May 23, 1944. F. KORF ET AL 2,349,285

METHOD OF PERMANENT WAVING AND A PERMANENT WAVING HEATER

Filed June 23, 1932 2 Sheets-Sheet 1

Fig. 1.

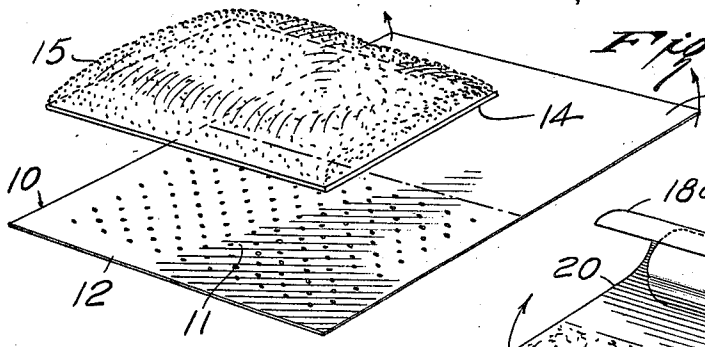


Fig. 3.

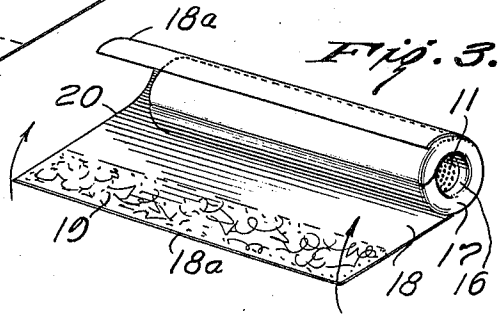
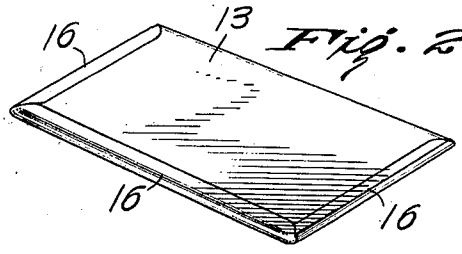


Fig. 2.



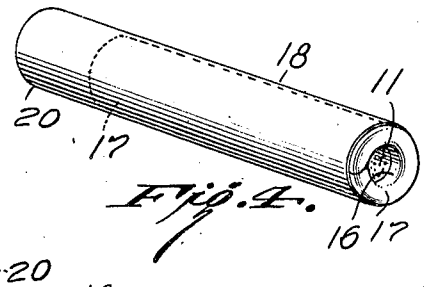


Fig. 4.

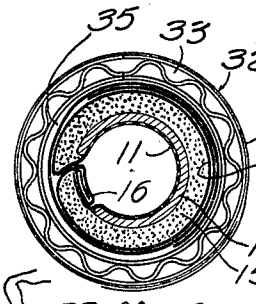


Fig. 7.

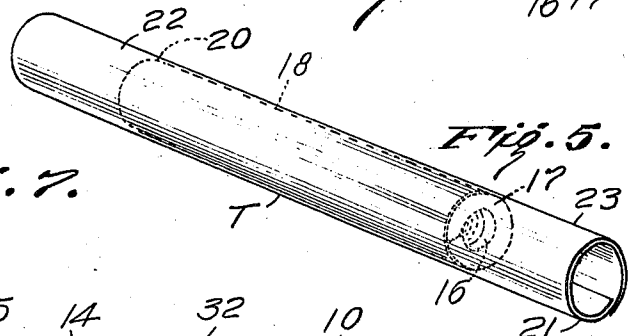


Fig. 5.

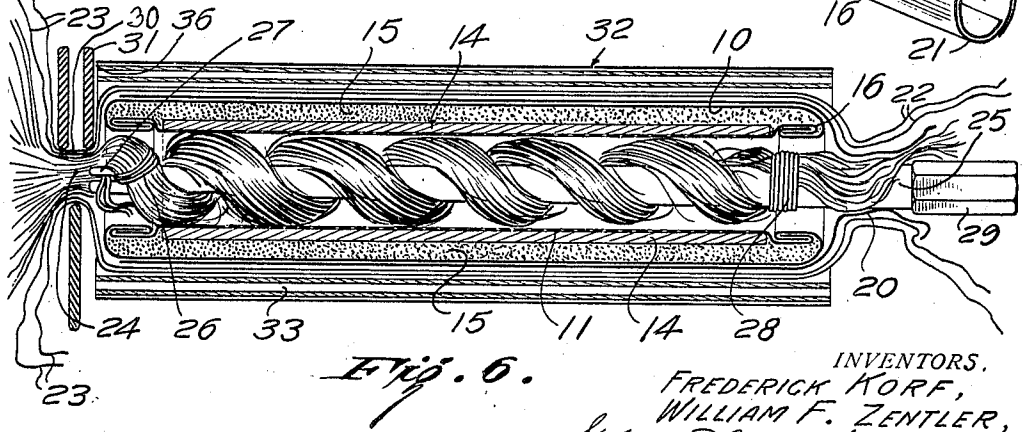


Fig. 6.

