

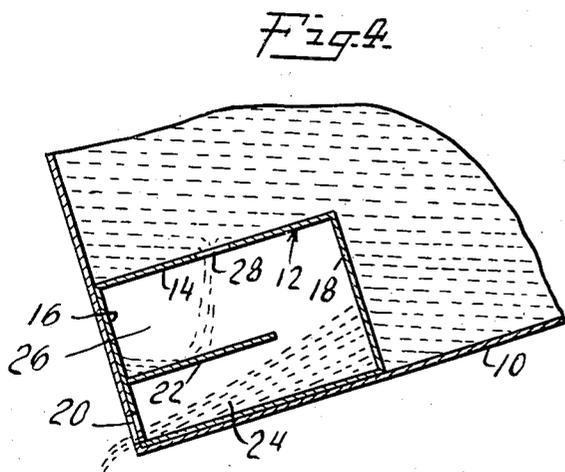
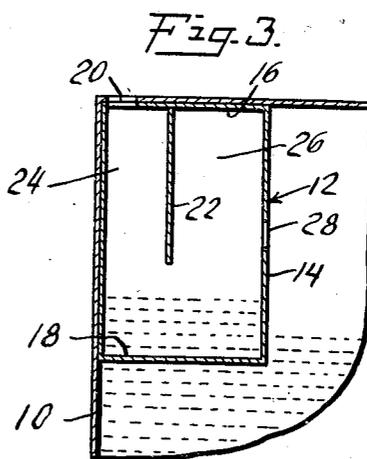
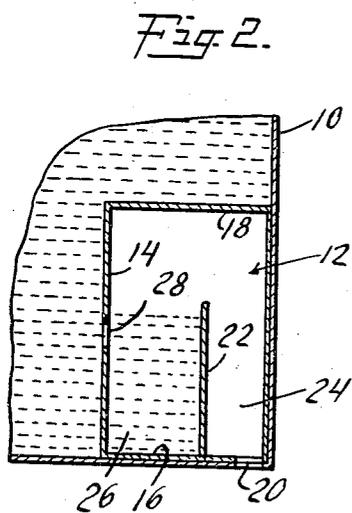
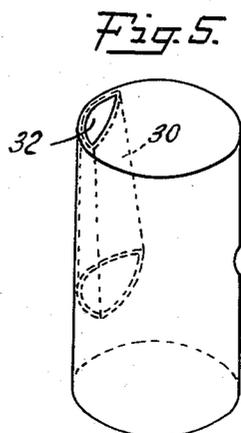
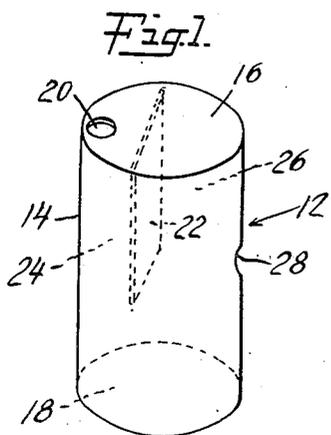
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2,184,253

DISPENSER

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DISPENSER

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2 Claims. (Cl. 221-98)

This invention relates to measuring devices for dispensing measured amounts of liquids, and more particularly it relates to devices easily constructed and free from moving parts which dispense a predetermined quantity of liquid from a container when the container is inverted. The new devices of the invention may be easily and economically produced, and are readily fastened within containers as by soldering, welding, crimping, etc., or by the use of adhesives or the like; or, the dispensing devices may be made, in part or in whole, integral with the container and as a part thereof. In general, the dispensing devices are adapted to be positioned within the container as in the neck of bottles or the like, or inside, and at the top of, cardboard or tin containers.

The invention will be described in detail in connection with the accompanying drawing, which illustrates in a somewhat diagrammatic fashion dispensing devices which embody the invention, but the invention is not limited thereto.

