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2,971,682

METHOD OF MAKING TWO-TONE HATS

Filed Feb. 17, 1958

3 Sheets-Sheet 1

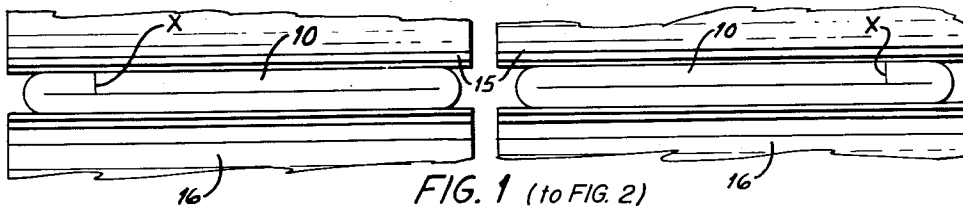


FIG. 1 (to FIG. 2)

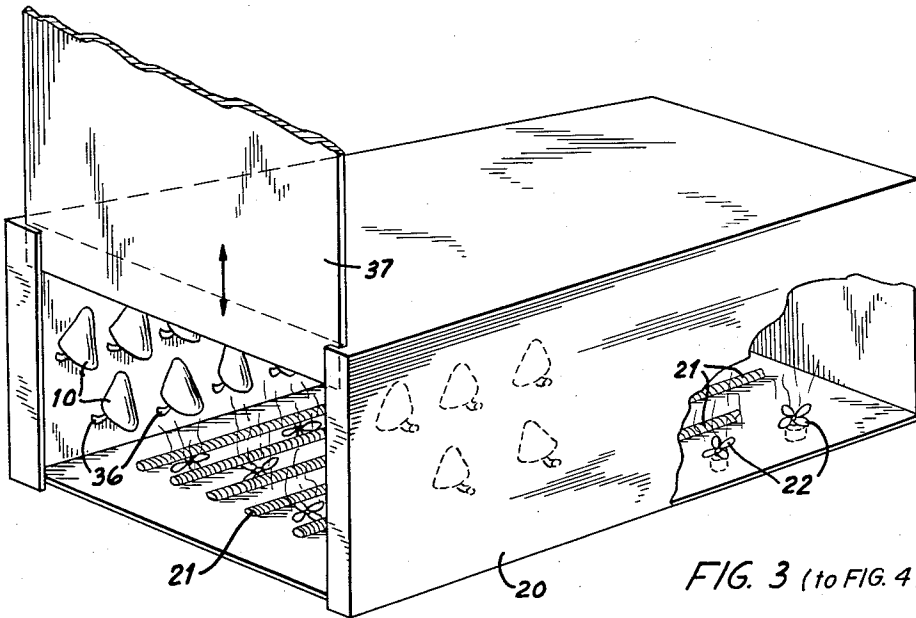


FIG. 3 (to FIG. 4)

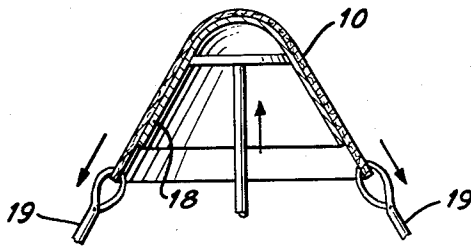


FIG. 2 (to FIG. 3)

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FIG. 4 (to FIG. 5 or FIG. 6)

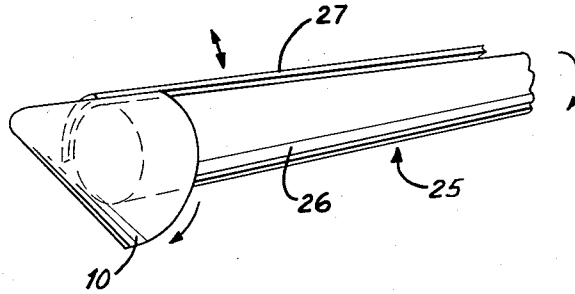


FIG. 5 (to FIG. 7)

