Nov. 30, 1965 J. WEIST 3,220,016

FLEXIBLE BRIM HAT

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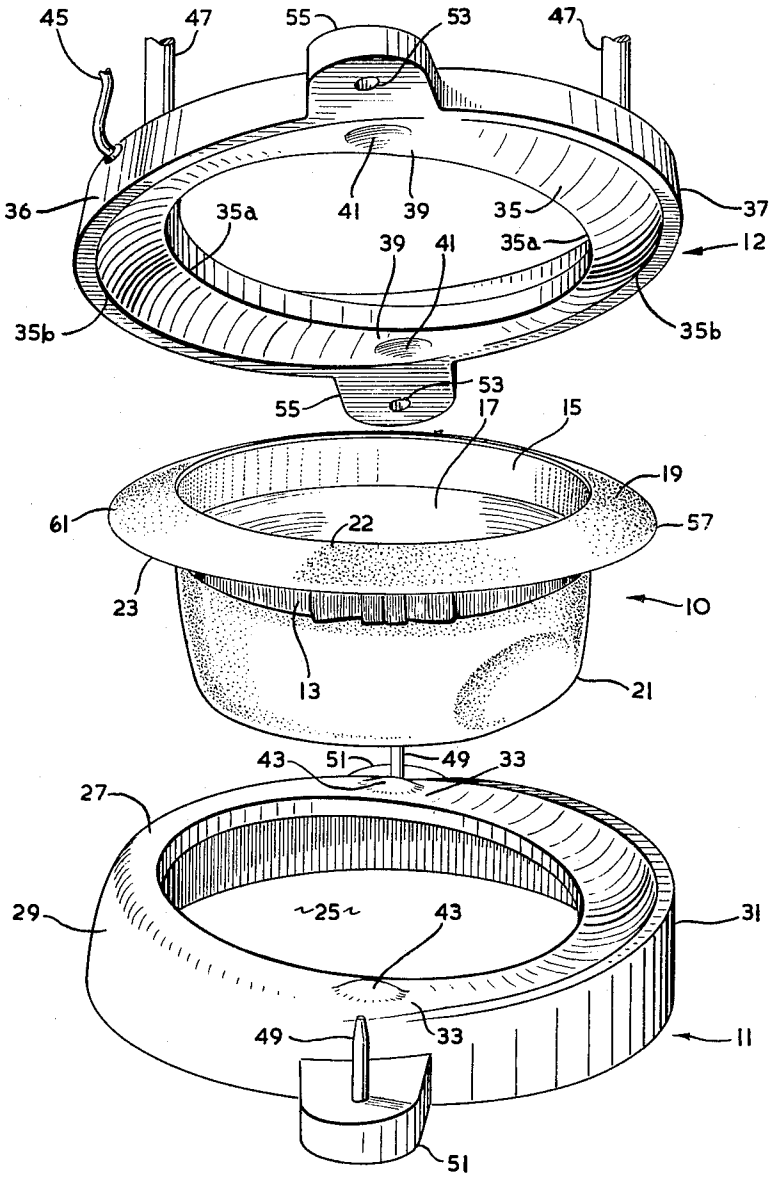


FIG. 1

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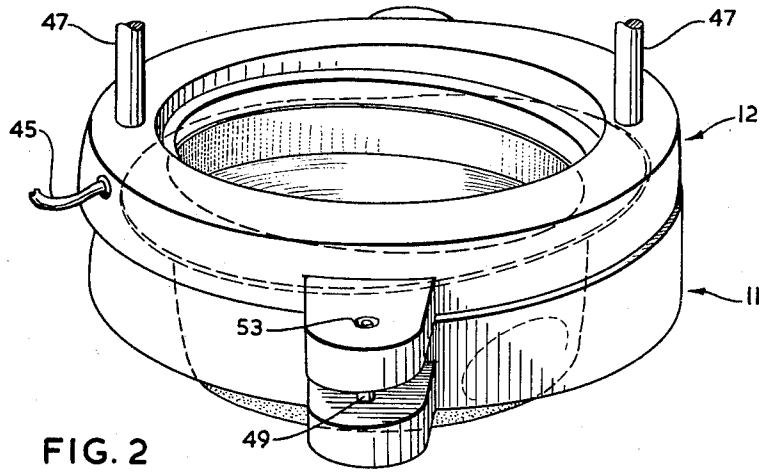


