May 18, 1954 A. E. SCHNEEBELI 2,678,654

METHOD AND APPARATUS FOR PERMANENTLY WAVING HAIR

Filed April 30, 1952

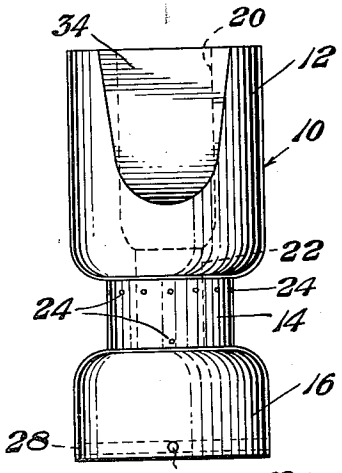


Fig. 1.

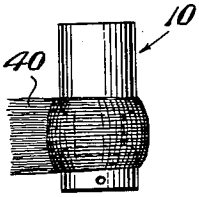


Fig. 4.

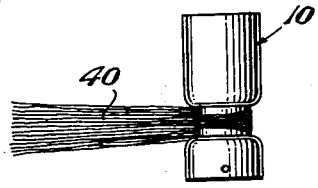


Fig. 3.

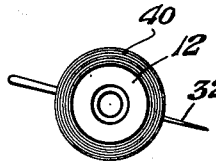


Fig. 5.

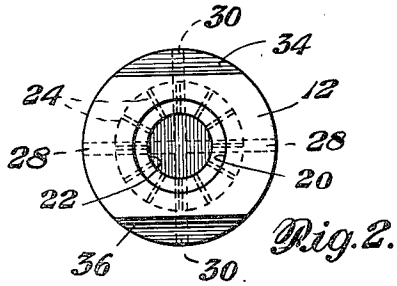


Fig. 2.

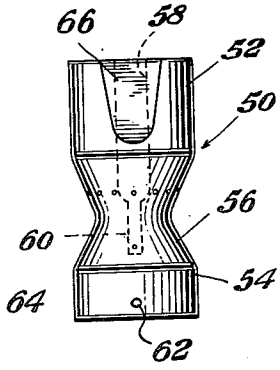


Fig. 6.

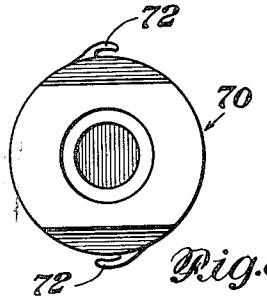


Fig. 8.

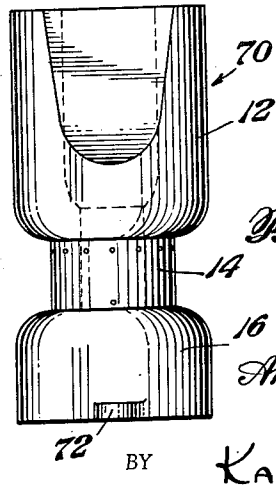


Fig. 7.

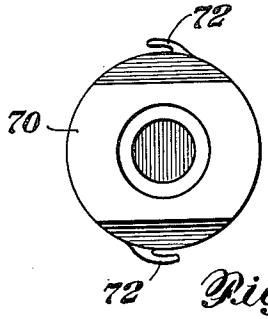


Fig. 9.

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METHOD AND APPARATUS FOR PERMANENTLY WAVING HAIR

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5 Claims. (Cl. 132—39)

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The present invention relates to hair dressing. More particularly, the present invention relates to a method of permanently waving hair and the means for holding the hair in place in accordance with the particular desire of the user or hair dresser.

Prior to the instant invention, the heretofore known methods employed in permanently waving hair, not only included the involved process of curling the hair and applying the necessary solutions to effect a permanent wave, but, furthermore, included the intricate steps of finally setting and then styling the hair in accordance with the wearer's desire. The final setting and styling of the hair was necessary since the curlers used in the curling process were not adapted for effecting a particular hair style, but were employed only for the purpose of establishing a wave in the hair.

The curlers used in the heretofore known permanent wave processes were generally of the type that comprised a mandrel or curling bar about which the strands of hair to be curled were wound. The hair was wound around the mandrel and the mandrel then was locked in place on the head with its axis disposed horizontally with respect to the scalp. The curls resulting from the prior techniques which utilized these horizontally disposed mandrels have been found objectionable since such curls have a tendency to be kinky and thus are very difficult to work with in styling the hair.

It is an object of the instant invention to employ a novel method of permanently waving hair, wherein the curls are initially arranged in accordance with the hair style desired.

It is another object of the present invention to teach the curling of hair about a novel mandrel or curling device.

