at only one or possibly two points thereby reducing friction between said plugs 5 and 7 to a minimum and so that free movement of the

valve will not be impaired by the contacting thereof with said plug 7.

The plug 7 is disposed as shown preferably medially in the neck 2 so that the upper end portion of the latter will be open for the insertion of a cork or stopper 17 thereinto.

In use initial filling of the bottle is effected for the insertion of the valve plug and the plug 7. After such insertion it will be observed that pouring from the bottle will also be permitted, refilling thereof after once being emptied being absolutely prevented.

A bottle of the construction as set forth is durable and economical, and the same is of high efficiency in operation.

While we have illustrated and described the preferred form for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We therefore do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claim.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

A bottle of the class described, having a groove in the inner wall of its neck; a plug fitting into said neck and provided with a semi-circular peripheral recess having central longitudinal branches, there being a tortuous passage through said plug; a spring in said recess and having outwardly turned ends engaging said groove; inwardly inclined ears on the central portion of said spring seated in said recess branches; and a valve in the bottom of said neck below said plug, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

VINCENT J. MELLOCH.
RICHARD D. LEWRY.

Witnesses:

ARTHUR A. OLSON,
JOSHUA R. H. POTTS.