Feb. 12, 1952 H. H. HOFFMAN 2,585,125

NONDRIP CAN SPOUT

Filed June 11, 1947

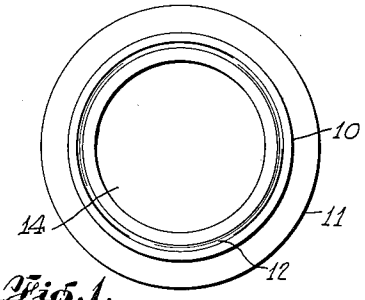


Fig. 1.

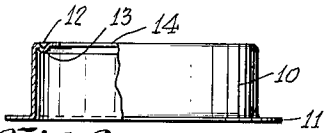


Fig. 2.

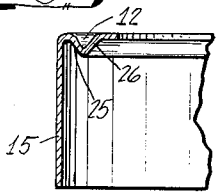


Fig. 3.

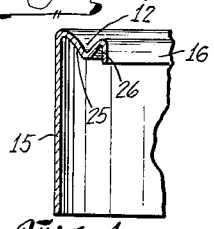


Fig. 4.

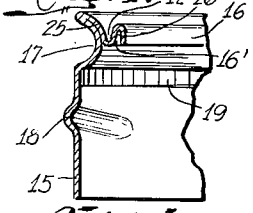


Fig. 5.

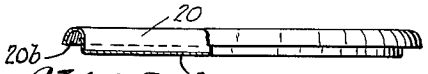


Fig. 6.

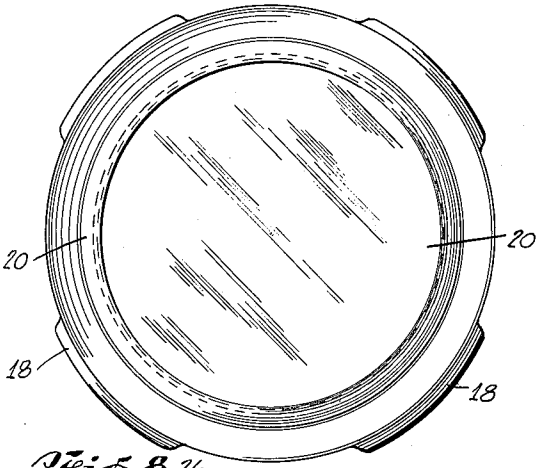


Fig. 8.

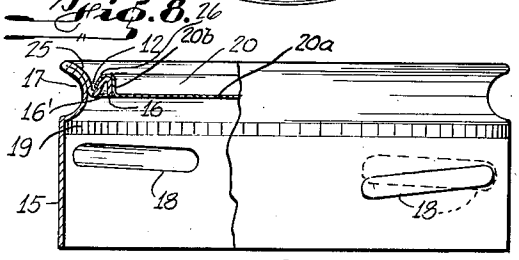


Fig. 7.

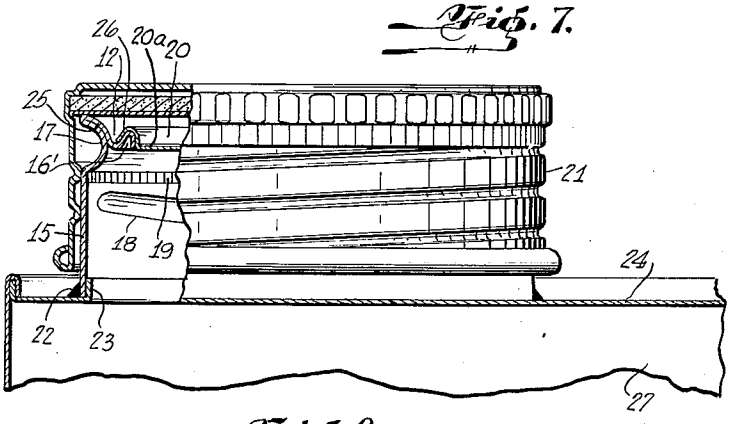


Fig. 9.

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NONDRIP CAN SPOUT

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1 Claim. (Cl. 222—571)

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The present invention relates to can spouts which are non-drip and tamper-proof, and which can be poured in any direction.

Conventional can spouts are externally threaded and provided with a threaded cap. Such spouts have the disadvantage that the contents of the can drip over the threads and hence the cap thereafter sticks or freezes onto the spout when it is replaced. This situation has been overcome by the use of the so-called lug type of spout but in this form of spout, it is not possible to make all caps fit tightly to the lug spouts due to unavoidable variations in the metal in the caps and the paper or cork sealing gaskets. The coacting underside of the spout lugs are horizontal and parallel with the top sealing surfaces of the spout and, similarly, the lugs of the cap are horizontal and parallel with the top of the cap and, therefore, there is no means to compensate for variations in the metal and the gasket. On the other hand, spouts and caps with helical threads can be tightened as much as desired, but are subject to the defects and disadvantages already outlined. Such spouts are, of course, not tamper-proof.

It is, therefore, an object of the present invention to provide a can spout which overcomes the drawbacks of prior spouts and which has unique and useful features not found in prior types of spouts.

Another object of the invention resides in providing a can spout which can be poured in any direction and which is free from dripping and hence sticking and freezing of the cap on the threads of the spout when the cap is replaced.

A further object of the invention resides in the provision of a spout which is tamper-proof in the sense that any attempt to remove the innerseal is immediately apparent and/or destroys such innerseal.

A still further object of the invention is to produce a can spout which is liquid tight until the innerseal is removed.

A more particular object of the invention is to construct a can spout with an innerseal mechanically interlocked in a relatively deep and narrow groove and a specially designed pouring lip which permits pouring in any direction without dripping.