FIG. 2

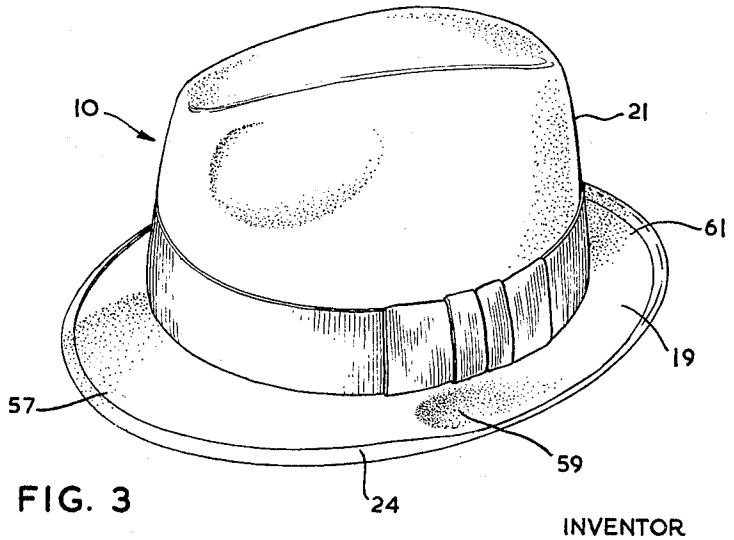


FIG. 3

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FLEXIBLE BRIM HAT

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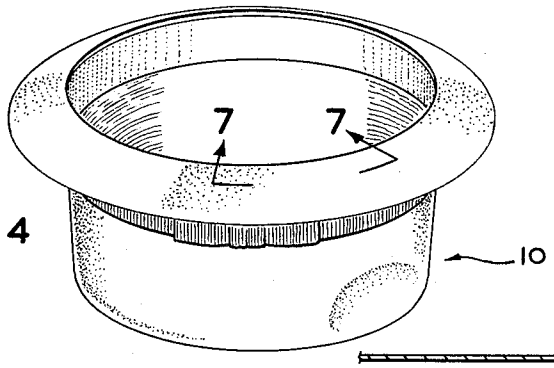


FIG. 4

FIG. 7

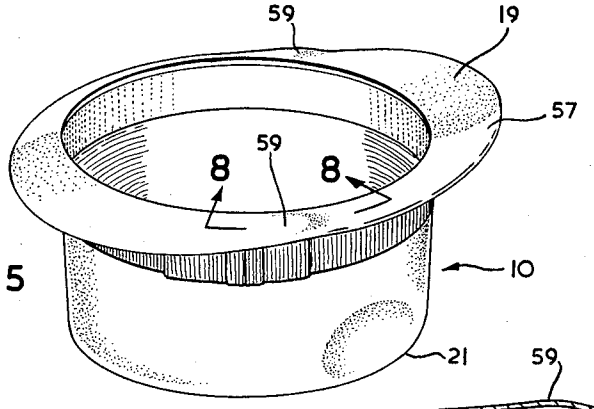


FIG. 5



FIG. 8

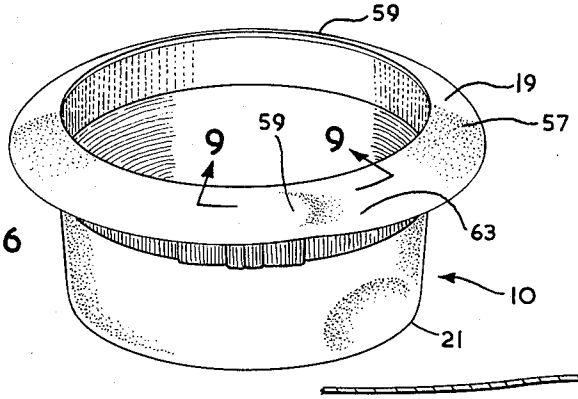


FIG. 6



FIG. 9

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3,220,016

FLEXIBLE BRIM HAT

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Filed Nov. 13, 1962, Ser. No. 236,788
7 Claims. (Cl. 2—175)

This invention relates to the manufacture of a hat having a brim that can be flexed upwardly at the front for packing and downwardly at the front to be worn.

It is common for hats, particularly men's hats, to be provided with brims which are turned up all around the hat for packing but which are turned down at the front when worn. Fur felt hats for men are commonly of this character. In the manufacture of fur felt hats one of the last operations is normally the flanging or final shaping of the brim, and the conventional way of flanging the brim is to press it between heated dies which leave the brim in a turned up condition all around the hat. The hat is packed in this condition, the front portion of the brim normally being turned down at the time of sale of the hat by the retailer. Some care is required to ensure that the front portion of the brim is turned down symmetrically with respect to the crown of the hat, and after the hat has been used for some time, and particularly if it has become wet, the symmetry of the turned down portion of the brim is often difficult to maintain.

