

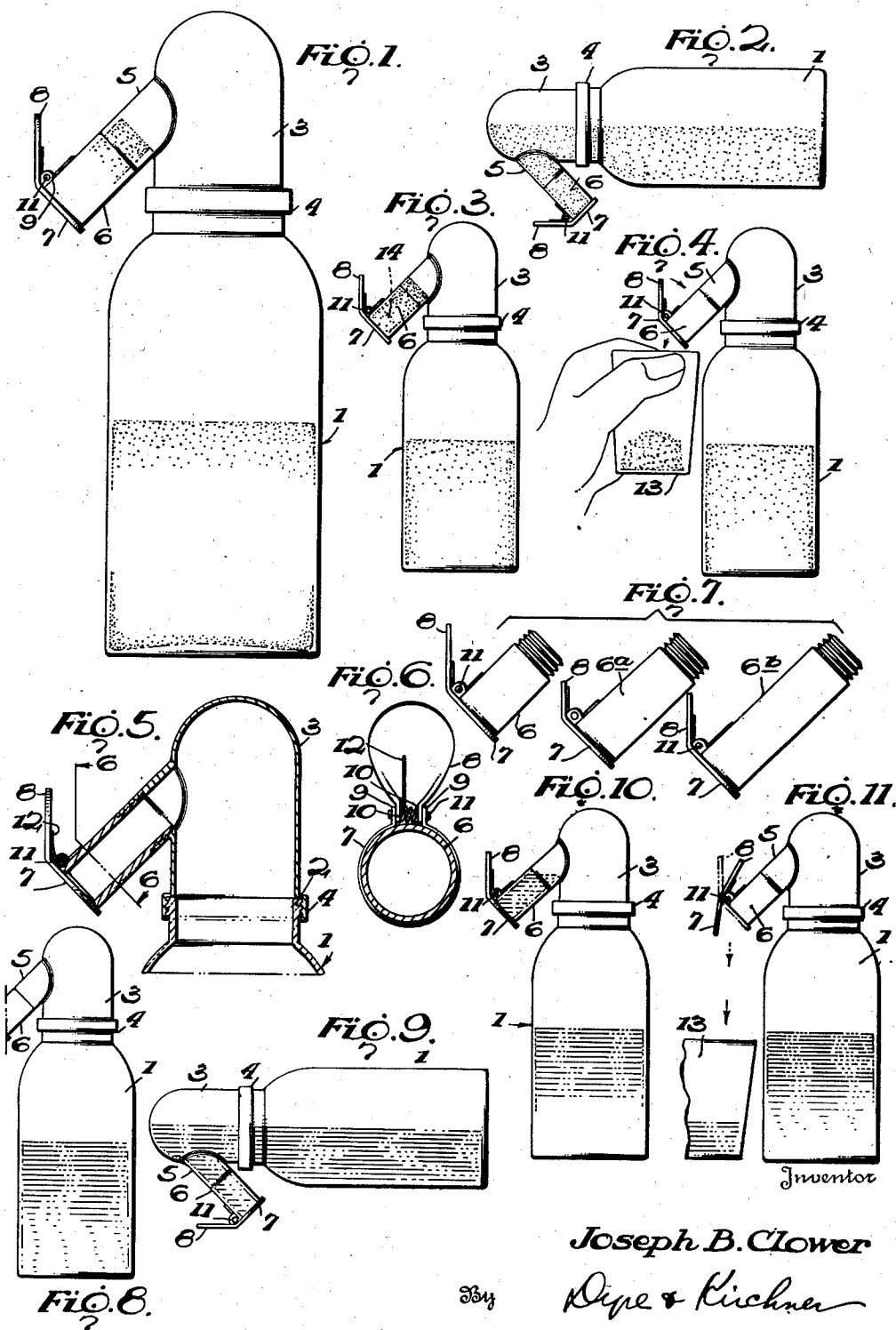
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DISPENSING ATTACHMENT FOR CONTAINERS

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DISPENSING ATTACHMENT FOR
CONTAINERS

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The present invention relates to dispensing attachments for containers such as bottles, jars and the like.

An important object of the invention is to provide an attachment which may be readily applied to a container and will facilitate the withdrawal therefrom of an accurately measured volume of contents. The contents may be a dry solid, such as a powdered or granular material, or it may be a fluid, such as a liquid or a viscous substance such as a syrup.

The device is especially useful in establishments such as pharmacies which present the problem of making rapidly the frequent dispensing of accurately measured volumes of pharmaceuticals, medicaments, flavoring syrups and the like.

Devices of the general character provided by this invention have been made heretofore, but all of them, so far as I am aware, have been subject to inherent disadvantages and have not gone into widespread use. The present invention aims to provide a dispensing attachment which will be free of the defects of the best prior art devices of this kind.

Incidental objects are concerned with providing a dispensing attachment of the character indicated which will be simple in its construction, inexpensive to make, foolproof and leakproof in operation, and generally rigid and durable.

A further important object is to provide a dispensing attachment which will permit ready and easy change of a measuring chamber from one size to another, so that different measured quantities of the contents of the container can be dispensed.