It is still another object to teach the provision of a novel curling device which includes an arrangement for receiving and dispensing wave setting solutions.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a view in elevation of one form of a curling device in accordance with the invention;

Fig. 2 is a plan view of the curling mandrel shown in Fig. 1;

Fig. 3 illustrates a group of hair strands being initially wound on the reduced portion of the mandrel shown in Fig. 1;

Fig. 4 illustrates the mandrel in Fig. 3 partially

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wound with the strands of hair filling the reduced portion;

Fig. 5 is a plan view of the completely wound mandrel illustrating the holding means therefor;

Fig. 6 is an elevational view of a modified form of the present invention;

Fig. 7 is an elevational view illustrating another modification of the present invention;

Fig. 8 is a plan view of the mandrel shown in Fig. 7 when utilized for a clockwise curl; and

Fig. 9 is a plan view of the mandrel shown in Fig. 7 when utilized for a counter-clockwise curl.

The curling mandrel employed in the present invention is adapted to be utilized in curling the hair when a permanent set is required. The permanent wave technique contemplated for use with the present invention is the cold wave process in which a wave setting material and a neutralizer are used in a manner to establish the permanent type wave. Although the curling mandrel described herein is adapted for use in permanent waves, it is understood that it can be utilized wherever or whenever curlers are employed.

Referring to the drawings, and particularly Figs. 1 and 2, one form of the present invention is shown comprising a curling bar or winding mandrel generally illustrated at **10**. The mandrel **10** is formed generally cylindrical and includes an upper portion **12**, an integral reduced intermediate neck portion **14**, and a lower portion **16** integral with the neck portion **14** and having the same diameter as upper portion **12**. Formed in the upper portion **12** is a chamber **20** which extends substantially to the bottom thereof. As shown in Fig. 1, the chamber **20** converges into a smaller chamber **22** which extends to the bottom-most portion of the reduced intermediate portion **14**. Communicating with the smaller chamber **22** and formed in the intermediate portion **14** are a plurality of dispensing openings **24**, the purpose of which will be hereinafter described. Formed in the lowermost part of mandrel portion **16** are openings **28**, **30** which extend entirely through the portion **16** and are disposed perpendicularly with respect to one another. Either of the openings **28** or **30** is adapted to receive an elongated tapered pin **32** (Fig. 5) which secures the mandrel **10** vertically in position on the head after the hair is sufficiently wound around the mandrel surface.

Formed on the upper portion **12** are flat gripping portions **34**, **36** which are adapted to be gripped by the user's thumb and forefinger during the hair winding operation. The gripping

portions 34, 36 are formed such that their flat sides are positioned on the surface of the mandrel to correspond to the relative position of the opening 30. It is apparent, therefore, that after the hair is wound on the mandrel 10 the user, by observing the position of the flat portions 34, 36, can readily find the opening 28 or 30 for insertion of the holding pin 32 therein.

The type of curl produced by the present invention is of the spiral or pin type wherein a ringlet curl is effected. The "pin curl" as it is conventionally known, which is of the spiral type, is generally wound around the finger and set in place with pins. However, the permanent wave resulting from this technique has not been found satisfactory inasmuch as some tension on the hair is required in order to give the hair a lasting curl. It has been discovered that by reducing the mandrel 10 at the intermediate portion 14, the hair can be tightly wound into a perfect pin curl.

Referring to Fig. 3, the mandrel 10 is shown in the initial step of winding a group of hair strands 40 on the intermediate portion 14. The outer ends of the group of hair strands 40 are somewhat thinner than the inner ends and are particularly adapted to be wound on the reduced portion 14. As the mandrel is wound in the direction of the arrow, the hair strands 40 fill the reduced portion 14 (Fig. 4), and gradually as the hair is wound up it flattens out on the upper and lower portions 12 and 16 until a more or less perfect pin curl is achieved.

Referring to Fig. 5, the hair strands 40 are shown completely wound on the mandrel 10, which has been placed in a vertical position on the scalp and secured thereto by the pin 32 inserted through opening 28 or 30.

The method employed in utilizing the mandrel 10, described hereinabove in the cold wave process of effecting permanent waves, is as follows:

Before the hair is wound on the mandrel 10, a solution of thioglycolic acid is daubed on the hair in sufficient quantities so as to give the hair wave setting characteristics. Each of the mandrels 10 is then wound with a group of hair strands thereon and secured in a vertical position on the head to effect the particular style of coiffure desired. With each of the mandrels disposed in the vertical position on the head, a second solution of thioglycolic acid is injected into each of the chambers 20. The solution then flows from the chambers 20 into the smaller chambers 22 and from there is expelled through the dispensing openings 24 into the hair strands wound around the mandrels. It is apparent that as the solution flows from the dispensing openings, it will saturate the curls and further the setting process. After a suitable period of time has elapsed after the application of the wave setting solution, the hair is rinsed and a neutralizer, such as a peroxide or a bromate, is injected into the mandrel chambers. The process is completed by a second rinsing and then drying. After the hair is dry, the mandrels 10 are removed from the hair which is then ready to be combed into the particular style in which it has been permanently waved. Thus, the step of styling the hair, which has been necessary in heretofore known permanent wave techniques, is completely eliminated.

