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FOUNTAIN PEN FILLING ATTACHMENT FOR INK BOTTLES OR THE LIKE

Filed Oct. 5, 1931

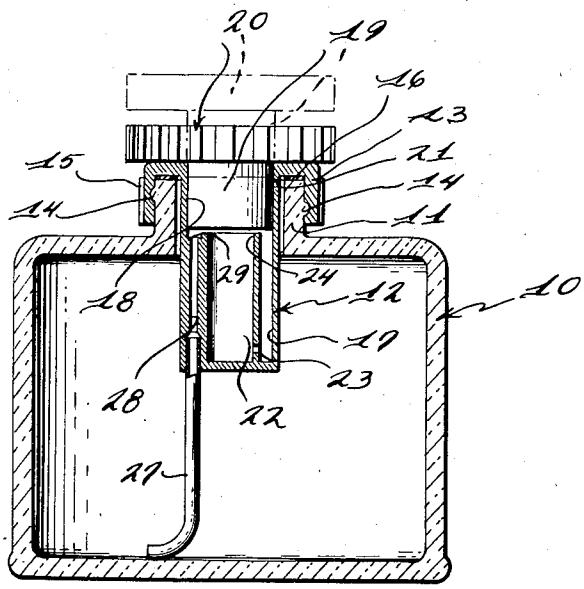


Fig. 1.

Fig 2.

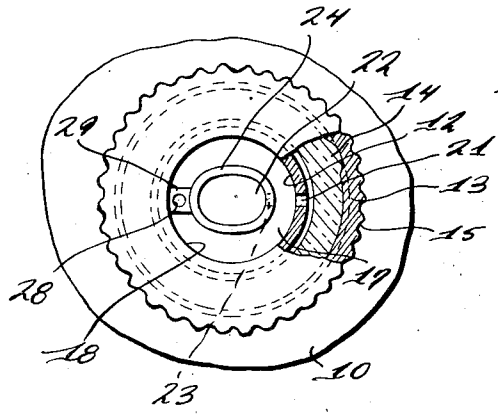
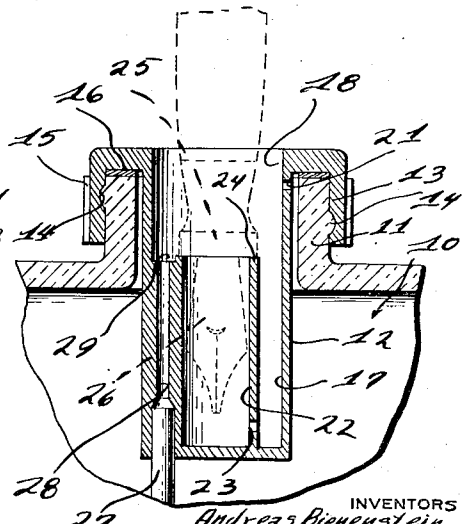


Fig. 3.



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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN FILLING ATTACHMENT FOR INK BOTTLES OR THE LIKE

Application filed October 5, 1931. Serial No. 567,102.

This invention relates to an attachment for bottles or other containers and more especially to an attachment of this character embodying means for automatically raising a predetermined limited quantity of the liquid contents of the bottle or container to a convenient point adjacent the mouth or neck of the container upon the withdrawal or removal of the closure means therefor.

The invention while capable of many and diversified uses, finds particular utility when used in connection with ink bottles whereby a quantity of ink may be made available adjacent the mouth or neck of the bottle to facilitate, for instance, the filling of fountain pens or for use as a dip-well for ordinary pens.

The invention relates to that type of apparatus in which the ink or other fluid is raised into a well adjacent the mouth of the bottle, upon withdrawal of the stopper or closure, by reason of the air pressure within the bottle, this pressure having resulted from the previous introduction of the closure into the bottle mouth.

One of the important objects of the invention is to provide a device of this character which is structurally simple and durable and which may be economically produced in large quantities.

Another object is to provide a device of this character in which the ink level will be maintained slightly below the mouth or opening of the reservoir in which the nib of the pen is inserted so that the barrel of the pen is kept free from contact with the ink.

Another object of the invention is to provide a structure of this character which, by means of a vent opening, automatically compensates for thermic variances in the contents of the ink or other fluid, thereby maintaining the fluid level in the chamber at the mouth of the container or bottle, constant.

Still another object of the invention is to provide a device of this character in which the reservoir which receives the nib end of the pen is so designed as to accommodate various sizes of pens without requiring the use of gaskets, tapered shoulders, or the like.

The several objects, advantages and novel details of construction of the invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein

Figure 1 is a sectional elevational view of a bottle or container embodying this invention;

Figure 2 is an enlarged fragmentary sectional view similar to Figure 1, but showing the closure member removed and indicating fragmentarily by dotted lines, the nib end of a fountain pen introduced into the reservoir or well; and

Figure 3 is a view partly in section and partly in elevation of the attachment forming the particular subject matter of this invention.

Referring now more particularly to the drawing, and especially to Figure 1, it will be noted that there is illustrated a bottle or container 10 having a neck 11.

Our improved attachment comprises a chambered member 12 which is fitted within the neck of the bottle and is normally fixed thereto. For this purpose we preferably provide a downwardly extending sleeve or collar 13 which is interiorly threaded to engage exterior threads 14 on the bottle neck 11. The outer periphery of the collar 13 may be knurled as at 15 to facilitate the attachment of the device to the bottle neck and in order to seal the interior of the container or bottle, a gasket 16 is preferably employed.

