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J. F. BREMMER
PIPETTE FILLING BULB
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2,728,232

Fig. 1

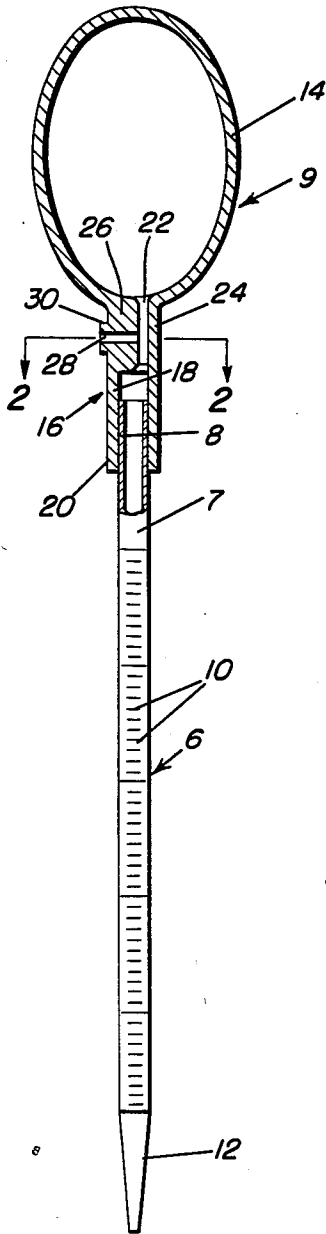
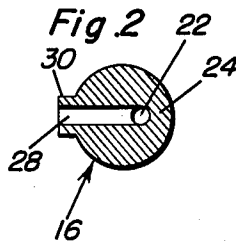
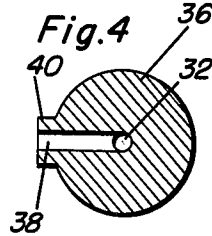
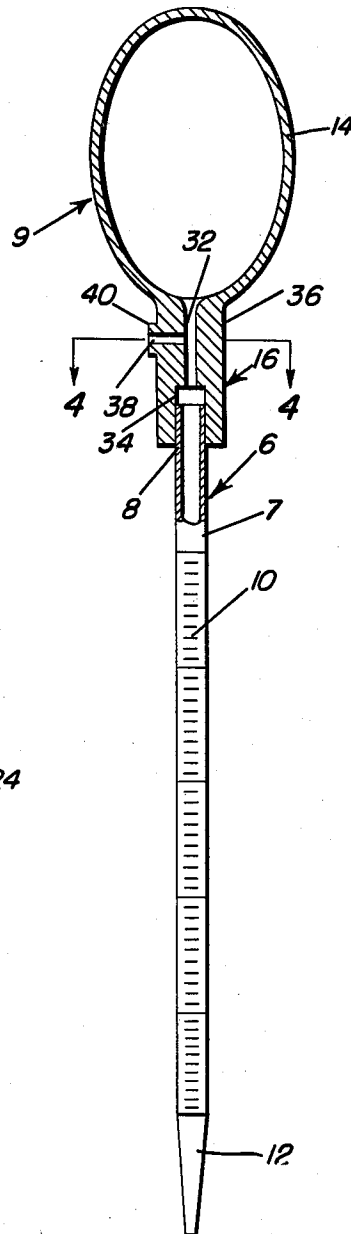


Fig. 3



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PIPETTE FILLING BULB

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4 Claims. (Cl. 73—425.6)

The present invention relates to a bulb-equipped pipette and has reference, on the one hand, to the pipette in combination with the bulb and, on the other hand, to the bulb as an individual article of manufacture.

It is a matter of common knowledge that pipettes are frequently used in connection with filling, transferring, and draining steps and, in carrying out customary procedures, a rubber or equivalent bulb is attached to one end of the pipette. This permits handling dangerous and hazardous fluids and promotes the desired factors of safety and simplification.

More specifically, the invention has to do with an improved bulb, with or without the pipette, which because of its unique construction renders more advantageous the aforementioned filling, transferring, and draining steps without having to remove the bulb from the complementary pipette.

More particularly, novelty is predicated on a bulb having a compressibly resilient neck provided with a longitudinal passage means, and, in addition, provided with a side auxiliary passage or bore which functions as an air vent so that in case the pipette is not filled by collapsing the bulb once, the finger may be removed from the vent, the bulb squeezed, thus obtaining a "second wind" without, as stated, removing the bulb, there being no metallic or equivalent parts which are subject to deterioration because of the use, which is often necessary, of corrodible chemicals.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying sheet of illustrative drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a view in elevation and section of a bulb-equipped pipette constructed in accordance with the principles of the present invention.

