April 19, 1966 C. BONK ETAL 3,246,340

CAP

Filed Feb. 27, 1964

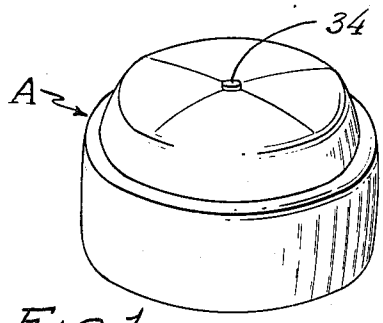


FIG. 1

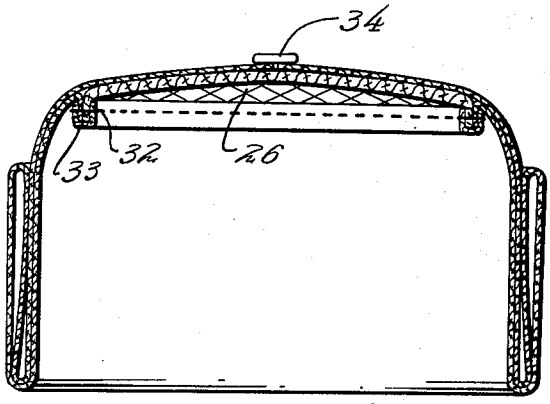


FIG. 2

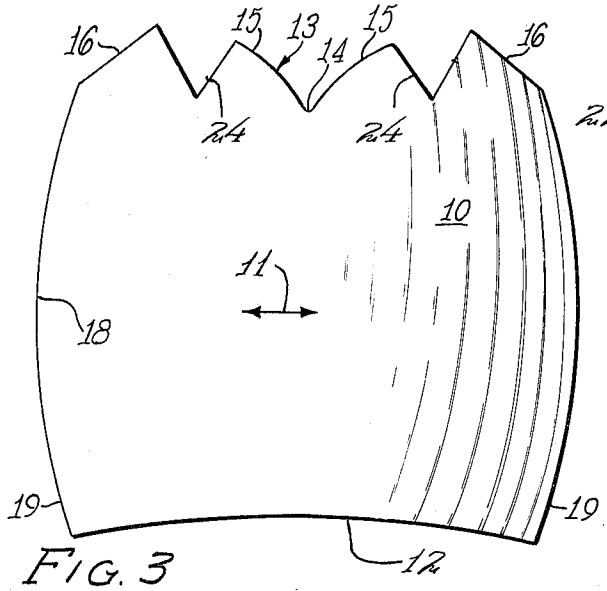


FIG. 3

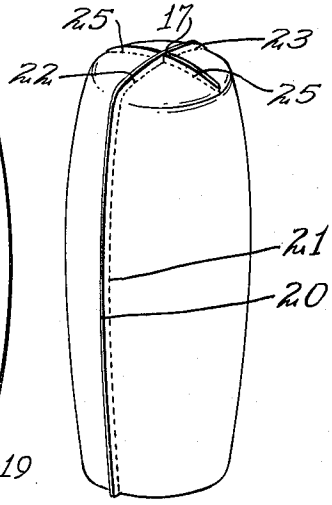


FIG. 4

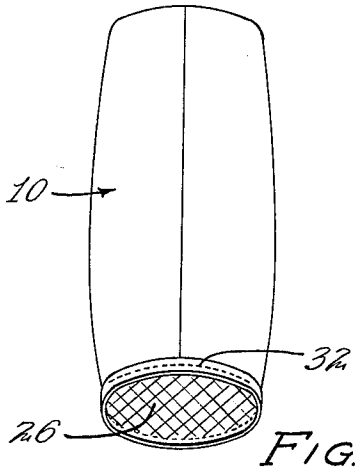


FIG. 5

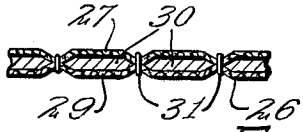


FIG. 6

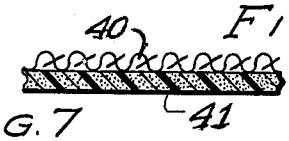


FIG. 7

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CAP

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This invention relates to an improvement in caps and deals particularly with a type of cap which is capable of keeping the head warm in cold weather and which is fitting heads of various sizes.

