Nov. 19, 1929. M. J. WELLING 1,736,422

METHOD OF FORMING CAN TOPS

Original Filed March 31, 1927 2 Sheets-Sheet 1

Fig. 1

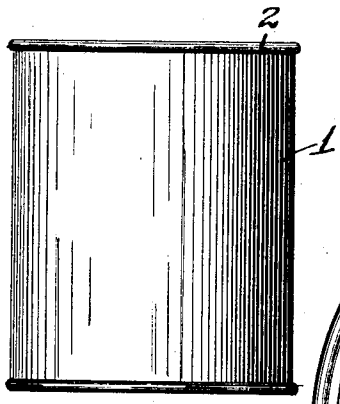


Fig. 2

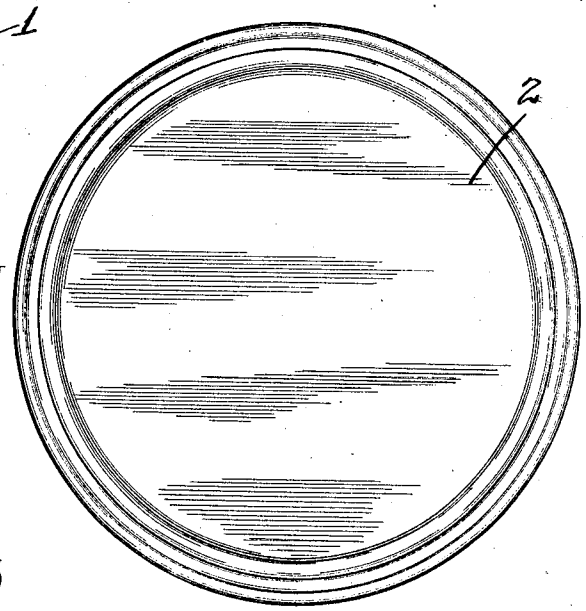


Fig. 3

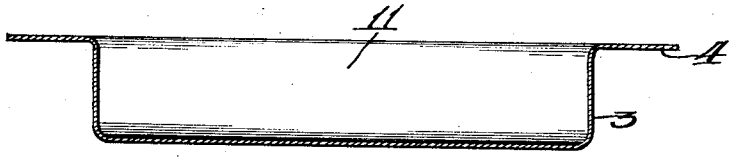


Fig. 4



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Fig. 5



Fig. 6

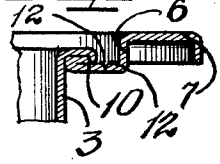


Fig. 7

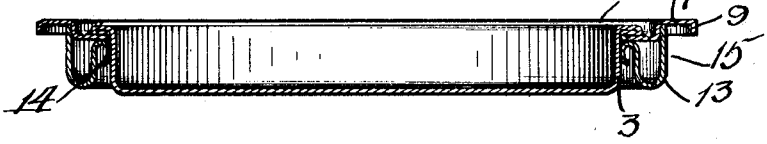


Fig. 8

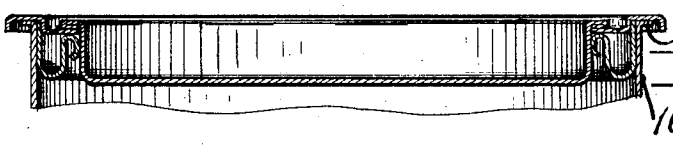


Fig. 9

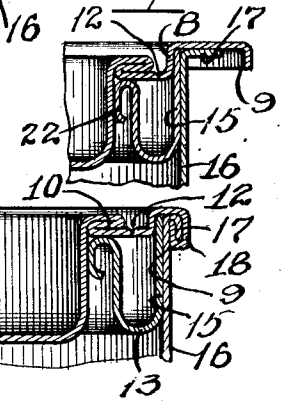


Fig. 10

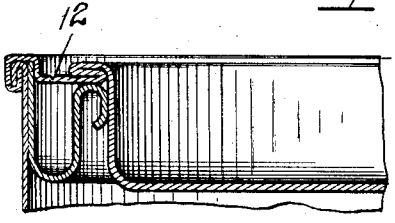
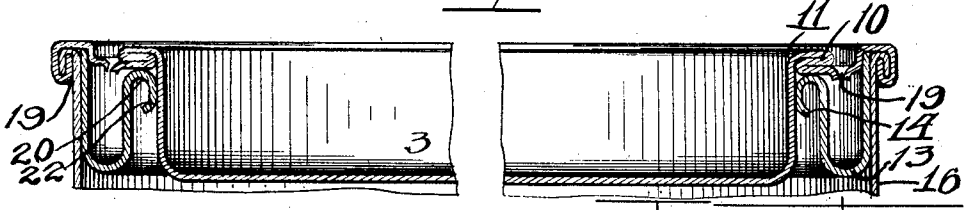


Fig. 11



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Patented Nov. 19, 1929 1,736,422

UNITED STATES PATENT OFFICE

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METHOD OF FORMING CAN TOPS

Original application filed March 31, 1927, Serial No. 179,829. Divided and this application filed July 11, 1927. Serial No. 204,768.

