May 28, 1963 S. KIRSCHENBAUM 3,091,373

WHISKEY POURER OR SIMILAR DEVICE

Filed April 25, 1961

Fig.1

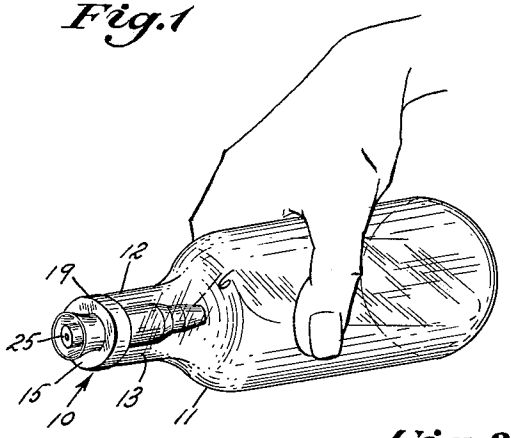


Fig.2

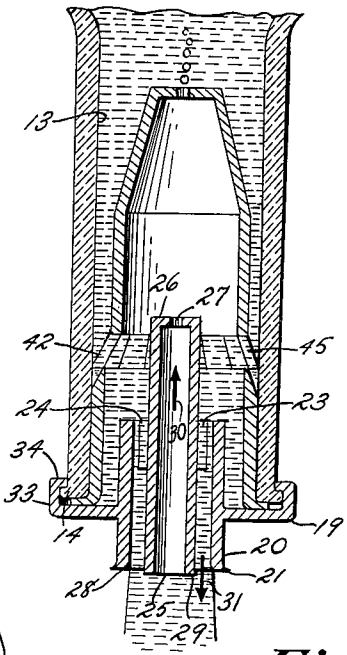


Fig.3

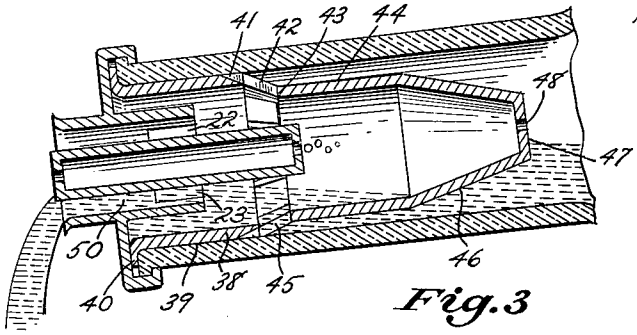
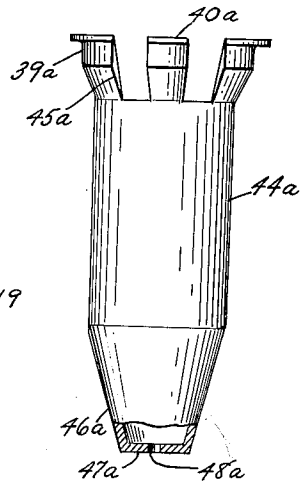


Fig.4



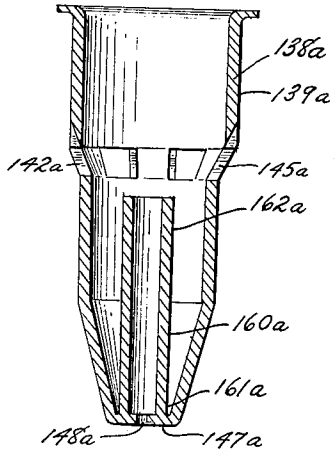


Fig.5

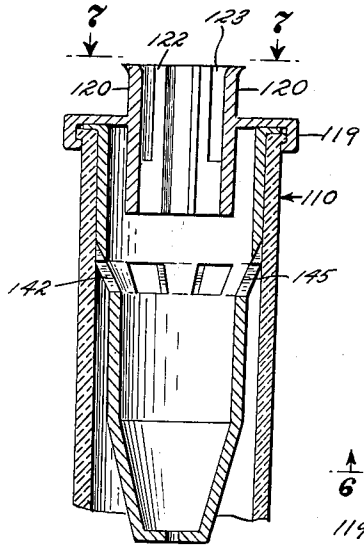


Fig.6

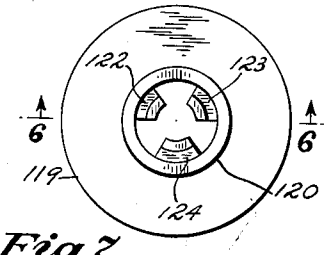


Fig.7

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WHISKEY POURER OR SIMILAR DEVICE

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4 Claims. (Cl. 222—420)

This invention relates generally to the bottle closure art, and more particularly to an improved form of pouring device for use in conjunction with liquid containers of the type disclosed in my prior Patent No. 2,411,435, entitled Liquid Dispensing Device, granted November 19, 1946.