One of the difficulties which is usually experienced by manufacturers of caps and by stores selling caps lies in the fact that a very considerable inventory must be maintained in order to fit heads of various sizes. It is difficult for either the manufacturer or purchaser to accurately determine the number of caps of each size which will be sold. Over numerous years it is possible for both the manufacturer and the storekeeper to gain experience which will enable them to guess more accurately than would otherwise be possible, but it is still necessary for the storekeeper to maintain an inventory of each size and in each style of cap.

During recent years, caps have been produced which include one or more elastic segments which permit a hat of a certain size to be used on heads which vary somewhat in size. However, the range of sizes which a single cap will fit has been somewhat limited; and while it has been possible to materially reduce the necessary inventory of caps, it is still necessary for the store owner to stock caps of different sizes.

It is an object of the present invention to provide a cap which is made virtually entirely of resilient material and which accordingly may comfortably fit a wide variety of head sizes. As a result, the inventory which a storekeeper must keep on hand may be materially reduced. Furthermore, with this arrangement, it is unnecessary for the manufacturer to materially reduce the variety of cap sizes which are available for sale.

It is a further feature of the present invention that the cap may be produced at a very low cost of production. In normal production, the cap is made of two simple pieces one of which is elastic and stretchable while the other part is relatively inelastic and unstretchable. By combining the two pieces of material, the cap is formed.

A feature of the present invention resides in the provision of a hat construction in which the body portion of elastic material is generally rectangular in form, two opposed edges being secured together along a seam to form a tubular body. One end of the sleeve is closed by securing together the edges of the material along the top of the blank. The transverse top seam is formed intersecting the first top seam at right angles. The end thus formed forms the exterior of the crown of the hat.

A further feature of the present invention resides in the provision of a simple and effective means of forming an inner crown at the opposite end of the elastic sleeve. This is accomplished by merely attaching the marginal edge of a relatively inelastic disk of slightly oval outline to the remaining of the sleeve. This crown portion of the sleeve is then forced inwardly until it substantially contacts the first formed exposed crown of the cap, cutting the length of the sleeve in about half by this inversion process. The open lower end of the sleeve is then doubled outwardly of the upper portion thereof to form a cap having side walls of four thicknesses of material. The outer portions of these side walls may be partially unfolded if desired to extend lower upon the head.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification.

FIGURE 1 is a perspective view in its completed form.

FIGURE 2 is a vertical sectional view through the cap illustrated in FIGURE 1.

FIGURE 3 is a diagrammatic view of the blank or pattern from which the wall portion of the cap is produced.

FIGURE 4 is an inverted or reversed view of an end of the cap during construction of the cap.

FIGURE 5 is a perspective view of the completed cap before it is folded into the form illustrated in FIGURE 1.

FIGURE 6 is an enlarged detail of a portion of the inside crown.

FIGURE 7 is an enlarged sectional detail of the material of which the cap body is formed.

The cap A is mainly formed by means of a blank of fabric which is indicated in general by the numeral **10** and which is resilient and stretchable particularly in the direction indicated by the double arrow **11**. The blank **10** is substantially four times the length of the side walls of the finished cap and includes a substantially straight lower end **12** and an irregular upper edge **13**. The upper edge **13** is substantially the same total width as the lower edge **12**, and on opposite sides of the center point **14** the cap is cut along upwardly converging lines **15** and **16** which form an inverted shallow V-shaped form intersecting at the apex **17**. The side walls of the cap bow outwardly and are slightly curved as indicated in FIGURE 3 so that the midpoint **18** of the cap is slightly wider than the ends **12** and **13** in the preferred form of construction. In the formation of the cap body, the body portion **10** is folded midway between its sides **19** to bring the side edges **19** in contiguous relation and the edges **19** are stitched together to form a longitudinal seam **20**, the stitching being illustrated in FIGURE 4 at 21. The edges **16** adjoining the upper ends of the side edges **19** are also stitched together as indicated at **22** and the edges **15** are similarly stitched together as indicated at **23**.