The member 12 provides a chamber 17, the upper or mouth portion 18 of which is preferably, although not necessarily, cylindrical to receive the plug-like or piston-like portion 19 of a closure member 20. Adjacent the periphery of the mouth 18 the member 12 is provided with a vent opening 21 which communicates with the interior of the bottle 10 for a purpose which will appear more fully hereinafter.

Arranged at the bottom of the chambered member 12 is an inner chamber 22 which constitutes a well or reservoir, the wall of this chamber being apertured as at 23, preferably adjacent the bottom thereof, to afford com-

munication between the chamber 17 and the well or reservoir 22.

This well or reservoir is preferably elliptical in cross section or at least the mouth or upper edge 24 thereof is thus shaped, thereby providing an elliptical shoulder or support upon which the shoulder 25 of a fountain pen may rest, when the nib 26 thereof is inserted into well. By making the mouth of the well elliptical, the well will accommodate pens of various sizes, by preventing the shoulder 25 of the pen from entering the well; the smaller diameter of the mouth being less than the smallest diameter of the standard shoulder of fountain pens whereas the larger diameter is sufficient to accommodate pens of larger size.

The reference character 27 indicates a feed tube or conduit which is connected to the chambered member 12 preferably communicating with a port or passageway 28 formed therein. This port or passageway 28 terminates at the point 29 so that the feed tube 27 communicates with the chamber 17 at this point 29, which, as will be noted, is below the level of the mouth 24 of the well or reservoir. Therefore, irrespective of how much ink is drawn into the chambered member the ink will drain back to the level of the inlet 29. Thus, the pen can be introduced into the well and the shoulder 25 of the pen can be engaged with the mouth 24 of the well without bringing the barrel of the pen into contact with the ink.

The ink which is raised into the chamber 17 flows into the well 22 through the port 23 so that the level of the ink in the chamber 17 and well 22 will be the same.

When the piston or plug-like portion 19 of the closure 20 is introduced into the mouth 18 of the member 12 and has passed the vent 21, it traps air in the chambered member 12 and forces this air through the feed tube 27 into the bottle or container 10 where it remains under pressure. When the closure is withdrawn this pressure acts upon the ink or other fluid in the container to force the same up through the feed tube 27 and into the chamber 17 and consequently into the well 22. Thermic variations in the contents of the bottle are compensated for by the vent 21 which permits escape of any remaining air under pressure from the container 10 after the closure portion 19 has passed the vent 21. Therefor, under no condition will the ink be raised to a level which will cause the same to overflow out of the mouth of the device. Obviously, when the closure is withdrawn and the ink raised into the chamber 17 any excess ink over and above the level established by the inlet opening 29 will drain back through the feed tube 27 and into the bottle. However, this level will also be maintained in the well 22 by reason of the communicating port 23 so that the ink in the well will be available for use in filling fountain pens or for use as a dip-well for ordinary pens.

Obvious modifications may suggest themselves to those skilled in the art and to this end reservation is made to make such changes as may come within the purview of the accompanying claims.

What we claim as our invention is:

1. The combination with a container, of a member fitting and normally fixed within the mouth of said container, said member presenting a cylindrical portion and further provided with a well, a feed tube depending into said container and having its upper end communicating with said member at a point below the top of said well, and a closure member having a portion engageable with said cylindrical portion, for the purpose set forth.

2. In a device of the class described, a container provided with a chamber at the mouth thereof, a well in said chamber the mouth of which is adapted to be engaged by the shoulder of a fountain pen, said well communicating below its mouth with said chamber, a feed tube depending from said chamber into said container and communicating with said chamber at a point below the mouth of said well, and a plug-like closure engageable with the open end of said chamber, for the purpose set forth.

3. The combination with a container, of a chamber member fixed within the mouth thereof and provided therein with a well, a port in the wall of said well providing communication with said chamber, a feed tube extending into said container and having its upper end communicating with said chamber at a point intermediate the top and bottom of said well so as to prevent complete drainage of the contents of said well, and a piston-like closure operable in the mouth of said chamber above said well, as and for the purpose set forth.

4. In a device of the class described, a container provided at the mouth thereof with a chambered member having a portion adapted to receive a closure member, an open top reservoir within said chambered member, a feed tube communicating with said chambered member below the open top of said reservoir and having its other end depending into said container, and a closure member engageable with the aforesaid portion of said chambered member.

5. In a device of the class described, a container provided with a chamber at the mouth thereof, a well in said chamber, the mouth of said well being elliptical and adapted to be engaged by the shoulder of a fountain pen when the nib is inserted in said well, means connecting said chamber with the interior of said container whereby ink may be raised thereinto by pressure within said container, a port affording communication between said

well and chamber, and a closure member engaging the mouth of said chamber for forcing air into said container when said closure is applied.

6. In a device of the class described, a container provided with a chamber member at the mouth thereof, the mouth of said chamber member being provided with a vent communicating with the interior of said container, a well in said chambered member, a feed tube connecting said chambered member to the interior of said container and a piston-like closure member engageable with the mouth of said chambered member, as and for the purpose set forth.

In testimony whereof I affix my signature.

ANDREAS BIENENSTEIN.

In testimony whereof I affix my signature.

WILLIAM DOUGLAS.