

Aug. 18, 1942.

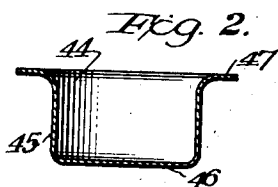
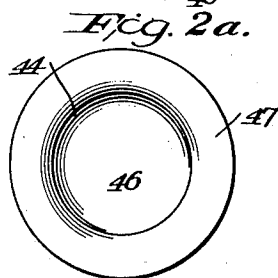
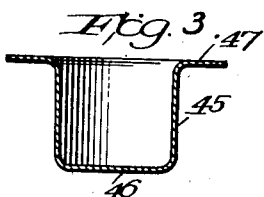
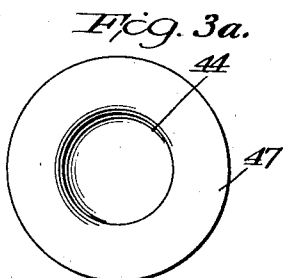
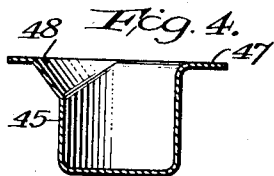
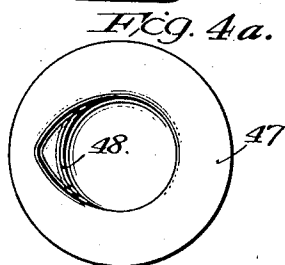
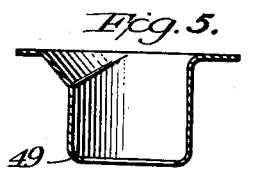
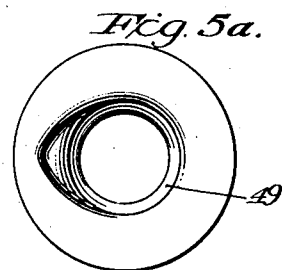
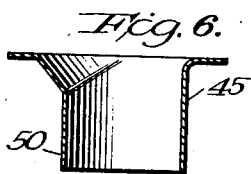
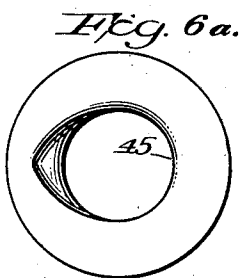
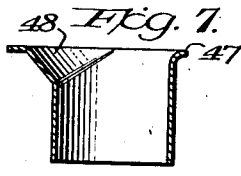
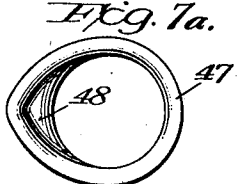
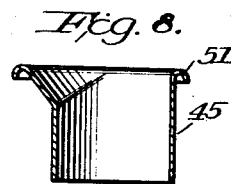
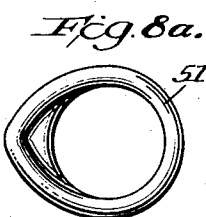
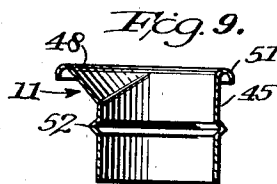
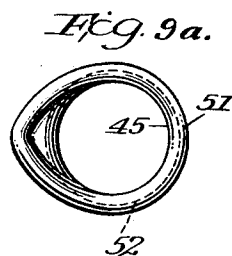
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2,293,610

METHOD OF MAKING SPOUTS

Original Filed March 22, 1937

437 *Fig. 1.*



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UNITED STATES PATENT OFFICE

2,293,610

METHOD OF MAKING SPOUTS

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Original application March 22, 1937, Serial No. 132,436. Divided and this application March 4, 1941, Serial No. 381,719

4 Claims. (Cl. 113—116)

The present invention relates to a new method of making pouring spouts for containers, and is a division of my prior application Serial No. 132,436, filed March 22, 1937, now Patent No. 2,252,468.

A primary object of the invention is to provide an improved method of making a pouring spout having a substantially dripless pouring lip and a continuous surface adapted to receive a closure which seals the spout entirely around the same and more particularly over the pouring lip, to effect an efficient sealing of the contents of the container.

In the production of a spout having a pouring lip, it is desirable that the lip be so formed as to insure the free pouring of the contents of the container with a minimum of dripping, and at the same time cooperate with a closure to insure an effective seal. The prior art discloses spout constructions which have pouring lips and depending flanges surrounding the spouts and lips and provided with closure engaging means. These flanges are usually interrupted, such as being cut away or depressed at the pouring lip to insure a minimum of dripping after the pouring operation. I have found, however, that this advantage is nullified by decreasing the efficiency of the sealing action. That is, the cutting away or depressing of the spout flange at the pouring lip causes leakage and does not provide the effective seal that is obtained by the use of an unbroken uniform skirt or flange. The present invention is designed to obviate these objectionable features by providing a spout construction wherein the pouring lip is dripless and at the same time insures an effective seal between the spout and closure. This is accomplished by forming the spout with a pouring lip and a depending flange surrounding the spout and lip and terminating in a uniform edge spaced from the wall of the spout.

The invention of this application relates primarily to a novel sequence of steps employed in forming, from a flat blank of sheet metal, a pouring spout having the desired characteristics.

In the drawing, a specific embodiment of the method of the present invention is illustrated somewhat diagrammatically, by showing the successive steps in the method, by reference to the condition of the blank at successive stages.

In the drawing:

Figure 1 is a side elevation of a flat sheet metal blank on which the spout of the present invention is made.

Figures 2-9, both inclusive, are vertical sec-

tional views of the blank at successive stages in the manufacture of the spout, the completed article being shown in Fig. 9.

