March 16, 1954 G. H. FREELAND 2,672,147

HAIR CURLER

Filed June 12, 1951

2 Sheets-Sheet 1

Fig. 1.

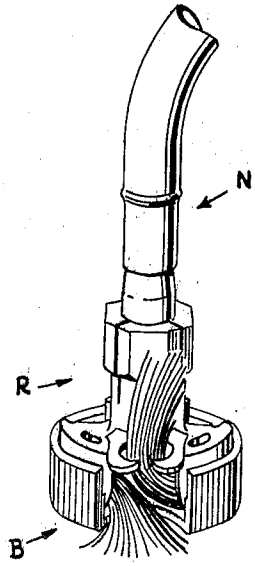


Fig. 2.

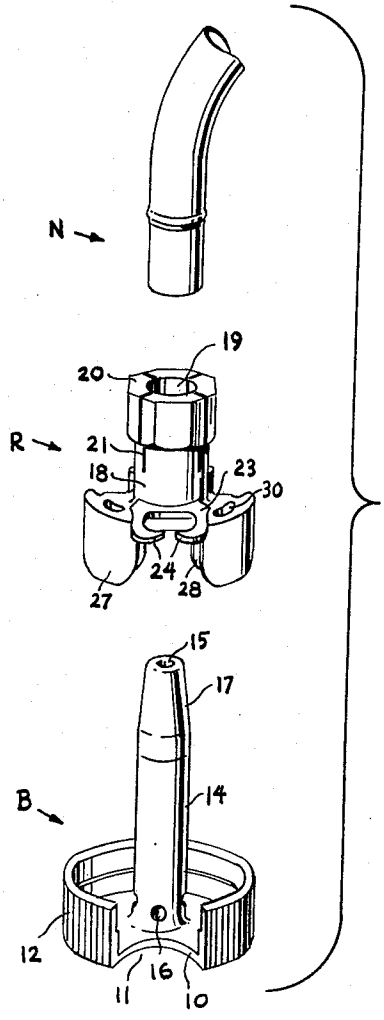


Fig. 3.

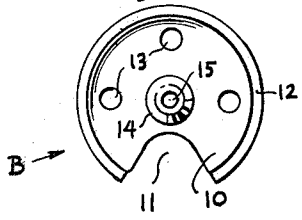
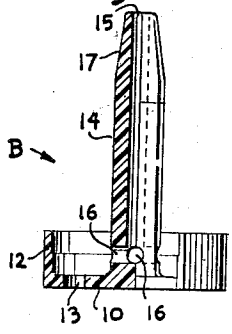


Fig. 4.



INVENTOR.
GEORGE H. FREELAND
BY Pogue and Brune
Joshua R. H. Pogue
ATTORNEYS

March 16, 1954 G. H. FREELAND 2,672,147

HAIR CURLER

Filed June 12, 1951 2 Sheets-Sheet 2

Fig. 5.

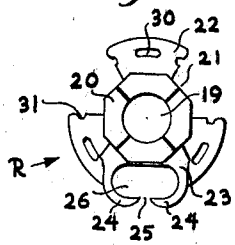


Fig. 8.

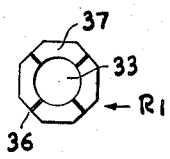


Fig. 6.

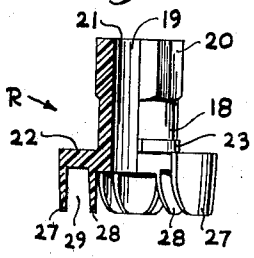


Fig. 9.

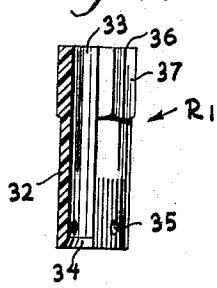


Fig. 7.

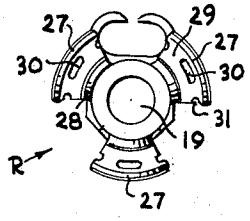
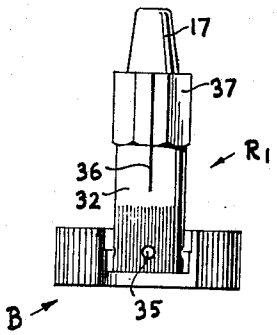


Fig. 10.