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METHOD OF PERMANENT WAVING AND A PERMANENT WAVING HEATER

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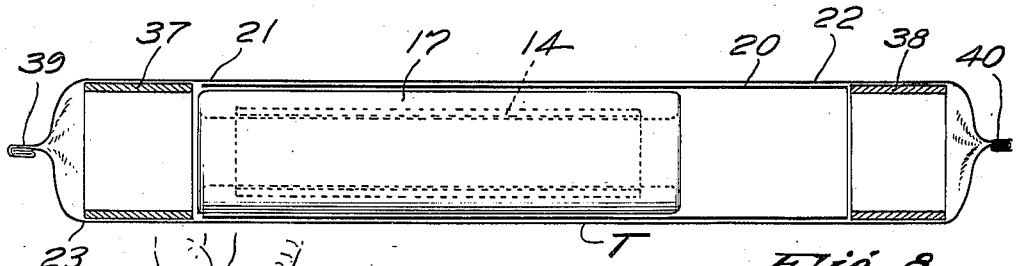


Fig. 8.

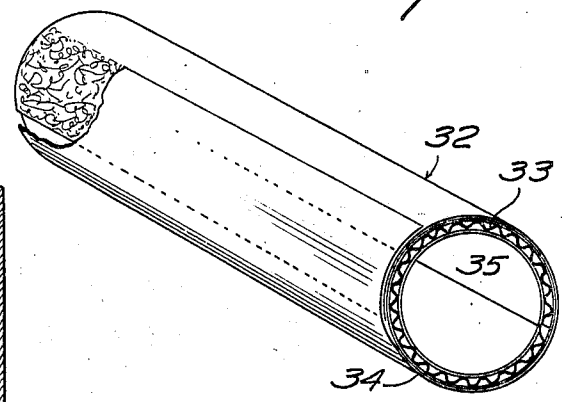


Fig. 9.

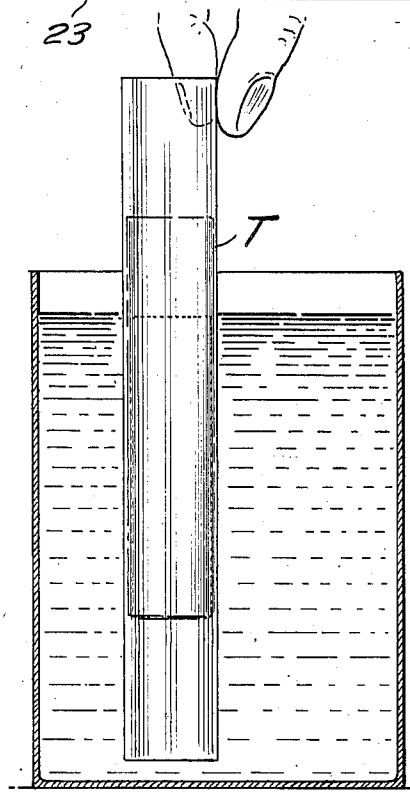
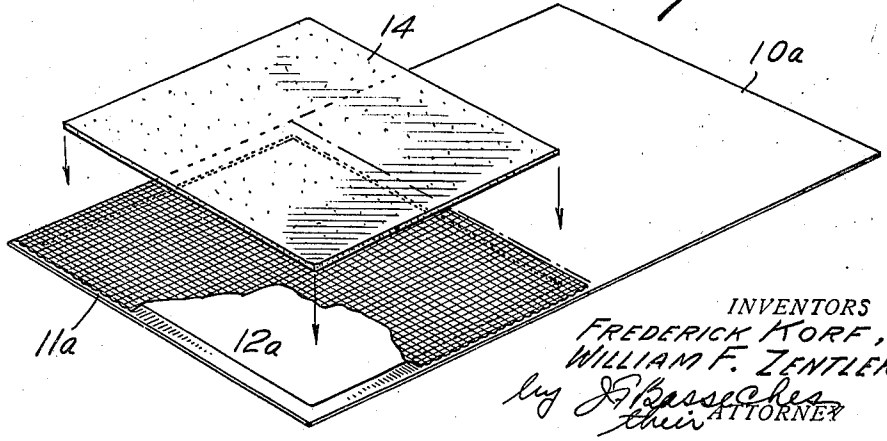


Fig. 10.

Fig. 11.



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UNITED STATES PATENT OFFICE

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METHOD OF PERMANENT WAVING AND A PERMANENT WAVING HEATER

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Application June 23, 1932, Serial No. 618,878

31 Claims. (Cl. 132—36.2)

This invention relates to hair curlers for the permanent waving of hair, and to a method of permanent waving.