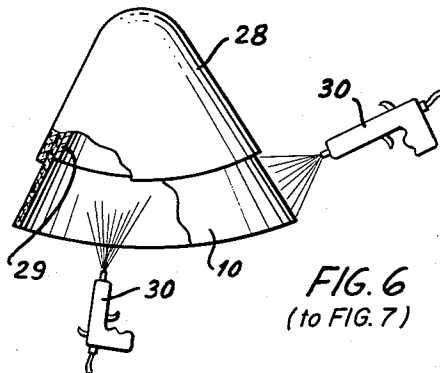
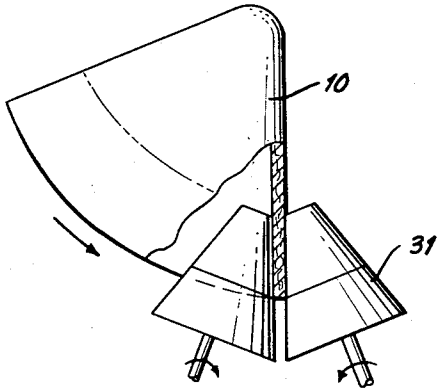


FIG. 6 (to FIG. 7)

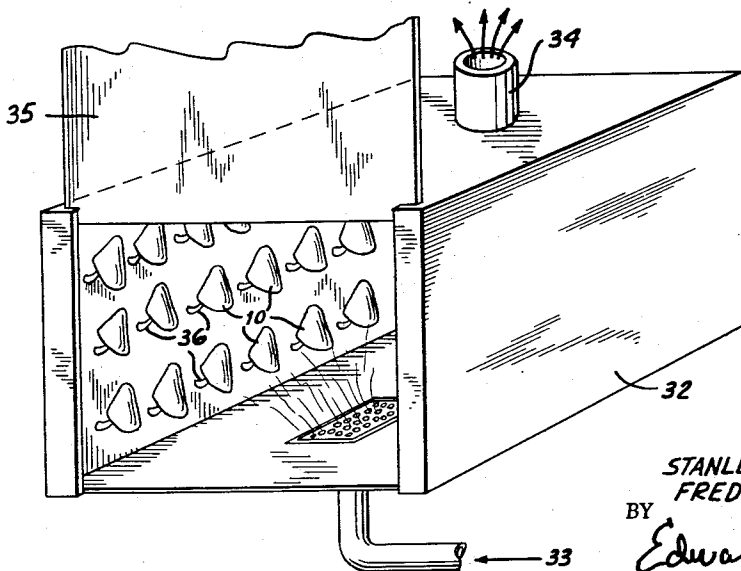


FIG. 7

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FIG. 8

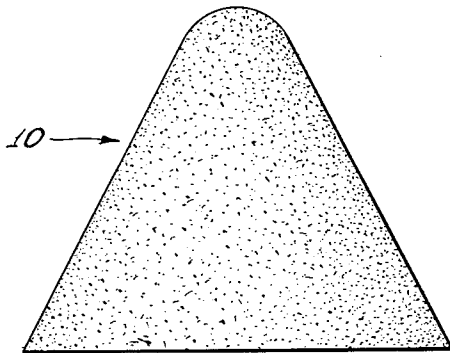


FIG. 9

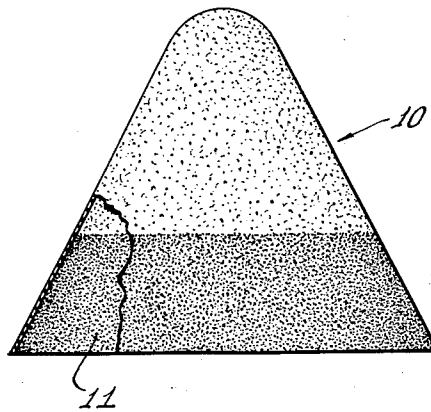
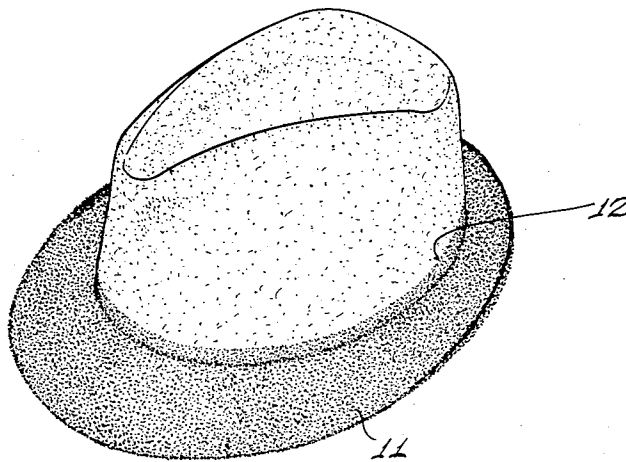


FIG. 10



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METHOD OF MAKING TWO-TONE HATS

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6 Claims. (Cl. 223—7)

The present invention relates to the method of making two-tone fur felt hats.

