June 20, 1939. L. A. PAUL 2,162,920

INKWELL

Filed Jan. 18, 1938

Fig. 1.

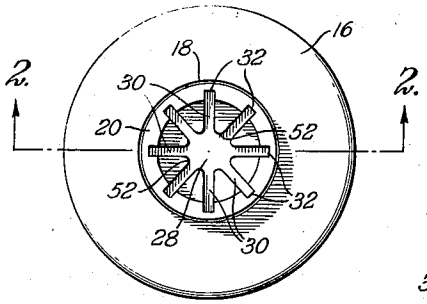


Fig. 2.

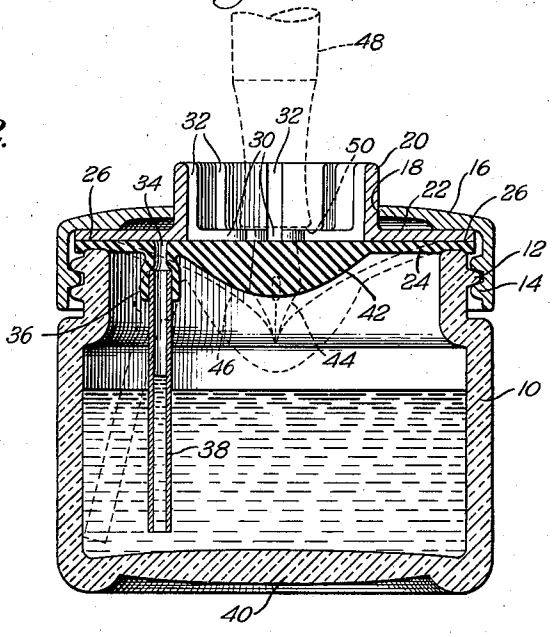


Fig. 4.

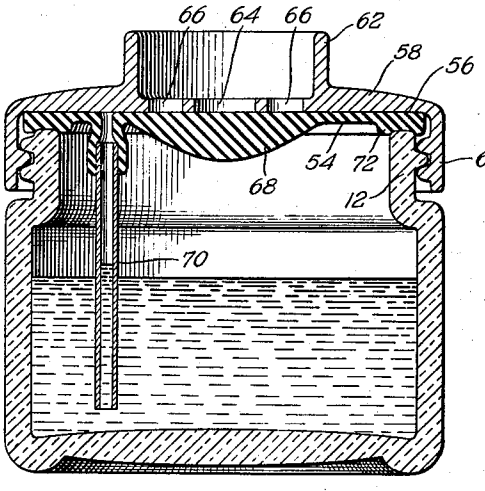
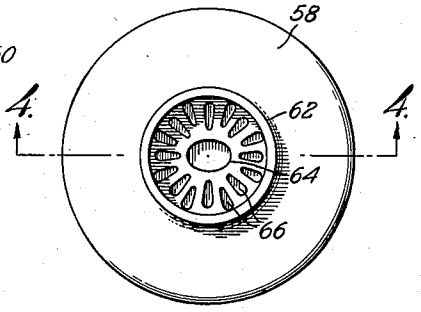


Fig. 3.



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INKWELL

Lawrence A. Paul, New York, N. Y.

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5 Claims. (Cl. 120—64)

My invention relates to ink wells, and includes among its objects and advantages the provision of an improved container so designed as to facilitate the filling of fountain pens.

An object of my invention is to provide an ink well including means for elevating ink into a pen point receiving receptacle and in which the elevating feature is pressure responsive in such a manner as to be actuated by merely pressing the point of the pen into the receptacle. The container also includes means for limiting the movement of the pen point so as to prevent the barrel of the pen from being pushed into the ink. In addition, the elevating means is so constructed as to return excess ink to the container immediately upon withdrawal of the pen. When relieved of pressure, the lifting feature renders the container leakproof to prevent spilling of the ink as when the container is accidentally tipped.

In the accompanying drawing:

Fig. 1 is a top plan view of a container embodying my invention;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of a different form of the invention; and

Fig. 4 is a sectional view along the line 4—4 of Fig. 3.

In the embodiment selected to illustrate my invention, I make use of a conventional glass container 10 having a threaded neck 12 for connection with the threaded flange 14 of a cover or cap 16. Cap 16 includes a central opening 18 for the reception of the upstanding flange 20 formed integrally with a plate 22. Adjacent the bottom face of the plate 22 I mount a diaphragm 24 of resilient material such as rubber. The peripheral margin of the diaphragm 24 is cemented to the plate 22, as at 26. The diaphragm 24 is of such diameter as to span the neck 12. Liquid-tight relation is established between the neck and the diaphragm by merely turning the cap 16 down on the neck.

Centrally of the plate 22 I provide an elliptically-shaped opening 28. The plate is slotted outwardly from the opening 28, as at 30, which slots terminate in vertical grooves 32 in the inner face of the flange 20. Opening 28 is of such proportions as to freely receive the writing point of fountain pens as well as conventional pens.

In Fig. 2, the diaphragm 24 is provided with a bore 34 and a tubular extension 36 within which I insert one end of a small tube 38 which may be of rigid properties. Sleeve 36, in being formed of the same material as the diaphragm 24, may be stretched for receiving the tube 38, after which the tension of the sleeve is sufficient for supporting the tube. The opposite end of the tube terminates in close relation with the bottom 40 of the container. Diaphragm 24 is provided with a thickened area 42 located underneath the opening 28 in the plate 22.