It is an object of this invention to provide means for ensuring that a hat brim will, when its front portion is turned down and up, always flex about the desired points.

According to the invention, the hat brim is provided with permanent dimples which determine the points where the brim flexes, and these dimples are formed between flanging dies having the shape of the brim with its front portion turned down.

The invention is illustrated by way of example in the accompanying drawings in which:

FIGURE 1 is a perspective view showing two flanging dies in separated position, and showing between the dies a hat of which the brim is to be finally shaped or flanged when the dies are pressed together;

FIGURE 2 is a perspective view showing the two dies pressed together with the hat brim between them;

FIGURE 3 is a perspective view of the finished hat after the flanging operation has been performed by the dies;

FIGURE 4 is a perspective view of a hat before the flanging operation;

FIGURE 5 is a perspective view of a finished hat after the flanging operation with the front portion of the brim flexed away from the crown of the hat (i.e., with the front portion of the brim turned down when the hat is viewed right side up);

FIGURE 6 is a perspective view of a finished hat after the flanging operation with the front portion of the brim flexed toward the crown of the hat (i.e., with the front portion of the brim turned up when the hat is viewed right side up); and

FIGURES 7, 8 and 9 are sectional views taken along the lines 7—7, 8—8 and 9—9 respectively of FIGURES 4, 5 and 6.

In FIGURE 1 a hat **10** of the fur felt type is shown inverted between a lower die **11** and an upper die **12**. The hat **10** is a finished hat except for the flanging operation. Thus the hat has the usual hat band **13**, sweat band **15** and lining **17**. The brim **19** is of uniform thickness and is integral with the crown **21**, i.e., the brim **19** and the crown **21** are formed (as is usual) of a single piece of felted material. The junction of the brim and crown is along an edge **22** which provides a stiff inner margin for the brim. At its outer edge **23** the brim has a welt **24** (not seen in FIGURE 1 but shown in FIGURE 3). Though the hat **10** is shown with a welt **24**, the method of the invention is equally applicable to a hat with a bonded edge, a bound edge or a raw edge.

The brim of the hat **10**, in the inverted condition shown in FIGURE 1, curves outwardly and downwardly from the inner edge **22** to the welt **24**, so that the brim exhibits a convex surface when viewed from the bottom of the hat, and a concave surface when viewed from the crown **21** of the hat. In the inverted position of FIGURE 1, the welt **24** is lower than the inner edge **22** of the brim **19**. In its unflanged state the brim in reality has an unpressed appearance which the drawing does not convey.

The lower die **11** has a central opening **25** for the crown **21** of the hat. Around the opening **25** is a smooth annular upper surface **27** which is upwardly convex in transverse cross-section at the rear portion **29** of the die **11**, and upwardly concave in transverse cross-section at the front portion **31** of the die **11**. At each side of the die **11** there is a smooth transition **33** in the annular surface **27** from the upwardly convex to the upwardly concave cross-section. The curvature of the annular surface **27** is the same as the curvature intended to be given to the hat brim by the flanging operation.

The upper die **12** has a smooth annular lower surface **35** that is complementary to the annular upper surface **27** of the lower die **11**, and thus is downwardly concave in transverse cross-section at the rear portion **36** of the die **12**, and downwardly convex in transverse cross-section at the front portion **37** of the die **12**. At each side of the die **12** there is a smooth transition **39** from the downwardly concave to the downwardly convex cross-section. At the rear portion **36** of the upper die **12** the inner edge **35***a* of the surface **35** is higher than the outer edge **35***b* of the surface (just as in the brim of the unflanged hat the edge **22** is higher than the edge **23**), whereas at the front portion **37** of the upper die the inner edge **35***a* is lower than the outer edge **35***b*.

At the transitions **39** of the lower surface of the upper die **12** are two smooth, identical dimples **41**, and at the transitions **33** of the upper surface of the lower die **11** are two smooth protuberances **43** complementary to the dimples **41**. The heights of the protuberances **43** are approximately one quarter their base diameters, and their base diameters are approximately half the width of the annular surface **27** in the region of the protuberances **43**.

The upper die **12** is electrically heated by an element **45**, and is supported by rods **47**. The lower die **11** is supported on a base (not shown) from which it is heated. Aligning pins **49** on ears **51** of the lower die **11** register with apertures **53** in ears **55** of the upper die **12** to hold the dies **11** and **12** in alignment during the flanging operation, which is illustrated in FIG. 2. In the flanging operation the hat **10**, with its brim damp, is placed upside-down upon the lower die **11**, and the electrically heated upper die **12** descends and encloses and presses the brim **19** of the hat **10** between the dies. The two complementary surfaces **27** and **35** of the dies **11** and **12** are determinative of the shape of the finished hat brim **19**. The dies press the brim **19** so that when it is removed from the dies, as shown in FIGURE 3, it is flexed downwardly at the front of the hat. The dimples **41** and protuberances **43** in the annular surfaces of the dies form permanent flexion locating means such as downward dimples **59** in the hat brim **19**; said dimples being downwardly disposed when the hat **10** is viewed in an upright position.