Figures 2a-9a, both inclusive, are plan views corresponding, respectively, to Figures 2-9.

The pouring spout made by the method of the present invention is shown in Figure 9 of the accompanying drawing and is described in detail in my prior application referred to above, of which the present application is a division, namely, Serial No. 132,436, filed March 23, 1937. For a more complete description of the structure of the spout and of a cap adapted to cooperate therewith, reference is made to that application. In my application Serial No. 195,405, filed March 11, 1938 (now Patent 2,126,651, August 9, 1938), still another form of cap, adapted to cooperate with substantially the identical spout construction, is disclosed and reference is made to that patent for a complete description of a preferred form of cap, adapted for use with the spout made in accordance with the method of the present application.

The spout 11 is provided with a pouring lip 48 which extends outwardly past the circular contour of the spout. The upper end of the spout is provided with an outwardly and downwardly curled flange 51 entirely surrounding the spout and pouring lip and providing a continuous sealing surface. The flange 51 is unbroken and substantially uniform in construction and it is not interrupted, depressed or cut away at any point throughout its contour. By providing a circumferentially continuous spout flange, there is assured a uniform seal circumferentially of the pouring lip. Preferably, the flange is of uniform width circumferentially of the spout, thereby assuring a uniform seal around the pouring lip. Further, the substantially sharp, lower edge of the flange 51 below the pouring lip 48 forms an efficient, dripless pouring spout.

Referring now to Figures 1-9a, there is disclosed the method of forming the spout 11. These figures illustrate the successive steps in the formation of the spout from the flat circular blank 43 shown in Figure 1. Several drawing operations are initially performed on this blank, the first operation blanking out the metal to the form shown in Figures 2 and 2a. In these views, the blank has been formed into a substantially hat shaped article 44 having a cylindrical wall 45 provided with a bottom 46, the upper extremity of the wall terminating in a flat annular flange or brim 47. The subsequent drawing operation is for the purpose of reducing the diameter of

the cylindrical portion 45 such as disclosed in Figures 3 and 3a.

The next step comprises the formation of the pouring lip 48, this lip being pressed from portions of both the cylindrical wall 45 and the flange 47, as illustrated in Figures 4 and 4a. The cup is then pierced or punched to remove the greater portion of the bottom 46 of the cup, this operation leaving a slightly inturned flange 49, as shown in Figure 5. In the next step, this flange is straightened out as at 50 in Figure 6 to form a portion of the cylindrical wall 45 and completely eliminate any base or bottom wall to the spout.

In the next operation, as shown in Figures 7 and 7a, the flange 27 is trimmed to its final dimensions, after which it is bent or rolled to provide an uninterrupted depending skirt 51, as shown in Figures 8 and 8a. As clearly described in the specification of the parent application referred to above, it is quite important that this flange bending or rolling operation produce a uniform upper sealing surface extending in substantially a single plane to permit this surface to cooperate with a cap to provide an efficient seal between these two elements. It is also important that the depending skirt portion be continuous and interrupted in order that it may cooperate with the flange of the cap to retain the sealing surfaces in operative relation. If desired, the spout may undergo a further operation in order to form an annular jaw bead 52 on the cylindrical portion 45.

It must be understood that the present invention is not limited to the specific method steps outlined above, nor to the particular sequence of steps, but, on the other hand, covers all methods coming within the scope of the appended claims and their equivalents.

I claim:

1. The method of forming a container spout which comprises forming from a flat blank, a cup-shaped article having a flat outwardly projecting annular flange at its open end, forming a pouring lip by moving outwardly a portion of the cup side wall and the flange while maintaining the flange flat, punching the bottom from the cup, and finally shaping the flange to form a continuous depending skirt surrounding the spout and pouring lip and having a free edge spaced therefrom, the upper portion of the flange at its line of junction with the spout and pouring lip being maintained planar.

2. The method of forming a container spout

from sheet metal which comprises drawing out a flat blank to provide a cylindrical body having a flat, outwardly projecting annular flange at its upper end and a closed bottom, forming a pouring lip by moving outwardly a portion of the body and the flange at one side thereof while maintaining the flange flat, punching out of the bottom a centrally positioned, circular opening of less diameter than the bottom, drawing and punching the remainder of the bottom into a cylindrical continuation of the body, trimming the annular flange to make the same of substantially uniform width, and bending and shaping the flange to form a skirt depending uniformly and uninterruptedly from the line of junction of the flange with the body and pouring lip, while maintaining said line of junction in a single plane.

3. The method of forming a pouring spout for a container which comprises drawing from a flat sheet of metal, a cup-shaped blank having a cylindrical body and a flat, outwardly projecting annular flange at its open end, enlarging the open end of the cup at one side thereof by moving a portion of the metal in the flange and the side wall laterally and outwardly at that side while maintaining the remainder of the cup in its original cylindrical form and while maintaining the flange flat, thereby forming a pouring lip, punching out the bottom of the cup, and curling the flange downwardly to provide a rounded marginal sealing surface, while maintaining the upper end of the same in a single plane extending around the body and the pouring lip.

4. The method of forming a pouring spout for a container which comprises drawing from a flat sheet of metal, a cup-shaped blank having a circular cylindrical body, a closed end and a flat, outwardly projecting annular flange adjacent the open end, pressing a portion of the metal in the flange and the body outwardly and laterally at one side while maintaining the flange flat, thereby forming a laterally projecting, inclined pouring lip, punching out the bottom of the cup, trimming the flange to substantially oval shape with its outer margin spaced substantially equally at all points from its inner margin continuously around the body and lip, and turning the flange downwardly uniformly around the body and lip while maintaining the line of junction of the flange with the body and lip in a single plane to provide a uniform sealing surface around the spout.

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