Where we have used electrically heated tubes to impart a permanent wave to hair in connection with moistening agents or chemicals, the apparatus which involved electrically heated elements applied to a strand of hair upon a curling stick, included the use of a great many such electrical heaters. The apparatus thus necessarily involved an initial outlay of a considerable amount, making it very expensive and restricting the use of such apparatus to highly skilled operators. The use of this apparatus also, in its application to the hair, involves an intimate knowledge of the duration of time of treatment, which is not infallible, and frequently results in an overtreatment, a scorching of the hair, and perhaps a permanent injury thereto, when used by those not skillful and intimately acquainted with the manner of applying this treatment. The nature of the process of permanent waving, using electrical heaters, limits the use of the apparatus to one individual for the entire period of treatment, and therefore limits the activity of the operator controlling the same.

We have found that we may dispense with the use of electrical energy for heating in order to impart a permanent wave to the hair, or the use of the expensive elements involved in mechanically constructing hair heating tubes by the use of a novel source of heat, created by chemical reaction.

It is an object of our invention to provide a hair waving element which may be prepared and sold as a unit, and which derives its heat by including a chemical compound which may be activated to generate heat and transmit the heat thus obtained for a so-called permanent hair waving treatment. It is contemplated by our invention to provide a package in the form of a tubular member, which lends itself facilely for attachment and application in connection with a permanent waving treatment, and merely requires, when ready for use, the activation of the chemical reaction of the chemical used, such as by a moistening treatment, to thereby produce the requisite heat for a predetermined period of time, to impart to the hair treated a permanent wave.

It is a further object of our invention to provide for permanent wave treatment, a tubular member which eliminates the cost and labor now involved in making metallic electrical heaters, by providing a heating member made of relatively inexpensive material, such as paper, tin foil or similar sheeted materials, the tubular member including means in a compartment for holding chemical substances which may be activated with water or similar inexpensive reagents, to generate heat by a hydration operation of sufficient intensity and for a sufficient duration of time to accomplish an action equivalent to that obtained by the heat of electrical heaters or similarly heated units.

It is still further an object of our invention to provide, for purposes of permanent waving, a heater tube which derives its ability to generate the heat necessary for permanent hair waving by chemical reaction or a hydration reaction of chemicals used, and to provide such tubes of relatively inexpensive material, which tubes may be discarded after use, the tube serving as a convenient method of storing the chemical reagent used, without danger of deterioration during storage.

It is a still further object of our invention to provide for use in connection with permanent waving of hair, a tubular package which includes material which may be activated by chemical reaction or hydration to generate the requisite heat for permanent waving, and which, at the same time, provides vaporous products which will augment the effect of the heat, preferably accompanying this reaction by changes in volume of the material used for generating the heat, whereby hair under treatment will not only be subjected to heat, but to pressure, to more effectively accomplish a permanent wave.

Still further objects of our invention reside for use in connection with the permanent waving of hair, in providing a tubular heated member which derives its source of heat by a chemical action, preferably hydration of a chemical, whereby its application to a strand of hair to be treated may be accomplished in a most facile manner, and the hazards of this treatment reduced to the minimum, by avoiding injurious contact of the heater with any parts of the body of the individual treated, and sealing the unit used for heating against escape of hot vaporous products, particularly in the direction which may cause contact of the same with the scalp of the individual treated, or any other portions of the body.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, we make reference to the accompanying drawings, forming a part hereof, in which—

Figures 1–5 are perspective views showing the progressive manner of forming a tubular heater in accordance with our invention;

Figure 6 is a longitudinal sectional view disclosing the heater tube and auxiliary cap as applied to a strand of hair, when in use;

Figure 7 is a transverse sectional view of Figure 6, before application of the assembly to the strands of hair to be treated;

Figure 8 is a longitudinal section of the heater tube, formed into a package;

Figure 9 is a fragmentary perspective view of the heater tube cap;

Figure 10 is a perspective view of the heater tube, illustrating one manner of activating the chemical reaction;

Figure 11 is a fragmentary perspective view illustrating another embodiment of our invention.

In the general practice of our invention, it is contemplated by us to utilize the exo-thermic energy derived from chemical reaction or hydration of materials, and utilize the heat so generated, with or without any vapors that may be generated as a result of the same, or by the same, or a combination of the same, when in contact with or in the presence of hair, to effect a permanent waving or setting of the hair in a desirable manner. In the practice of our invention, in its more preferred form, we provide a tubular container formed with spaced walls which may contain a pulverulent material, such as quick lime, aluminum chloride, with or without additional ingredients, such as inert fillers, heat retaining materials, such as pulverized iron filings or materials capable of generating vaporous products, of use in softening the air, as is well known in permanent waving processes. A tubular member with double walled jackets, capable of retaining such chemical materials as above mentioned, having preferably a sealing wrapper, is then treated to activate the chemical material, preferably by hydration of the same where quick lime is used, and during the hydrating reaction, the tube containing this material is applied in position upon a strand of hair, in a manner now used by electrical heater tubes, and during the time that the hydration reaction ensues, with the consequent heat generated thereby, this tubular member is held in contact with the hair to effect a permanent wave.