Heretofore, efforts to produce an acceptable two-tone fur felt hat by a dyeing process have been unsuccessful due to the fact that it has been impossible to get a satisfactory dyeing of the second color to provide a uniform color throughout the surface thereof and it has also been extremely difficult to provide a dyeing operation in which there is not substantial bleeding of the darker dye into the lighter dyed portion.

It is an object of the present invention to provide a novel method of making an acceptable two-tone hat having portions thereof of different contrasting colors by a dyeing process with the colors in the darker portion of the hat being uniform throughout the area.

This is accomplished in accordance with the present invention by controlling the hat body, or cone, during the felting operation so that portions thereof are relatively shifted throughout the felting operation at frequent intervals so as to prevent any creasing of the body and by the specific dyeing operation as employed therein. In this specification the term "body" is used synonymously with the term "cone."

Further, if a smooth surface hat is to be formed, the hat is given a light shaving operation after the final felting operation so as to remove the loose surface fibers.

Before the hat bodies are dyed with the contrasting color, they are ironed to provide a smooth surface thereon. The portions adopted to have the contrasting color are then dyed and the dyed hat is permitted to set for a short period to permit the dye therein to level out throughout the area. The dye is then set and the hat thereafter blocked and finished.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the accompanying drawings in which:

Fig. 1 is an elevation showing a hat body in two different folded positions and illustrates the step of folding, shifting and refolding, as set forth in the specification hereinbelow;

Fig. 2 is a cross-section of a blocking machine with a hat body 10 in position to show the step of blocking;

Fig. 3 is a perspective view of a dryer 20 with portions cut away to show how it is used in the step of drying the bodies 10;

Fig. 4 is a perspective view of a mangle 25, to illustrate the step of ironing;

Fig. 5 is an elevation of a pair of opposing rollers 31, with a hat body 10 partly cut away and shown in position, to illustrate one form of the step of dyeing;

Fig. 6 shows an alternative method of dyeing by illustrating a hat body in elevation with portions cut away being sprayed by spraying means shown in perspective;

Fig. 7 shows a steam box 32 in perspective, to illustrate the step of steaming;

Fig. 8 shows the cone before the brim dye is applied thereto;

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Fig. 9 is a view similar to Fig. 8, partly in section, showing the cone with the brim dye applied thereto; and Fig. 10 shows a blocked hat.

The apparatus illustrated in Figs. 1 through 7 inclusive of the drawings is conventional and old in the art. The illustrated apparatus is used in carrying out the various steps of the method of the invention. In practicing the invention disclosed herein below it is not necessary to use the particular prior art devices shown in the drawings. The apparatus is shown for purposes of illustration and any other apparatus either manual or automatic suitable for practicing the invention may be used. The notations in parentheses after each figure shows the sequence of operations. For example after Fig. 1, the notation "(to Fig. 2)" appears. This means that the flow of steps as illustrated would be from Fig. 1 to Fig. 2, and so on.

In carrying out the present invention the fur is deposited, as usual, onto a conical form to form a hat body which is hardened and then is given an initial felting operation on an A machine. This initial felting operation causes the hat body to become self-sustaining and to be reduced from its original dimensions. The body is then dyed with the base color, which is the lighter color. The cone is then felted down in a B machine to its final cone dimensions and during this felting operation the position of the cone is frequently and continually folded, shifted, and refolded to prevent creases being formed therein and to prevent uneven distribution of the felt during the felting operation as the cone is passed through the machine. This is illustrated in Fig. 1 of the drawings in which the rollers of the B machine are designated by reference numerals 15 and 16. A body 10 which is being felted is folded in the position shown in the left-hand portion of the Fig. 1 and run through the rollers 15 and 16. An arbitrary mark, or line, is put in the figure to define the relative position of the folded body 10. During the felting operation the position of the folded cone, or body, 10 is shifted as aforesaid. This is illustrated by referring to the right-hand portion of Fig. 1 which shows the body 10 in the B machine between rollers 15 and 16 after it has been shifted and refolded. The comparison may be made by seeing the new position of the imaginary line designated "x." Viewing Fig. 1 as a whole, it will be appreciated that the body 10 is being felted and during the felting operation it is being folded, shifted, and refolded.

