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R. H. GIBSON

3,311,275

POURING DEVICES FOR BOTTLES AND OTHER LIQUID CONTAINERS

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FIG. 1.

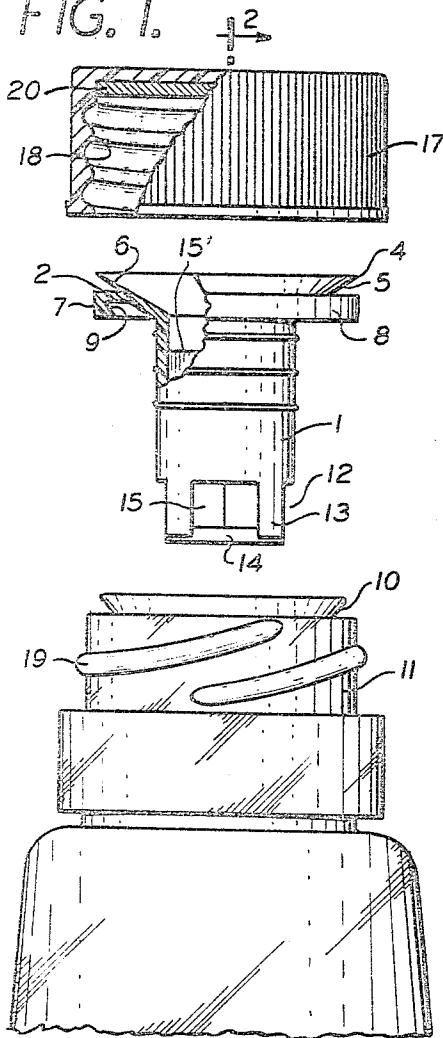


FIG. 2.

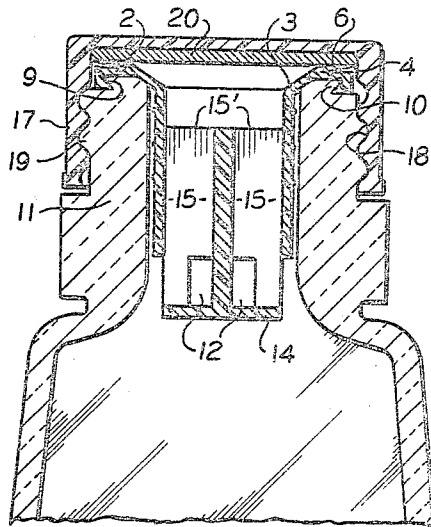


FIG. 3.

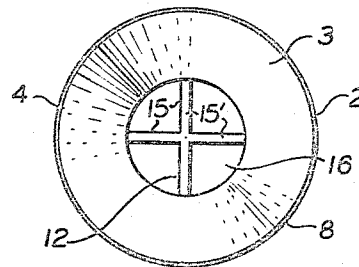


FIG. 4.

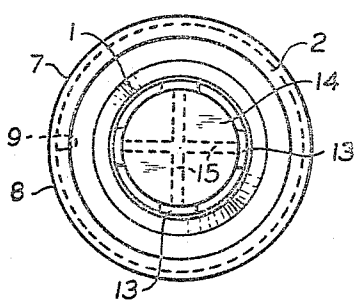


FIG. 5.

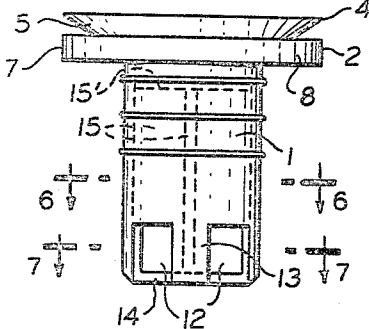


FIG. 6.

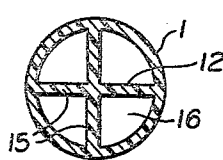
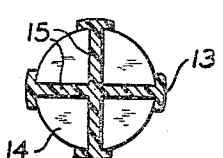


FIG. 7.



INVENTOR
ROYAL H. GIBSON

BY *Samuel, Hill,
Schultz & Wihetman*

ATTORNEYS.

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POURING DEVICES FOR BOTTLES AND OTHER LIQUID CONTAINERS

Royal H. Gibson, Rumson, N.J., assignor to Gibson Associates Incorporated, Cranford, N.J.
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4 Claims. (Cl. 222-567)

This invention relates to pouring devices for bottles and other liquid containers.

It is an object of the present invention to provide a pouring device which may be attached to such bottles or containers and which will permit a controlled and substantially uniform rate of flow of liquid from the bottle or container under all conditions of pouring, i.e. regardless of the degree to which the bottle or container may be tilted for pouring purposes.

Other objects and advantages of the invention will appear hereinafter.

A preferred embodiment of the invention selected for purposes of illustration is shown in the accompanying drawings, in which,

FIGURE 1 is an exploded view, in elevation, showing the pouring device and a typical bottle and closure with which it is adapted to be used.

FIGURE 2 is a section on the line 2-2 of FIGURE 1 with the parts assembled.

FIGURE 3 is a top plan view.

FIGURE 4 is a bottom plan view.

FIGURE 5 is an elevation of the pouring device turned 45° from the position of FIGURE 1.

