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2,796,205

SPOUT

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FIG. 2

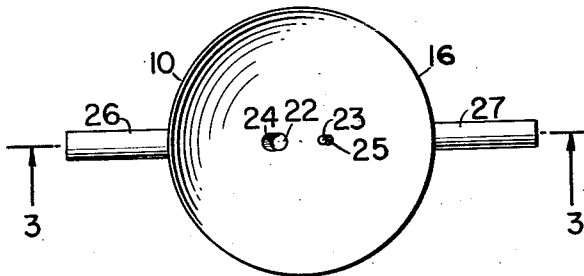


FIG. 3

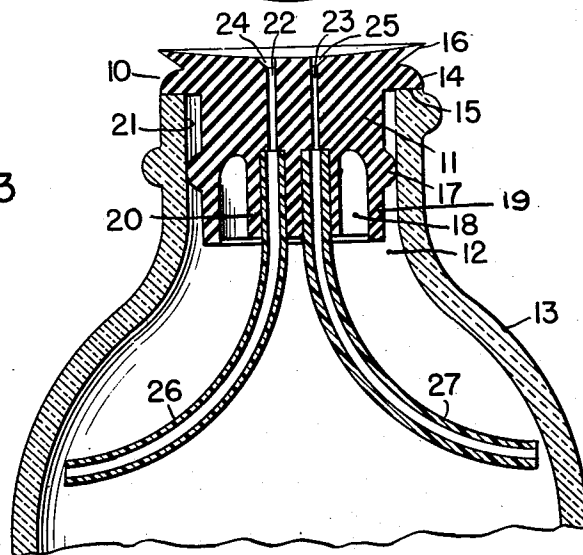
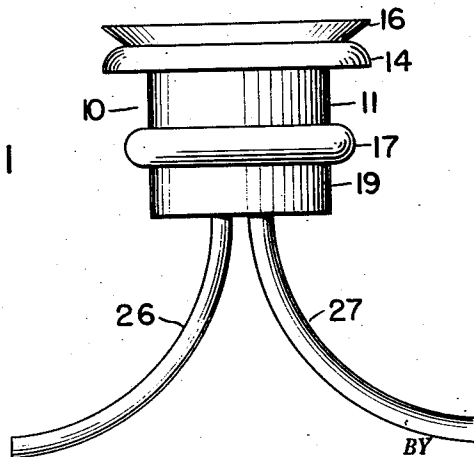


FIG. 1



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2,796,205

SPOUT

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4 Claims. (Cl. 222—464)

My invention relates to an improved pouring spout for vessels containing liquids.

Manufacturers are confronted with the problem of supplying spouts for vessels containing liquids which will meet the diverse requirements of consumers. For example, one consumer may desire to deliver liquid in small quantities or drops from a vessel while another may desire a spout that will deliver large quantities of liquid. I have devised a multiple purpose spout which can be used to pour large quantities of liquid or can be used to pour smaller quantities of liquid, for example, in the form of small drops, while also providing needed venting and sealing during the pouring operations using either spout.

The spout of my invention comprises a body member having a flexible stopper portion adapted to fit into a vessel opening and an annular flange portion of larger diameter than the stopper portion adapted to rest on the rim of the opening, a large outlet passage in the body member for pouring large quantities of liquid, a substantially smaller outlet passage in the body member for pouring small quantities of liquid and a flexible curved tube connected to each passage and extending in substantially opposite directions.

The stopper portion is of a diameter less than the inside diameter of the opening and means are provided to effect a seal between the stopper portion and the opening without distortion or closing of the passages. Preferably, the stopper portion has a depending cylindrical skirt which has a portion of a slightly larger diameter than the inside diameter of the opening whereby when the stopper is inserted into the opening the larger diameter portion of the skirt will form a tight seal with the opening wall. The skirt provides means for forming a tight seal while preventing distortion or closing of the outlet passages. Advantageously, the stopper portion has an external flexible annular bead of larger diameter than the opening and an annular recess in the lower part and behind the bead to form a skirt and hub portion. When inserted into the opening the skirt flexes inwardly and the bead forms a seal with the opening wall. Advantageously, the annular flange has a sharp notched edge to prevent dripping of liquid down the side of the bottle. Also, advantageously, the top surface of the body member is concave.

The spout of my invention is capable of handling various liquids but is especially advantageous for handling hydrofluoric acid. The spout can be made of any suitable flexible material, but, if intended for use with hydrofluoric acid is advantageously molded from polyethylene which is inert to this acid.

