Nov. 15, 1955 L. AMENDOLA 2,723,671

METHOD FOR PERMANENTLY WAVING HAIR ON THE HUMAN HEAD

Filed Nov. 29, 1952

Fig. 1.

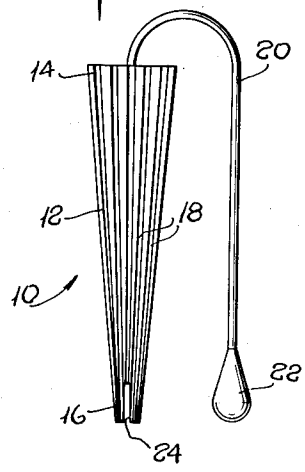
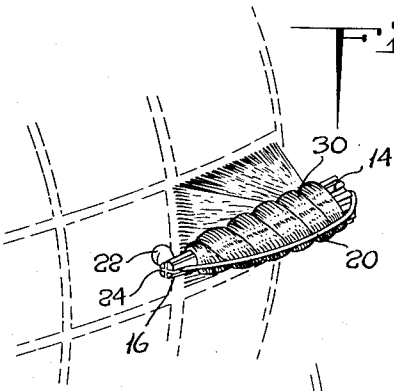


Fig. 4.



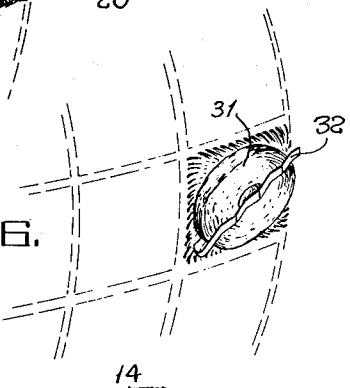


Fig. 6.

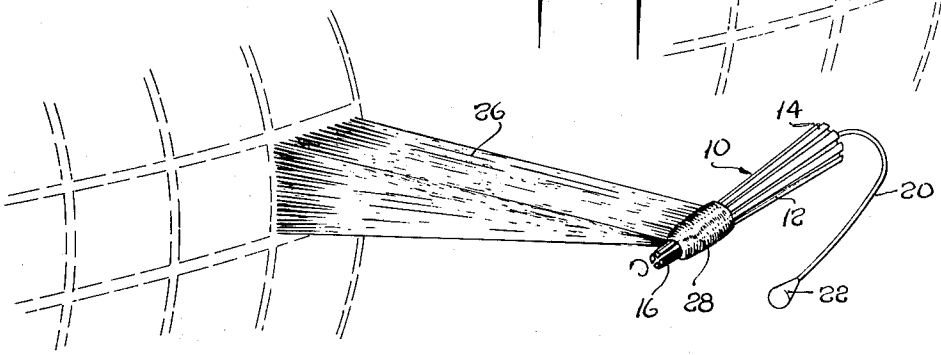


Fig. 2.

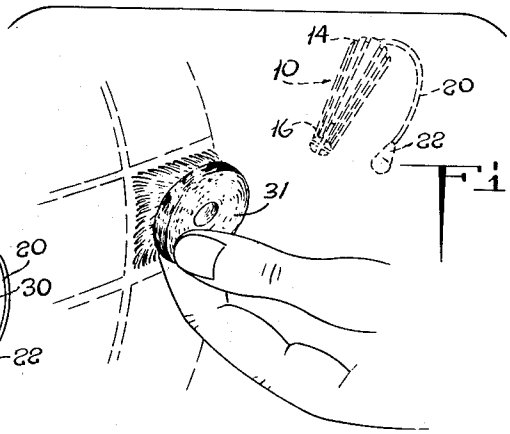


Fig. 5.

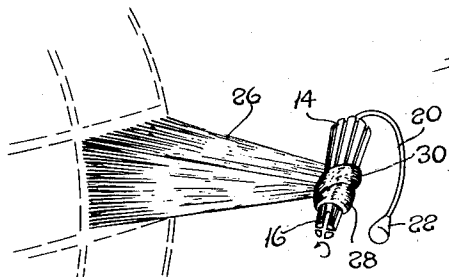


Fig. 3.