In the preferred form of our invention, the package material for the chemical material used to generate heat is in itself formed in the contour similar to an electrical heater tube, or any other convenient form for application over a hair curling stick, the chemical material that is used being packed in an inactive condition, to be used subsequently upon hydration and the activation of the heat of reaction, and applying the same to a hair curling stick for a sufficient period of time to effect a permanent waving of the hair wound on the curling stick.

For a clearer understanding of our invention, reference will now be made to the accompanying drawings for a method of forming the heater tube contemplated by our invention. In Figures 1 to 5 there are illustrated the successive steps of forming the heater tube. There is first supplied a rectangular sheet **10**, made of sheeted material such as tin foil, aluminum foil, Cellophane, or similar gelatinized plasticized cellulosic compounds, or the like. A portion of this sheet is perforated at **11**, leaving a rim **12** unmodified, and approximately one half of the sheet **13** also unmodified.

Over the perforations thus formed at **11**, there is positioned a rectangular sheet of absorbent material **14**. This may be a piece of blotting paper, filter paper, cloth or the like. Prior to superimposing the sheet **14** over the perforations **11** of the underlying sheet **10**, or after this operation, there is deposited a uniform layer of a pulverulent material **15**. This layer of pulverulent material is spread for a distance at least to cover the absorbent material **14**, previously described, and the latter is chosen of a size to adequately cover all the perforations formed in the underlying sheet **10**.

The chemical material chosen for our purposes, in its preferred form, is finely pulverized quick lime, which may have mixed therewith other ingredients, such as ammoniated products, to generate ammonia vapors, heat retaining materials, such as pulverized iron or iron filings, or the like. Other materials which when reacted upon by fluids or aqueous solutions of chemicals, result in exo-thermic reactions by reason of the chemical action set up or by reason of the hydration which ensues, may be used, and as an additional example, aluminum chloride is referred to as also admirably suitable for our purposes.

Upon stacking the sheets in accordance with the method just described, the section **13** is folded over the perforated portion **11**, the absorbent material **14** and the dry chemical material **15**. The free edges are then crimped or folded at **16**, to form an envelope, as shown in Figure 2.

The envelope thus provided is then shaped into a tubular member **17**, preferably by rolling the same upon a mandrel whose diameter corresponds substantially to that occupied by a hair curling stick with a strand of hair wound thereon, in accordance with the standard practice now employed for permanently waving hair.

With the envelope formed into a tubular member as described, it is then positioned on a rectangular section of sheeted material **18**, such as shown in Figure 3. This sheet **18** may be another layer of tin foil or a cellulosic material, or cellulosic compound formed into a sheet, such as Cellophane. The sealing sheet **18** is then rolled around the tubular member **17**, adhesive material **19** being provided adjacent one edge to effect a seal at the point where the ends **18a** overlap. The length of the sheet is such as to provide an excess portion at **20**, for purposes which will appear more clearly as this description proceeds.

The tubular envelope and envelope sheet, after adhesion, are more clearly illustrated in Figure 4.

After forming the tubular member thus far described, constituting the perforated envelope and envelope sheet, this tubular member is then wrapped in a further layer of sheeted material **21**, shown in Figure 5. Preferably two convolutions of the sheet **21** are formed about the assembly shown in Figure 4, leaving an overhang **22** and **23**, to each end. The wrapper thus provided is securely adhesively applied.

Where we use a sheeted material, such as plasticized and gelatinized cellulosic material, such as Cellophane, this is preferably of the character which is a regenerated cellulosic sheet, waterproofed with varnish or a pyroxylin composition, or waterproofing materials, such as mixtures of

waxes, of the character well known in the trade. For purposes which will appear more clearly as this description proceeds, the waterproofing material or the sheeted wrapper 21 may be of a cellulose acetate material or a sheet of regenerated cellulose coated with a film of cellulose acetate. However, other impermeable sheets may be used and parchmentized paper may also be used, although the materials already described are preferred.

In general, we prefer a material which is extremely tough, waterproof, yet soft, approaching limpness, in order that it may be folded readily in accordance with the use to which it is to be applied, as will more clearly appear as this description proceeds, and for this reason the regenerated sheet of cellulosic material, such as suitably softened Cellophane, is preferred by us.

With a tubular member as shown in Figure 5 prepared in accordance with the method heretofore described, the same is now ready for use in a permanent waving treatment.

The hair of the individual which is to be treated is first prepared for the treatment in the usual manner and for this purpose, a strand of hair 24 is tied to a hair curling stick 25, adjacent the scalp, by a string or similar fastening means 26, the forked end 27 serving to anchor the string. The loose end of the lock of hair is then tied down with a string 28 and then the knob 29 is rotated to wind and tightly coil the strand of hair upon the curling stick.