FIGURE 6 is a section on the line 6-6 of FIGURE 5.

FIGURE 7 is a section on the line 7-7 of FIGURE 5.

Referring to the drawings, the pouring device comprises a cylindrical tubular member 1 having an annular flange 2 at its upper end which is of a diameter greater than the diameter of the tubular member and extends outwardly therefrom. The upper surface 3 of the flange is beveled and terminates in an edge 4 over which the liquid is discharged. The surface 5 of the flange immediately below the edge 4 is also beveled so that the material between the beveled surfaces 3 and 5 forms a thin, flexible lip 6 which serves not only as a pouring lip, but also as a sealing member as hereinafter described.

The flange 2 also comprises a depending skirt 7, the outside wall 8 of which is cylindrical, while the inside wall is undercut to form a groove 9 which is adapted to engage the conventional beveled lip 10 of a typical bottle neck 11.

Near the bottom of the tubular member 1, a plurality of apertures 12 are formed in the cylindrical wall thereof, said apertures being spaced around the circumference of the cylindrical wall and separated by legs 13 forming extensions of the cylindrical wall. The area of the apertures determines the rate of flow of the poured liquid. Such apertures may be made large or small as desired to increase or decrease the rate of flow or to adapt for liquids of different viscosities.

The bottom of the tubular member 1 is closed by a disk 14, attached to or formed integrally with the bottom of the legs 13. The disk 14 serves as a baffle to prevent direct, straight line flow or surge or liquid into the tubular member, and to permit flow of liquid only through the apertures 12.

Mounted within the tubular member 1 are a plurality of baffles 15 which extend radially from the center to abut the inside wall of the tubular member. Preferably said baffles abut the disk 14 and extend longitudinally upwardly from the disk 14 toward the upper end of the tubular member 1. The said baffles may extend to or even beyond the upper end of the tubular member, but

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as shown in the drawings, it is preferable to terminate the baffles at a level 15' somewhat below the upper end of the tubular member as it has been found that this improves the uniformity of flow of the discharged liquid.

5 The said baffles 15 divide the passage through the tubular member 1 into a plurality of smaller passages 16 communicating with said apertures.

In the preferred embodiment illustrated the number of baffles 15 is equal to the number of apertures 12. That is, in the case of four apertures, as shown, four baffles are provided which are arranged with the longitudinal edges of the baffles abutting the four legs 13 so that each aperture communicates with a single passage 16. However, the baffles may, if desired, be arranged with their longitudinal edges located between the legs 13, so that each aperture communicates with two passages. Moreover, the number of baffles may be greater or less than the number of apertures, it being only necessary that each aperture be in communication with at least one passage 16.

The bottle or container to which the pouring device is secured may be closed by any conventional closure such as the conventional screw cap 17 having interior threads 18 to cooperate with the exterior threads 19 on the neck of the bottle or container. As the cap is screwed down, the end wall or the liner 20 engages the lip 6 to form a seal.

The pouring device may be made of any suitable material, but is preferably made of a plastic elastomeric material which is reasonably flexible and elastic. Polyethylene, polypropylene and polyurethane are well suited for this purpose. Pouring devices and of such materials may be molded as a unitary integral structure.

In use, the pouring device illustrated is snapped over the lip of the neck of the bottle or container in the manner illustrated. When it is desired to pour liquid, the bottle or container is tilted to any desired angle. Liquid enters through one or more of the apertures 12 and flows through the communicating passages 16 for discharge over the lip 6. Liquid streams flowing through adjacent passages 16 merge at the upper edges of the baffles 15 to form a single stream.

At the same time, and while liquid is being poured, air enters the upper end of the tubular member and flows through one or more of the passages 16 and through apertures 12 into the bottle or container. The disk 14 obstructs direct flow or surge of liquid into the passages 16, and even though the bottle or container may be tilted or upended so that all of the apertures 12 are covered by liquid, the differential of pressure created by flow of liquid through one or more apertures and passages will cause air to flow in through one or more of the other passages and apertures, thus tending to equalize pressures and permit continued uniform flow.

It will be understood that the invention may be variously modified and embodied within the scope of the subjoined claims.

I claim as my invention:

1. A pouring device for bottles and liquid containers comprising a cylindrical tubular member, an annular flange on the upper end of said tubular member and extending outwardly therefrom and having a depending skirt for engagement with the neck of a bottle or liquid container, the cylindrical wall of said tubular member being provided with a plurality of apertures adjacent the lower end thereof, said apertures being spaced by legs forming parts of the cylindrical wall, a disk mounted on said legs and closing the lower end of said tubular member, and a plurality of baffles mounted within said tubular member, which said baffles extend radially from the center to the inside wall of said tubular member.

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2. A pouring device as claimed in claim 1 in which the number of said baffles is equal to the number of apertures and in which the longitudinal edges of said baffles abut said legs.

3. A pouring device as claimed in claim 1 in which the lower ends of said baffles abut said disk and in which said baffles extend longitudinally of said tubular member and terminate at a level below the upper end of said tubular member.

4. A pouring device as claimed in claim 1 in which the upper surface of said flange is beveled and extends outwardly from the passage through said tubular member, terminating in a pouring lip.

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10 ROBERT B. REEVES, *Primary Examiner*.K. N. LEIMER, *Assistant Examiner*.