United States Patent

[11] 3,545,457

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[54] **HAIR CURLING PACKAGES**
9 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **132/33, 132/40**
[51] **Int. Cl.** **A01d 4/14**
[50] **Field of Search** 132/33, 36, 36.2, 38, 39, 40; 219/222, 224; 126/263

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ABSTRACT: Flat hair curling packages are disclosed that are sufficiently flexible to be formed into a roll when used, each package being in the form of an envelope having outer, water repellent layers, inner aluminum foil layers, and an intermediate absorbent layer including exothermic material reacting, when wetted, with the aluminum, the package being further provided with means insuring, in use, that the package contains less water than the absorbent layer will carry.

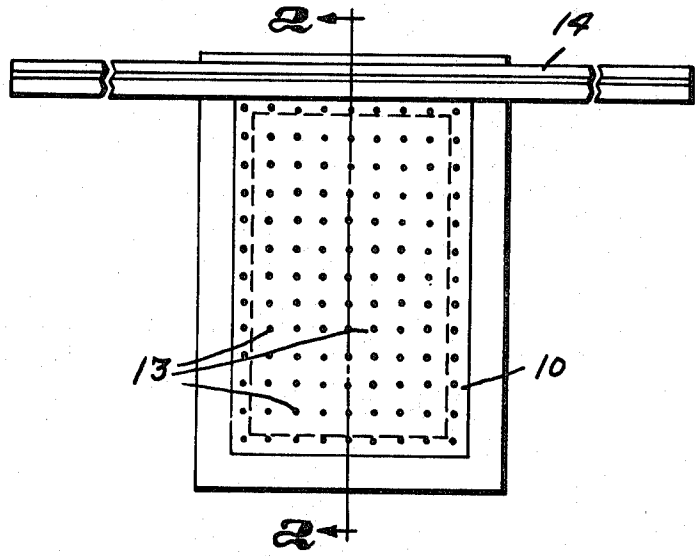


Fig. 1.

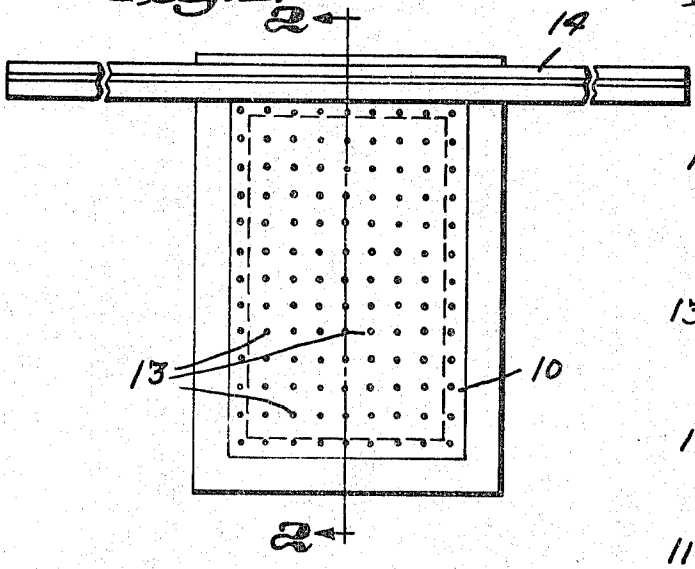


Fig. 2.

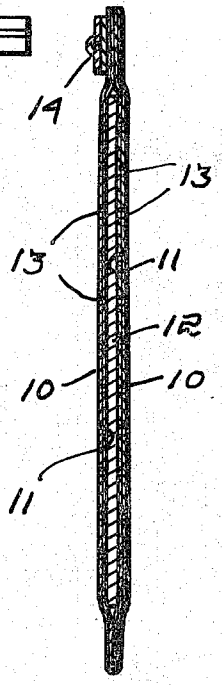


Fig. 3.

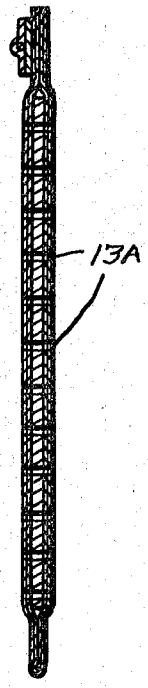


Fig. 4.