With the lock of hair thus prepared, the tubular package previously described and illustrated in Figure 5, is now ready to be applied to the curling stick and lock of hair mounted thereon. The tube T, shown in Figure 5, is now dipped into a moistening fluid, as shown in Figure 10. Where we have used quick lime as the chemical preparation, water is used as the moistening fluid. The tube T is left in the moistening fluid for a short period of time, in order to assure the absorbent material 14 contained thereby taking up the moistening fluid to saturation, water entering into the envelope shown in Figure 2 through the perforations 11 formed in the first layer 10. The tube thus prepared is ready to be slipped over the curling stick and the lock of hair. The end 23 of the tube is placed adjacent the scalp and the wrapper 21 twisted at this point. Over the twisted ends 30, there is then passed a hair clip 31, of disk-like construction, made of wood, Bakelite or similar material. The specific details of this clip form no part of our present invention, and no further description need be made.

Where the wrapper 21 is made of transparent cellulosic material, such as Cellophane, the proper positioning of the clip 31 will be greatly simplified, and accurate adjustment of this clip will be assured.

The dimensions of the tube T are so chosen as to cover the normal dimensions of the curling stick with the lock of hair thereon, and with the tube as positioned, the overlap 20 is first twisted about the upper neck of the curling stick immediately below the knob 29. The free end 22 of the wrapper is then also given several twists to effectively seal the tube about the curling stick, at its free end. During this period of time the moistening fluid has commenced to act upon the pulverulent chemical powder retained within the envelope 17, previously mentioned, the action being one to set up the generation of heat and also the generation of vaporous products or steam, either from that contained in the layer 14 or that contained in the chemical admixed with the layer 15, previously referred to, where this is used.

Within a short period of time, the hydration effect or chemical reaction of the moistening fluid and powder generates steam and the powder itself expands, setting up not only a pressure by reason of the vapor generated but by reason of the expansion of the pulverulent material. This pressure is maintained within the tubular member by the sealed envelope formed by the wrapper 21 and the other layers of material enveloping the pulverulent material. In addition to this action, there is the heat of conduction by reason of contact of the envelope containing the chemical with the lock of hair treated. The consequent action is both of heat and pressure, to thereby effectively perform the permanent waving operation.

The tube T as applied to the lock of hair, may be left upon the lock of hair and curling stick, supporting the same, until the heat dissipates itself. With certain chemicals, the time of treatment may be determined by adding a measured quantity of moistening fluid to a measured quantity of the chemical used, to restrict the heating process to a period of time determined previously as being best suited for practicing the process.

In order to control the relative position of the curling stick 25 and lock of hair mounted thereon in relation to the scalp, to avoid dropping of the tube which may contact with exposed portions of the individual whose hair is being treated, we provide a tube 32 made of insulating material 33, such as corrugated paper board, wrapped in a sheet of paper or cellulosic material, such as Cellophane 34. The inner diameter 35 conforms substantially to the outer diameter of the tube T. The tube 32 thus provided is slipped over the tube T, until the edge 36 abuts the disk-like clip 31 already positioned adjacent the scalp. This contact which the tube 32 makes with the disk-like clip 31 serves to hold the entire assembly at an angle to the scalp, in a manner as will be readily understood. The tube 32 further serves to conserve the heat generated within the tube T and provides a more facile manner of handling the same, so that it is not uncomfortable to the touch, or uncomfortable when in contact with any part of the body of the individual whose hair is being treated.

With the heater as positioned and as illustrated in Figure 6, steam or other vapors generated during the reaction of the moistening material and the pulverulent chemical material will be held against substantial loss by the effective seal formed by the wrapper 21 through the overlapping portions of the ends of the sheet, and also where the loose ends 22 and 23 have been twisted. This will be of value especially at the point adjacent the scalp where the clip 31 holds the twisted end 30 of the wrapper 21. Any steam or vapor which may be formed within the tube T will escape and cause no discomfort to the individual whose hair is being treated.

The tubular heater, as illustrated in Figure 5, when marketed, is preferably retained within a hermetically sealed container, in order that atmospheric moisture may not deleteriously affect the chemical materials retained within the envelope 17, especially where we use a chemical material which responds to the addition of moisture to generate heat.

To more effectively accomplish this purpose and avoid deterioration of the chemicals used by reason of storage of these tubes, it is pre-

ferred by us to form a packaging material, as illustrated in Figure 8. In this embodiment, after completing the tube T as shown in Figure 5, there are inserted short tubular rings 37 and 38 to each end of the tube T within the sections 22 and 23. These rings are preferably made of paste board or similar material, and serve to prevent the sections 22 and 23 from collapsing. The overlaps are then crimped into seals 39 and 40, using an adhesive effective for the principal sheet of which the wrapper 21 is made. Where a sheet of regenerated cellulose which has been water-proofed with a varnish which is heat responsive is used, the seal may be formed by heating the seal 39 and 40 while applying pressure thereto. The use of pyroxylin solution, as an adhesive, and the application of heat and pressure to the seals 39 and 40 are preferred by us, though a cellulose acetate coated sheet of regenerated cellulose may be used, and when thus formed, the wrapper 21 will serve as a hermetic seal for the pulverulent chemical material contained within the envelope 17.