Figure 2 is a section on the horizontal line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a view like Figure 1 in section and elevation and showing a modification of the bulb construction.

Figure 4 is a section on the line 4—4 of Figure 3, looking in the direction of the arrows.

Referring now to the drawings and with reference to Figures 1 and 3, the pipette is denoted with the numeral 6 and is more or less conventional in that it comprises a glass or equivalent cylindrical tube 7 to the end 8 of which the rubber pump-action bulb means 9 is connected. The tube has customary graduations 10 and the usual tapered lower end 12. In both forms of the invention the bulb proper is formed from rubber or equivalent material and, like most bulbs in this field of endeavor, is egg-shaped and is denoted by the numeral 14. The elongate cylindrical attaching neck which is connectible with the end 8 of the pipette is denoted by the numeral 16. Basically, both necks have an axial bore or passage and side vent means which is controlled by thumb action. In Figure 1 the enlarged shouldered socket end of the bore is denoted by the numeral 18 and receives the end 8 of

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the pipette. Thus, the end portion 20 of the neck is readily attachable and detachable. The opposite end portion of said neck is provided with a restrictive bore at 22 which, in Figures 1 and 2, is offset eccentrically. This provides a relatively thin wall 24 on one side and a thicker wall 26 on the other side, said wall 26 having a right angularly disposed passage 28 forming a vent and the outer end of the vent being provided with an embossment 30 to conveniently accommodate the thumb of the user.

In the modification seen in Figure 3, the smaller bore which is denoted, for sake of distinction, by the numeral 32, and instead of being offset to one side is truly axial and is therefore in axial alignment with the larger or socket portion 34 of the bore or passage. The wall portions 36 are approximately the same in cross-section and the side vent which opens into the passage 32 is denoted by the numeral 38.

The operation is as follows: The bulb is placed on the open end portion of a pipette. The bulb is collapsed by squeezing with the hand. One finger is then placed over the vent and the tip of the pipette immersed in the liquid. Keeping the finger over the vent the bulb is released and allowed to resume its normal shape and, in so doing, the liquid is drawn into the pipette. When the liquid is above the desired graduation mark, the finger is removed from the vent allowing the bulb to complete its normal shape and allowing the liquid to drain back to the mark. The finger is replaced over the vent and pipette transferred and liquid allowed to drain from pipette.

This design is intended to be adaptable to various sizes and types of pipettes and is not limited to pipettes alone. It may be conveniently used, for example, with certain types of burettes or as a hand pump. Likewise, the design may be adapted to a bulb whose neck portion has a corrugated bore to make it more adaptable to various sizes of pipettes.

The purpose of placing the passage 22 off-center and adjacent to the wall 24 opposite the vent 28, rather than in the center, as illustrated at 32 in Figure 3, is to provide a construction whereby the air passage between the bulb and the pipette may be closed. This is accomplished by placing the thumb opposite the finger on the vent and pinching with sufficient force to close the passage.

The step in the diameter of the bore of the neck portion provides a stop for the pipe portion of a pipette. The varying diameter provides a thicker wall of flexible material in the vent region thus reducing the possibility of bulb distortion or collapsing while at the same time provides a thin wall in the region in which the pipette is inserted making it more adaptable to various sizes by its increased flexibility.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. In combination, a pipette, a collapsible elastic bulb having an integral attaching neck appreciably long and separably connected to one end of said pipette, said neck having a lengthwise passage and a lateral finger-controlled air vent opening through one side and communicating with said passage, said passage being enlarged in diameter at its outer end and thus providing a shouldered socket, one end of said pipette telescoping into said socket.

2. The structure defined in claim 1, and wherein said

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passage is wholly unobstructed and the inner end portion is of small cross-section, is of a capillary nature, and is capable of being compressed and squeezed by finger pressure until it is closed.

3. The structure defined in claim 2, wherein the outer end portion of the passage is axial and the inner end portion is eccentrically offset and therefore is close to an adjacent wall, which latter wall is relatively thin and therefore comparatively flexible and readily collapsible.

4. For use on a pipette, a compressibly resilient rubber bulb having an elongated integral rubber attaching neck at one end, said neck being bored and providing an unobstructed passage, the outer end portion of which is enlarged and defines a shouldered socket for an end of the pipette, the inner end portion of said passage being relatively small in cross-section eccentrically offset

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whereby the capillary flow is restricted and the adjacent wall of said neck is rendered relatively thin and readily collapsible, and an auxiliary laterally disposed constantly open bore opening through a side wall of the neck diametrically opposite to said thin wall, communicating with said restricted bore, and providing a finger-controlled air vent.

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