In order to provide a uniform appearance to the top of the cap, the body **10** is notched with V-shaped notches along converging cut lines **24** and **28** which extend from the apex of each side of the top toward the bottom edge **11** and in substantially right angular relation to the lower edge **12**. The edges of the material on opposite sides of the notches formed by the cut lines **24** and **28** are stitched together to form cross seams as indicated at **25** in FIGURE 4. As is indicated in FIGURE 3, the edges **16**, **16** and **15**, **15** are of greater length than the edges **24**, **28**. Accordingly, the seams formed by attaching edges **15**, **15** and **16**, **16** are of greater length than the cross seams formed by attaching edges **24** to edges **28**. When the body is inverted from the position illustrated in FIGURE 4 of the drawings, the external seams appear as indicated in FIGURES 1 and 5 of the drawings. In this position, the marginal edges of the seams which have been stitched together are on the interior surface of the closed end sleeve.

A slightly oval disk **26** is then attached to the other end of the sleevelike body **10**. While shown as a single thickness of material in FIGURE 2 of the drawings, in actual use the disk **25** comprises two contiguous fabric disks **27** and **29** having a thin layer of cotton or other similar material therebetween as indicated at **30**. The structure is secured together by rows of stitching **31** which intersect at right angles. In other words, the member **26** is a thin quilted pad as illustrated in FIGURE 6 rather than a single thickness of material.

The marginal edge of the sleeve body **10** is secured to the marginal edge of the disk **26** by stitching **32** which extends through these marginal edges, and through the marginal edges of a binding tape **33**. If desired, a but-

ton 34 or other ornament is provided at the center of the crown of the cap at the point of intersection of the right angular seams. When completed the cap has the appearance of the closed end sleeve illustrated in FIGURE 5 of the drawings.

The cap is folded into completed form by pushing the disk inwardly until it lies against the under surface of the top closure. As indicated in FIGURES 1 and 2 of the drawings, the double side wall thus formed is again folded so that the lower portion of the folded sleeve extends upwardly to encircle the upper portion thereof as shown in the drawings. As a result, the side walls of the completed cap may be made of the desired height to fit any individual head by folding a greater or lesser amount of the sleeve upwardly.

The cap thus formed may be cut quickly and easily due to the simple shape of the parts. The body of the cap may also be stitched together with little effort and in a very short period of time. The relatively inflexible inner crown portion may be fastened to the body very quickly so that the entire cap may be formed in an extremely short period of time. Furthermore, as has been stated, the entire body of the cap with the exception of the inner crown is readily resilient and flexible and will expand to fit a very wide variety of head sizes. Thus a single hat size will fit virtually any normal human head.

FIGURE 7 shows the cap material in enlarged detail. The outer or exposed layer comprises a fabric such as a knitted ribbed material which stretches in a direction at right angles to the web than in a direction parallel thereto. To this material is laminated a thin layer of resilient material which is preferably a spongy material such as urethane foam. The resultant laminate is readily stretchable, particularly in a direction circumferentially of the cap body so that the circumference may be increased to fit virtually any head size. The fabric layer is shown in FIGURE 7 by the numeral **40**, while the spongy layer is indicated at **41**.

In accordance with the patent statutes, the principles of construction and operation of this improvement in caps have been described, and while an endeavor has been made to set forth the best embodiment thereof, it should be understood that changes may be made within the scope

of the following claims without departing from the spirit of the invention.

We claim:

1. A cap comprising,

a generally resilient, stretchable rectangular body of knitted fabric laminated to a layer of thin spongy material secured together along opposite edges to provide an elongated tube, means securing opposite sides of one end together along a top seam to provide an elongated cap crown,

a relatively non-resilient, flexible disk marginally connected to said tube at the other end thereof to form a second end closure,

said second end closure being folded against the inner surface of said cap crown with substantially one half the length of the tube adjoining the second end closure enclosed within the remainder of the tube which adjoins the crown,

said tube being again folded between the adjacent closed ends of the tube and the opposite end thereof to cause the double thickness open end of the folded tube into encircling relation with the portion of the tube adjoining the crown.

2. The structure of claim **1** and in which said hat crown includes a cross seam intersecting the first named top seam at substantially right angles, said cross seam being of lesser length than said top seam.

3. The structure of claim **1** and in which said folded tube portions are in substantially perpendicular relation to said marginal edges of said disk.

4. The structure of claim **1** and in which said elongated tube has greater stretchability about its circumference than vertically.

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