Though it is preferred to use the rings 37 and 38 in the manner as described, these stiffening rings may be entirely eliminated. The package as so prepared, may then be retained without the necessity of packing a number of the tubes described in a hermetically sealed container and the entire package may be retained in storage, without danger of deterioration by atmospheric moisture, or other causes.

When the package as thus described and illustrated in Figure 8 is to be used, the seals 39 and 40 are broken by suitable means, such as by severing the same with a pair of shears and each of the rings where these are used, is then removed. The heater tube T resulting, will therefore be ready for use in the manner previously described.

In the embodiments illustrated in Figures 1 and 5 we have referred to a sheet 10 which may be perforated in part and made, in its preferred form, of tin foil or similar sheeted material. It will be understood that similar perforated material may be used, and for certain purposes, the portion occupied by the perforations 11 in this sheet, may be formed into a complete rectangular cutout, in which case we may provide a closure for this cutout portion by superimposing over this cutout portion a sheet of wire screening. We may also substitute for the sheet 10, an entire sheet of wire screening, in which case the pulverulent chemical material is first deposited within an envelope formed of absorbent material, such as blotting paper, filter paper or cloth, and this envelope wrapped within a sheet of wire screening, in acocrdance with the method heretofore described in forming the tubular envelope 17.

In accordance with the above, we have illustrated in Figure 11 another embodiment of our invention in which a rectangular sheet 10*a* is formed for substantially one half thereof with a cutout portion 12*a*. Over this cutout portion there is superimposed a sheet of wire screening 11*a*, sufficient overlap being provided to cover the edges remaining after cutting out the portion 12*a*. Upon the screening 11*a* there is superimposed a sheet of absorbent material, such as blotting paper, filter paper, cloth or the like, 14, and over this there may be disposed the pulverized chemical material of the character hereinbefore referred to. The layer so provided may then be formed into an envelope such as illustrated in Figure 2, and the same is ready for being formed into a tubular member, such as 17, described and illustrated in connection with the embodiments shown in Figures 1–5.

It will be further understood that where the sheet 10*a* is made of sheeted material, such as tin foil, the cutout portion 12*a* need not be formed until just prior to the formation of the entire assembly into the tubular member and the portion outlined by the cut-out lines 12*a* may be score lines formed by perforations, to facilitate tearing away this cutout portion along these lines.

It will thus be observed that by the article and method hereinbefore described, we have provided a hair treating tube of simple construction and of low cost, which may be efficiently used in the treatment of hair to impart a permanent wave thereto, and that the method of forming this article provides a convenient package, whereby the same may be quickly available for use and may be retained in storage without danger of deterioration of the chemical materials used to react with moistening fluids or chemicals to generate heat.

The tubular heater thus provided being light in weight, may be readily affixed in position for practicing the hair treating process contemplated by us, with minimum discomfort to the individual treated.

Having thus described our invention and illustrated its use, what we claim as new and desiire to secure by Letters Patent, is:

1. A hair waving tube of the character described comprising preformed tubular pliable enveloping walls containing a pulverulent material capable of being activated to generate heat envelope being formed with perforations, and an impermeable wrapper sheathing tightly encasing the same.

2. A hair waving tube of the character described comprising preformed tubular pliable enveloping walls formed with perforations containing a pulverulent material capable of being activated to generate heat, and an impermeable wrapper sheathing tightly encasing the same, and extensions disposed from said wrapper sheathing serving as closures for the tube protecting the same from atmospheric deterioration.

3. A hair waving tube of the character described comprising preformed tubular pliable enveloping walls containing a pulverulent material capable of being activated to generate heat, one end of said walls being formed with perforations, and an impermeable wrapper sheathing tightly encasing the same, and pliable extensions formed to one side of said enveloping walls adapted to be crimped or twisted to form a closure for said tube.

4. A hair waving tube of the character described comprising pliable enveloping walls containing a pulverulent material capable of being activated to generate heat, an inner face wall whereof being perforated, and an impermeable wrapper sheathing encasing the same, and pliable extensions formed to one side of said enveloping walls adapted to be crimped or twisted to form a closure for said tube, said extension being formed of substantially transparent sheathing arranged to view the space within the tube for crimping said extensions about a lock of hair.

5. A hair waving tube of the character described comprising a preformed cylindrical envelope arranged to contain a pulverulent material capable of being activated chemically to generate heat, perforations formed in said envelope, an

absorbent sheet between said perforations and pulverulent material, and a sealing wrapper of impermeable sheeting tightly encasing the same.