Other and still further objects and advantages reside in the various structural features and combinations hereinafter described, and claimed, and in such additional points as will be understood by or apparent to those skilled in this art.

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In the accompanying drawing in which I have illustrated a preferred embodiment of the invention and the manner of making it:

Fig. 1 is a plan view of the flanged shell blanked and drawn from suitable metal.

Fig. 2 is a side elevational view of Fig. 1, with a portion broken away.

Fig. 3 is a fragmentary sectional view of the blank of Fig. 2, with the flange trimmed off and redrawn.

Fig. 4 represents a further advanced form of Fig. 3, in which the inner wall is fabricated into approximate form and position.

Fig. 5 is a fragmentary sectional view of the final spout with its side wall groove and rolled in helical lugs arranged as a discontinuous thread.

Fig. 6 is a fragment of the inner seal used with the spout of Fig. 5.

Fig. 7 is an elevational view, partly in section, of my new can spout and innerseal.

Fig. 8 is a plan view of Fig. 7.

Fig. 9 is an elevational view, partly in section, of a completely assembled spout and cap forming a part of a can body or other container.

In fabricating the invention, a suitable metal piece is drawn and blanked into the flanged shell shown in Figs. 1 and 2, wherein the cylindrical body shell 10 is formed into shape with a horizontal annular bottom flange 11 and an annular groove 12 in the top close to the circumference defined by a concavo-convex (convex side upward) depressed channel 13. The central portion of the top of the shell is pierced and cut out to form a large opening 14 subsequent to the formation of the annular groove 12 referred to. The forming tools by means of which fabrication is carried out as above described, are constructed so that the stretching or deforming of the metal to define groove 12 is carried out prior to the piercing of the top and the cutting out of the metal to make large opening 14. The structural details of the tools, however, form no part of this invention since the same is well known to and understood by those skilled in this art.

In the next operation, the structure of Fig. 3 is formed. This is accomplished by trimming off the outer periphery of flange 11 to form a true circle and then re-drawing shell 10 to straighten flange 11 to present a continuous, straight side wall 15. At the same time, groove 12 is reshaped and made into its final size and configuration and the inner wall is bent down as shown at 16 in Fig. 4, by a suitable drawing or forming operation.

Groove 12 is now relatively deep and narrow, as will be hereinafter more fully appreciated, this groove dimensioning being an important part of the invention. The groove 12 is substantially of V-shape in cross section. This V-shape is composed of an outer arm 25 and an inner arm 26. The side wall groove 17 and the helically disposed lugs 18 and the knurled band 19 are rolled in into the side wall 15 at the same time to produce the structure shown in Fig. 5. Helical lugs 18 are segments of a continuous helical thread, which latter may be employed as an alternative construction. The knurled band 19 formed around the top of the shell 15 just below the side wall groove 17 is designed to permit the tools to bite into the metal and thus drive the shell through the tools since it is essential that the circumferential speed of the shell 15 be the same as the circumferential speed of the tools that form the helical lugs in said shell. The innerseal or friction plug 20 has a disc-shaped central portion 20a and an inverted U-shaped marginal portion 20b which fits over the inner wall 16 and its adjacent inverted U-shaped portion forming a part of the channel defining groove 12. A conventional screw cap 21 fits over the pouring spout just described and may be made in any suitable or desired manner forming no part of this invention. The top edge of the outer arm 25 of groove 12 forms a pouring lip for the can spout.

It will be noted that shell or side wall 15 is welded, soldered or otherwise secured at 22 to a collar 23 of the upper portion 24 of can body 27.

The outer edge of innerseal 20 lies at or near the bottom of groove 12 and the groove is dimensioned so that the edge of the innerseal is inaccessible. The groove is too deep and narrow to permit of removing the innerseal without showing that it has been tampered with because either the innerseal edge or the adjacent groove would be marred, deformed, scratched or otherwise blemished by any attempt to remove and replace the innerseal so as to alter the nature and amount of the can contents. When the seal is removed, however, by the legitimate user, the can spout can pour equally well in all directions without dripping because, as soon as the can is lowered to stop pouring, innerwall 16 acts as a barrier and the underneath groove 16' catches the material and directs it back into the can. Due to the side wall groove 17, a thin pouring lip is produced, having excellent pouring qualities and this pouring lip forms a complete circle, thus permitting pouring in any direction. So far as I am aware, this has not been possible with respect to prior pouring spouts which, if non-drip at all, could only be considered so when pouring took place in one certain direction. The pouring spout and innerseal, moreover, form a perfectly liquid-tight arrangement, and the innerseal is frictionally held only without any supplemental seal or fastening means being necessary.

It will, therefore, be appreciated that I have provided a pouring spout for cans, which has unique structural features and advantages and which accomplishes the objects hereinbefore enumerated in a simple, economical and effective manner. It is to be understood, however, that the foregoing is intended as illustrative and not as limitative and that various modifications thereof may be made without departing from the spirit or principles hereof. The invention is rather that defined by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

In a can spout, a vertical annular sheet material side wall having an inwardly curved top portion forming an annular side wall groove, the material of the top edge portion of said side wall groove continuing inwards and downwards of said side wall along the curve of said side wall groove to a point substantially midway of the height of said side wall groove forming a top annular groove at a location midway of the height of said side wall groove, said top annular groove having an outer arm and an inner arm, the outer arm of which extending downwards along the inwardly curved top portion of said side wall groove in order to form a thin circular pouring lip over which liquid may flow in any direction when said can spout is tilted for pouring liquid from a can provided with said spout, and the inner arm of said top annular groove continuing into an annular downwardly directed inner wall immediately adjacent said top annular groove in order to form an underneath annular groove for cutting off the flow of liquid when said can spout is tilted back to cease pouring of said liquid.

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