Liquid dispensing devices of the type disclosed in the above-mentioned patent are used in connection with bottles for controlling the flow of liquid from the same, and are adapted to provide for the emptying of the container in the form of drops flowing at a substantially uniform rate. They are also adapted in a modified form for dispensing liquid in streams. The operation of such devices is dependent upon the maintenance of certain balances between the flow of air into the container and the flow of liquid therefrom. Proper initial operation depends upon the passages of the device being free of liquid which might destroy the above-mentioned balance. While the devices disclosed in the above-mentioned Patent No. 2,411,435, are generally satisfactory for the purpose contemplated, it has been found that they are not suitable where it is desired to empty relatively large amounts of liquid over a relatively short period of time without regard to the position in which the container is held, and in a manner in which the flow of liquid can be commenced and interrupted practically instantaneously. Typical of such situations is the problem of pouring one- or two-ounce amounts of liquid from a bottle containing an alcoholic beverage, where the problem includes not only the rapid pouring of a predetermined amount of liquid, but also the substantial elimination of all spilling which invariably occurs during a hasty pouring operation.

Attempts have been made in the prior art to provide pouring devices in which the flow of liquid has been controlled by restricting the passage of air into the bottle when the bottle was in inverted condition, but each such device proved incapable of controlling the initial impact of the liquid thrown against it when the container was suddenly turned into a pouring position. Each impact resulted in a misdirected spurt of liquid. Attempts to overcome this difficulty by imposing restrictions generally resulted in a slowing up of the flow of liquid to an impossible degree. The whiskey pourer commonly in use at bars relies upon elongated tubes projecting deeply into and far out of the mouth of the bottle. It is very unlikely that a suitable closure could ever be designed for it.

It is therefore among the principal objects of the present invention to provide an improved pouring device in which the above-mentioned disadvantages have been substantially eliminated.

Another object of the invention lies in the provision of an improved pouring device of the class described which will permit the pouring of amounts from one to two ounces of relatively thin liquid in as many seconds of time, and with substantially no spilling while applying only ordinary care.

A further object of the invention lies in the provision of a pouring device possessed of the above advantages which may be used in conjunction with capping devices known and existing in the prior art, without the necessity of removal of the same prior to capping the bottle.

A still further object of the invention lies in the provision of an improved pouring device of the class described in which the cost of fabrication may be of a very low order, with consequent wide sale, distribution and use.

A feature of the invention lies in the fact that the device may replace a conventional cork or stopper, thereby eliminating the necessity of removing the same for each pouring operation.

Another feature of the invention lies in the unusually attractive appearance presented by a container equipped with one of the instant devices.

Still another feature of the invention lies in the fact that the same may be formed from moldings of synthetic resinous material, with a complete absence of sealing gaskets, liners, and the like.

These objects and features, as well as other incidental ends and advantages, will more clearly appear during the course of the following disclosure, and be pointed out in the appended claims.

In the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a view in perspective of a first embodiment of the invention in use in conjunction with a conventional long-necked bottle.

FIGURE 2 is an enlarged longitudinal sectional view of the first embodiment in inverted condition, showing the passage of air and liquid through the device during operation.

FIGURE 3 is a similar sectional view showing the device in position for pouring with diminished flow.

FIGURE 4 is a side elevational view of an alternate form of the first embodiment.

FIGURE 5 is a vertical sectional view showing a second embodiment of the invention.

FIGURE 6 is a similar sectional view showing an alternate form of the second embodiment.

FIGURE 7 is a plan view of the second embodiment as seen from the plane 7—7 in FIGURE 5.