6. A hair waving tube of the character described comprising a preformed cylindrical envelope arranged to contain a pulverulent material capable of being activated chemically to generate heat and formed with perforations, and a sealing wrapper of impermeable sheeting tightly encasing the same, extensions to each side of said envelope formed of pliable sheeting adapted to be crimped or twisted to form a closure for said tube.

7. A hair waving tube of the character described comprising a cylindrical envelope arranged to contain a pulverulent material capable of being activated chemically to generate heat, and a sealing wrapper of impermeable sheeting encasing the same, extensions to each side of said envelope formed of pliable sheeting adapted to be crimped or twisted to form a closure for said tube, said wrapper and extension being formed of regenerated cellulosic material which will shrink under the drying action of the heat generated.

8. A hair waving tube of the character described comprising a pliable metal foil envelope formed into a tube and containing a pulverulent material capable of reacting with moisture to generate heat and vaporous products, an inner wall of said envelope being formed with perforations, a porous sheet contained in said envelope, disposed between said perforations and the pulverulent material contained therein, an impermeable casing for the envelope so formed comprising a substantially transparent sheeting of regenerated cellulosic material formed with extensions adapted to be twisted or crimped.

9. A hair waving tube and package of the character described comprising a pliable, impermeable envelope formed into a tubular contour and containing a pulverulent material capable of reacting with moisture to generate heat, said tubular casing having an inner foraminous wall, an impermeable casing for the envelope so formed comprising a substantially transparent sheeting of regenerated cellulosic material formed with extensions, the ends of said extensions being sealed to provide a hermetically sealed package for pulverulent material the extensions being of sufficient length for twisting or crimping upon removal or opening of the ends.

10. A hair waving tube and package of the character described comprising a pliable, impermeable envelope formed into a tubular contour and containing a pulverulent material capable of reacting with moisture to generate heat, said tubular casing having an inner foraminous wall and an absorbent pad capable of being moistened interposed between said wall and material, an impermeable casing for the envelope so formed, formed with extensions adapted to be twisted or crimped, the ends of said extensions being sealed to provide a hermetically sealed package for the pulverulent material, and removable stiffening members interposed in said extension between said sealed portions and the tubular envelope.

11. The method of permanent waving which comprises disposing a moistened tubular casing of regenerated cellulosic material over a strand of mounted hair, the tubular casing having an envelope of pulverulent material responding to moistening action to generate heat, and heating the casing by the reaction to shrink the casing during drying and impart pressure to the hair being treated.

12. The method of permanent waving which comprises disposing a moistened tubular casing of regenerated cellulosic material over a strand of mounted hair, the tubular casing having a flexible envelope containing pulverulent material responding to moistening action to generate heat, the moistening action serving to initiate the heating, and continuing the heating for shrinking the casing by the heat generated, to compress the casing upon the hair being treated.

13. A hair waving element including in combination, a tubular member comprising an envelope formed into a tubular contour within said tube and containing a pulverulent material capable of being activated to generate heat, an impermeable wrapping sheathing enclosing the tube, having extensions adapted to be crimped or twisted upon a hair curling stick, by a disk clip, and a cap frictionally engaging the assembly so provided, and arranged to make butt-joint engagement with said clip and hold the assembly angularly to the scalp, against tilting.

14. A hair waving element including in combination, a tubular member comprising an envelope formed into a tubular contour within said tube, and containing a pulverulent material capable of being activated to generate heat, an impermeable wrapping sheathing enclosing the tube, having extensions adapted to be crimped or twisted upon a hair curling stick, by a disk clip, and a cap frictionally engaging the assembly so provided, and arranged to make butt-joint engagement with said clip and hold the assembly angularly to the scalp, against tilting, said cap comprising heat insulating material.

15. A hair waving element including in combination, a tubular member comprising an envelope formed into a tubular contour within said tube, and containing a pulverulent material capable of being activated to generate heat, an impermeable wrapping sheathing enclosing the tube, having extensions adapted to be crimped or twisted upon a hair curling stick, by a disk clip, and a cap frictionally engaging the assembly so provided, and arranged to make butt-joint engagement with said clip and hold the assembly angularly to the scalp, against tilting, formed of corrugated board to provide a plurality of dead air insulating chambers.

16. A hair waving device of the characted described adapted to envelope a tress of hair, comprising in combination a wrapper sheet including an exothermic material containing envelope having its face perforated, a sealing sheet located in relation to the perforated face of the envelope to provide means to prevent ingress of atmospheric moisture tending to cause atmospheric deterioration of the exothermic material in the envelope, an absorbent sheet adapted to be moistened and located upon the perforated face of the envelope and being effective for moistening after the seal formed by said sealing sheet has been altered.

