March 10, 1925. 1,528,924

I. F. HUEBNER

COMBINATION BOTTLE AND SYRINGE

Filed July 20, 1923

FIG. 1.

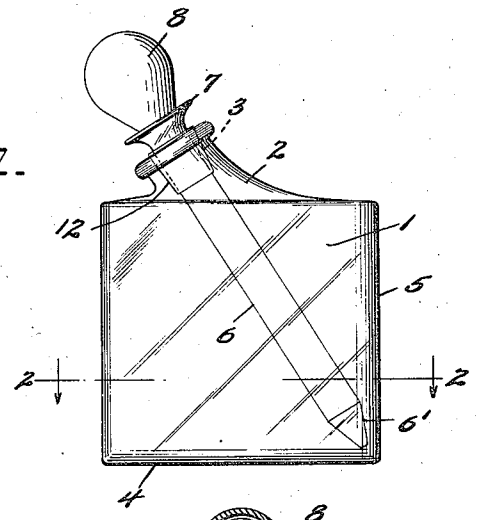


FIG. 3.

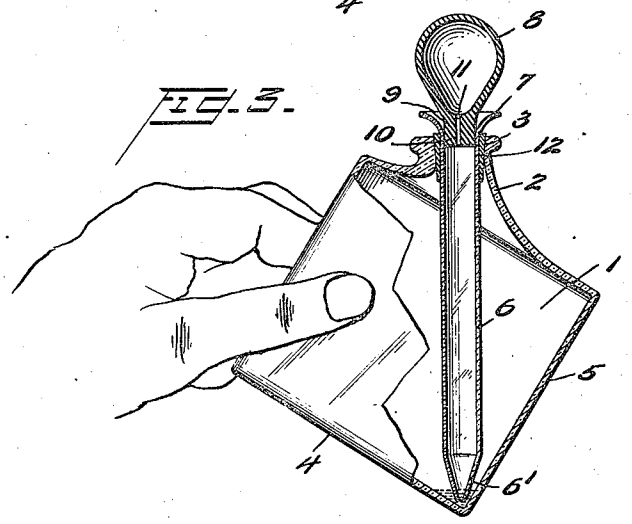
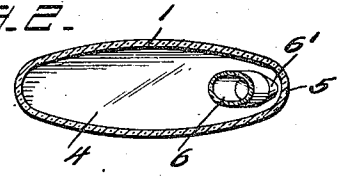


FIG. 2.



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UNITED STATES PATENT OFFICE.

IRWIN F. HUEBNER, OF ALLENTOWN, PENNSYLVANIA.

COMBINATION BOTTLE AND SYRINGE.

Application filed July 20, 1923. Serial No. 652,783.

To all whom it may concern:

Be it known that I, IRWIN F. HUEBNER, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Combination Bottles and Syringes, of which the following is a specification.

This invention relates to devices known as combination bottles and syringes. Such devices comprise a bottle adapted to contain a liquid of any sort, such as a medicine, ink, or the like, which for divers reasons it is desired to remove from the bottle in doses or measured quantities by means of a syringe. The syringe ordinarily is of such construction that, when placed in the bottle, it serves normally as a stopper to close and seal the mouth of the bottle so as to prevent spilling or leakage of the contents.

Heretofore, the neck of the bottle or the opening in the bottle in such devices which received the syringe had been vertical, or substantially so, so that when the ordinary straight syringe was placed therein it extended down into the liquid in the bottle in an upright position. Since the syringe was of a predetermined length, so that its lower end would be spaced a short distance from the bottom of the bottle when the syringe was in place to guard against possible breakage of the syringe against the bottle, as soon as sufficient liquid had been removed from the bottle to bring the level of the liquid therein below the lower end of the syringe, there remained in the bottom of the bottle a thin or shallow layer of liquid which could not be removed by means of the syringe. In bottles of substantial cross-sectional area the amount of liquid which in such cases could not be removed from the bottle was considerable, and where the liquid was expensive, appreciable loss and inconvenience was occasioned the user.

In devices of this character it had been proposed to use a curved syringe in conjunction with an ordinary bottle, that is, one having the usual upright neck, in order to remove the lowermost portion of the liquid from the bottle. In such case the curved syringe when placed in the bottle extended into the lower corner thereof into which the liquid remaining in the bottle below the level of the syringe tip was caused to flow by tipping the bottle towards that corner. This increased the depth of the liquid in the corner of the bottle so as to bring the level thereof above the lower end of the syringe, whereby an additional part of the remaining liquid might be removed. The use of such devices has not found favor, however, primarily due to the fact that the curved type of syringe was quite easily broken in removing it from and replacing it in the bottle, which operations must be performed slowly and carefully, thereby resulting in loss of time and requiring too much thought of the too frequent careless user. The curved syringes were more or less costly to manufacture than the straight type and were not as easily obtainable as the latter for replacement purposes.

The present invention has for its primary object the provision of a special bottle with which can be used the ordinary straight syringe by means of which the entire contents of the bottle, almost to the last drop, can be removed. A further object is to provide a bottle which may be cheaply and easily manufactured and which therefore must differ in shape and construction from ordinary matters only as much as is necessary for it to perform the particular function for which it is made. The bottle is also intended to be so shaped as to render it convenient for carrying in the user's hip pocket or in a bag so as to occupy only a small space.

In the accompanying drawing wherein like reference numerals indicate the same parts throughout the several views, there is shown a practical embodiment of the invention.

