This invention relates to a squeeze dispenser for liquid foods, detergents, medicines, sauces, and the like as well as for powdered or pulverized solids which act as liquids under flow conditions, said dispenser making possible the discharge therefrom of a small portion of the contents thereof. More specifically, it deals with a squeeze container having an inner freely-moving measuring chamber connectible to a separate discharge tube through which is dispensed the liquid portion to the outside of the container. Dispensers have been disclosed in the art for controlled discharge of portions of the liquid contents stored therein. However, they all have disadvantages, such as difficulty in filling the measuring chamber, inability to discharge through the bottom of the container, inability to discharge entire contents of container, as well as many others.

The present invention avoids all of these disadvantages and introduces additional advantages, as will be set out in the succeeding discussion. The essential features of the dispenser of the present invention include a squeeze container having a measuring chamber disposed therein, and connectible, when desired, in sealing relation to a discharge tube which may, and generally is, led through the bottom of the container. Other features will become apparent from the subsequent description and accompanying drawings in which a number of different embodiments of the invention are described.

The invention will be more readily understood by reference to the aforesaid accompanying drawings in which FIGURE 1 shows a cross-sectional side view of a preferred embodiment as used in the hand while dispensing a portion of the contents of the container. FIGURE 2 is a top or plan view of the dispenser with a portion of the bottom of the container cut away to show the measuring chamber. FIGURES 3 and 4 are cross-sectional side views of the dispenser showing successive stages in the assembly and filling thereof. FIGURES 6 and 7 are cross-sectional side views of the discharge tube showing various means of sealing same. FIGURES 8 and 9 illustrate cross-sectional side views of alternative means which may be employed for mounting the discharge tube. FIGURE 10 depicts a cross-sectional side view of another form of measuring chamber and discharge tube which may be employed within the dispenser container. Similar numerals refer to similar parts in the various views.

Referring again to the drawings, numeral 1 represents the side wall of a squeeze container made of plastic sheet or the like. This container is provided with a top 2 and bottom 3 which elements may be of metal or plastic or other conventional material. Top 2 has an outwardly bulged section or well or reservoir which provides space thereunder for measuring chamber or cup 5, the sides 6 of the bulged section serving as limiting means for side movement of cup 5, which latter is preferably made of plastic, but may be made of metal or other material inert to the liquid ingredients 7 in the container. Cup 5 preferably is shaped like a funnel having a downwardly-directed narrower outlet tip 8 which fits into the upper end 9 of rigid discharge tube 10 (which also is preferably made of plastic, but may be made of other suitable inert material).

The discharge end 11 of discharge tube 10 is provided with an annular anchoring and sealing portion 12 to which bottom 3 is anchored and sealed at edge or opening 13. When discharge tube 10 is thus anchored and sealed to bottom 3, outlet tip 8 of cup 5 slides therein and forms a tight seal at junction 14. Space 15 is provided between the top 16 (FIG. 1) of cup 5 and the inner surface of bulged-out section 4, sufficient to permit cup 5 to move (if such movement is desired) when the container is inverted and to break the seal at point 14.

The assembly and filling of the container may be effected as outlined in FIGURES 3 and 4, it being understood that such filling of the container is facilitated by making cup 5 and tube 10 as separate units, rather than as a single one. Container 1 is inverted and filling spout 16 is inserted through opening 13, and then the liquid material 7 to be dispensed is forced into the container, care being taken to leave an air or vapor space 17 having a volume at least 1 1/2 times that of measuring cup 5. Thereafter, tube 10 is inserted so that end 9 thereof slips over the end of outlet 8 of cup 5, and shoulder 12 near the other end of tube 10 is anchored to bottom 3 of the container in leakproof relation thereto by sealing, cementing, soldering, or the like. The outer edge of cup 5 preferably is provided with guides which ride against inner sides 6 of bulged-out section 4 and yet allow liquid 7 to seep through open spaces 19 from the container into cup 5.

Tip 11 of discharge tube 10 is disposed outside of bottom 3, and it may be provided with seal 21 which may be cut off or pierced open for discharge of liquid contents of tube 10 out of the container.

