Dec. 17, 1929. A. C. SPAHN 1,739,659

CLOSURE CAP

Filed Feb. 10, 1928

Fig. 1

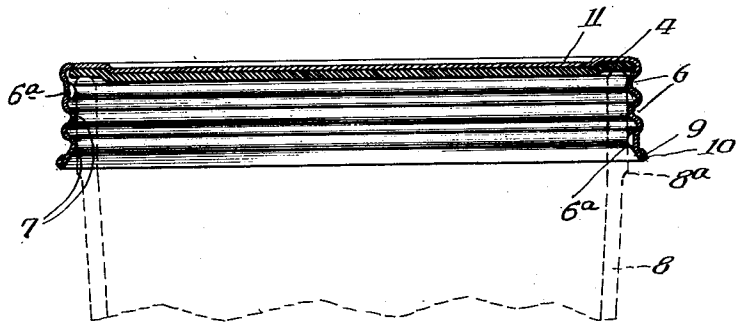
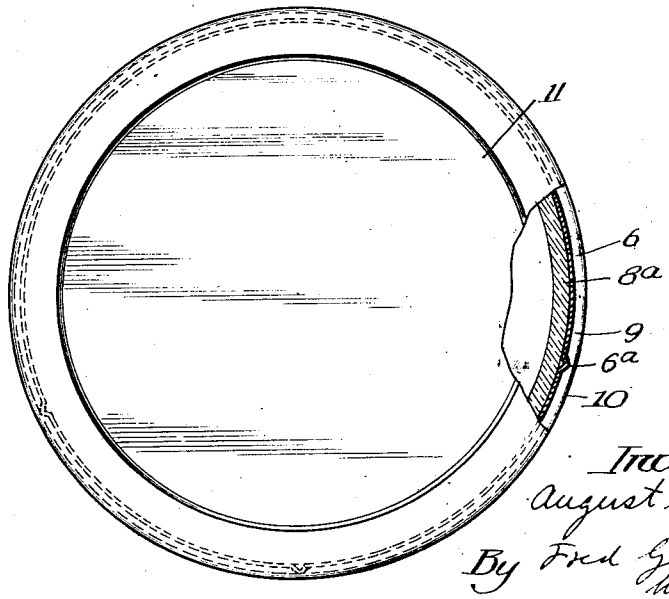


Fig. 2



Fig. 3



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UNITED STATES PATENT OFFICE

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CLOSURE CAP

Application filed February 10, 1928. Serial No. 253,308.

The invention relates to closure caps of the type which are adapted to frictionally grip a substantially straight cylindrical side wall adjacent the upper end of a rigid container.

The object of the invention is to provide a cap of this type which will be securely held by friction against the side wall of the container, and which is provided with means to permit fluid under pressure to escape, while the cap is being applied to the container.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a vertical section of a cap embodying the invention. Fig. 2 is a side elevation. Fig. 3 is a plan, a portion of the cap being broken away.

The invention is exemplified in a cap formed of slightly resilient sheet metal, and comprises a top wall 4 and a depending integral annular skirt 5. The skirt is formed with a series of annular corrugations 6 having inner and outer reversely curved crowns. There are sufficient of these corrugations to form a plurality (preferably three) of inner crowns to form substantially continuous annular frictional container-gripping surfaces 7 which are spaced apart vertically, so that the straight wall portion 8^a of the container 8 will be frictionally gripped on lines or zones spaced apart vertically. The lower margin of the skirt extends outwardly from the lowermost gripping surface 7, as at 9, and its lower edge is doubled upon itself, as at 10, to form a reinforced or stiffened lower edge. A disk 11 of paraffin paper or other suitable material is interposed between the upper margin of the rim of the container and the top 4 of the cap, as well understood in the art.

The gripping surfaces 7 are vertically aligned, so that normally they all frictionally grip the container with substantially the same force. By providing a plurality of these gripping surfaces, the gripping force will be cumulated according to the number of such surfaces, so that the cap will be securely held on the container.

In applying friction caps to containers which are filled with hot material, such as jelly, it is advantageous to provide a vent to permit the pressure to escape from the container while the material is cooling, and until the cap is seated in its final position on the container. For this purpose, each of the corrugations 6 is vertically indented, as at 6^a. These indentations are out of vertical alignment or relatively staggered so the fluid will escape through the upper indent 6^a, thence through the annular space or channel between the two upper gripping surfaces 7, thence through the indent 6^a in the central gripping surface 7, thence through the channel between the two lower surfaces 7, and thence through the indent 6^a in the lower gripping surface 7. By forming the indent 6^a out of vertical alignment or staggering them, the fluid is caused to pass circumferentially and vertically around the container so that the stream will not be localized on the container. Furthermore, the slight interruptions in the gripping surfaces caused by the indents are out of vertical line, so that there will be no ungripped portion of the container extending vertically throughout the length of the skirt of the cap.

In practice, when it is desired to remove the cap, it is customary to strike the lower edge 9 of the cap to produce a peening effect on the metal forming the gripping surfaces which will cause them to relax sufficiently to permit the cap to be removed from the container. This striking of the margin has a more direct peening effect upon the metal forming the lowermost gripping surface and less of such effect on the surfaces located more remotely from the lower edge. As a result the resilience of the uppermost gripping surface will remain effective to frictionally grip the container after the cap has been removed and is replaced. If the container happens to be oversize, the cap can be removed by tapping the outer crowns of the upper corrugations as well as the lower edge. The corrugations are formed on comparatively short radii, so that the desired number of gripping surfaces may be provided without a skirt of unwieldy height.

The invention exemplifies a closure cap of the frictionally gripping type for straight cylindrical metal containers in which the frictional gripping of a plurality of annular surfaces against the straight side of the container is cumulated to securely retain the cap on the container in which provision is made for the escape of fluid under pressure while the cap is on, but not finally seated on, the container.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

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

1. A closure cap for containers having a substantially straight cylindrical side wall adjacent its upper end, comprising a top and a depending integral skirt of resilient metal, the skirt having annular corrugations with rounded inner crowns forming a plurality of substantially continuous annular frictional container-gripping surfaces which are spaced apart vertically, the inner crowns having deflections to form vent passages for the escape of pressure from the container while the cap is partially applied.

2. A closure cap for containers having a substantially straight cylindrical side wall adjacent its upper end, comprising a top and a depending integral skirt of resilient metal, the skirt having annular corrugations with rounded inner crowns forming a plurality of substantially continuous annular frictional container-gripping surfaces which are spaced apart vertically, the inner crowns having deflections out of vertical alignment and serially connecting the annular spaces between the gripping surfaces to form vent passages for the escape of pressure from the container while the cap is partially applied.

Signed at Evansville, Indiana, this 30th day of January, 1928.

AUGUST C. SPAHN.