A further object is to provide an attachment by which a measured quantity of the contents of a container may be dispensed directly into an upright receptacle while the container stands in upright position. This feature of the invention permits material to be dispensed into a receptacle which is already nearly full and will be filled by the added material, so that such receptacle could not be held in inclined position without spilling its contents.

A further object is to provide such an attachment with a single wide discharge opening so that it becomes unnecessary to add any second opening for venting purposes.

With the foregoing and other objects in view the invention comprises the construction which will now be explained by detailed reference to the accompanying drawing which shows a preferred embodiment of the invention, in which

Figure 1 is a side elevational view of a bottle or jar in upright position with the attachment applied;

Figs. 2, 3 and 4 are side elevational views showing the three steps of an operation for dispensing solid contents from a container equipped with the attachment;

Fig. 5 is a vertical sectional view of the attachment;

Fig. 6 is a cross sectional view taken on the line 6-6 of Fig. 5;

Fig. 7 is a side elevational view of three interchangeable measuring tubes of mutually different capacity; and

Figs. 8, 9, 10 and 11 are side elevational views showing successive steps in the operation of dispensing a liquid from a container equipped with the attachment.

These views are made for the purpose of disclosure and not with any intention of limiting the invention or the scope of the appended claims to the details there shown. The illustrated embodiment constitutes the best mode in which I contemplate applying the principles of the invention and shows a structure which I have made and used and which has proved to be eminently satisfactory. The principles of the invention may be embodied in other and different forms within the scope of the appended claims.

In the drawing, the reference numeral 1 designates a container in the form of a bottle or jar the neck of which is threaded or otherwise conventionally formed at 2 to receive the customary cap or stopper (not shown). The attachment provided by the present invention includes a hollow dome 3 suitably formed and shaped at its lower edge 4 to complement the container portion 2 so that the attachment can be interchanged with the cap or stopper. As shown, the portions 2 and 3 are threaded, but in case the container receives merely an internal plug, such as a cork, the dome will be insertible into the container neck. The details of this feature of the construction are no part of the invention, since it is sufficient that the attachment be interchangeable with the container closure.

Extending obliquely downwardly from an upper or intermediate portion of the dome is a part forming a measuring chamber. This whole part may be unitary and integral with the dome, but I prefer to make it of two separable elements. One of these is a spud 5 which is integral with the dome and is threaded or otherwise formed in the vicinity of its lower edge to receive a measuring tube 6. This divided arrangement permits sev-

eral measuring tubes of mutually different capacity, shown at 6, 6a and 6b in Fig. 7, to be interchanged on the spud, so that selectively different quantities of the container contents may be measured out.

The measuring tube, whether integral with the spud and dome or separate and detachable therefrom, is bottomless. That is to say, it terminates at its lower end in an orifice which is substantially as great in area as the cross sectional area of the tube. This orifice is normally closed by a closure plate 7, here shown in the form of a metal stamping having an integral handle 8 and mounted on the measuring tube so as to swing about a pivot and be yieldably urged into closed position.

The details of a preferred mounting arrangement are best shown in Fig. 6. These consist of a pair of apertured ears 9 struck up from or molded on the lower marginal edge of the measuring tube and similar ears 10 projecting from the handle 8, all of the ears having their apertures aligned and bearing a pintle 11. Wrapped around the mid portion of the pintle is a torsion spring 12 the opposite end portions of which bear against the rear surface of the handle and the adjacent side surface of the measuring tube. The seating faces of the closure plate and the measuring tube should make a good tight fit which will be proof against leakage by the kind of material that is to be handled. Obviously a somewhat better fit is required for liquids than for granular or powdered solid materials.

The length of the tube and the angle of its inclination with respect to the dome are such that all parts of the lower end of the tube, from which its contents will be discharged by pressing the handle 8 toward the tube, are spaced outwardly beyond the peripheral plane of the body of the container wall. This proportioning of the parts is clearly shown in Fig. 1, and an important advantage of this proportioning is indicated in Figs. 4 and 11, which illustrate the possibility of discharging the contents of the measuring tube into a receptacle, such as a drinking glass 13 to receive the discharge from the measuring tube. Thus it is possible to discharge the tube into a receptacle 13 which already contains a liquid and would be filled to overflowing if the receptacle had to be tilted to be positioned under the measuring tube.

When the device is provided with a separable spud 5 and measuring tube 6, as is preferred, the joint between these two elements is best placed up in the spud at least as far as the junction of the spud and dome, so that material, whether liquid or solid, standing at rest in the measuring chamber will be contained wholly within the tube and will not be in contact with the wall of the spud above the upper edge of the tube. This arrangement is clearly illustrated in Fig. 5, where the spud is internally threaded and surrounds the tube, which is provided with an external thread meshed with the spud thread. By reference to this figure it will be evident that when material has been moved from the container 1, through the dome 3 and into the measuring tube, the container may be stood upright and the material in the measuring tube will settle by gravity to such a level that it will be wholly below the upper end of the tube element per se. In this way there is no possibility of leakage through the joint by which the tube is connected to the spud.