Referring to Fig. 6, a modification of the invention illustrated in Figs. 1 and 2 is shown comprising a mandrel generally indicated at 50. The mandrel 50 is similar to the mandrel 10 and includes an upper cylindrical portion 52 and a lower cylindrical portion 54. Intermediate the upper and lower portions 52, 54 and integral therewith is a reduced portion 56, concave in profile. An upper chamber 58 formed in the upper portion 52 communicates with a reduced lower chamber 60 which extends through the portion 56 to the bottom-most end thereof. Dispensing openings 62 are formed in the concave section for distributing a wave setting solution and openings 62 and 64 are formed in the lower portion 54 for receiving a tapered pin for securing the mandrel 50 in position on the head. Flat gripping portions 66 are formed in the upper portion 52 for gripping the mandrel during the winding operation. The concave profile of mandrel 50 is significant inasmuch as it enables relatively short hair to be wound thereon. As the short lengths of hair are wound on the concave section, the curl is tightly and progressively effected. It is apparent that by using the mandrel 50, the strands of hair could be of very short length yet still receive a smooth and even curl.

Referring now to Figs. 7, 8 and 9, a modification of the holding means for the mandrel is illustrated. The mandrel shown in Figs. 7, 8 and 9 is indicated generally at 70 and is structurally similar to the mandrel 10 illustrated in Figs. 1 and 2. The modified holding means is shown as prongs 72 integrally formed on lower portion 16 and oppositely disposed thereon. The prongs 72, shown in Fig. 8, are formed with their hook ends directed in a clockwise direction around the mandrel 70. Consequently, the mandrel 70 illustrated in Fig. 8 is adapted to be utilized when a wave is desired having a clockwise curl. The mandrel illustrated in Fig. 9 is conversely adapted to be utilized when a wave is desired having a counterclockwise curl. The prongs 72, as illustrated on the mandrel 70, when effecting either of the two curls, are adapted to hook the base ends of the hair strands and thereby securely lock the mandrel 70 in a vertical position on the head. The process of injecting the necessary solution into the chambers formed in the upper mandrel portion for effecting the permanent wave, is the same in the modifications illustrated in Figs. 6 and 7, 8 and 9, as in Figs. 1 and 2.

It is apparent that the mandrels described hereinabove not only aid in the permanent waving process by providing a metering chamber for accommodation of the cold wave solutions employed, but are adapted to curl the hair in the style desired, thereby eliminating the need for styling after the hair has been permanently waved. Moreover, with the use of the present invention, the inclination for the hair to be kinky or fuzzy after the permanent waving process, is obviated. The present invention not only contemplates the elimination of unnecessary time in styling the hair after the waving process, but also provides a hair winding means that is simple to fabricate and easy to manipulate in carrying out the hair winding operation.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. An article for curling hair, comprising a mandrel, said mandrel including an upper cylindrical portion, an intermediate reduced portion

integral with said upper portion, a solid lower cylindrical portion having the same diameter as said upper portion and formed integral with said intermediate portion, said upper portion being formed with solid walls and having a liquid receiving chamber formed therein extending substantially the length thereof, said chamber communicating with a reduced chamber extending through said intermediate portion and down to said lower portion, said reduced chamber formed coaxial with the first chamber, a plurality of dispensing openings disposed in said intermediate portion communicating with said reduced chamber, and securing means formed as part of said lower portion and adapted to secure said mandrel in the hair with the mandrel disposed in a vertical position.

2. An article for curling hair as set forth in claim 1, wherein said securing means comprises a pair of openings extending through said lower portion formed at right angles to one another and adapted to receive a tapered pin.

3. An article for curling hair, comprising a mandrel, said mandrel including an upper and a lower portion and an intermediate reduced portion formed integral therebetween, said intermediate reduced portion adapted to initially wind the hair thereon, said upper portion being formed with solid walls and having a liquid receiving chamber formed therein, a reduced second chamber formed in said intermediate portion communicating with the first chamber, a plurality of openings formed in said intermediate portion communicating with said second chamber adapted to dispense liquid therefrom, and securing means formed as part of said lower portion adapted to secure said mandrel in a vertical position in the hair.

4. An article for curling hair as set forth in claim 3, wherein said securing means comprises

a pair of openings extending through said lower portion formed at right angles to one another and adapted to receive a tapered pin.

5. In a hair curler, a curling mandrel comprising an upper cylindrical portion formed with solid walls and having a liquid receiving chamber formed therein extending substantially the length thereof, an intermediate reduced portion integral with said upper portion and having a chamber formed therein communicating with the chamber in said upper portion and disposed coaxial therewith, said intermediate portion having a plurality of dispensing openings formed in the walls thereof and communicating with the chamber therein, a solid lower cylindrical portion having the same diameter as said upper portion and formed integral with said intermediate portion, said lower portion including securing means for securing said mandrel in the hair in a vertical position, and gripping means comprising flat portions formed on the upper part of said upper portion, said flat portions being adapted to enable the user to grip the mandrel when vertically securing said mandrel in the hair.

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