In accordance with the first embodiment of the invention, the device, generally indicated by reference character **10**, is shown in the drawings in position upon a conventional whiskey bottle, generally indicated by reference character **11**, the bottle **11** including an elongated neck **12** having an interior bore **13** and a beaded lip **14**. The device **10** comprises broadly a first outer element **15** and a second inner element **16**.

The first outer element **15** may be of a coaxially arranged tubular type of the class exemplified by my prior patent, No. 2,411,435, and includes a flanged annular member **19**, an outer tubular member **20** having a flared portion **21**, support members **22**, **23** and **24**, as well as an inner tubular member **25** having a lower wall **26** provided with a vent opening **27**. In the device **10** illustrated, the upper edge **28** of the outer tubular member **20**, and the upper edge **29** of the inner tubular member **25**, are in non-co-planar relationship, but it is to be understood that such showing is purely exemplary, as the device **10** may be modified to accommodate those cases where this relationship is not desirable. When in use, as illustrated in FIGURES 2 and 3 in the drawing, air flows in the direction of the arrow **30** through the vent **27** to permit liquid to flow in the direction indicated by the arrow **31** as a continuous stream. The flange member **19** includes a cylindrical member **33** having a bead **34** thereon adapted to engage the lip **14** of the bottle **11**, as is well known in the art.

The second inner element **16** is preferably molded integrally from suitable synthetic resinous material, and includes a first cylindrical member **38**, the outer surface **39** of which corresponds in diameter to that of the bore **13** of the neck **12**. A flared rim **40** is adapted to engage the end of the neck **12**, to prevent the element **16** from fall-

ing into the bottle 11, and to position the element 16 coaxially with respect to the element 15.

Extending from the lower end 41 of the first cylindrical member 38 are a plurality of supporting finger members 42 which engage the upper edge 43 of a second cylindrical member 44, the finger members 42 in conjunction with the first and second cylindrical members 38 and 44 defining a plurality of generally rectangular openings 45. It will be observed that the outer diameter of the second cylindrical member 44 is substantially less than that of the first cylindrical member 38, permitting substantial flow of liquid to the openings 45. The lower portion of the second cylindrical member 44 is of generally tapered configuration as indicated by reference character 46, and includes a transverse wall 47 having a vent opening 48 therein.

During operation the volume of flow is determined by the head of liquid, which in turn is determined by the inclination of the bottle, with maximum flow at maximum inclination (FIGURE 2). The liquid passes through openings 45 into cylindrical member 38 as individual streams directed against each other, dissipating or checking their momentum and preventing the liquid from spurting through the interstices 50 between the outer and inner members 20 and 25, respectively.

Turning now to the alternate form of the first embodiment, parts corresponding to those of the principal form have been designated by similar reference characters with the additional suffix "*a*".

The alternate form of the embodiment differs from the principal form in the relocation of the openings 45*a* in an upward direction to increase the distance between them and the vent opening 48*a*. This modification is particularly suited for very thin liquids, in that the impact of liquid at the point of ingress through the openings 45*a* is absorbed and dissipated by immediate contact with the outer surface of the outer tubular member 20 with a consequent total elimination of splashing of the liquid in the interstices 50*a* between the inner and outer tubular members 20 and 25, respectively.

This form may also be employed as an adjunct to a dropper where the inner tube of the outer element is shortened to lower the effective head of liquid in the inner tube. This combination permits the dispensing of liquid in drops from bottles as large as six ounces, whereas with the absence of the inner element dispensing in drop form is limited to bottles having capacities of two ounces and less, depending on the liquid being dispensed.

Turning now to the second embodiment of the invention, parts corresponding to those of the first embodiment have been designated by similar reference characters with the additional prefix "1".

The second embodiment of the invention differs from the first embodiment of the invention in the elimination of the inner tubular member 25 with retention of the support members 22, 23 and 24 which form pockets or interstices for controlling the entrance of air past the outflowing liquid. The second embodiment has application principally for the dispensing of relatively viscous liquids, and may be used with relatively large containers or bottles.

Turning now to the alternate form of the second embodiment, parts corresponding to those of the principal form have designated by similar reference characters with additional suffix "*a*".