INVENTOR.
GEORGE H. FREELAND
BY Potts and Brune
Joshua R. Potts
ATTORNEYS

Patented Mar. 16, 1954

2,672,147

UNITED STATES PATENT OFFICE

2,672,147

HAIR CURLER

George H. Freeland, Drexel Hill, Pa.

Application June 12, 1951, Serial No. 231,075

8 Claims. (Cl. 132—33)

1

The present invention relates to hair curlers and is concerned primarily with a curling device which is equally applicable for use in permanent waving operations as well as the setting or styling of hair.

A curler of the type with which this invention is concerned comprises a circular base having an outer peripheral flange together with a spindle upstanding from the center thereof. A rotor is rotatably mounted on the spindle. In view of the extreme desirability of providing for the drying of hair while it is in the curler an important object of the invention resides in the provision of a curler of the type indicated in which the spindle that is carried by the base is formed with a bore that communicates with radial openings adjacent to the base proper and through which warm air is adapted to be passed for drying purposes.

In the styling of hair it is often desirable to form curls in opposite directions. That is, the curls on one side of a person's head may be curled one way and those on the other side in the opposite direction. With this condition in mind a further object of the invention is the provision of a hair curler of the type indicated which is particularly adapted for rotation of the rotor in either direction with respect to the base. Thus, the hair may be curled in opposite directions.

In introducing the hair into the curler it is important that it be accurately guided into the desired curled formation. With this condition in mind another highly important object of the invention resides in the provision of a curler of the type indicated which is peculiarly adapted to accurately guide the curl as it is formed and to facilitate the introduction of hair thereinto.

In carrying out this idea the base is formed with an angular cutout and the flange is interrupted at the open mouth of this cutout. The rotor proper is formed with two coaxial segmental walls which are spaced apart an appropriate distance to receive the hair therebetween. The outermost of these walls is adapted to be snugly received within the flange on the base. Due to the segmental construction of the walls there are spaces between the several segments thereof and immediately over one of these spaces there is provided a guide pocket having a small slot through which hair is adapted to be passed as it is introduced into the pocket.

The rotor includes a hub that is continued up above the segmental wall structure and guide pocket above mentioned. When a tuft of hair is to be introduced into the curler the guide pocket

2

is positioned opposite to the cutout in the base. The tuft of hair is then passed through the narrow slot into the guide pocket and clamped by the operator's thumb or fingers against the hub. The latter may now be rotated in either direction to draw the hair into the channel between the segmental walls above mentioned.

In the operation of a hair curler of the type above indicated it is important that the rotor exhibit an appreciable tendency to remain in any adjusted position on the spindle. The rotor is movable axially on the spindle and is also rotatable therewith. Either when moved down into effective position with respect to the base or rotated with respect to the base it should remain in such position. Accordingly a further object is the provision of a hair curler of the type indicated in which the rotor and base are so constructed and dimensioned as to remain in an adjusted relative position.

This object is achieved partially by the selection of an appropriate material from which the parts are made. The invention has particularly in mind the use of a synthetic plastic having good friction properties such as Lucite. The upper end of the spindle is given a tapered or conical construction while the upper end of the hub is split to provide what in effect are spring fingers which grippingly engage the spindle. With the appropriate material and this construction sufficient friction is created to maintain an adjusted position. At the same time the friction may be overcome by the operator to move the parts relative to one another when occasion demands.

The spindle is hollow and projects beyond the hub when the rotor is moved down against the base. The upper conical end of the spindle is particularly adapted to having one end of a rubber tube applied thereto. Such rubber tubes are ordinarily included as a part of drying apparatus and constitute a means for introducing warm air into the curler.

In the curling or permanent waving of hair, lotions are ordinarily applied thereto. It is desirable that the curler be adapted to accommodate seepage of such lotions. Accordingly, a further object of the invention is to provide in a hair curler of the type indicated a base which is formed with one or more drainage openings.

Certain types of hair styling require a so-called sculptured curl which is generally characterized as being of a spiral formation with the free end of the tuft of hair at the inner end of the spiral. With this condition in mind a further object of

the invention is the provision of a hair curler of the type indicated in which the rotor above mentioned may be replaced by another rotor in which the segmental wall structure providing the channel is eliminated and which rotor is particularly adapted to the formation of a sculptured curl.