It is believed that the use of the device will

be obvious from the foregoing explanation of its construction. If the container contents are a dry material, such as a powder or granular substance, the container is turned from the upright position of Fig. 1 momentarily to the horizontal position of Fig. 2 and, when restored to the upright position of Fig. 3, a measured quantity of the container contents will be found trapped in the measuring tube, as shown at 14. This quantity will be found to be the same for each such operation, and of course the dimensions of the tube 6 will be selected so as to make this quantity some predetermined unit, such for example as one ounce. The other tubes, such as 6a and 6b, will be made larger or smaller according to some appropriate scale, so as to have measured volumes of two ounces, one-half ounce, etc.

One using the device may shake the container and its attachment when restored to the upright position of Fig. 3 so as to level the contents of the measuring chamber, or he may simply permit the trapped contents of the chamber to settle at the angle of repose for the particular material. In either case performance of the same operations any number of times will always result in the measuring out of a uniform quantity.

The contents of the measuring chamber are discharged into some vessel like the receptacle 13 by simply pressing the handle 8 so as to open the closure while the receptacle is held below the discharge end of the tube, as is shown in Fig. 4.

Figs. 8, 9, 10 and 11 illustrate a similar method of measuring out a quantity of liquid from the container 1. In such use of the device the relationship of the spud and detachable tube, by which liquid in the measuring chamber does not overlies the joint by which the spud and tube are connected, is quite important. It will be obvious that there can be no leakage through this joint since the joint is uncovered by the liquid when the container stands upright. Hence the container may be left for any length of time with liquid in the measuring chamber, and none will be lost. Of course it is assumed that the closure element 7 makes good fit with the tube outlet. This is easily arranged by care and precision in manufacture, or by employing a gasket in an obvious manner.

The large opening at the lower end of the measuring tube, which is actually a bottomless tube because the size of the opening is equal to the cross sectional area of the tube, makes it unnecessary to vent the tube for discharging any kind of material, even very viscous substances such as syrups, heavy oils and the like. This is a real advantage because a continuously unclosed vent opening would be obviously objectionable, and the addition of a valve or a closure for a vent opening would detract from the simplicity of the device and add to its cost of manufacture.

The material of which the attachment is made may be metal, glass, plastic or the like. The shape of the attachment readily adapts the several parts to be made by simple molding or stamping operations.

It is believed that from the foregoing it will be evident that the invention provides a simple, inexpensive and entirely practical dispensing device having numerous novel and useful features. The details of the illustrated construction may be varied without departing from the principles of the invention as pointed out by the appended claims.

I claim:

1. A dispensing attachment for a container

such as a bottle or jar comprising a cap including a dome attachable at its bottom to the mouth of the container, a spud projecting obliquely downwardly from the dome and having a bore communicating therewith, and a measuring tube 5 having an openable closure at its lower end and attachable at its upper end to the lower end of the spud and adapted when so attached to have a portion of its upper edge extending into the bore of the spud at least as far as the junction 10 of the spud and dome, whereby when material is moved from the container into the tube and leveled therein with the container upright the contents of the attachment will be wholly within the tube with the surface of such contents located 15 below the level of the joint between the bore of the tube and the bore of the spud.

2. A dispensing attachment for a container such as a bottle or jar comprising a cap including a dome attachable at its bottom to the mouth 20 of the container, a spud projecting obliquely downwardly from the dome and having a bore communicating therewith, and a measuring tube having an openable closure at its lower end and having its upper end insertible into the lower 25 end of the spud for attachment to the spud, the extreme inner edge of the tube when so attached penetrating the bore of the spud at least as far as the junction of the spud and dome, whereby material from the container leveled in the attachment after the container has been tilted and 30 returned to upright position will contact only said closure and the bore of the tube and will not contact the bore of the spud.

3. In a dispensing attachment for a container 35

such as a bottle or jar of the class in which there is mounted on the container mouth a dome having a downwardly projecting spud having a bore communicating with the dome, the combination of means for measuring a quantity of the container contents to be discharged comprising a measuring tube having a valved lower end and having an upper end adapted to be detachably received in the lower end of the bore of the spud with the lowest point on the upper end of the tube positioned at least as high as the lowest point on the junction between the dome and the spud when the container is upright, whereby material in the tube will tend to settle to a level below said junction and leakage will be prevented.

4. In a dispensing attachment for a container such as a bottle or jar of the class in which there is mounted on the container mouth a dome having a downwardly projecting spud having an internally screw threaded bore communicating with the dome, the combination of means for measuring a quantity of the container contents to be discharged comprising a measuring tube having a valved lower end and having an upper end provided with an external screwthread adapted to be engaged with the spud bore screwthread, the relation of the tube, spud and dome being such that when the tube is threaded in place and the container is upright the lowest point on the upper end of the tube will be positioned at least as high as the lowest point on the junction between the dome and the spud, so that material in the tube will tend to settle to a level below said junction and leakage will be prevented.

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