

July 10, 1945.

C. W. GOODWIN ET AL

2,379,959

HOOD CLOSURE CAP

Original Filed April 26, 1941

Fig. 1.

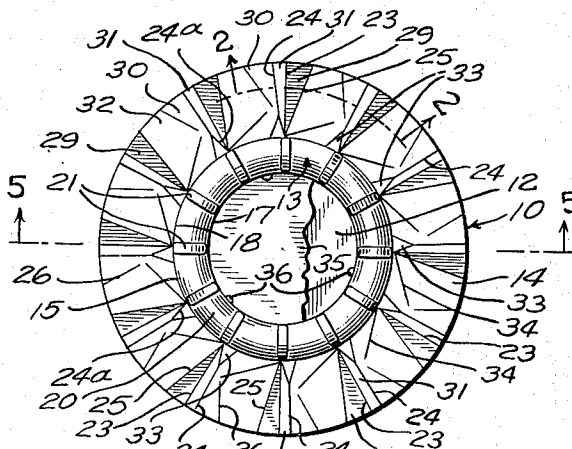


Fig. 2.

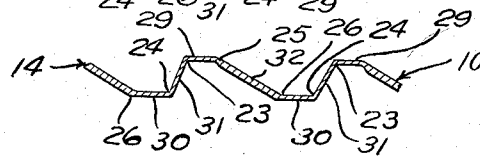


Fig. 3.

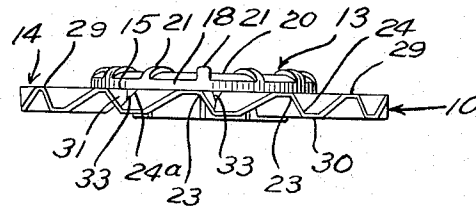


Fig. 4.

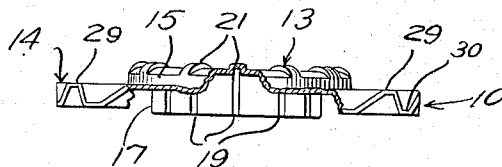
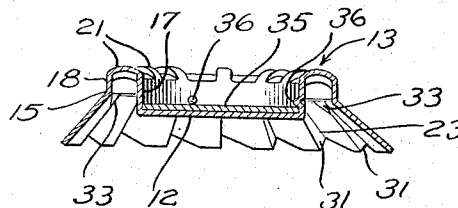


Fig. 5.



INVENTORS
CARL W. GOODWIN
HAROLD W. MARTIN
BY
W. H. Lock
ATTORNEY

UNITED STATES PATENT OFFICE

2,379,959

HOOD CLOSURE CAP

Carl W. Goodwin, North Plainfield, N. J., and
Harold W. Martin, Malvern, N. Y., assignors to
American Seal-Kap Corporation of Delaware,
Wilmington, Del., a corporation of Delaware

Original application April 26, 1941, Serial No.
390,468. Divided and this application Decem-
ber 12, 1942, Serial No. 468,792

3 Claims. (Cl. 215—38)

The present invention relates to hood caps.

This application is a division of my co-pending application Ser. No. 390,468, filed April 26, 1941, now Patent No. 2,325,161, dated July 27, 1943.

One object of the present invention is to provide a hood cap having new and improved characteristics.

Another object is to provide a new and improved hood cap of the general type referred to, which may be readily and effectively sealed onto a container such as a milk bottle.

Another object is to provide a new and improved hood cap having a skirt, which is creased, shaped and constructed to permit its easy, neat and effective shaping and sealing over the head of a bottle.

Various other objects and advantages of the invention will be apparent from the following particular description and from an inspection of the accompanying drawing, in which

Fig. 1 is a top plan view of a hood cap embodying the present invention.

Fig. 2 is a section of the cap taken on line 2—2 of Fig. 1.

Fig. 3 is a side elevation of the hood cap shown in Fig. 1.

Fig. 4 is a side elevation of the hood cap, with parts broken away to show the vent grooves; and

Fig. 5 is a section through a cap and disc taken along the line 5—5 of Fig. 1 but showing the skirt folded downwardly for stacking and applying to a bottle.

Referring to the drawings, the preferred hood cap 10 is made from a disc blank of suitable flexible material such as paper, having form sustaining rigidity to permit creasing and shaping. The cap 10 is creased and shaped to provide a depressed central bore closing diaphragm 12 adapted to enter snugly into the mouth of a bottle, such as the conventional milk bottle, and to seat on an internal ledge thereof, an annular pouring lip housing 13 of channel shaped cross-section, adapted to extend over the pouring lip of the bottle, and an outwardly extending fluted skirt 14, adapted to be contracted around the beaded lip of the bottle, and separated from said housing by an annular sharp crease line 15 along which said skirt is bent.

The pouring lip housing 13 has a pair of parallel side walls 17 and 18, and a top wall 20, bridging said side walls, and formed with raised radial ribs or corrugations 21 serving as reinforcements for said top wall. The inner side housing wall 17 is provided with a series of vent grooves 19,

to permit venting of the bottle in response to expansion of the contents thereof. The two side walls 17 and 18 may be skived to iron or smooth out any irregularities in the surfaces thereof.