Figure 1 is a side elevation of my improved combination bottle and syringe, the device being shown resting on a support in its normal upright position with the syringe in place;

Fig. 2 is a horizontal sectional view taken on line 2—2 of Fig. 1 looking downwardly and showing the normal position of the lower end of the syringe in the lower corner of the bottle; and

Fig. 3 is a side elevation of the device, partially broken away, so as to illustrate the manner in which the syringe cooperates with the bottle, when tipped, to remove the last of the liquid therein.

The container or bottle body proper is shown at 1, the same being preferably of a flat shape, oval in horizontal cross-section, so as to conveniently fit into the user's hip

pocket. Of course, the bottle body may be of any shape desired, but that disclosed in the drawing has been found quite practical. The particular difference between the bottle member of the present device and that of devices of this nature heretofore known, is that mine is provided with an eccentrically disposed tubular neck 2 on the upper part of the body 1. This tubular neck 2 as will be seen from Figs. 1 and 3 of the drawing, is located to one side of the center of the body 1 and is disposed at an angle, or at least the opening 3 therethrough is disposed at an angle, so that the longitudinal axis of the neck opening 3, if extended, would be substantially in line with the intersection of bottom wall 4 and the opposite side wall 5 of the bottle.

The syringe used in conjunction with the bottle above described comprises a glass barrel 6 provided at its lower end with the usual constricted tip 6'. The opposite end of the barrel 6 is formed with a flaring mouth 7. A compressible bulb 8, of rubber, having a neck 9 and a thickened end wall 10 is fitted within said flaring mouth 7 of barrel 6. The thickened end wall 10 of bulb 8 has a minute air passage 11 therethrough connecting the interior of the bulb 8 with the interior of the barrel 6. Thus when bulb 8 is compressed, after which the lower end thereof is submerged in the liquid and the bulb allowed to expand, the liquid will rise in the barrel 6 until bulb 8 is fully expanded. The syringe may then be inverted whereupon the thickened wall 10 of bulb 8 will form a support for the column or body of liquid within barrel 6. By reason of the relatively large surface presented by thickened wall 9, none of the liquid will pass into the bulb 8, while the aperture or opening 11 will permit air to be forced against the liquid in barrel 6 for discharge purposes. In order that when the syringe is placed in the bottle it may also serve to close and seal it, barrel 6 is provided at its upper end just below its flaring mouth 7 with a rubber, or the like, annular sealing ring or gasket 12. Although a particular form of syringe for use with the bottle has been described, since it has been found quite efficient, any other syringe which will serve the same purpose may well be used.

Referring to Fig. 1 of the drawing, it will be seen that when the syringe is placed in the bottle so as to bring its gasket 12 into firm sealing contact with the walls of the opening 3 of the neck, the barrel 6 of the syringe is of such length that the extremity of its constricted tip 6' will project almost into contact with the lower corner intersection of the bottom 4 and the side wall 5 of the bottle. In other words, by reason of the arrangement of the neck opening 3 with reference to the body of the bottle and the use of a syringe of the straight type, when the syringe is placed in position within neck opening 3 its longitudinal axis coincides with that of neck opening 3, and as in the case of the latter, if extended, would intersect the meeting line of bottom 4 and wall 5 of the bottle.

From the above description of the present device, and the illustration of its use in Fig. 3 of the drawing, it will readily be seen that when the liquid which would remain in the bottle in a shallow layer below the lower tip of the syringe and which could not be removed thereby in devices of this character heretofore known, is caused to flow to the lower right-hand corner of the bottle by tipping the same (Fig. 3), thereby materially increasing the depth of the remaining liquid and bringing its level above the constricted tip 6' of the syringe, whereby practically the entire liquid contents of the bottle may be removed by means of the syringe.

It is contemplated that various changes may be made in the construction of the bottle and syringe, and it is therefore desirable to have it understood that the invention is not intended to be restricted to the construction and arrangement of any of the parts as described except as the same may be limited by the appended claims.

What I claim is:

1. The combination of a container having a body; a tubular neck for said body having the axis of the opening therethrough substantially in line with the intersection of one of the side walls and the bottom wall forming the container body; and a syringe seated in such neck and having its inner end extending into close proximity to said intersection of the walls of the container body.

2. A dispensing container comprising a vessel having a tubular neck the axis of which, extended, meets a point of intersection of a side wall and the bottom of the vessel; and a straight syringe capable of sealing said neck and extending into close proximity to said point of intersection when in sealing position.

3. A dispensing container having a containing chamber and a tubular neck opening into said chamber; and a straight syringe extending through and seated in said neck, said syringe being held by said neck at such angle that its nozzle tip extends into close proximity to a point of meeting of a side wall and the bottom wall of the containing chamber.

4. As an article of manufacture, a container having a body portion and a neck located thereon, the opening through the neck thereof being disposed so that the longitudinal axis thereof, if extended, will substantially intersect a point of meeting of a side

wall and the bottom wall of the container body, said neck opening being designed to have a syringe seated therein with its nozzle in close proximity to said point of meeting.

5. As an article of manufacture, a container having a body portion and a neck, said neck being located eccentrically on said body portion and disposed at such an angle thereto that the longitudinal axis of the opening through the neck, if extended, would meet a point of intersection of the bottom and the opposite side wall of the container body, said neck opening being designed to have a syringe seated therein with its nozzle in close proximity to said point of intersection.

6. A dispensing container having a containing chamber and a neck opening into said chamber at an angle; and a syringe extending through and seated in said neck, the nozzle of said syringe extending into close proximity to a point of meeting of a side wall and the bottom wall of the containing chamber.

In testimony whereof I have signed my name to this specification.

IRWIN F. HUEBNER.