Dec. 27, 1960 G. F. LEWIS 2,966,284

MEDICINE DROPPER DROP MEASURING DEVICES

Filed April 11, 1958

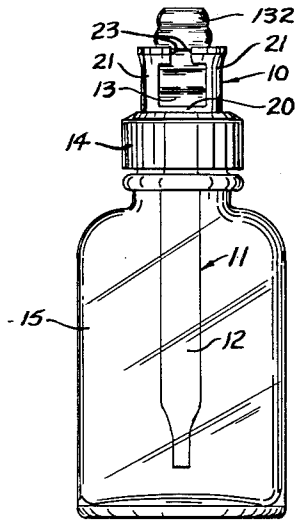


FIG. 1

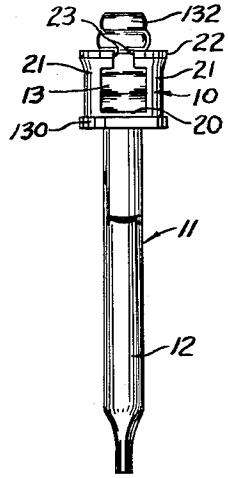


FIG. 4

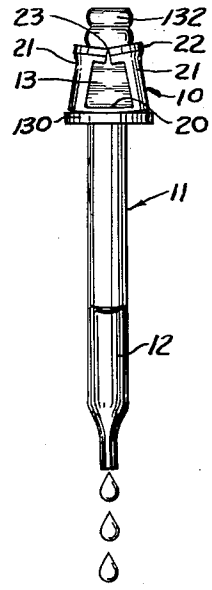


FIG. 5

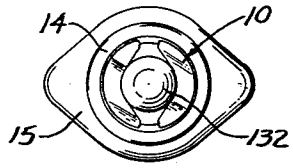


FIG. 2

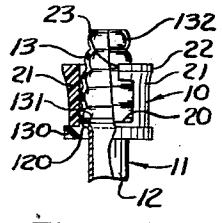


FIG. 6

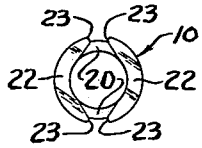


FIG. 7

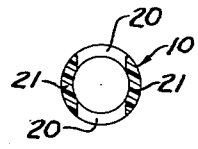


FIG. 9

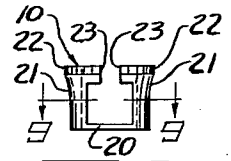


FIG. 8

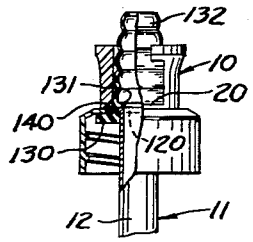


FIG. 3

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MEDICINE DROPPER DROP MEASURING DEVICES

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2 Claims. (Cl. 222—209)

This invention relates to measuring devices and in particular to means for measuring and paying out a predetermined number of drops of fluid from medicine droppers and the like.

Heretofore it has been quite difficult to drop precisely a given number of drops of fluid from a conventional medicine dropper consisting of a glass stem having a compressible bulb mounted on the top thereof. Such medicine droppers are ofttimes incorporated into a bottle cap with the bulb extending above the cap and the glass stem depending into the bottle. Whether a free dropper or a bottle cap mounted dropper is employed, the user must first fill the glass stem thereof with fluid by squeezing the bulb of the medicine dropper between the thumb and index finger, immersing the generally pointed lower end of the glass stem into a fluid, and then releasing the bulb while the said pointed lower end of the glass stem remains immersed in fluid. Once the glass tube of the medicine dropper is partially or fully filled with fluid, the fluid therein may be dispensed therefrom one drop at a time by again but gently squeezing the bulb of the medicine dropper. When sufficient drops have been dispensed, the squeezing pressure on the bulb of the dropper is released, and then the remaining fluid therefrom is ejected into a bottle or other container by rapidly and vigorously squeezing the dropper bulb.

The difficulties encountered in dropping or paying out a given number of drops of fluid from a conventional medicine dropper are that a delicate squeezing of the bulb thereof is required and the number of drops being dropped or paid out therefrom must be counted, the latter preventing the use of the conventional medicine dropper in dark or in dimly illuminated rooms ofttimes occupied by persons who are ill.

With the foregoing in view, the primary object of the invention is to provide a measuring device for conventional medicine droppers which automatically and accurately measures the dropping of a specific number of drops of fluid therefrom.

A further object of the invention is to provide a measuring device adapted to telescope over the bulb of a conventional medicine dropper, which device is squeezed to pay out or drop a predetermined number of drops or quantity of fluid from said dropper, the said measuring device being readily replaceable by like measuring devices adapted to pay out or drop a different predetermined number of drops of fluid from said dropper.

Other objects of the invention will become apparent by reference to the following detailed description taken in connection with the accompanying drawings in which:

Fig. 1 is an elevational view of a conventional medicine dropper bottle showing the medicine dropper thereof equipped with a device embodying the invention for paying out or dropping a predetermined number of drops of fluid therefrom.

Fig. 2 is a top plan view of the construction shown in Fig. 1.

Fig. 3 is a fragmentary elevational view of the dropper

cap removed from the dropper bottle with a portion thereof broken away to better illustrate the application of the invention thereto.

Fig. 4 is an elevational view of a conventional medicine dropper with the bulb thereof equipped with a medicine dropper drop measuring device embodying the invention, the glass stem of the said medicine dropper having been partially filled with liquid.

Fig. 5 is an elevational view similar to Fig. 4 showing the attitude assumed by the medicine dropper drop measuring device when squeezed for the purpose of paying out a predetermined number of drops of fluid from a medicine dropper equipped therewith.