INVENTOR.
LEON AMENDOLA
BY
ATTORNEY

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METHOD FOR PERMANENTLY WAVING HAIR ON THE HUMAN HEAD

Leon Amendola, New York, N. Y., assignor to Turner Hall Corporation, New York, N. Y., a corporation of New York

Application November 29, 1952, Serial No. 323,240

4 Claims. (Cl. 132—7)

This invention relates to a method for permanently waving hair on the human head.

It is an object of my invention to provide a method of the character described which simplifies the coiffure setting of hair for the first set following a permanent wave as well as for subsequent sets.

It is another object of my invention to provide a method of the character described which forms tresses of an extremely natural shape and appearance in which the wave extends to the very tips of the hair strands.

It is another object of my invention to provide a method of the character described by means of which the hair may be set permanently in ringlets that can be quickly converted into any one of many styles of coiffure.

It is another object of my invention to provide a method of the character described which can be performed readily by skilled and unskilled persons.

It is another object of my invention to provide a method of the character described which can be used to form ringlets that turn in either direction.

My invention consists in the series of steps which will be exemplified in the method hereinafter described and of which the scope of application will be indicated in the appended claims.

Other objects of my invention will in part be obvious and in part will be pointed out hereinafter.

In the accompanying drawings in which is shown one of the various possible embodiments of my invention,

Fig. 1 is a plan view of a waving unit adapted to be used in connection with my invention;

Fig. 2 is a perspective view of said unit at an early stage of a winding operation;

Fig. 3 is a view similar to Fig. 2 but at a slightly later stage of the winding operation;

Fig. 4 is a view similar to Fig. 2 but at the completion of the winding operation and after the unit has been secured against unwinding;

Fig. 5 is a perspective view of the wound tress after transformation into a ringlet and removal from the unit; and

Fig. 6 is a perspective view of the tress during coiffure setting.

In carrying out my invention I employ a waving unit **10** (see Fig. 1) constituting a spindle **12** of terete shape, i. e. a spindle which has a large end **14** and a small end **16**, and tapers, preferably uniformly, from one end to the other. The transverse cross-section of the spindle is basically circular although in order to obtain a better hold on hair the spindle may be provided with longitudinally extending irregularities such for instance as grooves **18**.

The spindle must not be longer than two inches and the effective curling surface should not exceed one and a half inches. The minimum diameter of the large end is about five-sixteenths of an inch and good results have been obtained with diameters ranging from three-eighths of an inch up to three-quarters of an inch. The diameter of the small end of the spindle must not be less than

three-sixteenths of an inch nor more than nine-sixteenths of an inch. Preferably, the taper in diameter should be about three thirty-seconds of an inch per linear inch of the spindle.

A slender flexible elongated member **20** extends from the center of the large end. By way of example, said member may be formed in one piece with the spindle. For this purpose the spindle can be fabricated from an elastomeric plastic, for instance polyethylene, the thickness of the spindle rendering the same relatively stiff, while the small diameter of the member **20** permits the latter to be flexible. Said member is somewhat longer than the spindle and its free end is fashioned into a knob **22**. The small end of the spindle is provided with one or more open ended slots **24** which are adapted to receive and frictionally retain a portion of the member **20** near its free end.

Prior to winding, the hair on a woman's head is subdivided into a series of tresses **26**, i. e. bundles of hair strands, having a base configuration which is not markedly elongated. The actual shape of the base configuration will depend upon the type of coiffure to be obtained, the training and preference of the beauty parlor operator, and taste of the individual whose hair is to be waved. However, in general, the longest dimension of the base of any tress should be approximately equal to the shortest dimension of said base, it being within the scope of my invention to wave strands, the bases of which are slightly elongated, for example, whose longest dimension does not exceed twice its shortest dimension. The relative arrangement of the several tresses on the scalp likewise will depend upon the style of the setting and tastes of the operator and patron.

