Aug. 1, 1933. J. M. YOUNG 1,920,288

CONTAINER CLOSURE

Filed July 10, 1929

Fig. 1

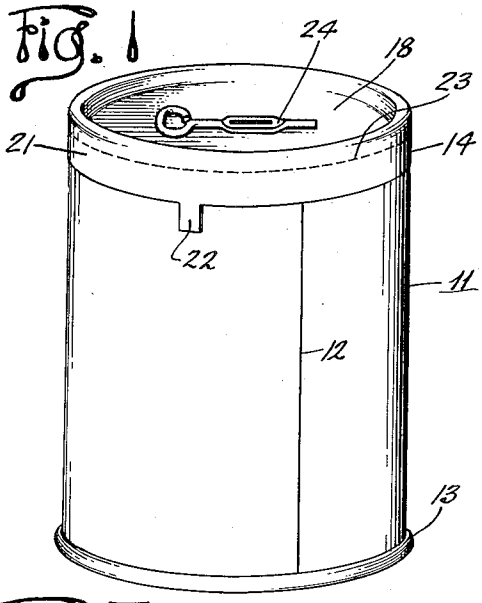


Fig. 3

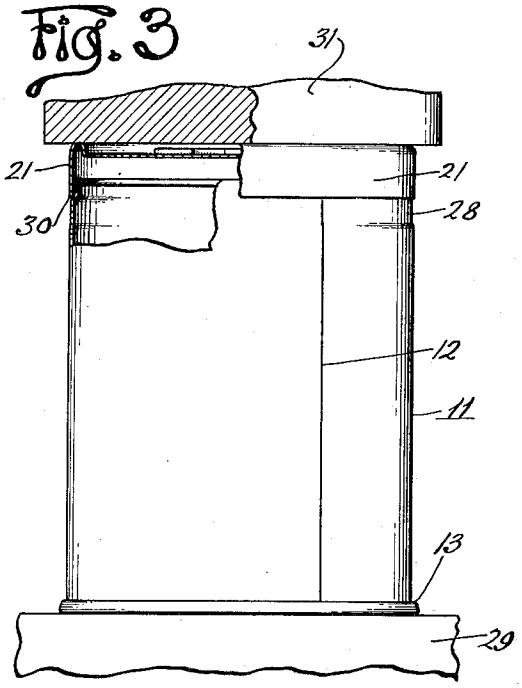


Fig. 7

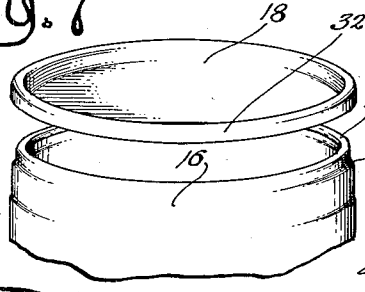


Fig. 4

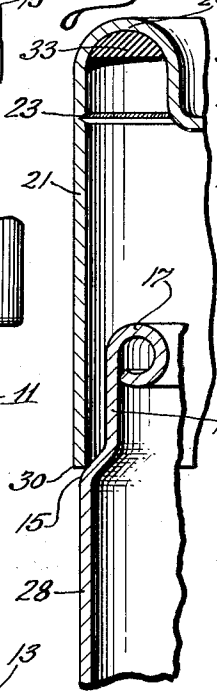


Fig. 5

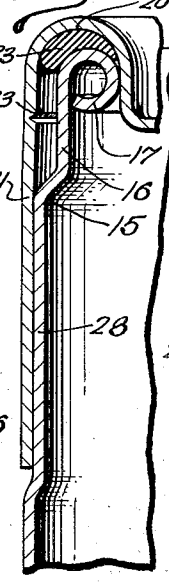


Fig. 6

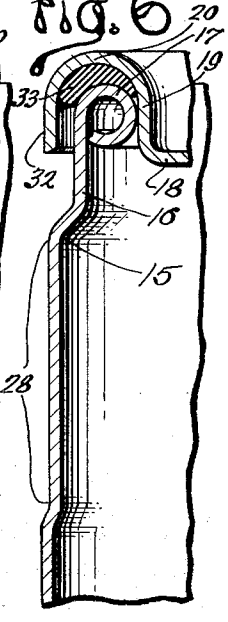
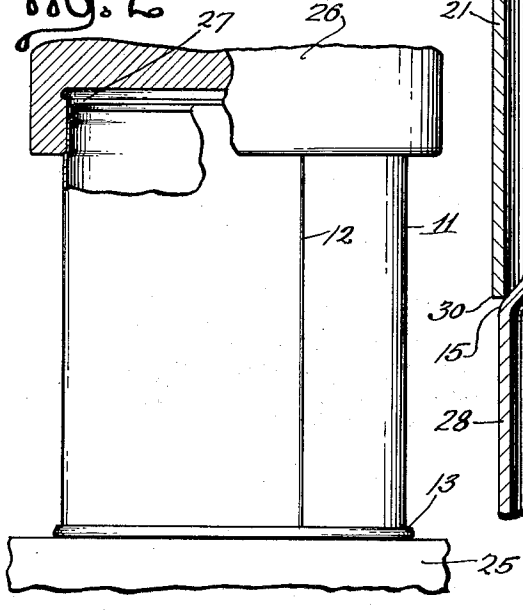