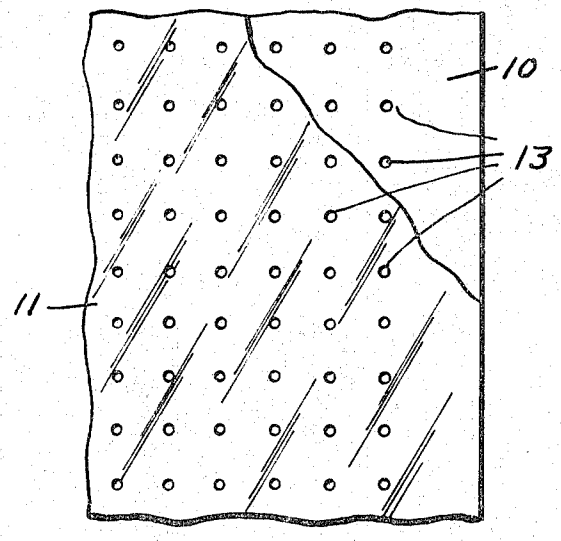
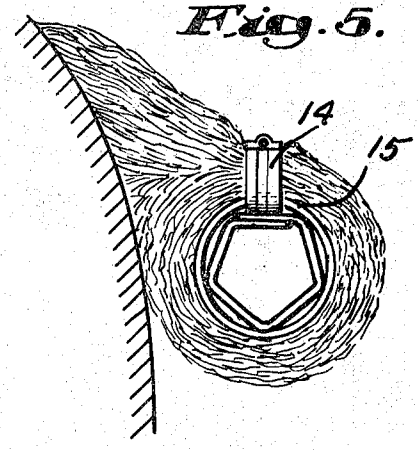


Fig. 5.



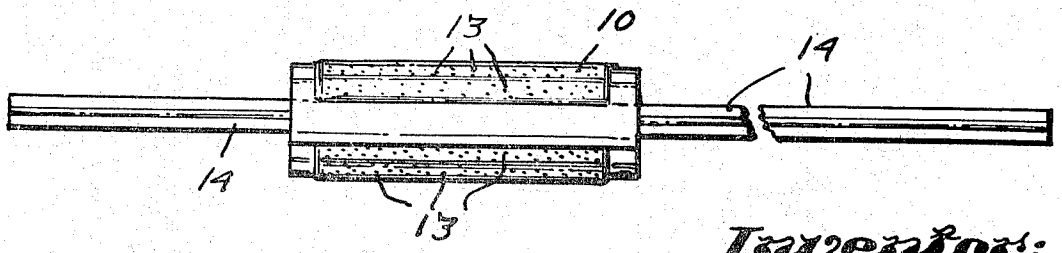


Fig. 6.

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HAIR CURLING PACKAGES

The present invention relates to hair curling packages of the type generating heat when exothermic material contained therein is wetted.

A number of proposals have been made to use exothermic material in hair curling devices as such devices are adapted to facilitate the work of a professional as well as enabling one to curl her own hair, attractively and easily.

The difficulty with previous proposals is that they have not been able to meet heat requirements within a predetermined time range. By way of example, excellent results may be obtained in curling average hair by forming it in rolls and applying heat within the roll in the approximate range of from 80° to 140° F. for about 5 minutes.

It is the general objective of the present invention to provide hair curling packages that meet these general requirements by providing a flat hair curling package that is sufficiently flexible to be formed into a tight roll with heating means that consist of an aluminum foil layer and a flexible absorbent layer including exothermic material that will react with the foil when wetted. The layers are in face-to-face contact and within an envelope of water repellent stock. Means are provided to ensure that, at least when the package is rolled for use, insufficient water is present within the envelope to complete the reaction between the foil and the exothermic material without at least one more wettings, the period of the reaction being at least a substantial part of the time required for a hair curling treatment.

Such a package has advantageous features even though it might be thought that the package should contain only that amount of fuel that would provide the desired time-temperature range with a single wetting. Excess water would result in such objectionably slot heat generation as to render the treatment imperfect and water escaping from a rolled package during use would be equally objectionable. As a practical matter, it is, accordingly, desirous to ensure that, when the package is in use, the absorbent layer carries less that its capacity of water substantially throughout its entire area to ensure prompt heat generation so that it may be used several times without loss of efficiency, for subsequent hair curling or as part of the same treatment if the curls do not become well established during the initial reaction.

It is preferred that the envelope be sealed and have apertures of such small size and so distributed as to prevent the admission of enough water to saturate the absorbent layer during an immersion interval of approximately three minutes or less with the admitted water so distributed over the absorbent layer that substantially its entire area is envolved in heat generation. One or more sides of the envelope can be left open to permit quicker water admission as the excess will be squeezed out when the package is rolled for use. In that case, however, care must be exercised to ensure that such excess is, in fact, eliminated before the rolled package is used.