This invention relates to a method of forming can tops.

As pointed out in my copending application entitled "Can top", Serial No. 179,829, filed March 31, 1927, of which the present application is a division, it is often desirable that a can be absolutely sealed until the contents are to be used, and that then a relatively tight fitting cover be provided that may be readily removed and replaced during further intermittent use of the can and contents.

It is accordingly an object of this invention to provide a method of forming a can top answering these requirements, that may be employed in large scale manufacture.

It is a further object of this invention to provide a method of forming a can top adapted to serve as an air-tight seal for the can until the can is opened for use, and adapted thereafter to be severed along a pre-weakened line, the cap so produced serving as an auxiliary friction cover.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is an elevational view of a can having the top embodying the principles of my invention.

Figure 2 is an enlarged top plan view of the same.

Figures 3 to 5 inclusive are cross sectional views of a can top illustrating various steps in the process of making the same.

Figure 6 is an enlarged sectional detail view of Figure 5.

Figures 7 and 8 are similar cross sectional views illustrating successive steps in the process of making the can top.

Figure 9 is an enlarged sectional detail view of Figure 8.

Figures 10 and 11 are enlarged broken cross sectional views showing the can top sealed to a can and showing the can top severed from the can respectively.

As shown on the drawings:

The reference numeral 1 indicates a can of standard cylindrical form having secured thereto a top 2 embodying the principles of this invention. While the construction of the can top 2 is more particularly adapted for use with cans containing material adapted to deteriorate when exposed to the air, such as paint, hygroscopic food, candy, and the like, it will be understood that a can top of the construction about to be described is advantageous for use with any type or form of can, whether square or round, wherein it is important that the can be sealed until ready for use and thereafter the can cover be capable of easy removal and replacement during subsequent intermittent use of the contents.

In forming a can top 2, a disk indicated as a whole by the reference numeral 11 of sheet metal, preferably circular in form, is first stamped or pressed to provide a downwardly extending dished portion 3 (Figure 3) having an upper laterally extending plane flange 4. The flange 4 is then bent (Figure 4) by means of suitable dies to provide an inner upstanding fold 5 and outer concentric oppositely facing annular grooves 6 and 7. Between said annular grooves 6 and 7 there is formed a shoulder 8. The outer annular groove terminates in a downwardly extending flange or edge 9.

In the next step in the process, as illustrated by Figure 5, the upstanding fold 5 is bent outwardly and flattened upon itself to form a double fold 10, serving as a reinforcing upper edge for the dished portion 3. The disk 11 is next, or simultaneously, subjected to a scoring operation to provide a score or groove 12 (Figure 6) in the bottom of the annular groove 6. Said score 12 is preferably closely adjacent the outer edge of the double fold 10.

A separately formed member 13, comprising an annular ring of substantially S-shaped cross section, is next stamped from a single piece of sheet metal. Said annular ring member 13 is provided with an inner downwardly extending wall 14 bent under as at 22, defining an opening substantially equal in diameter to the diameter of the dished portion 3, said opening being adapted to receive

said dished portion 3 and the wall 14 to resiliently and frictionally engage the vertical wall of said dished portion 3. When said annular ring member 13 is properly positioned upon the disk 11 (Figure 7), the outer vertical leg 15 of said annular ring 13 extends into the groove 7 and engages against the shoulder 8. The disk 11 and annular ring member 13 are now in resilient and frictional engagement with each other but relatively separable.

The structure thus formed comprising the disk 11 and annular ring member 13 is next inserted into the open end of a can body 16 having an upper laterally extending flange 17 adapted to be received in the groove 7 (Figure 8). When so combined, the vertical leg 15 of the annular ring 13 (Figure 9) lies between the shoulder 8 and the upper edge of the can body 16 and is rigidly held in such position by reason of the tight fit.