If, as is desirable, the permanent waving is to be carried out by the so-called "cold waving" process the tresses are wetted with a softening or waving solution (these terms are used herein interchangeably). Many such solutions are well known to the art and mention is made here only by way of example of a typical softening solution, to wit, one principally employing as the reducing agent a chemical like ammonium thioglycollate.

After a tress has been wetted with the softening solution the distal end thereof is placed on the spindle near the small end of the latter. If desired a protective end paper first may be placed on this end of the tress. The small end may either be on the right or left of the large end in accordance with individual preference. The spindle is rotated in either a clockwise or counterclockwise sense, as desired, about its longitudinal axis towards the proximal end of the tress, the spindle at such time being held substantially parallel to the proximate region of the scalp, i. e. perpendicular to the longitudinal axis of the unwound tress, so that the part of a strand so wound will lie in a plane substantially perpendicular to the longitudinal axis of the spindle. Inasmuch as the strands of a tress will with this type of winding roughly form a cylinder, said winding will be referred to hereinafter as "cylindrical" winding.

Pursuant to my invention I form at least one full turn (360°) of cylindrical, winding **28** at the small end of the spindle (see Fig. 2). Optionally, more than one turn of such winding may be provided. However, no more than three turns can be used. It may be mentioned that, for reasons which will later be apparent, it is desirable for the length of the cylindrical winding axially of the spindle to be comparatively short and for this purpose when the tress is combed out and has its tip placed on the spindle said tip is not flattened out as commonly is the case in croquignole winding but rather is kept comparatively narrow, in no case exceeding the width of the base of a tress and usually being considerably less than the width of said base. This is greatly facilitated

by so arranging the base of each tress that its longest dimension is approximately equal to its shortest dimension. The best results are obtained where the length of the cylindrical winding does not exceed one-third of the effective curling surface of the spindle.

It will be observed that the cylindrical winding **28** leaves the slots **24** clear.

The remainder of the tress substantially all the way to the base is wound on the spindle helically, that is to say, successive convolutions **30** of the helical winding (see Figs. 3 and 4) lie side by side along the spindle rather than overlapping as with the cylindrical winding **28**. Pursuant to my invention there should be at least one full turn, and preferably more, of helical winding.

To recapitulate, the first turn or first few turns of the tress are wound in overlapping fashion on the small end of the spindle by cylindrical winding and the remainder of the tress up to adjacent the proximal end thereof is wound helically along the length of the spindle toward the wide end.

It may be mentioned that, if so desired, the waving solution can be applied subsequent to the winding of the tress.

When the tress is completely wound the free end of the elongated member **20** is secured to the small end of the spindle by forcing the portion of said member adjacent the knob **22** into the slot **24** (see Fig. 4). In this manner said member is caused to lightly frictionally engage the outer surface of the wound tress and thereby retain the tress in its fully wound condition adjacent the scalp.

The wound tress is permitted to stand long enough for the waving solution to function, as is well known, and then a second solution is applied thereto. This second solution is a neutralizing, e. g. an oxidizing solution, including for example a perborate, a peroxide or a bromate, which causes the hair softened by the waving solution to be rehardened.

One of the advantages of my method is that the hair along the spindle is not unduly thick at any place; that is, it does not consist anywhere of a large number of overlying convolutions, so that all parts of the hair are readily accessible to the neutralizing solution. Moreover, the portion of the hair, viz the tips, the permanent waving of which is of the utmost importance, is just as accessible to the neutralizing solution as all other parts of the strand. Heretofore in tip-to-base winding this part of the hair has been disposed closest to the spindle and has been concealed by many overlying convolutions so that it was the hardest part of the air to reharden and, accordingly, the tips tended to relax more rapidly than the rest of the strand after permanent waving.

After the neutralizing solution has been permitted to act upon the softened and wound tress sufficiently long to reharden the hair in a conventional manner and thereby permanently wave the same, the flexible member **20** is disengaged from the small end of the spindle and the wound wet tress is axially compressed manually as indicated in Fig. 5 to transform the wound tress from an elongated tube consisting of a cylindrically wound portion and a helically wound portion into a thin flat centrally apertured disk **31** known as a ringlet or pin curl. As the tress is flattened in the foregoing manner it is stripped from the spindle, this action being facilitated by the terete shape of said spindle.