Fig. 6 is a fragmentary elevational view of the upper end of the construction shown in Fig. 4 with a portion broken away to more clearly illustrate the invention.

Figs. 7 and 8 are top and elevational views respectively of a medicine dropper drop measuring device of the invention.

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 8 looking in the direction indicated by the arrows.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, a drop measuring device 10 embodying the invention is disclosed in connection with a conventional medicine dropper **11** consisting of a glass stem **12** and a resilient bulb **13** having an integral outwardly extending flange **130** at the lower end thereof. The inner periphery of the said resilient bulb **13** is suitably formed at **131** for being elastically positioned on the upper end of the glass stem **12** of the medicine dropper **11** which is preferably flanged at **120** to prevent the said stem **12** from becoming disengaged from the bulb **13** when in use.

The said medicine dropper **11** may be used alone or as an element of a screw type bottle cap **14** for a threaded necked bottle **15**. If the medicine dropper **11** is employed as an element of a screw type bottle cap **14**, the bottle cap **14** is centrally apertured at **140** to accommodate the stem **12** and bulb **13** of the said medicine dropper **11**. The flange **130** of the bulb **13** of the said medicine dropper **11** serves as a washer or seal at the top of the medicine bottle **15** when the said cap **14** is screwed thereon. The medicine dropper **11** is held in position in the cap **14** by a frictional fit between the bulb **13** of the medicine dropper and the top of the said cap **14** at the central aperture **140** therein.

The particular drop measuring device **10** disclosed for the purpose of illustrating the invention is preferably molded of a relatively hard yet resilient plastic, and consists of a lower annular collar **20** which telescopes firmly over the bulb **13** of the medicine dropper **11**, and a pair of oppositely disposed squeeze arms **21** formed integral with and extending upwardly from the said lower annular collar **20**. If the medicine dropper **11** is employed as an element of a bottle cap **14**, the lower annular collar **20** of the drop measuring device **10** is positioned against the top of the bottle cap **14**, see Figs. 1 and 3. If the medicine dropper **11** is used alone, the said lower annular collar **20** of the drop measuring device **10** is positioned against the top of the outwardly extending flange **130** of the bulb **13** thereof, see Figs. 4, 5 and 6. The inner face of each of the said oppositely disposed arcuate arms **21** contacts an opposite side of the bulb **13** of the dropper **11**. The said arcuate arms **21** of the drop measuring device **20** terminate at their upper ends in an arcuate squeeze flange **22**, each having a pair of oppositely disposed squeeze limit tips **23** at the ends thereof.

The said squeeze limit tips **23** of each squeeze flange **22** are so spaced from the squeeze limit tips **23** of the opposite squeeze flange **22** that, when the squeeze flanges **22** of the drop measuring device **10** are squeezed together until their limit tips **23** are in abutment, the bulb **13** of the

medicine dropper **11** is deflected a predetermined distance whereby to pay out or drop a predetermined number of drops of fluid from the stem **12** of the said medicine dropper **11**. The upper end **132** of the bulb **13** of the medicine dropper **11** extends sufficiently above the drop measuring device **10** to permit the bulb **13** to be squeezed for the purpose of filling and emptying the stem **12** of the said medicine dropper **11**.

The drop measuring device **10** is readily telescoped onto and off from the bulb **13** of the medicine dropper **11**. By employing different drop measuring devices **10** each having different spacing of the opposite squeeze limit tips **23** of the squeeze arms **22** thereof, the number of drops dispensible from a medicine dropper **11** at any single squeezing of the squeeze arms **22** of the drop measuring device **10** may be governed. Different drop measuring devices **10** adapted to dispense or pay out different numbers of drops may be color coded or suitably marked to designate to a druggist or others the number of drops that each drop measuring device will pay out from a medicine dropper **11** equipped therewith when properly used.

Although but a single embodiment of the invention has been shown and described, it is obvious that many changes may be made in the size, shape, arrangement and details of the various elements of the invention, all without departing from the spirit and scope thereof as defined by the appended claims.

I claim:

1. In combination with a medicine dropper consisting of a rigid generally vertically disposed stem element open at both ends including a bulb element hermetically connected to the upper end of said stem, a drop measuring device formed of an annular substantially rigid collar telescoped over said medicine dropper bulb element adjacent its stem, a pair of diametrically disposed resilient deflectable dispensing arms upwardly extending from said collar short of the top of said medicine dropper bulb, the said dispensing arms including substantially rigid arcuate

squeeze limit elements at the top thereof adapted to abut at a predetermined deflection distance when said dispensing arms are squeezed toward each other to pay-out from the said medicine dropper a predetermined number of drops of fluid therefrom, the upper end of said medicine dropper bulb being exposed at all times for finger tip manipulation independent of the said drop measuring device.

2. In combination with a medicine dropper consisting of a rigid stem element open at both ends including an elongated bulb element hermetically connected to one end of said stem, a drop measuring device comprising a substantially rigid annular collar telescoped axially over said elongated bulb element to a position adjacent to said stem element, said collar including a pair of oppositely disposed arcuate dispensing arms extending therefrom adjacent opposite sides of said bulb element and having a gap therebetween, stop means disposed at the extreme ends of each said dispensing arm limiting movement thereof toward each other when the gap therebetween is manually closed by squeezing said arms toward each other causing a predetermined deflection of the bulb therebetween whereby to pay out from the said medicine dropper a predetermined number of drops of fluid, the said drop measuring device being readily replaceable by like drop measuring devices having a different gap between the dispensing arms thereof for paying out therefrom different predetermined numbers of drops of fluid from said medicine dropper, the said bulb element extending axially outwardy of the drop measuring device whereby to admit of manipulation of the said medicine dropper bulb independently of the said drop measuring device.

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