Various other more detailed objects and advantages of the invention such as arise in connection with carrying out the above noted ideas in a practical embodiment will, in part become apparent, and in part be hereinafter stated as the description of the invention proceeds.

The invention therefore comprises a hair curler which consists essentially of a base and rotor which are made from an appropriate plastic. The base is circular and carries an outer peripheral flange together with a hollow spindle upstanding from the center thereof. The base is formed with an angular cutout and the flange is interrupted at the mouth of this cutout. The spindle is formed with radial openings adjacent to the base and its outer end is conical. The rotor comprises a pair of coaxial segmental walls which define a hair receiving channel. Immediately over the space between two of the segments of these walls there is a guide pocket having a narrow entrance slot. A hub of split finger construction is included above the wall structure and slidably receives the spindle which projects beyond the hub when the rotor is moved down into effective position with respect to the base. This projecting end of the spindle is adapted to have the nozzle of a hair dryer applied thereto.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings wherein:

Figure 1 is a perspective view of a hair curler designed in accordance with the precepts of this invention and shown with the various parts assembled in effective position and with a tuft of hair in the curler.

Figure 2 is another perspective view illustrating the base, rotor, and drying nozzle in exploded relation.

Figure 3 is a top plan view of the base per se.

Figure 4 is a side view partially in section and partially in elevation of the base.

Figure 5 is a top plan view of the rotor per se.

Figure 6 is a side view partly in section and partly in elevation of the rotor.

Figure 7 is a bottom plan view of the rotor.

Figure 8 is a top plan view of a modified form of rotor which is used when a sculptured curl is required.

Figure 9 is a side view partly in section and partly in elevation of the rotor depicted in Figure 8; and

Figure 10 is an elevational showing of the rotor of Figures 8 and 9 as applied to the base.

Referring now to the drawings wherein like reference characters denote corresponding parts, and first more particularly to Figure 2, it will be seen that the hair curler of this invention consists essentially of a base which is identified in its entirety by the reference character B and a rotor which is referred to generally as R. Figure 2 also illustrates a nozzle N which preferably takes the form of a rubber tube which is connected to appropriate drying apparatus that constitutes a source of supply for warm air.

The base B and rotor R may be made from any appropriate material although the inventor has particularly in mind the use of certain of the synthetic plastics which are now available to the public and which are susceptible of being cast or molded and also machined into the required shape. Lucite is such a synthetic plastic which has proven to be satisfactory.

Referring now more particularly to Figures 3 and 4 the base B is shown as comprising a bottom 10 which is of circular formation except for the angular cutout depicted at 11. Upstanding from the outer peripheral edge of the bottom 10 is a flange 12 which of course is also circular and which is interrupted at the mouth of the cutout 11. The bottom 10 is formed with a plurality of openings 13 for drainage purposes. These openings accommodate seepage of the lotion which is ordinarily applied to hair that is introduced to curlers.

Upstanding from the center of the bottom 10 is a hollow spindle 14 having a central bore 15. Adjacent to the bottom 10 the spindle 14 is formed with a plurality of radial openings 16 which communicate with the bore 15. The upper end of the spindle is imparted a slight taper as indicated at 17 to impart a conical formation thereto.

Referring now more particularly to Figures 5, 6 and 7 which may be considered along with that portion of Figure 2 which illustrates the rotor R, the construction of the rotor R will be described. The rotor R comprises a hub portion 18 having a bore 19 that is adapted to snugly receive the spindle 14. The upper end of the hub portion 18 is preferably of noncircular formation to provide for a good gripping engagement by the operator. Thus, the upper portion of the hub 18 is shown as being of the hexagonal construction 20. The hub portion 18 is formed with a plurality of slits 21 which extend down thereinto an appreciable distance from the upper end. These slits provide what in effect are spring fingers which due to the resilient and elastic nature of the plastic from which the rotor R is made grippingly engage the spindle 14 to set up a required amount of friction by the engagement. Any appropriate number of the slits 21 may be employed although in the preferred form of the invention illustrated four such slits are provided. Thus, four spring fingers are formed.

