

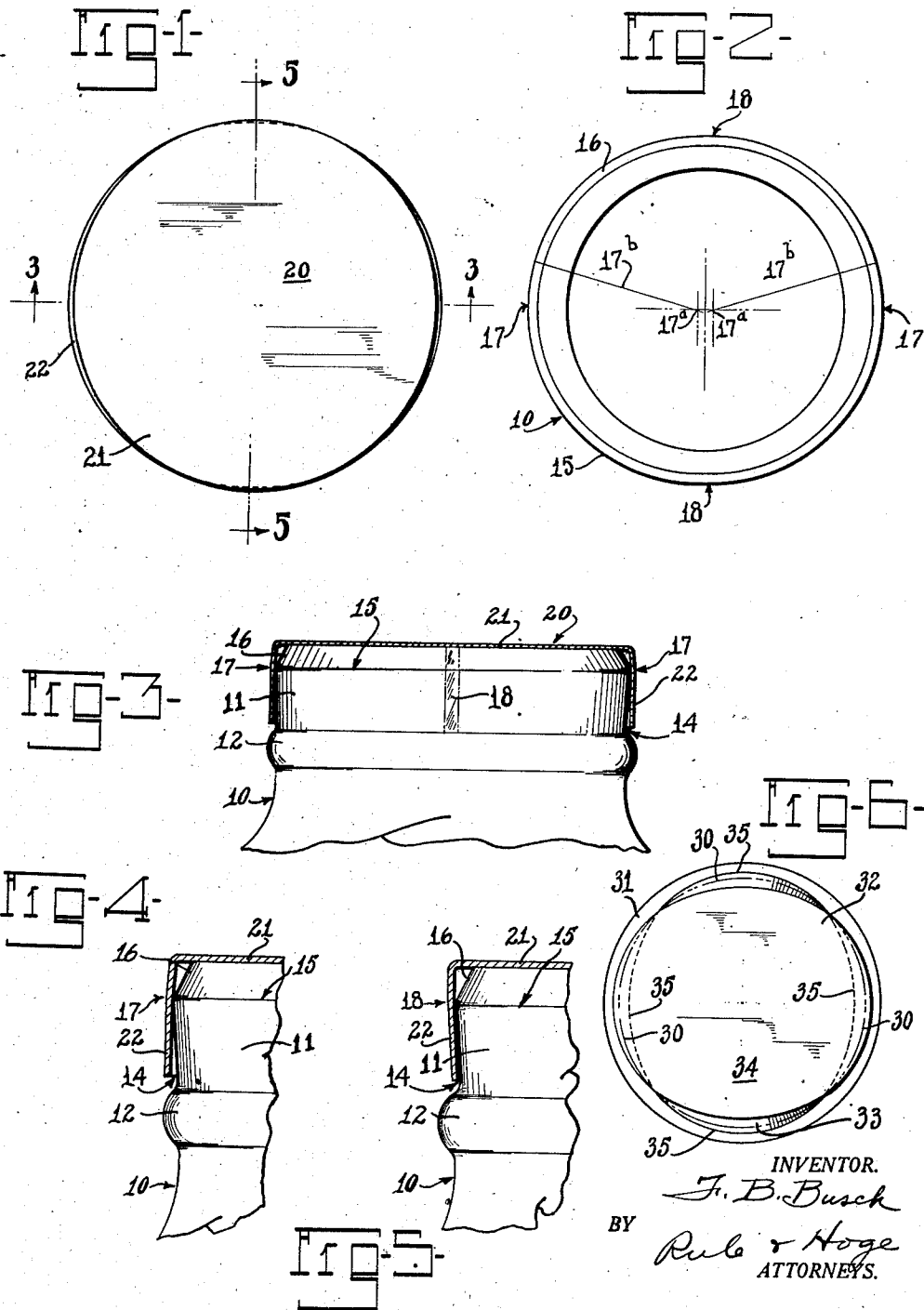
Sept. 6, 1938.

