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DISPENSER FOR MATERIAL CONTAINERS

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This invention relates to improved container construction and more particularly, to dispensing mechanism adapted to control the discharge of material from the container in measured quantities, the primary object being to not only permit the user to force a predetermined amount of the material from the container, but render the dispenser usable as a means for measuring the material in minute droplets.

It is the most important object of the present invention to provide a dispenser adapted for use with a flexible squeeze-type container and including as a part thereof, a measuring cup that may be filled simply by tilting the container and thereupon emptied through the squeezing action so that a predetermined amount of the material is dispensed during each operation.

A further object of the instant invention is to provide a measuring cup that is usable with virtually any type of flexible container and which is also adapted for use in conjunction with components of the dispenser which are capable of producing a fine atomized spray.

Another important object of the present invention is to provide a measuring cup forming a part of the dispenser which may be releasably attached to conventional heads in turn equipped with nozzle means and adapted to be inserted into the neck of a container.

In the drawing:

FIG. 1 is an elevational view of a container having a dispenser (not shown) forming a part thereof.

FIG. 2 is an enlarged, fragmentary, elevational view of the container partially broken away and in section showing the aforementioned dispenser of the instant invention.

FIG. 3 is a view substantially the same as FIG. 2 but illustrating the manner of use of the invention when the container is inverted; and

FIG. 4 is a perspective view of the measuring cup per se entirely removed from the spray head.

Flexible containers 10 of the kind with which the dispenser of the instant invention is adapted to be used, are conventional and readily obtainable on the open market. Container 10 is shown as provided with a neck 12 receiving a closure cap 14 as by screw-threaded engagement therewith.

A hollow, open bottom spray head 16 is provided with a tubular skirt 18 fitted into the neck 12 and a nozzle 20 that projects above the upper end of neck 12, the extent of inward movement of the head 16 being limited by an outturned flange 22 on the head 16 engaging neck 12.

Nozzle 20 is provided with a bore 24 aligned with a discharge orifice 26 in the end wall portion of nozzle 20 and a pair of longitudinally extending grooves 30 adjacent to bore 24 and communicating therewith. An elongated conduit 28 is firmly received within bore 24 and spaced from orifice 26 by a spacing element therebetween, which spacing element is provided with a pair of recesses in one face thereof placing grooves 30 in fluid communication with orifice 26, whereby grooves 30 form air passages for a purpose hereinafter described.

Head 16 supports an elongated measuring cup 32 provided with a bottom wall 34 and an enlarged, uppermost open end 36 that faces upwardly toward the discharge orifice 26.

A releasable attachment is provided between the cup 32 and the head 16 taking the form of a peripheral lip or hook 38 at the upper end of cup 32 and having a

snap-fit engagement within a similarly shaped groove 40 formed in the head 16 adjacent the upper end of skirt portion 18 thereof.

The cup 32 is provided with a side wall 42 having a plurality of inlets 44 adjacent the enlarged end 36 thereof.

The conduit 28 extends downwardly into the cup 32 terminating adjacent the bottom wall 34 in a beveled end 46.

The invention is illustrated in FIGS. 2 and 3 in connection with liquid material 48, and in use, the container 10 is tilted to cause the material 48 to flow into the cup 32 through the inlets 44 thereof. When the container 10 is returned to the upright position shown in FIG. 2, a level of the material 48 will be established in the cup 32 adjacent the inlets 44.

Upon removal of cap 14, the material 48 in cup 32, may be discharged through orifice 26 by merely squeezing the container 10 and, by virtue of the air passages 24, the material 48 will emanate from the orifice 26 in the form of a spray. All of the material in the cup 32 may be thus discharged therefrom and no additional material 48 will be dispensed until the container 10 is again tilted to cause such material to flow into the cup 32.

Another extremely advantageous feature of the instant invention has to do with the way in which the same may be used as illustrated in FIG. 3 to measure the material 48 in small individual droplets 50. When the container 10 is inverted, as shown in FIG. 3, slight pulsating squeezing of the container 10 will cause the droplets 50 to be discharged through the orifice 26 individually and as slowly as may be desired to permit counting, all without leakage or flow in the form of a stream. The mere inversion of the container 10 without squeezing of the same will not cause the material 48 to flow from the orifice 26, but inasmuch as such inversion causes the material 48 to fill the air passages 30, slight squeezing of the container 10 causes the material 48 to flow into the conduit 28 in minute quantities precisely as illustrated in FIG. 3 of the drawing.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a flexible container having an annular neck, an annular nozzle sealingly engaged therewith and having an orifice therein; a measuring cup having a generally cylindrical side wall and closed at the end thereof remote from said orifice by a bottom wall, said side wall flaring outwardly adjacent the end thereof proximal to said orifice and having inlet means in said flaring portion for flow of material from the container into the cup upon tilting of the container, said flared cup wall having an annular hook molded therein and said nozzle having an annular hook-shaped groove therein, the annular outside dimension of said flared portion and the annular inside dimension of said nozzle being substantially equal, said annular hook being snap fittingly engaged within said hook-shaped groove whereby said cup is fixedly sealed in engagement with said nozzle, and a conduit placing the cup into communication with the orifice for directing the material from the cup through the orifice upon squeezing of the container, one end of the conduit terminating adjacent the bottom wall of the cup for discharging said material in individual droplets upon inverting the container and squeezing the same.

2. The combination of claim 1 wherein the annular dimension of the cylindrical side wall of said cup is substantially less than the annular dimension of said nozzle thereby defining a passage therebetween, said flared portion of said cup closing said passage and said inlet means providing communication between said passage and said orifice whereby air travels therethrough for atomizing mixture with the fluid in said cup when the container is squeezed in a generally upright position and liquid travels

therethrough for droplet dispensing when said container
is squeezed in a generally inverted position.

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