Carried by the lower end of the hub 18 and outstanding therefrom are a plurality of flat wall sections 22. These wall sections 22 together define a segmental flat wall normal to the axis of the hub. It is notable that there is a space between adjacent wall sections 22 and immediately over one of these spaces there is provided a guide member 23 that includes outer curled fingers 24, the free ends of which are slightly spaced apart to define a narrow entrance slot 25 which communicates with a guide pocket 26. The fingers 24 are flared outwardly of the slot 25 to provide what is in effect a flared mouth for the guide pocket 26 and which facilitates introduction of hair thereinto.

Depending downwardly from each of the flat wall sections 22 are a pair of wall segments 27 and 28. The several wall segments 27 define an outer circular segmental wall which is snugly received within the flange 12 of the base B. The inner wall segments 28 define an inner circular segmental wall that is spaced from the outer wall to define what is in effect an interrupted channel 29. This channel 29 receives the hair which is introduced into the curler.

It will be noted that each of the flat walls 22 is formed with an opening 30 which establishes communication between that part of the chan-

nel 29 therebeneath and the atmosphere. The extent of these walls 22 immediately over the channel 29 may also be reduced by the notches 31 which are formed in the side edges of the wall sections 22.

OPERATION

While the manner of using and mode of operation of the hair curler above described is believed to be obvious from the illustrations of the drawings and the description of parts given, it may be briefly outlined as follows.

When a tuft of hair is to be introduced into the curler the rotor R is first positioned on the base so that the spindle 14 is received in the bore 19 of the rotor. Moreover, the rotor is moved down until the lower edges of the segmental walls 27 and 28 engage the upper face of the bottom 10. The rotor is adjusted angularly so that the guide pocket 26 is immediately over the cutout 11. The upper end of a tuft of hair is now forced through the flared mouth of the slot 25 into the pocket 26 and the operator clamps the upper end of this tuft against the hub portion 18 by his or her thumb. The rotor R is now rotated relative to the base B in either direction desired. As this rotation takes place the operator will grasp the outer knurled or corrugated surface of the flange 12 with the fingers of one hand while the hub portion 18 of the rotor R is held by the thumb and fingers of the other hand. As the rotation is continued the hair is drawn into the channel 29 in the manner depicted in Figure 1.

After the curl is formed in this manner the curler is left on the head of the subject the length of time required for setting and drying. During this period the rotor and base will remain in their relative adjusted position due to the friction created by the engagement of the hub 18 on the spindle 14. At the beginning of this period the nozzle N is applied to the conical end 17 of the spindle 14 and warm air is thus circulated into the bore 15 of the spindle. This warm air will emerge from the radial opening 16 and due to the segmental nature of the wall structure defining the hair receiving channel will be effective on the hair to facilitate its drying. Any excess lotion which seeps from the tuft of hair will be drained out through the openings 13 in the bottom 10 of the base B.

After the curl has set and dried the nozzle N is first removed from the upper end of the spindle after which the rotor R may be moved upwardly relative to the base to free the formed curl.

THE MODIFICATION

As mentioned above certain types of hair styling require the formation of so-called sculptured curls which are essentially spiral in character. When such curls are to be used the same base B is employed but the rotor R is replaced by the rotor R1 which is illustrated in Figures 8, 9 and 10.

The rotor R1 comprises a sleeve 32 having a bore 33 which snugly receives the spindle 14. The lower end of the sleeve 32 is formed with a flared mouth 34 which communicates with the bore 33 and which facilitates positioning the sleeve on the spindle. Immediately above this flared mouth 34 the sleeve 32 is formed with a plurality of radial openings 35.

A plurality of slits 36 extend into the sleeve 32 from the upper end. These slits define spring fingers which grippingly engage the spindle to create the necessary friction. The upper end of the sleeve 32 is also given a noncircular formation such as the hexagonal construction depicted at 37 to facilitate engagement by the operator.

The manner of using the modified form of rotor illustrated in Figures 8, 9 and 10 is believed to be obvious. When the rotor R1 is used it is positioned over the spindle 14 of the base and moved down until the lower end thereof engages the bottom 10 of the base B. That is the position depicted in Figure 10. The operator now places the end of the tuft of hair against the sleeve 32 and holds it in this position by his or her thumb. The base B and rotor R1 are now rotated relative to each other in either direction desired to form the sculptured curl.