In operation, the upper face of the diaphragm 24 lies in close relation with the bottom face of the plate 22 so as to prevent ink and the like from flowing through the bore 34 in the event that the container is accidentally tipped. In filling a fountain pen, the pen point 44 is aligned with the opening 28 and the pen is pressed downwardly for depressing the diaphragm 24, as illustrated in dotted lines in Fig. 2. Distortion of the diaphragm 24 imparts pressure on the liquid in the container for elevating the same through the tube 38 and into the receptacle 46 formed through distortion of the diaphragm. Distortion of the diaphragm in the manner illustrated in Fig. 2 is sufficient to completely fill the receptacle 46 up to at least the bottom face of the plate 22. With the pen 48 positioned as illustrated, the air may be evacuated therefrom, after which the pen is allowed to fill. Receptacle 46 holds sufficient ink to fill all types of conventional pens.

Fig. 2 illustrates the pen 48 depressed in the maximum degree, at which time the end or shoulder 50 of the barrel rests on the upper face of the plate 22. In making the opening 28 elliptically-shaped, I provide accommodation for small as well as the largest types of pen points. The major axis of the elliptically-shaped opening is sufficient to accommodate the widest type of pen point, while the minor axis is such as to have abutting relation with the end 50 regardless of the type of pen point or size of pen barrel. Thus, I provide means which prevents the end of the barrel from being pushed into the pool of ink in the receptacle 46. At the same time, the slots 30 are so arranged as to remain largely uncovered regardless of the size of the pen barrel, thus permitting air to be evacuated from the pen. After filling of the pen, removal thereof permits the diaphragm 24 to return to the full line position of Fig. 2, after which excess ink in the receptacle 46 is drawn into the container 10 via the bore 34 and the tube 38.

In the event that the ink should be elevated slightly above the upper face of the plate 22, capillary action of the ink within the grooves 32 tends to take up excess ink so as to prevent the pen from becoming soiled. The points 52 are

rounded so as to prevent their catching on the pen point.

Figs. 3 and 4 illustrate a slightly different form in which the diaphragm 54 is cemented at 56 to the inner face of the cap 58. The cap is provided with a threaded flange 60 for connection with the neck 12. A circular flange 62 corresponding to the flange 20 of Fig. 2 is formed integrally with the cap 58, and the latter includes a central opening 64 of the same shape as the opening 28. The cap 58 is provided with a plurality of openings 66 which function in the manner of slots 30. Diaphragm 58 includes a thickened area 68 and is provided with a conveying tube 70 corresponding to the tube 38. The ink wells of Figs. 3 and 4 function in the same manner as the well of Figs. 1 and 2.

I prefer to reenforce the diaphragm 54 about its peripheral margin, as at 72, which reenforcement has pressure relation with the neck 12. In cementing the peripheral margin of the diaphragm to the cover 58, the diaphragm may be removed from the container as a unit with the cover. In the structure of Figs. 1 and 2, the plate 22 is of such diameter as to have abutting relation with the threads of the neck 12 to prevent the plate from falling out of the neck when the cap 16 is unscrewed. However, the plate may be pressed or screwed out of abutting relation with the threads.

While I have described the container in connection with a fountain pen, it will be understood that the diaphragm of either form may be depressed by an ordinary pen point for immersing the point in ink. My invention may be used to advantage with ordinary pens in that it eliminates the necessity of pushing the pen holder into the container and guessing at the immersion of the pen point. In conventional ink wells the neck is usually coated with wet ink, some of which is transferred to the pen holder. In many cases, the pen point is totally submerged and the pen holder lowered into the ink, thus necessitating the exercise of additional care and frequent cleaning.

The thickened areas 42 and 68 embody sufficient material to wear indefinitely and at the same time prevent puncture of the diaphragm by the pen point.

Without further elaboration, the foregoing will so fully explain my invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. An ink well comprising a container provided with a cover having an opening, a diaphragm positioned adjacent the inner face of the cover and provided with a conduit having one end located inside the container and its opposite end normally sealed by said cover, said diaphragm yielding in response to pressure of a pen point for uncovering the conduit and elevating ink through the conduit, to deliver a pool of ink about the pen point.

2. An ink well comprising a container provided with a cover having an opening, a plate located underneath the cover and having an opening, said plate being provided with an upstanding flange extending through the opening in the cover, said plate being slotted outwardly from the opening therein and said slots terminating in grooves in the inner face of said flange, a diaphragm mounted underneath said plate, a conduit carried by the diaphragm and located inside the container, said diaphragm yielding in response to pressure of a pen point for elevating ink through the conduit and delivering a pool of ink about the pen point.

3. A device of the type described comprising a liquid reservoir including cover means provided with an opening, a diaphragm positioned adjacent the inner face of the cover means and normally lying thereagainst, said diaphragm being provided with conduit means extending into the reservoir and its other end providing an opening in the diaphragm located to one side of said first opening, to be sealed by said cover means, said diaphragm yielding in response to pressure for elevating liquid through the conduit means and delivering a pool underneath said first opening.

4. A liquid elevating device including a container having means for covering it, a port in the means, a diaphragm associated with the means and normally closing said port, an opening in the diaphragm normally closed by the means, means connected to the diaphragm opening for conducting liquid from the container for passage through the opening and above the diaphragm to form a pool of liquid at the port, said liquid flow taking place when the diaphragm is urged toward the container.

5. An ink well including a container having a closure, said closure including an open top bowl for receiving a pool of ink and the tip of a pen, a depressible member forming the bottom of the bowl, valved means extending from near the bottom of the container and combined with the closure and said member, said means being operable by depressing the member to cause flow of ink from the container into the bowl.

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