F. B. BUSCH

2,129,159

CONTAINER CLOSURE

Filed April 6, 1936



INVENTOR.
F. B. Busch
BY
Rube & Hoge
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,129,159

CONTAINER CLOSURE

Frank B. Busch, Toledo, Ohio, assignor to Owens-Illinois Glass Company, a corporation of Ohio

Application April 6, 1936, Serial No. 72,948

3 Claims. (Cl. 215—38)

The present invention relates to a closure for containers such as bottles, jars or the like and more particularly to a slip-over cover for such containers. It is an object of the present invention to provide a closure for bottles, jars or similar containers which may eliminate lugs and threads around the neck of the bottle and which may be taken off and replaced simply and speedily without destroying or wearing out the closure.

Another object of the present invention is to provide a closure which is inexpensive to manufacture and extremely simple in design. It is an aim to provide a cap which may be easily applied to and removed from a container but which remains securely in place when in position.

Other objects and advantages of the present invention will become apparent from the following description taken in conjunction with the drawing in which:

Fig. 1 is a top plan view of a cap shown in place on a container;

Fig. 2 is a top plan view of a container without the cap;

Fig. 3 is a fragmentary elevational view of a container having a cap fitting thereover, the cap being shown in cross-section taken along the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary enlarged cross-sectional view of the closure shown in Fig. 3;

Fig. 5 is a view similar to Fig. 4 taken at right angles thereto along the line 5—5 of Fig. 1; and

Fig. 6 is a diagrammatic top plan view of another embodiment of the present invention.

Referring more particularly to the drawing, reference character 10 designates an ordinary container such as a bottle, jar, can or the like. The top of the jar terminates in a neck 11 which may have an annular bead 12 running therearound. The upper portion of the neck above the bead 12 is preferably formed with an upwardly diverging flared portion 11 which, together with the bead 12, forms a shallow recess 14 immediately above the bead. A bevelled portion 16 is preferably provided around the upper margin of the neck, which bevelled portion, together with the flared portion 11 therebelow, forms an edge 15 which extends outwardly slightly beyond the remaining portion of the neck above the bead 12.

Referring to Figs. 1 and 2, it will be seen that the peripheral contour of the edge 15 is out of round, it being slightly elongated in the direction of the section line 3—3. The extent to which this out of round contour of the edge 15 may be carried downwardly into the neck below the edge

15 is arbitrary and the flared portion 11 may assume circular proportions at its junction with the bead or at a plane slightly thereabove. Irrespective, however, of these details in the manufacture of the bottle, the essential features of the invention are always preserved. As shown in Figs. 1 to 5 inclusive, eccentric center points 17a are taken and peripheral arcs having radii 17b are struck to form the outer margin and edge or bead 15. The ends of the arc are joined by parallel surfaces 18 (Figs. 2 and 3) which are preferably tangential to the arcs near the axis coincident with the cutting line 5—5. The diameter along this axis (Fig. 2) is accordingly shorter than the diameter along the longitudinal axis coincident with the section line 3—3 between the points 17.

The cap 20 having a circular top portion 21 and a depending skirt 22 is made to fit snugly over the neck 11. The perimeter of the skirt 22 is preferably substantially equal to the perimeter of the edge 15 or bead so that it is possible to slip the cap over the edge 15 by merely pressing it on. This cap 20 is preferably circular although broadly, for the purposes of this invention, it may be sufficient to form the cap with slightly different contours than the neck 11 or in such a manner that the skirt must be slightly sprung out of shape by the neck when it is fitted thereover.

When the cap is passed over the edge 15 and fitted onto the neck, as shown in Fig. 3, the skirt will be slightly distorted to conform to the contour of the neck 11, particularly the edge 15. The points 17 projecting outwardly slightly beyond the normal diameter of the skirt 22 will press the skirt outwardly slightly and cause it to bulge in the longitudinal axis of the out of round neck. This effect may be observed in Figs. 3 and 4 which show the skirt 22 flared outwardly from the neck 11 at this point.

Along the transverse axis, however, the lower edge of the skirt 22 is drawn and held inwardly to lie snugly against or in close proximity to the outwardly flared area of the neck 11. This effect may be observed in Fig. 5 and in Fig. 1. In the latter view, the underhanging portion of the skirt is shown in dotted outline.