5 The skirt 14 is creased sharply along substantially radial lines 23 and 24, and bluntly along lines 25 and 26, and is offset along these lines to form alternate ridges and furrows. Each adjoining pair of crease lines 23 and 25 define there-
10 between a flat triangular ridge top 29, with its apex near the annular crease line 15, and each adjoining pair of crease lines 24 and 26 define therebetween a flat triangular furrow base 30
15 with its apex near said annular crease line 15. These triangular skirt sections 29 and 30 extend substantially at right angles to the axis of the cap.

The side 31 of each ridge extends steeply downwardly between adjoining pairs of sharp crease lines 23 and 24, while the other side 32 extends
20 downwardly with a lesser slope towards the triangular base 30, to meet the respective blunt fold line 26. The lower crease line 24 is offset at its radially inner end 24a to meet the upper
25 crease line 23, so that the ridge sides 31 between lines 23, 24 and 24a in conjunction with the ridge top section 29 constitute the surplus pleat forming material of the skirt when contracted and pressed over a bottle head.

30 After the cap is made into the shape shown in Figs. 1 to 4, its skirt 14 is partially contracted along the crease lines 23, 24 and 24a, as shown in Fig. 5, to permit nesting and stacking of the caps. This partially contracted cap is then
35 finally contracted over the bottle head to form substantially triangular overlapping pleats diverging from the housing 13. The overlapping layers of these pleats may be secured together by a suitable adhesive.

40 In order to present a bearing surface of substantial area on the skirt to effectively withstand the contracting force, the top skirt portions 29 are flat and extend substantially at right angles to the axis of the cap. Furthermore, these skirt
45 portions 29 are compressed to stiffen the material of said portions, so that they can be effectively and easily subjected to bearing action without undesirable distortion of the cap.

The bottom skirt portions 30 are also flat, and
50 extend at right angles to the axis of the cap to afford a bearing surface of substantial area when the partially contracted cap is finally secured to the bottle head during capping operations. These skirt portions 30 are furthermore com-
55 pressed to stiffen the material thereof, so that

they will be more effective as bearing surfaces during the capping action.

The skirt portions 31 are also compressed or skived to render the material thereof rigid, so that these portions do not buckle during the partial contracting operation described, and the skirt will fold very neatly along their predetermined crease lines 23, 24 and 24a.

The skiving or compressing of the portions 29, 30 and 31 also reduces their thickness, so that when they overlap, the aggregate thickness of the pleat layers is somewhat reduced. This compressing of the skirt portions 29, 30 and 31 also serves to form the blunt fold lines 25 and 26, and the alternate ridges and furrows.

In order to prevent bunching of the surplus material of the contracted skirt 14 around the apices of the pleats, said skirt is skived or pressed at triangular sections 33 near said apices as shown in Fig. 1, to reduce the thickness of said sections. This skiving at the sections 33 also accentuates the crease lines 24a, and thereby facilitates the folding of the skirt into pleats when said skirt is contracted.

The cap skirt 14 is also bent bluntly along lines 34 extending from the radial inner end of each crease line 23, diagonally towards the side 31 of the adjacent ridge, to ease the contracting movement of the skirt along its predetermined crease lines during capping operations.

The cap 10 may be coated in whole or in part with a suitable adhesive such as a thermoplastic adhesive or a solvent softening adhesive. This adhesive is preferably applied to the disc blank before the capping operation, but may be applied after the cap has been preformed into the shape described.

A disc 35 is seated on the diaphragm 12 to carry the necessary printing, to reinforce said diaphragm, and to exert sealing pressure against the internal wall of the bottle. This disc 35 is locked in position by inward projections 36, indented from the inner housing wall 17, and overlying and engaging said disc.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood

that various omissions, substitutions and changes in the forms and details of the product illustrated may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. As an article of manufacture, a hood closure cap preformed from a paper blank, comprising a diaphragm, and a depending skirt, said skirt being creased and shaped to form overlapping pleats when said skirt is contracted about the neck of a bottle, the overlapping sections of said pleats and the areas near the radially inner ends of said overlapped pleats being compressed to a thickness less than that of the blank, to reduce bunching of the surplus material of the contracted skirt and to facilitate the folding of said skirt into overlapping layers near said ends.

2. As an article of manufacture, a hood closure cap preformed from a paper blank, comprising a depressed diaphragm, an annular pouring lip housing, and a depending skirt, said skirt being folded along predetermined crease lines to form substantially triangular overlapping pleats, said triangular overlapping pleats being compressed to a thinner section than said blank, said skirt also having small areas near the apices of the pleat forming sections compressed to a thinner section than said blank to facilitate bending of said skirt into said pleats and to reduce bunching of the surplus material of the contracted skirt at said apices.

3. A partially preformed hood closure cap comprising a diaphragm, and a skirt around said diaphragm, said skirt being fluted to form a series of alternate ridges and furrows, the crowns of said ridges and the bases of said furrows being triangular in shape and compressed to a thickness less than that of said blank, the apices of said triangular sections being disposed near the inner periphery of said skirt, one side only of each ridge between adjoining triangular sections being compressed to a thickness less than that of said blank, said compressed sections forming overlapping layers of the skirt when said skirt is contracted on a container.

CARL W. GOODWIN.
HAROLD W. MARTIN.