Thereafter, the cone is blocked and dried. The blocking and drying may be done in any manner well known to the art. To illustrate these steps, we show a conventional blocking machine in Fig. 2 of the drawings, and a heating box, or dryer 20, in Fig. 3. The step of blocking is accomplished in its preferred form by placing the cone or body 10 over the cone-shaped mold 18 of the usual type of blocking machine. The edges of the body 10 are gripped by gripping members 19 of the machine and are pulled down in the direction of the arrows while the molding member 18 of the machine is pushed up at the same time. After blocking, which involves the use of steam or water, the bodies 10 are placed in the dryer 20. There are heating elements 21 and fans 22 to circulate the drying air to dry the bodies 10, and a closure 37. After the hat bodies 10 are dried, they will appear as in Fig. 8 of the drawings.

If the hat to be formed is a smooth finish hat, the cone is then subjected to a light shearing operation which removes the loose fur fibers from the inner and outer surfaces thereof to insure better and more uniform penetration of the dye during the subsequent dyeing operation. This enables the dye to thoroughly penetrate and impregnate the body enabling the hat to be pounced and cut in finishing without producing an uneven color therein.

The usual step of applying a shellac or other stiffening

means to the body is omitted at this time. Also, before the hat is dyed with the contrasting color, the brim portion, which in the illustrated form of the invention is to be dyed with the contrasting darker color, is ironed to provide flat surfaces thereon. The ironing may be by means of hand irons, or automatic irons, such as mangles 25. In Fig. 4 of the drawings, we show a rotary mangle 25 which comprises a rotating portion, or motor, 26, and a stationary, curved portion 27. The blocked body 10 is placed over an end of the mangle 25, between the rotor 26 and the curved portion 27, and the ironing operation is then completed.

The brim portion 11 of the cone is then dyed with the darker color as shown in Fig. 9. The band of color extends upwardly on the cone to a position thereon which, when the hat is blocked, as shown in Fig. 10, will cause the line of demarcation 12 to be disposed in the base of the crown portion in a position adjacent the brim so as to be covered by the usual hat band (not shown).

While the normal acid dyes might be used for this purpose, it has been found that they require a thorough washing before blocking of the hat to prevent bleeding and this injects an additional step into the process. Therefore, it is preferred to dye the hats with a dye composition which is fast to bleeding. We have had excellent results with a composition including a monoazo premetallized neutral-dyeing type of dye having one molecule of chrome or cobalt for each two molecules of dye and having a sulfo or sulfonamide radical therein. One such dye is sold under the trade name "Cibolan," manufactured by the Ciba Company, Inc.

The dye composition, in addition to the premetallized dye, includes a solvent for the dye, urea, a humectant such as, diethylene glycol, acetic acid and water.

An example of a preferred dye composition is as follows:

100 cc. of solvent for the dyestuff (Cellosolve)
200 gr. urea
200 gr. diethylene glycol
100 cc. acetic acid (56%), and sufficient water to produce a gallon of solution

To this solution the premetallized dye is provided in predetermined quantities. For example, to produce a dark brown brim, ten ounces of dyestuff to produce the color are provided for each gallon of solution while to produce a pearl gray color only four ounces of dyestuff per gallon is required.

The dye can be applied by a spray (as illustrated in Fig. 6, by placing masks 28 and 29 over and under the body 10, respectively, and spraying with spray guns 30) or, preferably, by using a pair of opposed rollers 31 (see Fig. 5) having the dye applied to the surface thereof (similar to a shellac applying machine) and which rollers 31 roll the dye into the hat body and thoroughly impregnate the body being dyed. The hats are then let stand for a short period of about ten minutes which will permit the dye in the recently dyed portion to level out and become more uniform in distribution. Thereafter, the body is subjected to a moist steam for a period of about five minutes to set or fix the dye. For this step we prefer to use a steamer, or steam box 32, having a steam inlet as shown at arrow 33, an outlet 34, a closure 35, and racks 36 to hold the hat bodies 10. Any other apparatus suitable for steaming may be used. The hat is stiffened by the application of shellac or other stiffening means and is blocked to the desired shape as shown in Fig. 10 and is trimmed with the usual finish trimmings.