Fig. 2



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UNITED STATES PATENT OFFICE

1,920,288

CONTAINER CLOSURE

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Application July 10, 1929. Serial No. 377,145

7 Claims. (Cl. 220—54.)

This invention relates in general to containers, and more particularly to an improved end closure which is easily and effectively applied to a container body by a novel method and is readily removed therefrom.

An object of my invention is the provision of an improved end closure which has a scored depending flange and which utilizes the inherent elasticity of the metal of the flange to produce a very tight drive fit connection between it and a portion of a container body which has a predetermined size, and which connection resists disengagement except by severance of the flange along the score line.

Still another object of my invention is the provision of an improved drawn end closure having a depending flange or skirt with a score line defining a tearing strip, and which is applied to the container body by forcing or driving the depending flange, which has a predetermined relatively small diameter, over a container part of predetermined size of a larger diameter than said flange, thereby stretching the metal of the flange or skirt within its elastic limits over the sealing area of the body to produce a permanent connection therebetween which can be made hermetic by the addition of a gasket or compound lining between the container top and the end closure.

Still another object of my invention is the provision of an improved drawn end closure of simple construction which has a score line defining a tearing strip and an integral tongue extension, and which may be readily opened by means of a slotted key which may be conveniently attached to the countersunk panel of the end closure.

Another object of my invention is the provision of an improved drawn end closure which is assembled and opened in the manner described, and which, after opening, is adapted to be used as a convenient reclosure.

Still another object of my invention resides in the method of assembling my improved drive fit tearing strip closure by means of simple and inexpensive pressure closing mechanisms.

Numerous other objects of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Fig. 1 is a perspective view of one type of container to which my invention is applicable.

Fig. 2 is an elevational view with parts broken away to show the sizing of the container body by means of a die mechanism.

Fig. 3 is a view similar to Fig. 1 showing the relative position of the end closure and body before the former is forced over the latter by a die mechanism.

Fig. 4 is an enlarged, cross sectional view showing the same relative position of body and closure as in Fig. 3.

Fig. 5 is a view similar to Fig. 4 showing the end closure fully forced home over the sealing area of the container body.

Fig. 6 shows the relative position of the end closure and container body after the tearing strip has been removed.

Fig. 7 is a fragmentary perspective view showing the reclosure separate from the container.

To illustrate a preferred embodiment of my invention I have shown on the drawing a metal container comprising a cylindrical body 11 having a side seam 12, a bottom closure 13, and a top closure 14.

The upper part of the container body 11 is bent inwardly at 15 to form a reduced annular neck or vertical wall portion 16, and the latter has its extremity bent inwardly, downwardly, and outwardly to provide a rounded top curl 17.

The top closure 14 comprises a sunken panel 18, a vertical wall part 19, a rounded shoulder or recess 20, and a depending flange or skirt 21 having an integral tongue extension 22. A short distance below the shoulder 20 and approximately on a level with the panel 18, the skirt or depending flange 21 is scored interiorly to provide a line of severance 23 for a tearing strip defined by the score line 23 and the bottom edge of the annular skirt 21. This tearing strip is adapted to be torn away from the remainder of the cover by means of a slotted key 24 secured to the panel 18 in any suitable manner, the slot of the key being adapted to engage the tongue 22 and the key constituting means for removal of the tearing strip and release of the cover.

To obtain the best sealing results from my improved closure it is desirable to have the sealing area of the body of substantially accurate predetermined diameter. This can be accomplished by die action, and one way of accomplishing this sizing of the container body 11 is illustrated in Fig. 2 wherein the container body is shown positioned between a support or lower chuck 25 and an upper chuck or ring die 26 having a recess 27 of a diameter which is precisely equal to the desired diameter of the sealing area 28 of the container body 11, so that when the

sizing die 26 is forced down upon a container body 11, which has been placed in concentric alignment with the recess 27, the container body is brought to a predetermined diameter around the peripheral sealing area 28.

Referring now to Fig. 3, the finished and sized can body 11 is shown positioned upon a lower support or chuck 29 which may be the same part of the same machine as chuck 25 or part of another machine. The top closure 14 is placed over the open container body with the edge 30 of its depending flange 21 touching the upper extremity of the sealing area 28 at the neck bend 15, and the closure 14 is now ready to be forced or driven home over the sealing area 28 by means of an upper pressure member 31, actuated by any suitable mechanism (not shown), engaging and pressing down upon the outer rim of the shoulder or recess 20. Considerable pressure must be exerted by the member 31 to force and stretch the metal of the depending flange 21, within its elastic limits about the body sealing area 28.