The front portion **57** of the hat brim **19** can be flexed upwardly (towards the crown **21**) for packing in a standard container, and it can be flexed downwardly again

(away from the crown **21**) for wearing. The points of flexure are fixed by the permanent dimples **59** in the brim at the sides of the hat.

The dimples **59** are sufficiently shallow to merge unobtrusively with the brim **19** when the front portion of the brim **19** is in the concave downwardly condition of FIGURE 3. The inner and outer edges of the brim are relatively stiff, and consequently the edges of the brim are not contorted by the dimples **59** and the latter are therefore, unobtrusive to the eye. However, when the front portion of the brim **19** is turned up (towards the crown) the dimples **59** cause a slight distortion in the brim **19**, as will presently be explained with reference to FIGURES 6 and 9. The dimples **59** are arranged symmetrically of the hat so that when the front portion of the brim is flexed up and down it must do so symmetrically, the dimples **59** constituting the rearward limits of the portion which flexes. The dimples **59** thus fix the boundaries between the front portion **57** and the rear portion **61** of the brim.

FIGURES 4, 5 and 6 may help to illustrate the characteristics of a hat made according to the invention. FIGURE 4 shows the hat before the flanging operation, and FIGURE 7 indicates the approximate shape of the brim in the unflanged state.

FIGURE 5 shows the hat after the flanging operation, with the front portion **57** of the brim **19** flexed away from the crown **21**. FIGURE 8 shows, in section, one of the dimples **59**. Although the dimple **59** is very apparent in FIGURE 8, a person looking at the hat does not of course see it in cross-section. The dimple merges with the brim at the periphery of the dimple and thus does not create any apparent distortion of the brim when in the condition of FIGURE 5.

FIGURE 6 shows the hat of FIGURE 5 with the front portion **57** of the brim flexed toward the crown **21**. This is the condition of the hat for packing. As can be seen in FIGURE 9, the dimples **59** are not as pronounced when the front portion **57** of the brim is flexed in this manner, but ahead of the dimples the brim is somewhat distorted by the dimples, and the total effect of the dimples plus this distortion is a brim that appears to be distorted.

By comparison, a hat flanged in the conventional way has, after flanging, an appearance similar to FIGURE 4 since conventional flanging does press the brim in its turned up (towards the crown) condition all around the hat. When the front portion of a conventionally flanged hat is turned down, the brim normally becomes dimpled at the sides of the hat but the dimples are only temporary and their positions are determined by the points about which the user chooses to flex the brim, whereas according to the present invention dimples are permanently formed and determine the points about which the brim flexes. Also, with a conventional hat, when the front portion of the brim is turned up the tempoary dimples disappear.

While the invention has been described with reference to a fur felt hat, it is also applicable to hats of straw, paper and other flexible materials.

What I claim as my invention is:

1. A hat having an annular, flexible brim, comprising a front half, a rear half and sides, that can be flexed upwardly at the front for packing and downwardly at the front for wearing, in which a pair of flexion locating means, each comprising at least one dimple molded into the said brim, are located at both sides of the front half of the brim in substantially symmetrical positions.

2. A hat as claimed in claim **1**, wherein the dimples merge with the brim around the peripheries of the dimples.

3. The hat as defined in claim **1** in which each of the said flexion locating means comprises only one dimple.

4. The hat as defined in claim **3** in which the said dimple of each flexion locating means is positioned laterally between the inner and outer edges formed by the annular brim.

5. A fur felt hat having an integral crown and annular, flexible brim comprising a front half, a rear half and sides, of substantially uniform thickness, the rear portion of the brim being concave upwardly and the front portion of the brim being capable of flexing between a concave downwardly condition and a concave upwardly condition in which a pair of flexion locating means, each comprising at least one downwardly extending dimple molded into the said brim, are located at both sides of the front half of the brim in substantially symmetrical positions, the dimples being sufficiently shallow to merge unobtrusively with the brim when the front portion is in its concave downwardly condition but distorting the brim with the front portion in its concave upwardly condition.

6. The hat as defined in claim **5** in which each of the said flexion locating means comprises only one dimple.

7. The hat as defined in claim **6** in which the said dimple of each flexion locating means is positioned laterally between the inner and outer edges formed by the annular brim.

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