The alternate form of the second embodiment differs from the principal form in the provision of an inner wall 160*a*, the inner end 161*a* of which is connected to the wall 147*a* to surround the vent opening 148*a*, and the outer end 162*a* of which lies adjacent the openings 145*a*. The alternate form of the second embodiment is also adapted for use in handling relatively viscous liquids, there being a tendency for the inner tube 160*a* to accumulate fluid within the same owing to capillary action which tends to seal the vent opening 148*a* during the initial period in which free liquid flows from the bottle. A discussion of the theory of the flow of free liquids from containers will be found in my Patent No. Re. 24,695, dated May 19, 1958.

It may thus be seen that I have invented novel and highly useful improvements in pouring devices, in which there has been provided a means for accurately dispensing relatively large quantities of a liquid with convenience, accuracy and a short period of time during which the flow occurs. The structure performs its function by virtue of the presence of two controlling elements, including an inner element which controls flow and prevents gushing to a chamber formed between the inner element and an outer element disposed within the mouth of the neck of the bottle. The outer element subsequently controls the flow from this chamber outwardly of the bottle. In each case, the maximum possible flow of liquid through the inner element is substantially less than the maximum permissible flow through the outer element, so that the function of the inner element is not by-passed by the filling of the chamber formed between the elements.

Although the disclosed embodiments show the inner and outer elements formed as separate bodies and supported in predetermined mutual relation by engagement within the neck of the bottle, under certain conditions it may be desirable to form the device as an integrated unit to enable the same to be inserted into the neck of the bottle at a single station on a conveyor belt assembly line. In such cases, the elements may be formed to be subsequently cemented or otherwise attached to each other using an interconnecting member (not shown) if necessary.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

I claim:

1. A pouring device for use in conjunction with a bottle for liquids including a neck portion, said device comprising: a first outer element and a second inner element, said first outer element including an annular flange member, a first outer tube supported by said flange member and a second concentric inner tube supported in spaced coaxial relation with respect to said outer tube; said second inner element including a first cylindrical member of first diameter, a second cylindrical member of second diameter less than said first diameter, and a plurality of supporting finger members defining a plurality of radially arranged openings interconnecting said first and second cylindrical members, said second cylindrical member being open at a lower end thereof; and means for supporting said first outer element and said second inner element in coaxially aligned relation.

2. In combination, a bottle having a neck portion including an internal bore, a pouring device including a first outer element and a second inner element, said first outer element including an annular flange member, a first outer tube supported by said flange member, and a second concentric inner tube supported in spaced coaxial relation with respect to said outer tube, said second inner element including a first cylindrical member of first diameter, a second cylindrical member of second diameter less than said first diameter, and a plurality of supporting finger members defining a plurality of radially arranged openings interconnecting said first and second cylindrical members, said second cylindrical member being open at the lower end thereof; said first outer element having resilient means on said annular flange member engaging said neck portion at the outer end thereof; said first diameter of said first cylindrical member corresponding to the inner diameter of said neck portion, and being seated therein in frictional engagement therewith.

3. In combination: a bottle, including a neck portion

having an opening and an internal bore leading to said opening, a pouring device including a first outer element and a second inner element; said first outer element including means for maintaining the same in engagement with said opening in said neck portion of said bottle, and having means for controlling the flow of liquid therethrough and means for controlling the admission of air into said bottle as liquid is dispensed therefrom, said second inner element being supported within said bore in said neck portion in generally coaxial disposition with respect to said first outer element, and having means for the controlled passage of liquid therethrough and the controlled passage of air therethrough in an opposite direction, said last-mentioned means for the passage of liquid and air of said second inner element having a maximum rate of flow substantially less than the maximum rate of flow through said first element, whereby during the dispensing of a liquid through said neck portion a substantial volume of air is maintained within said neck portion between said first and second elements.

4. In combination: a bottle, having a neck portion, including an internal bore leading to an end opening for the passage of liquid from said bottle, a first outer element and a second inner element, said first outer element including first means for engaging said end opening, a first outer tube supported by said means, a second inner tube supported in spaced coaxial relation with respect to said outer tube; said second inner element including means for supporting the same within said neck portion of said bottle in spaced coaxial relation with respect to said first element, and having a generally cylindrical wall and an inner end wall, said cylindrical wall having at least one laterally arranged opening for the passage of liquid therethrough, said end wall having an opening therein for the passage of air therethrough, said opening in said end wall being disposed inwardly of said opening in said cylindrical wall.

References Cited in the file of this patent

UNITED STATES PATENTS

2,829,807 Kirschenbaum ---------- Apr. 8, 1958