The bevelled portion 16 also performs the function of enabling the cap to be more easily slipped into place. The taper on the bevelled portion above the edge 15 aids in spreading out the skirt 22 of the cap to conform with the contours of the edge 15. In addition, the bevelled portion 16 serves to locate the edge 15 a short distance below

the top edge of the container. In this way the outwardly projecting points 17 press against the skirt 22 at a short distance below the top portion 21 of the cap, at which place the bulging of the cap will be emphasized in the lower regions of the skirt 22, thus drawing the skirt inwardly against the flared portion 11 at diametrically opposed regions in the vicinity of the points 18.

It is to be observed that the transverse portions of the skirt underlap the adjacent portions of the edge 15. This aids in serving as a gripping or frictional holding means for the cap. The cap is preferably made of a flexible sheet metal construction which permits the same to be readily slipped over the neck and snapped into place. It is also to be observed that a circular contour for the cap or the jar permits the cap to be placed on the container regardless of its relative angular position. It will thus be possible to slip the cover in place and be assured of it springing into place properly irrespective of its angular position.

In Fig. 6 is shown an embodiment of such a closure in which the contours of the cap have been greatly exaggerated for the purpose of clarity. In this view the edge 30 of the bottle 31 is made substantially circular while the cap 32 is given an oval, elliptical or other out of round contour. The depending skirt 33 preferably conforms in horizontal cross-section to the contour of the top portion 34 of the cap 32.

The operation of this embodiment is similar to that shown in Fig. 1. As the cap is slipped over the neck of the bottle 31, the portions of the skirt at opposite sides of the smallest diameter are forced outwardly by the neck or edge 30. In so doing, the horizontal cross-section of the skirt which is held against the edge 30, tends to conform to the shape of this edge. The lower edge 35 of the skirt tends to bulge outwardly across the shortest diameter of the top 34. On the other hand, the lower edge 35 is drawn inwardly along its longest diameter to underlie a portion of the top 34. In this manner the cap 32 is held firmly to the bottle 31 by a novel slip-over engagement.

It is to be observed that in this embodiment, as in the embodiment shown in Fig. 1, the circular contour of the neck or edge 30 permits the cap to be placed on the bottle regardless of its relative angular position and be assured of a uniformly firm grip.

Modifications may be resorted to which are within the scope and spirit of the appended claims.

I claim:

1. In combination, a container having an annular wall defining a filling and discharging opening, an annular external bead on said wall, an annular external projecting edge on said wall above said bead, said bead and edge being spaced apart vertically to provide an annular recess therebetween in proximity to said opening, said edge being of non-circular contour, and a closure including a circular top portion and a depending resilient attached skirt adapted to be distorted by portions of said upper edge by and during application of the closure to the container, said skirt having portions projecting into said recess when the closure is positioned on the container.

2. The combination with a container provided with a neck defining a filling and a discharge opening, said neck being provided with an external outwardly projecting circumferential edge in the upper region thereof, the contour of said edge including two connected semi-circular portions, the respective centers of which are spaced apart a slight distance, of a closure therefor comprising a substantially circular top portion provided with a flexible depending annular skirt substantially cylindrical in form, said skirt being adapted to be telescoped over said edge so that said semi-circular portions engage the inner surface of said skirt in diametrically opposed regions thereof and cause the same to become bulged outwardly whereby other diametrically opposed regions of said skirt are drawn inwardly against said neck to frictionally maintain said closure thereon.

3. The combination with a container provided with a neck defining a filling and a discharge opening, said neck being provided with an external outwardly projecting circumferential edge in the upper region thereof, said edge being spaced below the upper margin of said neck, the contour of said edge being slightly out of round, of a closure therefor comprising a substantially circular top portion provided with a flexible depending annular skirt substantially cylindrical in form, the perimeter of said skirt being substantially equal to the perimeter of said edge, said skirt being adapted to be telescoped over said edge so that the portions of said edge which are most eccentric to the neck engage the inner surface of said skirt and cause the same to be bulged outwardly in the engaging regions thereof while the remaining regions of said skirt are drawn inwardly against said neck to frictionally maintain said closure thereon.

FRANK B. BUSCH.