To discharge a portion of the liquid 7 from the container, the container is uprighted as in FIGURE 1, whereupon closure of juncture 14 is insured between cup 5 and flared end 9 of tube 10. Then, side 1 of the container is squeezed by hand 20. This changes the volume-to-area relationship within the container, causing air or air and liquid to be forced through spaces 19 (FIG. 2) to the top of cup 5 and to force the contents of cup 5 through tube 10 and tip 11, to outside the container. Although it is possible to discharge less than the contents of cup 5 in one squeeze, and to discharge successive bursts of liquid by successive squeezes, it is not possible to discharge more than the contents of cup 5 and the tube without again inverting the container, as in FIGURE 4, and repeating the operation.

FIGURE 5 illustrates an alternative form of the invention wherein cup 5 may be wide enough to almost touch side 1 of the container, in which case it is preferred to employ longer guides 22 and 24 attached to the outside of cup 5 so as to prevent excessive tilting of the cup within the container.

As is apparent from FIGURE 5, the discharge end 11 of tube 10 may be provided with a hinged cap or closure 24, or a cut-off tip 21' (FIG. 6), or a plug 21'' (FIG. 7), which may be removed at joint 25. It will be noted that when closures 24 or 25 are employed, the breaking of seal 14 enables filling of cup 5 without first opening the closure.

FIGURE 8 illustrates a container wherein the discharge system is asymmetrically disposed within the container. For example, bulged-out section 4' may be disposed near the edge of top 2' (which in this case alternatively may be designated as the bottom of the container). Discharge tube 10' has end 11' sealed in side 1 and said end is covered with cap 27, so that discharge of liquid 7 from cap 5' may be effected through the side of the container. Plug 12' thus merely seals off opening 13' used in filling the container.

In FIGURE 9, outlet tube 8' of cup 5'' is directed at an angle so that tube 10'' has its discharge end 26 sealed away from plug 12''. In this case, bulged out section 4 in top (or bottom) 2 is centrally located in respect thereto.

Another alternative form, shown in FIGURE 10, provides for an elongated outlet tip 8'' for cup 5, and a short
discharge tube 10a into which tip 8' rides, sealing is
effected at shoulder 30.

Among the various advantages of the squeeze container of
the present invention may be mentioned the need for
using only one hand for the dispensing operation, the
control of the amount of liquid to be dispensed, the ease
and low cost of manufacture and filling, no accumula-
tion of drip on the container thus eliminating a wiping
operation, and the easy, simple motion of reversing the
container for refilling the measuring cup.

Since cup 5 must ride in outwardly bulged section 4
when the latter is used (as otherwise it would disengage
or jam within tube 10), it is necessary that the distance
from tube end 9 to its contacting surface on cup 5 be less
than the height 6 of bulged out section 4. Also, tip 8
should be long enough to ride within tube 10 at all times.
It will be noted that with the container of the present in-
vention it is possible to discharge the entire contents
thereof, thus eliminating unnecessary wastage of the con-
tents.

I claim:
1. A portion dispensing container for liquid compris-
ing a squeeze container having a flexible wall, a bottom,
and a top having a reservoir section, a movable funnel-
shaped measuring cup having an outlet tip serving as the
sole draining outlet for said cup, said cup being disposed
within said container in a manner so that its sides ride
vertically adjacent the sides of said reservoir section and
its upper edge is abuttable against the top of said reservoir
section, a separate rigid tube connectable at one end to
said outlet tip and other end penetrating the bottom of
said container in sealing relation therewith to allow dis-
charge therethrough of said liquid when said container
is inverted to fill said cup, then uprighted, and the wall is
squeezed.

2. A portion dispensing container for liquid compris-
ing a squeeze container having a flexible wall, a bottom
and a top having a reservoir section, a movable funnel-
shaped portion-measuring cup having an outlet tip serv-
ing as the sole draining outlet for said cup, said cup be-
ing disposed within said container in a manner so that its
sides ride vertically adjacent the sides of said reservoir
section and its upper edge is abuttable against the top of
said reservoir section, a separate rigid tube having one
end telescoping said outlet tip in connectable relation
therewith and in a manner to allow said tip to slide a
short distance out of connecting relation, and the other
end penetrating said container in sealing relation there-
with to allow discharge therethrough of said liquid when
said container is inverted to fill said cup in unconnected
relation with said tube, then uprighted into cup connect-
ning relation, and the side is squeezed.

3. A portion dispensing container according to claim
1 in which the cup has vertical fins projecting from its
sides to guide said cup as it rides against the sides of said
reservoir section.

4. A portion dispensing container for liquid according
to claim 2 in which the cup has an elongated outlet tip
extending, when in discharging position, to near the dis-
charge end of said container and said tube is a short tube
connecting with said outlet tip.

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