While preferred specific embodiments of the invention are hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact constructions, materials, and shapes illustrated and described because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. In a hair curler, a circular base having a peripheral flange and a central spindle upstanding therefrom, said base and flange being formed with a cutout adapted to receive a tuft of hair, and a rotor on said spindle, said rotor including a pair of concentric segmental walls defining an annular hair receiving channel.

2. In a hair curler, a circular base having a peripheral flange and a central spindle upstanding therefrom, said base and flange being formed with a cutout adapted to receive a tuft of hair, and a rotor on said spindle, said rotor including a pair of concentric segmental walls defining a hair receiving channel, and an annular guide member providing a guide pocket over the space between adjacent segments of said segmental walls.

3. In a hair curler, a circular base having a peripheral flange and a central spindle upstanding therefrom, said base and flange being formed with a cutout adapted to receive a tuft of hair, and a rotor having a hub portion formed with a bore receiving said spindle, the upper free end of said hub portion being formed with slits defining spring fingers, and a pair of concentric segmental walls depending from said hub portion and defining an annular hair receiving channel.

4. In a hair curler, a circular base having a peripheral flange and a central spindle upstanding therefrom, said base and flange being formed with a cutout adapted to receive a tuft of hair, and a rotor having a hub portion formed with a bore receiving said spindle, the upper free end of said hub portion being formed with slits defining spring fingers, a plurality of flat wall sections extending outwardly from the lower end of said hub portion, and a pair of radially spaced wall segments depending from each flat wall section, said wall segments together defining a pair of concentric segmental walls with an annular hair receiving channel therebetween.

5. In a hair curler, a base comprising a circular bottom having an angular cutout opening into the edge thereof, a flange upstanding from the periphery of said bottom, a hollow spindle having a bore upstanding from the center of said bottom, said spindle being formed with a plurality of radial openings adjacent to said bottom and communicating with said bore, and a rotor axially adjustable and rotatable on said spindle, said rotor

including a pair of concentric segmental walls defining an annular hair receiving channel.

6. In a hair curler, a base comprising a circular bottom having an angular cutout opening into the edge thereof, a flange upstanding from the periphery of said bottom, a hollow spindle having a bore upstanding from the center of said bottom, said spindle being formed with a plurality of radial openings adjacent to said bottom and communicating with said bore, and a rotor axially adjustable and rotatable on said spindle, said rotor comprising a hub portion that is slit at one end providing spring fingers and having a plurality of flat wall sections outstanding therefrom at the other end, and a pair of radially spaced wall segments depending from each flat wall section, said wall segments together defining a pair of concentric segmental walls with an annular hair receiving channel therebetween.

7. In a hair curler, a base comprising a circular bottom having an angular cutout opening into the edge thereof, a flange upstanding from the periphery of said bottom, a hollow spindle having a bore upstanding from the center of said bottom, said spindle being formed with a plurality of radial openings adjacent to said bottom and communicating with said bore, and a rotor axially adjustable and rotatable on said spindle, said rotor comprising a hub portion that is slit at one end providing spring fingers and having a plurality of flat wall sections outstanding therefrom at the other end, a guide member carried by said hub portion immediately above said flat wall sections and spanning the space between adjacent wall sections, said guide member providing a guide pocket having an entrance slot, and a pair of wall segments depending from each flat wall section, said wall segments together defining a pair of coaxial segmental walls with a hair receiving channel therebetween.

8. In a hair curler, a base comprising a circular bottom having an angular cutout opening into the edge thereof, a flange upstanding from the periphery of said bottom, a hollow spindle having a bore upstanding from the center of said bottom, said spindle being formed with a plurality of radial openings adjacent to said bottom and communicating with said bore, and a rotor axially adjustable and rotatable on said spindle, said rotor comprising a hub portion that is slit at one end providing spring fingers and having a plurality of flat wall sections outstanding therefrom at the other end, and a pair of wall segments depending from each flat wall section, said wall segments together defining a pair of coaxial segmental walls with a hair receiving channel therebetween, each of said flat wall sections being formed with an opening communicating with said hair receiving channel.

GEORGE H. FREELAND.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,236,818	Bove	Aug. 14, 1917
1,623,758	Santurello	Apr. 5, 1927
1,714,439	Santurello	May 21, 1929
2,619,970	Caldora	Dec. 2, 1952