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3,029,988

PORING SPOUT FOR A CONTAINER

Filed Jan. 18, 1957

2 Sheets-Sheet 1

FIG. 1.

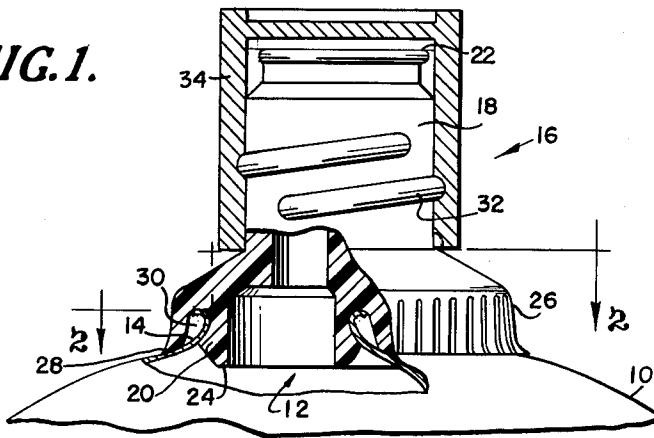


FIG. 2.

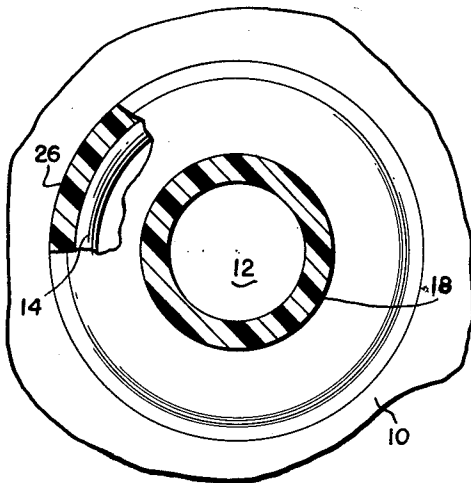
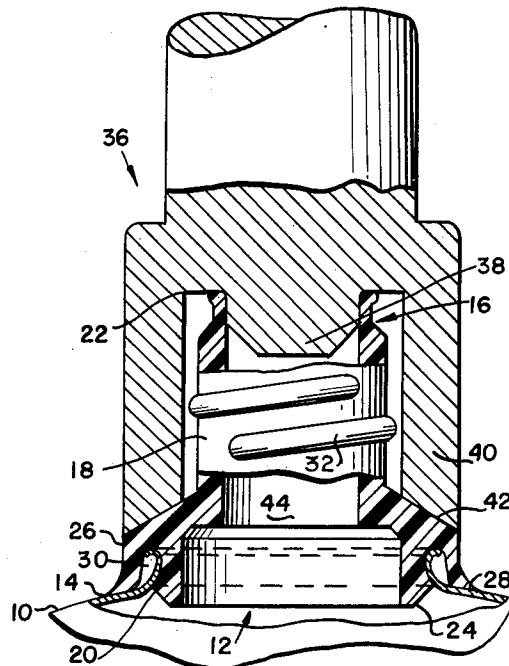


FIG. 3.



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FIG. 4.

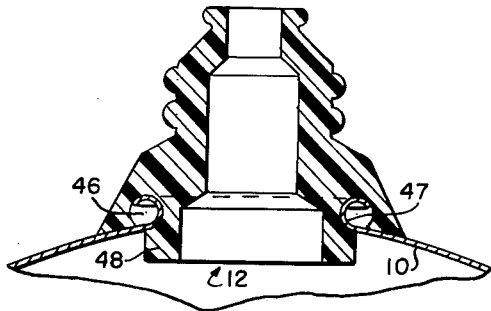


FIG. 5.

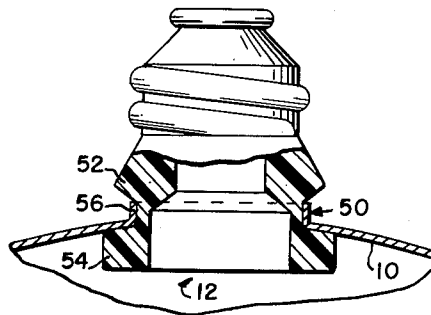


FIG. 6.