Such a package is also well adapted to meet requirements of production and distribution since they may be produced at low cost and are dimensioned so that they may be machine dispensed.

In the accompanying drawings, there are shown embodiments of the invention illustrative of these and other of its objectives and novel features and advantages.

In the Drawings:

FIG. 1 is a view in elevation of a hair curling package in accordance with the invention,

FIG. 2 is a section taken approximately along the indicated lines 2–2 of FIG. 1,

FIG. 3 is a like view illustrating a modification of the invention,

FIG. 4 is a plan view of a fragment of a composite perforated sheet,

FIG. 5 is a view illustrating hair treatment with the invention in roll form and inserted in a tubular hair curler, and

FIG. 6 is a view showing a package rolled for use by itself or within such a hair curler.

In accordance with the embodiments of the invention shown in the drawings, a hair curling package consists of an envelope shown as formed by outer layers 10 of water repellent stock and marginally sealed together, and inner aluminum foil layers 11 between which there is a flexible absorbent layer 12 impregnated with exothermic material which, when wet, reacts with the aluminum layer to provide the heat necessary for setting the curls. In practice, it is preferred that the layer 12 be impregnated with a commercial grade of nitric acid diluted with the acid acid-to-water ratio being in the approximate range of 1 to 5, and in any event of insufficient strength to injure the skin. Any other exothermic material can be used that will result in a heating interval of about five minutes with a temperature range of approximately 80° F. to 140° F. provided the exothermic material is safe to use.

It is preferred that the envelope be formed of water repellent stock 10 having, see FIG. 4, an aluminum foil coat 11 so that layers 12 cut from long strips may be economically packaged in envelopes conventionally formed from long strips of such stock with the foil being the inner layer or lining of the envelope. Preferably such stock is provided with perforations 13 before the package is formed as illustrated by FIGS. 2 and 4 but the package may be formed and then provided with perforations 13A extending completely through it as is illustrated by FIG. 3. The perforations must be small to avoid admitting too much water into the packages when the packages are immersed in water for intervals of about three minutes or less. The perforations are approximately pin pricks in size and are distributed over the entire area of the package. Even though the reaction destroys the aluminum, the small size of the holes in the envelope prevent the escape of any residue.

It is essential that packages in accordance with the invention be relatively thin, flat, and flexible in order that they may be formed into rolls about which hair may be wound to form a curl of desired characteristics. The package may have a long foldable attaching strip 14 secured to it, desirably adjacent one end, by which the hair and the package may be interconnected to stay in curl forming relationship. In addition, the packages must be capable of being so tightly rolled that each may be inserted in a roller 15 which may be of any type and when the roller 15 does not have means for holding it in place, the strip 14 may be used for that purpose.

In practice, the hole size is about .02 inch and satisfactory results are attained with approximately eighteen to twenty-four holes per square inch. The preferred range of hole size is .0156 to .0695 inch with there being fewer holes as their size increases. While holes larger than the preferred range can be used, provided they are disposed to effect end-to-end heating of the package, the package is weakened and residue may escape. The extent to which the aluminum foil is destroyed is determined by its gauge and by the amount of water present with too little water being objectionable only in that the reaction time may be too short for the treatment. The packages may, accordingly, be designed for either single or multiple use.

I claim:

1. A flat hair curling package that is sufficiently flexible to be formed into a roll, said package comprising heating means including aluminum foil layers and an intermediate flexible absorbent layer including exothermic material reacting, when wet, with the foil, said layers being in face-to-face contact, and a closed envelope in which said heating means are confined, the walls of said envelope overlying the proximate faces of the foil layers, said envelope being of stock that is water repellent and provided with means to effect the distribution of moisture over a substantial portion of the area of the absorbent layer without its saturation, at least when rolled for use, said moisture distributed means being in the form of a multiplicity of apertures distributed over the entire surface of both faces of the package.

2. The package of claim 1 in which the foil layer is bonded to the stock of which the envelope is formed.

3. The package of claim 1 in which the apertures are in the order of pin pricks in size.

4. The package of claim 1 in which the apertures extend only through the walls of the envelope.

5. The package of claim 1 in which the apertures extend from facegto-face of the package.

6. The package of claim 1 and a tubular member having a plurality of apertures in its wall about which hair is to be rolled, the package being rolled and confined within the tubular member.

7. The package of claim 6 and a bendable attaching member between the package and the tubular member and secured to one end of the package.

8. The package of claim 1 in which the apertures are in the approximate range of .0156 to .0695 inch in diameter.

9. The package of claim 1 in which there are approximately 18 to 24 apertures per square inch.