In the drawing:

Fig. 1 is a sketch showing the construction of one form of device which embodies the invention;

Fig. 2 is a sectional view of the device of Fig. 1 attached within a container and in an inverted position;

Fig. 3 is a sectional view of the same device within a container showing the measured body of liquid ready to be discharged;

Fig. 4 is a sectional view of the same device within a container in an inclined position, showing how the liquid flows out; and

Fig. 5 is a sketch of a modified form of device which embodies the invention.

In Figs. 2 through 4 there is shown a container 10 within which a dispensing device such as is shown in Fig. 1 is fastened. This dispensing device 12 as illustrated consists of a cylinder 14 provided with a top 16 and a bottom 18 forming a shell. The top 16 is closed except for the opening or pouring spout 20; while the bottom 18 is completely closed. Within this shell is a longitudinal partition 22 extending from the top 16 about half way to the bottom 18, this partition serving to divide the upper interior portion of the device into two compartments 24 and 26. In the wall of the cylinder 14, at a position above the lower end of the partition 22, is provided an opening 28, communicating with compartment 26 and providing free access between the interior of the device 12 and the interior of the container 10. As illustrated in Figs. 2 through 4 the device 12 is fastened to the top and at the side in the container so that the opening or spout 20 is at

the periphery of the top wall of the container. The device is fastened within the container as by soldering, welding, crimping, etc.; or, if desired, the device may be constructed in the form of a cylinder open at the top with the upper wall of the container serving as the top of the dispensing device, the partition 22 being fastened either to the cylinder 12 of the dispensing device or depending from the top wall of the container.

In Fig. 5 there is illustrated a modification of the dispensing device, in which the partition 22 shown in the device illustrated in Figs. 1 through 4 is replaced by a tubular member 30, which is fastened to the cylinder forming the side walls of the dispensing device. Such a tubular member, may, of course, be made in a number of shapes, but advantageously it is constructed so that a relatively large surface 32 is in contact with the side walls of the dispensing device, to facilitate the pouring of the liquid.

The operation of the devices illustrated is very simple. Assuming that the device has been placed within a container or bottle containing a liquid to be dispensed in predetermined portions, the container with the attached dispensing device is inverted, whereupon liquid flows through the opening 28 into the compartment 26, the level of the liquid rising in this compartment to a little above the opening 28, a seal thus being formed which prevents any greater outflow. When the container is then placed in an upright position, the liquid in the chamber 26 is retained in the dispensing device, as shown in Fig. 3. A small amount of the liquid may flow back into the container through the opening 28, but the proportions can readily be adjusted so that with a given liquid capacity of the chamber 26, a predetermined amount of the liquid will be retained in the dispensing device when the container is placed in an upright position.

When the container, with the measured amount of liquid in the attached dispensing device, is then tilted as in Fig. 4 with the spout or opening 20 down, the liquid retained in the dispensing device will be poured from the spout. Of course, in this operation, care should be taken that the container is not tilted so suddenly as to throw some of the liquid to be dispensed into the compartment 26, and also that the device is tilted sufficiently far so that the necessary liquid seal is formed. As the container is inverted and tilted to dispense a measured amount of liquid, the chamber 26 is again filled to the proper depth with liquid with the result that the dispensing device is again charged with the proper amount

of liquid, so that each time a portion of the liquid is dispensed, another equal portion is charged to the dispensing device.

The amount of liquid to be dispensed in each 5 portion by one of these improved devices may be varied widely, as by varying the position of the opening 28, or the diameter of the cylinder 14, or the relative cross-sectional area of the compartments 26 and 24, etc. However, it should 10 be noted that in all cases it is essential that the partition 22 extend beyond the opening 28 and also that it does not extend too far towards the bottom of the dispensing device, or some of the liquid to be dispensed will pass into the chamber 15 26 when the container with the attached dispensing device is tilted.