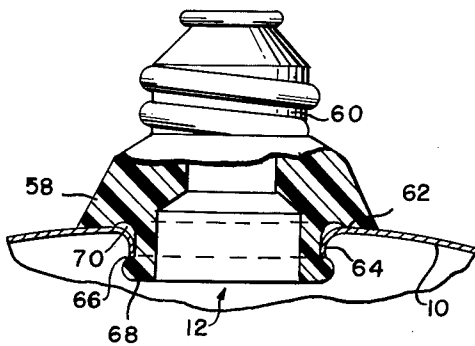
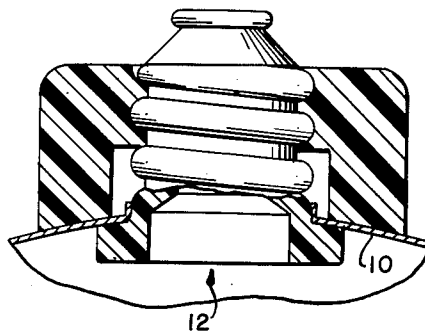


FIG. 7.



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POURING SPOUT FOR A CONTAINER

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6 Claims. (Cl. 222-569)

This invention relates to containers such as metal cans useful particularly for detergent liquids and powders, to spouts for use with such containers and to a process for joining the spouts to the containers.

The metal containers of one quart or less capacity with a pouring spout have in the past had the spouts provided by essentially three different means: (1) the spout formed separately from the can and clinched on; (2) by forming a spout integral with the can; and (3) the conventional screw cap spout. All of these methods have had undesirable features such as excessive cost or an unsatisfactory seal between the top and the can end.

It is, therefore, one of the primary purposes of this invention to provide a metal container with a pouring spout that is better and cheaper than the types currently available to the trade.

It is another purpose of this invention to provide a pouring spout having a better seal between the can end and the spout.

It is a further object of this invention to provide a spout which is easily attached to the can end.

It is a still further object of this invention to provide a plastic spout for use with a metallic container.

Other objects and advantages of the present container will be in part obvious and in part explained by reference to the accompanying drawings in which:

FIGURE 1 is a front elevation of one modification of a container in keeping with the present invention, a portion of the container body being removed.

FIGURE 2 is a top view taken substantially along the line 2-2 of FIGURE 1.

FIGURE 3 is a plan view illustrating the manner in which the spout is secured to the container, with portions of the components being removed to more clearly illustrate the manner of co-action.

FIGURE 4 is a cross-sectional elevation showing a modified form of pouring spout.

FIGURE 5 is a plan view in part sectional and in part full illustrating another modified form of pouring spout.

FIGURE 6 is a plan view in part sectional and in part full illustrating still another modified form of pouring spout.

FIGURE 7 is a plan view in part sectional and in part full showing yet another modified form of pouring spout.

Referring more particularly to the drawings, numeral 10 indicates a generally convex container end wall having an opening 12 located at its apex, the opening 12 being defined by an annular flange 14. In the construction shown in FIGURE 1, flange 14 is curved upwardly and rearwardly from the opening 12, for reasons later explained.

Attached to the top of the container is a pouring spout which is indicated generally by numeral 16. Spout 16 comprises a neck portion 18 that extends from a position inside the container substantially vertically upwardly to a point removed from the container end. Formed integrally with the lower end of the neck portion 18 is a shoulder 20 that extends radially outwardly from the opening 12 so that shoulder 20, when the spout is assembled in end wall 10, will underlie flange 14 to furnish support therefor. Intermediate the upper end 22 and the lower end 24 of neck portion 18 is a dependent skirt portion 26 which extends outwardly and downwardly

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from neck portion 18 enabling lower surface 28 or skirt portion 26 to engage the upper surface of end wall 10. It will be seen that lower end 24, skirt section 26 and shoulder 20 act together to form a ring like or annular recess 30 into which flange 14 will fit for securement of the nozzle in the container end wall. The upper portion of neck 18 has threads 32 formed on its surface so that suitable reclosure means such as cap 34 may be detachably secured thereto.

Turning now to FIGURE 3, which illustrates the manner in which pouring spout 16 is secured to end wall 10, numeral 36 indicates a pressure applying ram having a centrally disposed boss 38 and a ring 40 which is radially spaced from and of greater height than the aforementioned boss 38. Lower surface 42 of ring member 40 is inclined at substantially the same level as the upper surface of skirt portion 26 while the external diameter of boss 38 is substantially equal to the inner diameter of opening 44 which extends throughout the length of the neck portion 18.