The downwardly extending flanged edge 9 of the disk 11 is next folded around the flanged edge 17 of the can body 16 and both of said flanged edges turned downwardly (Figure 10) to provide a sealed edge 18. The can is now absolutely sealed against the admission of air or moisture to the interior thereof and is intended to remain in this condition until the contents of the can are to be used. At that time the disk 11 is severed along the scored line 12 to provide a rupture 19. The dished member 3 is now readily detachable from the can by prying the reinforced edge 10 upwardly, thus releasing said dished portion 3 from frictional engagement with the wall 14 of the annular ring member 13. There is thus provided by the dished portion 3 an auxiliary friction cap or cover that may be readily removed and replaced during the further life of the can.

In addition to the obvious advantages which the can top structure above described possesses, it has certain peculiar advantages where employed on cans for use as paint containers. In such event, the rounded inner wall 20 (Figure 11) of the annular ring member 13 serves as a scraper for the paint brush and because of its smooth contour, has no tendency to cut the paint bristles or pull the bristles out of the brush.

I am aware that numerous details of the method may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. The method of making a can top which comprises stamping a disk of sheet metal to form a centrally dished member having a laterally extending plane flange, bending said flange to form an inner upstanding fold and outer concentric oppositely facing annular grooves, flattening said upstanding fold into the inner of said annular grooves and scoring the bottom of said inner annular groove.

2. The method of making a can top, which comprises stamping a circular disk of sheet material to form a centrally dished member having a laterally extending plane flange, bending said flange to form an inner upstanding fold and outer concentric oppositely facing annular grooves, flattening said upstanding fold into the inner of said annular grooves, scoring the bottom of said inner annular groove, frictionally engaging a ring of S-shaped cross section on the outside of said dished member, inserting the structure so formed into the open end of a can and sealing the outer edges of said dished member flange to the can edge with said ring resiliently and frictionally held between said dished member and the can wall.

3. The method of making a can top, which comprises stamping a circular disk of sheet material to form a centrally dished member having a laterally extending plane flange, bending said flange to form an inner upstanding fold and outer concentric oppositely facing annular grooves, flattening said upstanding fold into the inner of said annular grooves, scoring the bottom of said inner annular groove, frictionally engaging a ring of S-shaped cross section on the outside of said dished member, inserting the structure so formed into the open end of a can, having an upper flanged edge adapted to be received in the outer of said annular grooves, said ring being frictionally and resiliently held between said dished member and the can wall, and folding the flanged edges of said dished member and can upon each other to seal said dished member to the can body.

4. The method of making a can top which comprises forming a disk of sheet metal with a circular dished portion and a laterally extending flange, forming said flange into a reenforcing thickened annular upper edge for said dished portion and an annular shoulder intermediate said edge and the edge of the flange and inserting over said dished portion a deeply grooved ring member adapted to frictionally engage said dished portion and extend against said shoulder.

5. The method of making a can top which comprises forming a disk of sheet metal with a circular dished portion and a laterally extending flange, bending said flange to form a reinforcing thickened annular upper edge for said dished portion and an annular shoulder intermediate said edge of the flange, inserting over said dished portion a deeply grooved ring member adapted to frictionally engage said dished portion and extend against said shoulder and scoring the flange between said reenforcing edge and said shoulder.

6. The method of making a can top which comprises forming a disk of sheet metal with a circular dished portion and a laterally ex-

tending flange, bending said flange to form a reinforcing thickened annular upper edge for said dished portion and an annular shoulder intermediate said edge and the edge of the flange and inserting over said dished portion a deeply grooved ring member adapted to frictionally engage said dished portion and provided with a vertical can engaging wall extending upwardly against said shoulder.

7. The method of making a can top, which consists in forming a disk into a dished portion and a laterally extending flange, forming the flange into oppositely disposed grooved portions, flattening one of the sides of the inner grooved portion upon the base thereof to reinforce the top at the dished portion, and scoring the said base of the inner grooved portion so that said dished portion may be severed from the outer grooved portion after said letter portion has been seamed to a can.

8. The method of making a can top and securing it to a can, which consists in forming a disk with a circular dished portion and a laterally extending flange, forming the flange into oppositely disposed grooved portions, applying a resilient ring member to the dished portion below the inner of said grooved portions, inserting said dished portion and ring member in the can with said ring member disposed between the dished portion and the wall of the can and with the upper edge of said can extending into the outer grooved portion, and seaming said grooved portion to the upper edge of the can to fasten the dished portion and ring member to the can.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

MATTHEW J. WELLING.