Simultaneously with or after flattening the wound tress, the pin curl is turned 90° about an axis parallel to the scalp and perpendicular to the longitudinal axis of the spindle so that the plane of the curl is brought substantially into parallelism with the adjacent part of the scalp as indicated in Fig. 5. Thereupon the pin curl is pressed against the scalp and held in a suitable manner, as with a bobbie pin **32** (see Fig. 6) or with a net and no bobbie pins.

The wound tress prior to its change, without reshaping, into a pin curl has been permanently waved so that as a result of such change the tress is properly oriented for coiffure setting. In this last state, the tress is permitted to dry whereby when subsequently the hair is combed out, it can be set in the same manner as if it had been hand set by a beauty parlor operator in the usual manner after permanent waving and drying. It will be noted that by practising my invention, I have eliminated the need for reshaping the hair after completion of a permanent waving operation. More specifically, I have done away with the sausage-shaped permanent curl and with the normal steps of drying the hair after a permanent waving operation, removing the tresses from the permanent waving curlers, combing out the hair, reblocking the scalp so as to form tresses having the proper base configuration for ringlet curls, dampening the tresses with water or a non-permanent waving solution, setting said tresses in ringlets or pin curls, and permitting said curls to dry.

A tress wound and permanently waved in accordance with my invention has a wave configuration which substantially duplicates that of a natural ringlet even to the uniform tightness of the wave right down to the very tips of the strands, and the location of the tip of the tress at the center of a coil into which the permanently waved tress will naturally fall. As in a natural ringlet, the wave is helical and all the turns are of uniform diameter. It will be observed that this is in contrast to other styles of present-day waving wherein due to the fact that the neutralizing solutions cannot penetrate uniformly all the way to the spindle, there is a tendency for the wave to relax less near its base than at its tip.

It thus will be seen that I have provided a hair waving method which achieves the several objects of my invention and meets all the conditions of practical use.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all steps herein described or shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A method of waving hair on the human head comprising first blocking the hair into tresses, the longest dimension of the bases of any tress being not more than twice the shortest dimension, wetting a tress with a waving solution, cylindrically winding at least one turn and no more than three turns of the tress in overlying convolutions adjacent the small end of a terete spindle from the distal to the proximal end of the tress about a longitudinal axis parallel to the scalp, then winding the remainder of said tress helically along said spindle toward the large end thereof, then applying a neutralizing solution to said wound tress to permanently wave the same, and transforming the permanently wound tress while still wet into a ringlet.

2. A method of waving hair on the human head comprising first blocking the hair into tresses, the longest dimension of the bases of any tress being not more than twice the shortest dimension, wetting a tress with a waving solution, cylindrically winding at least one turn and no more than three turns of the tress in overlying convolutions adjacent the small end of a terete spindle from the distal to the proximal end of the tress about a longitudinal axis parallel to the scalp, then winding the remainder of said tress helically along said spindle toward the large end thereof, then applying a neutralizing solution to said wound tress to permanently wave the same, transforming the permanently wound tress while still wet into a ringlet and permitting the ringlet to dry.

3. A method of waving hair on the human head comprising first blocking the hair into tresses, wetting a tress with a waving solution, cylindrically winding at least one turn of the tress in overlying convolutions adjacent the

small end of a terete spindle from the distal to the proximal end of the tress, then winding the remainder of said tress helically along said spindle toward the large end thereof, then applying a neutralizing solution to said wound tress to permanently wave the same, transforming the permanently wound tress while still wet into a ringlet and permitting the ringlet to dry.

4. A method of waving hair on the human head comprising first blocking the hair into tresses, wetting a tress with a waving solution, cylindrically winding at least one turn of the tress in overlying convolutions adjacent one end of a terete spindle from the distal to the proximal

end of the tress, then winding the remainder of said tress helically along said spindle toward the other end thereof, then applying a neutralizing solution to said wound tress to permanently wave the same, transforming the permanently wound tress while still wet into a ringlet and permitting the ringlet to dry.

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