In all cases, the inner diameter of the depending flange 21 is smaller than the outer diameter of the sealing area 28. How much smaller, depends upon the weight of the sheet metal stock used and other varying or desired conditions. When the flange 21 has been fully driven home over the sealing area 28 of the body, a tight metal to metal seal has been created between the body and the closure.

The closure 14 may be made hermetic by placing a gasket or lining compound 33 in the closure recess 20, as clearly illustrated in Fig. 4. When the closure 14 is forced into sealing engagement with the can body, this lining compound or gasket 33 is squeezed between the top surface of the curl 17 of the body and the inner surface of the closure recess or channel 20 and the closure is thus made both liquid and air tight.

In order to conveniently open my improved closure, the tearing tongue 22 is engaged by the slotted key 24 and, tearing along the score line 23, the tearing strip is rolled upon the key 24 in the usual manner. Thereby the stretched part of the cover flange is severed and the cover released. When the container has been opened by the removal of the tearing strip the remaining parts of the closure 14, as shown in Figs. 6 and 7, may be employed as a reclosure, the depending flange 32, which remains of the flange or skirt 21 after removal of the tearing strip, and the wall part 19 being adapted to engage the curled top 17 of the container.

It should also be pointed out here that instead of the sheet metal container body 11, a container body of glass or other solid material having a sealing area of uniform predetermined size can be employed in connection with my improved closure without departing from the spirit and scope of my invention.

The method of producing this container is not claimed herein but is claimed in my application, a division hereof, filed June 27, 1933, Serial No. 677,927.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of the parts, without departing from the spirit and scope of the invention, or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a container, a container body having a sealing area of predetermined diameter, a cover for said container having a depending flange of substantial width and predetermined smaller diameter than said sealing area, and having a portion providing a tearing strip, said flange being adapted to be stretched within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter, said flange being in a condition of tension to the point that the cover is permanent with and irremovable from the body.

2. In a container, a container body having a sealing area of predetermined diameter and a reduced part above said sealing area, a cover for said container having a depending flange of substantial width and predetermined smaller diameter than said sealing area, and having a score line defining a tearing strip, said flange being adapted to be stretched within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter and also adapted to be severed along said score line to open said container, the removal of said tearing strip severing and releasing said stretched part of the cover flange.

3. In a container, a container body having an annular sealing area of predetermined diameter and an annular reduced part above said area, a cover for said container having a depending flange of substantial width and predetermined smaller diameter than said sealing area, and having a score line defining a tearing strip, said flange being adapted to be stretched within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter and also adapted to be severed along said score line to open said container and provide a reclosure, the removal of said tearing strip severing and releasing said stretched part of the cover flange.

4. In a container, a container body having an annular sealing area of predetermined diameter and a reduced neck portion above said area terminating into a rounded inwardly curled top, a drawn cover having a rounded recess in alignment with said top, a gasket material in said recess, said cover also having a depending flange of substantial width and predetermined smaller diameter than said sealing area, a score line defining a tearing strip in said depending flange, said flange being adapted to be stretched within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter, and also adapted to be severed along said score line to open said container, the removal of said tearing strip severing and releasing said stretched part of the cover flange.

5. In a container, a container body having a sealing area of predetermined diameter, a drawn cover for said container having a depending flange of substantial width and predetermined smaller diameter than said sealing area and having a score line defining a tearing strip, said flange being adapted to be expanded within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter, and also adapted to be severed along said score line to open said container, the removal of said tearing strip severing and releasing said stretched part of the cover flange, said cover after said tearing strip has been removed, being adapted to serve as a reclosure.

6. In a container, a container body having an annular sealing area of predetermined diameter

and a reduced neck portion above said area, a drawn cover having a depending flange of substantial width and predetermined smaller diameter than said sealing area, and having a score line defining a tearing strip, said flange being adapted to be expanded within the limits of its elasticity by forcing the same over said area to form a tight seal with the latter, and also adapted to be severed along said score line to remove said tearing strip, the removal of said tearing strip severing and releasing said stretched part of the cover flange, said reduced neck portion being adapted to receive said severed cover as a reclosure.

7. In a container, a container body having a sealing area of predetermined diameter, a cover having a depending flange of predetermined smaller diameter than said area, said flange having a tongue extension, a score line in said flange defining a tearing area between it and the edge of the flange, said body and cover being assembled by stretching said flange over said sealing area in a drive fit and means for engaging said tongue and removing said tearing area to release the cover from said drive fit.

JOHN M. YOUNG.