While the invention has been described herein as applied to a hat having a light colored crown and dark colored brim, it is to be understood that the invention is equally applicable to a hat having the colors reversed, i.e., a dark colored crown and a light colored brim. In this case the crown portion is dyed the dark color after the hat body is given the initial light dyeing and the line

of demarcation between the light and dark colors will be located in the same general position, i.e., in the crown portion adjacent the brim so that it will be covered by the hatband.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

We claim:

1. The method of forming a two-tone hat comprising the steps of felting down a body of fur fibers of a light color to the final dimension, frequently folding, shifting, and refolding the said body during the felting operation to prevent edge creases and uneven felted areas from being formed therein, blocking and drying said body, ironing the portion of the body adapted to form the hat brim to provide a flat surface, impregnating said brim portion of the body with a monoazo premetallized neutral-dyeing type of dye of a darker color than the body, storing the body for a short period to permit the last-named dye to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finishing the body into a hat.

2. The method of forming a two-tone hat comprising dyeing a partially felted hat body with a light color, felting down said body to the final body dimension, frequently folding, shifting the position, and refolding the said body during said felting operation to prevent edge creases and uneven felted areas from being formed therein, blocking and drying said body, ironing the body to provide a flat surface, dyeing a predetermined portion of the hat body with a monoazo premetallized neutral-dyeing type of dye of a darker color, which dye has one molecule of chrome or cobalt for each two molecules of dye and a sulfo or sulfonamide radical therein, storing the body for a short period to permit the last-named dye to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finishing said body into a hat.

3. The method of forming a two-tone hat comprising dyeing a partially felted conical body with a light color, felting down said cone to the final cone dimension, frequently folding, shifting the position, and refolding said cone during said felting operation to prevent edge creases and uneven felted areas from being formed therein, cone blocking and drying said body, ironing the body to provide a flat surface, dyeing a predetermined portion of the hat with a dye composition comprising a monoazo premetallized neutral-dyeing type of dye of a darker color having one molecule of chrome or cobalt for each two molecules of dye and having a sulfo or sulfonamide radical therein, urea, a humectant, dye solvent, acetic acid and water, storing the body for a short period to permit the last-named dye to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finishing said body into a hat.

4. The method of forming a two-tone, smooth finish fur felt hat comprising the steps of dyeing a partially felted conical body of fur fibers with a light color, felting down said conical body to the final cone dimension, frequently folding, shifting and refolding said cone to prevent edge creases and uneven felted areas from being formed therein during said operation, cone blocking and drying said body, lightly shearing both the inner and outer sides of said body to remove loose surface fur and provide a smooth surface and a body of substantially uniform thickness, ironing the brim portion to provide a flat surface, impregnating the brim portion with a monoazo premetallized neutral-dyeing type of dye of a darker color, which dye has one molecule of chrome or cobalt for each two molecules of dye and a sulfo or sulfonamide radical therein, and storing the body for a short period of time to permit the dye to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finishing said body into a hat.

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5. The method of forming a two-tone, smooth-finish hat comprising dyeing a partially felted conical body of fur fibers with a light color, felting down said cone to the final cone dimension, frequently folding, shifting and refolding said cone to prevent edge creases and uneven felted areas from being formed therein during said operation, cone blocking and drying said body, lightly shearing said body to remove loose surface fur and provide a smooth inner and outer surface and a body of substantially uniform thickness, ironing the brim portion to provide a flat surface, dyeing the brim portion by impregnating the portion throughout with a monazo premetalized neutral-dyeing type of dye of a darker color, thereafter storing the body for a short period to permit the dye in the dyed brim portion to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finish trimming said body into a hat.

6. The method of forming a two-tone, smooth-finish hat comprising the steps of felting down a light colored conical body of fur fibers to the final cone dimension, folding, shifting and refolding the relative position of

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portions of said cone frequently during said felting operation to prevent edge creases having uneven felted areas from being formed therein, cone blocking and drying said body, lightly shearing said body to remove loose surface fur and provide a smooth inner and outer surface and a body of substantially uniform thickness, ironing the outer surface to provide a flat surface, dyeing the brim portion with a darker color and storing the body for a short period to permit the dye to level out, steaming the body to set the dye, applying a stiffening material to the body, and thereafter blocking and finish trimming said body into a hat.

References Cited in the file of this patent

UNITED STATES PATENTS

47,516	Byrne et al. -----	May 2, 1865
438,609	Delohery -----	Oct. 21, 1890
1,115,042	Waring -----	Oct. 27, 1914
1,510,250	Von Gal -----	Sept. 30, 1924
2,404,634	Hodshon -----	July 23, 1946
2,593,525	Beckham -----	Apr. 22, 1952