The method by which spout 16 is secured to end wall 10 is a simply executed one. Spout 16 is positioned above opening 12 so that the opening 44 is in direct alignment therewith. Ram 36 is then brought into contact with spout 16 as illustrated in FIGURE 3 and the pressure increased until shoulder 20 is completely within the container. During the lowering of the spout, flange 14, which at that time is still uncurled, enters recess 30 and is forced by the increasing pressure to assume a configuration approximating in part the configuration of the said recess. When the flange 14 is sufficiently deformed, the pressure is removed and the container assembly is complete. It will readily be appreciated that the aforescribed method of joining the spout 16 to can end 10 will result in a tight sealing of the plastic to the metal, thus insuring integrity against leakage and adequate resistance to turning when the screw cap is put on or taken off.

In the modified form of spout shown in FIGURE 4, a recess 46 is of a generally circular cross-sectional shape, while shoulder 48 is of a generally rectangular cross-sectional shape. This form of pouring spout, as well as the form shown in FIGURE 1, is particularly useful when the spout is to resist higher pressures than normally exist due to temperature increases or to rough handling of the container and contents. Also, in view of the fact that the volume of recess 46 is substantially greater than that occupied by the flange 47, any leakage which may occur will be trapped in the recess.

Another modified form of spout is shown in FIGURE 5 where the recess, indicated by numeral 50 is formed externally by skirt portion 52 and shoulder 54. Flange 56 of the can end is of a height substantially identical to the height of the annular ring like recess 50 to eliminate vertical slippage between these two members. In this modification the spout is merely snapped into position and held resiliently in position by flange 56.

In FIGURE 6, the skirt portion 58 extends downwardly from the neck portion 60 so that its lower surface 62 engages the upper surface of the can end to effect a seal therewith. In this example, the flange 64 of the can end is turned inwardly toward the center of the container so that its edge portion 66 will engage the upper surface of shoulder 68. As was the case with previously mentioned modifications, this one has a recess which may act as a trap for escaping material; this recess is indicated by numeral 70.

In FIGURE 7, skirt portion 72 is shown detachably secured to neck portion 74 by means of threads 76. Although threaded fastenings are shown, it is obvious that any other suitable means for detachably securing the

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skirt portion to the neck portion may be utilized. In this example, the spout is secured to the can end by merely placing shoulder 78 through the opening in the can end and then threading skirt portion 72 down onto neck portion 74 until the upper edge of shoulder 78 is drawn tightly against the lower face of flange 80 and the lower surface 82 of skirt portion 72 is drawn into tight abutting relationship to the top of the can end.

It is to be understood that all matter hereinbefore set forth is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A container and pouring spout comprising: a container having an end wall provided with an annular flange, the flange defining an opening in said end wall; and a pouring spout comprising an integral neck portion provided with an opening, the lower part of said neck portion extending through the opening in the end wall juxtaposed the inner surface of said flange, a permanently formed shoulder on said neck portion adjacent the lower end thereof and extending radially outwardly subjacent said flange, a dependent skirt portion positioned intermediate the ends of said neck portion superjacent said flange and extending outwardly beyond said flange and having a terminal edge engaging the end wall of the container, said dependent skirt portion and said shoulder defining an annular recess of substantially the same height as said flange and having a volume excessive of that occupied by said flange when in the recess so that an annular space is provided between the terminal edge of said skirt and said flange which is separated from said shoulder by engagement of said flange with the wall of the recess whereby leakage past said shoulder and flange may be trapped.

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2. A container according to claim 1 wherein said pouring spout is detachably secured to said end wall.

3. A container according to claim 1 wherein the container is constructed of metal and the spout is constructed of plastic.

4. A container according to claim 1 wherein said flange is curved upwardly and rearwardly from the opening in said end wall, said curved flange having a free edge terminating in said annular space above the terminal edge of said skirt portion.

5. A container according to claim 1 wherein said flange is curved inwardly, the lower edge of said flange abutting the upper surface of said shoulder and wherein the lower surface of said skirt portion engages the top surface of said end wall rearwardly of said flange.

6. A container according to claim 1 wherein said skirt portion is detachably secured to said neck portion.

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