The spout of my invention will be further illustrated by reference to the accompanying drawing of a preferred embodiment of my invention.

Figure 1 is a side elevation view of the spout.

Figure 2 is a top view of the spout.

Figure 3 is a sectional view of the spout taken along plane 3—3 of Figure 2 and also shown inserted into an opening of a vessel.

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In the drawings a body member represented by 10 has a flexible stopper portion or plug 11 adapted to fit in the opening 12 of a bottle 13. An annular flange 14 is provided at the top of the stopper portion 11 and is of a larger diameter of the stopper portion 11 and adapted to fit on the rim 15 of the bottle opening 12. The annular flange 14 is provided with a sharp notched edge 16 so as to prevent dripping of liquid down the side of the bottle 13 when liquid is poured through the spout.

The stopper portion 11 is provided with an external flexible bead 17 of diameter slightly larger than the inside diameter of the opening 12. The stopper also has an annular recess 18 extending up behind, and preferably above, the external bead 17. The annular recess 18, then, forms a flexible annular skirt or sleeve 19 with the bead and lower stopper portion and also forms a hub portion 20 in the lower stopper portion. When the stopper portion 11 is forced into the bottle opening 12, the skirt is deflected inwardly and the external bead 17 forms an air and liquid tight fit against the bottle opening interior wall 21 to prevent leakage. The annular recess 18 provides better distortability of the beaded stopper portion by forming the flexible skirt with the external bead 17 and thus provides easier insertion of the spout and a tight fit. Also, the passages 22 and 23 are not distorted or closed due to squeezing into the opening since the portion containing the passages is not subjected to this pressure.

The body member contains two outlet passages for pouring liquids. One passage 22 is relatively large and is used when a stream of liquid is desired. The other outlet passage 23 is substantially smaller and is used when drops of liquid are desired. As manufactured, passages 22 and 23 are sealed with a thin diaphragm for shipping purposes. When the spout is ready for use these diaphragms are removed, e. g. by puncturing. Grooves 24 and 25 are provided in the top of the body member to facilitate pouring. The top surface of the body member is, as shown, dished or concave so that when the bottle is returned to an upright position after pouring excess liquid on the surface will flow back into the passages.

At the lower end or bottom of the passages curved tubes 26 and 27 are provided extending in substantially opposite directions for pouring and venting. The tubes are of a flexible material so that they can be bent to enable the spout to be inserted into the bottle opening, following which they resume their shape. The tubes are of such curvature and length that when the spout is inserted into the vessel opening the openings 26 and 27 of the tubes are free, i. e. they are not blocked by the vessel wall, and also fit into the vessel deep enough to permit action as a vent when the vessel is tilted to pour liquid through the other tube. Thus, when tube 26 is being used for pouring large quantities of liquid tube 27 will act as a vent thereby making possible steady uninterrupted pouring. Similarly, when tube 27 is used for pouring small quantities of liquid tube 26 will act as a vent thereby making possible steady interrupted pouring.

As illustrated in the drawings the desired diameters of passages 22 and 23 need not necessarily be maintained in the hub portion 20 but need only be maintained in portion 11. Thus, tubes 26 and 27 can fit into the hub portion openings and can be of the same diameter for each outlet passage.

The above described features of my spout, then, combine and cooperate to provide a multiple purpose spout that can be used to pour either small or large quantities of liquid while providing good venting and good sealing of the vessel opening.

I claim:

1. A spout for a vessel containing liquids comprising a body member having a flexible stopper portion of diam-

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eter less than the inside diameter of an opening of a vessel into which the stopper portion is to fit and an annular flange portion of larger diameter than the stopper portion and the inside diameter of the opening and adapted to rest on the rim of the opening, said stopper portion having an external flexible annular bead of diameter slightly larger than the inside diameter of the opening and an annular recess in the lower stopper portion and behind the bead so as to form a cylindrical skirt and hub portion whereby when the stopper portion is inserted into the opening a seal is established between the bead and opening, a large outlet passage in the body member for pouring large quantities of liquid, another outlet passage in the body member substantially smaller than the large outlet passage for pouring small quantities of liquid and a flexible curved tube connected to the lower end of each passage and extending in substantially opposite directions.

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2. The spout of claim 1 in which the annular flange has a sharp, notched edge.

3. The spout of claim 1 in which the top surface of the body member is concave.

4. The spout of claim 3 in which the annular flange has a sharp, notched edge.

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