17. A hair waving device of the character described adapted to envelope a tress of hair, comprising in combination a wrapper sheet including an exothermic material containing envelope having its face perforated, a sealing sheet located in relation to the perforated face of the envelope to provide means to prevent ingress of atmospheric moisture tending to cause atmospheric deterioration of the exothermic material in the

envelope, an absorbent sheet adapted to be moistened and located upon the perforated face of the envelope and being effective for moistening after the seal formed by said sealing sheet has been altered, said sealing sheet being moisture impermeable.

18. The hereindescribed hair-curling device including a substantially tubular pack comprising exorthermic substance and a container for said substance permeable by water and a pliable envelope impermeable by water embracing the pack and substantially hermetically sealing-in the same from the atmosphere.

19. The hereindescribed hair-curling device including a substantially tubular pack comprising exothermic substance and a container for said substance permeable by water and a pliable envelope impermeable by water embracing the pack and substantially hermetically sealing-in the same from the atmosphere, said envelope having one end extending beyond the corresponding end of the pack and flattened and adapted to be torn away.

20. The hereindescribed hair-curling device including a substantially tubular pack comprising exothermic substance and a container for said substance permeable by water and a pliable sheet embracing the pack from end to end thereof and impermeable by water and having opposite portions thereof extending generally lengthwise of the pack forming a sealed seam from end to end of the pack, said sheet extending beyond each end of the pack and having each such end flattened and forming a sealed seam.

21. The hereindescribed hair-curling device including a substantially tubular pack comprising, with a substance adapted in the presence of a given liquid to generate heat, a container for said substance permeable by such liquid, and a pliable envelope impermeable by said liquid embracing the pack and substantially hermetically sealing-in the same from the atmosphere.

22. A waving pad for enclosing a preformed tress of hair, said pad comprising an outer wrapper, an envelope formed with perforations in one side, in contact with said outer wrapper, an absorbent pad enclosed in said envelope and adjacent to the perforated side thereof, and chemical means which when moistened will liberate sufficient heat to impart a so called permanent wave to the tress of hair, said chemical means being confined in the envelope aforementioned between the absorbent pad and the unperforated side of said envelope.

23. A waving pad for enclosing a preformed tress of hair, said pad comprising an envelope formed with perforations in one side, an absorbent pad enclosed in said envelope and adjacent to the perforated side thereof, and chemical means which when moistened will liberate sufficient heat to impart a so called permanent wave to the tress of hair, said chemical means being confined in the envelope aforementioned between the absorbent pad and the unperforated side of said envelope thus forming a complete hair waving pad requiring only the application of moisture to be ready for use.

24. A waving pad for enclosing a preformed tress of hair, said pad comprising an envelope of impervious, non-soluble material, an absorbent material enclosed in said envelope, chemical means, which when moistened will liberate sufficient heat to impart a so called permanent wave to the tress of hair, enclosed in said envelope, whereby a waving pad of unitary construction is formed.

25. A waving pad for enclosing a preformed tress of hair, said pad comprising a back face of impervious, non-soluble material and a layer of porous, absorbent material, and chemical means which when moistened will liberate sufficient heat to impart a so called permanent wave to the tress of hair, enclosed in said pad between said back face and said layer and in contact with the latter whereby a waving pad of unitary construction is formed which requires only the application of a liquid to be ready for use.

26. A hair waving pad comprising an outer wrapper, an envelope having one face perforated, an absorbent material enclosed in said envelope and adjacent to the perforated face thereof, and exothermic material enclosed in said envelope between the absorbent material and the unperforated face of the envelope, whereby a waving pad of unitary construction is formed which requires only the application of a liquid to be ready for use.

27. A hair waving pad comprising an envelope of impervious non-soluble material having one face perforated, an absorbent material enclosed in said envelope and adjacent to the perforated face thereof, and exothermic material enclosed in said envelope between the absorbent material and the unperforated face of the envelope whereby a waving pad of unitary construction is formed which requires only the application of a liquid to be ready for use.

28. A hair waving pad comprising a layer of impervious non-soluble material, a layer of porous, absorbent material, chemical means disposed between said porous and non-porous materials, and means for holding said layers together and confining the chemical means therebetween, thus forming a unitary pad which requires only the application of a liquid to be ready for use.

29. A hair waving pad comprising in combination, an envelope, absorbent means inserted in the envelope, and chemical means which in the presence of a liquid will react and liberate heat, enclosed in the envelope.

30. In a hair waving pad of the character described, in combination: an absorbent sheet; an impervious back; chemical means for producing heat disposed between said sheet and back; means for securing said sheet and back together and thereby forming a leak-proof envelope for said chemical means; a wrapper of substantially greater extent than that of said envelope; and means maintaining said envelope in contact with said wrapper and permitting said envelope to be held pendant from a portion of said wrapper whereby said envelope may be immersed in a bath of wetting fluid without wetting the hand of the operator.

31. A hair waving pad comprising in combination an outer wrapper, an envelope, means for assembling the envelope and the outer wrapper to each other, absorbent means inserted in the envelope and chemical means which in the presence of a liquid will react and liberate heat, enclosed in the envelope.

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