A device adjusted for the dispensing of a liquid in measured quantities of about 5 cc., having a construction such as illustrated in Fig. 1, may 20 have about the following dimensions:

Inner diameter of cylinder 14, 1 inch.

Length of partition 22, $\frac{7}{8}$ inch.

Distance from center line of cylinder to partition 22, $\frac{1}{8}$ inch.

25 Overall inner length, $1\frac{1}{8}$ inches.

Diameter of opening 28, $\frac{5}{16}$ inch.

Distance from inner surface of top to center of opening 28, $\frac{3}{4}$ inch.

Thickness of partition 22, $\frac{1}{8}$ inch.

30 It will be understood that the above dimensions are given for a device intended to dispense approximately 5 cc. of liquid in each operation and that if the device is to be made by casting or similar operations, certain slight adjustments 35 of the dimensions may be required to provide the necessary tapers for the withdrawal of the molds used in casting, or to provide for other variations required in fabrication.

The devices illustrated are in the form of circular cylindrical chambers but their shape may, 40 of course, be varied to accommodate particular shapes of containers, or to permit modifications of design. Thus the devices may be made in various shapes, for example, frustums, polygonal 45 cylinders, etc.

The devices of the present invention are or very simple construction, such that the parts may be readily made of brass, aluminum, "plaskons", resins, waxes, cardboard, tin plate, or 50 other suitable material and are such that no expensive or intricate machine work is required for their production, simple casting, molding, stamping, pressing, drawing, or spinning, operations being sufficient; the selection of the particular method of fabrication depending, of 55 course, on the type of material selected, etc. In general, one of the major advantages of the new devices is that they may be made integrally with the containers to which they are to be attached; such that if they are to be used, for example, with tin cans, they may be advantageously 60 made of the same tin plate and fastened within the cans by simple crimping or soldering, or by adhesives, or the like, portions of the dis-

pensing device being advantageously formed as part of the walls of the container.

That the invention is capable of many practical embodiments, one of which has been described in detail, will be apparent to those skilled in the 5 art. For example, instead of fastening the devices within a container as illustrated, they may be fastened within the neck of bottles or the like, the necks being shaped to permit free communication between the interior of the bottle and the 10 interior of the dispensing device through the opening 28, or the devices themselves being specially shaped, as in the form of conical frustums or other suitable special forms, by friction fits, with suitable gaskets if desired, or 15 by screw threads or in other suitable ways. Where the dispensing devices are used with paper or cardboard containers or cans or the like, they may be advantageously constructed integrally with the containers, when the containers are 20 manufactured, as by forming them of cardboard, tin, wax paper, etc., held in place by crimping, beading, clipping, pinching, etc., or by adhesives, if desired, with the top wall of the container forming the top of the dispensing 25 device.

While the dispensing devices have been described in detail with particular reference to the dispensing of liquids in measured and predetermined portions, they are also applicable to the 30 similar dispensing of such solid granular materials as sugar, salt, and other pourable solids.

I claim:

1. A dispensing device adapted to dispense liquids or pourable solids in predetermined portions comprising a chamber adapted to be fastened within a container, a longitudinal partition in the upper portion of said chamber dividing said upper portion into two compartments, the sides of said partition abutting the side wall 40 of said chamber, the side wall of said chamber having an opening therein providing communication between the interior of the container to which the device is attached and one of said compartments, said partition extending below said opening, and said opening being substantially 45 midway between the top and bottom of said chamber.

2. A dispensing device adapted to dispense liquids and pourable solids in predetermined portions comprising a chamber with top and bottom walls, a longitudinal inner partition dividing the upper portion of said chamber into two compartments, the sides of said partition abutting the side wall of said chamber, the side wall of said chamber having an opening therein providing 55 communication between the interior of the container to which the device is attached and one of said compartments, said partition extending a short distance below said opening, said opening being substantially midway between the top and 60 bottom of said chamber, an opening or spout in the other compartment through which the liquid or pourable solid may be dispensed.

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