Sept. 20, 1960 G. S. GOFF 2,953,140

MOLDING DEVICE FOR HAIR WAVING

Filed Feb. 20, 1959

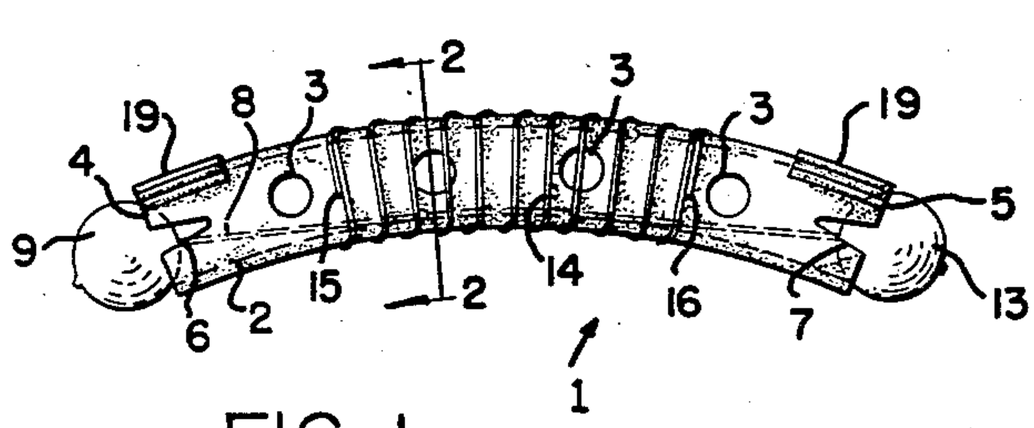

FIG.-1

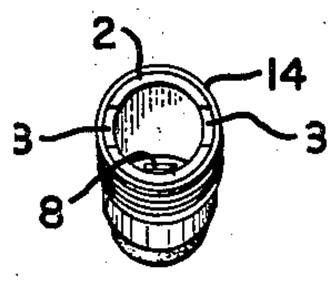

FIG.-2

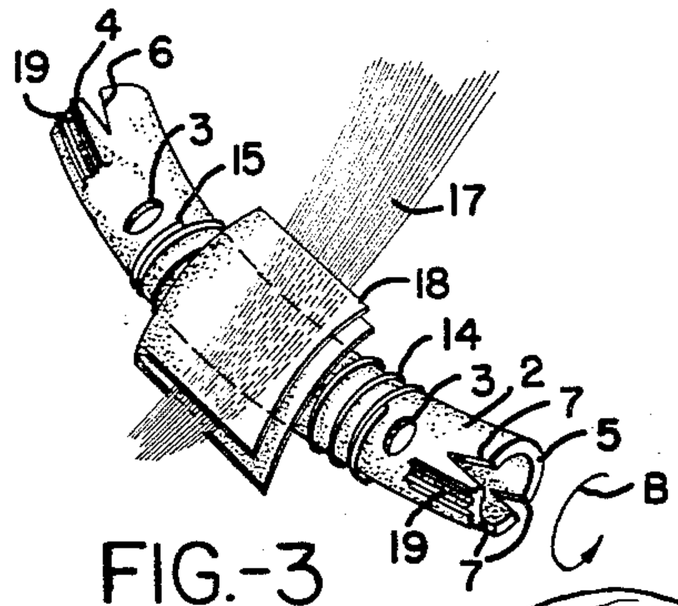

FIG.-3

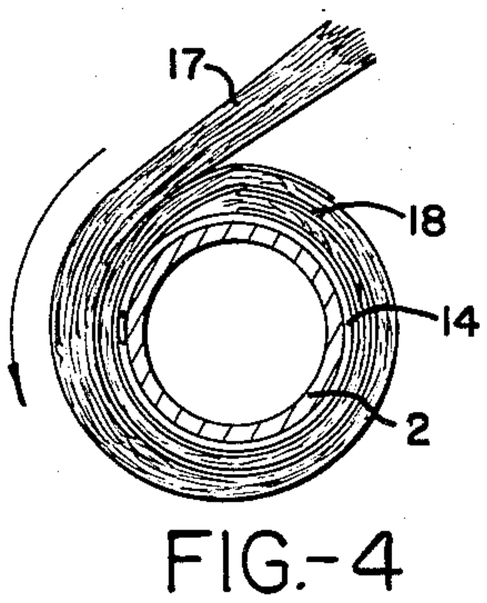

FIG.-4

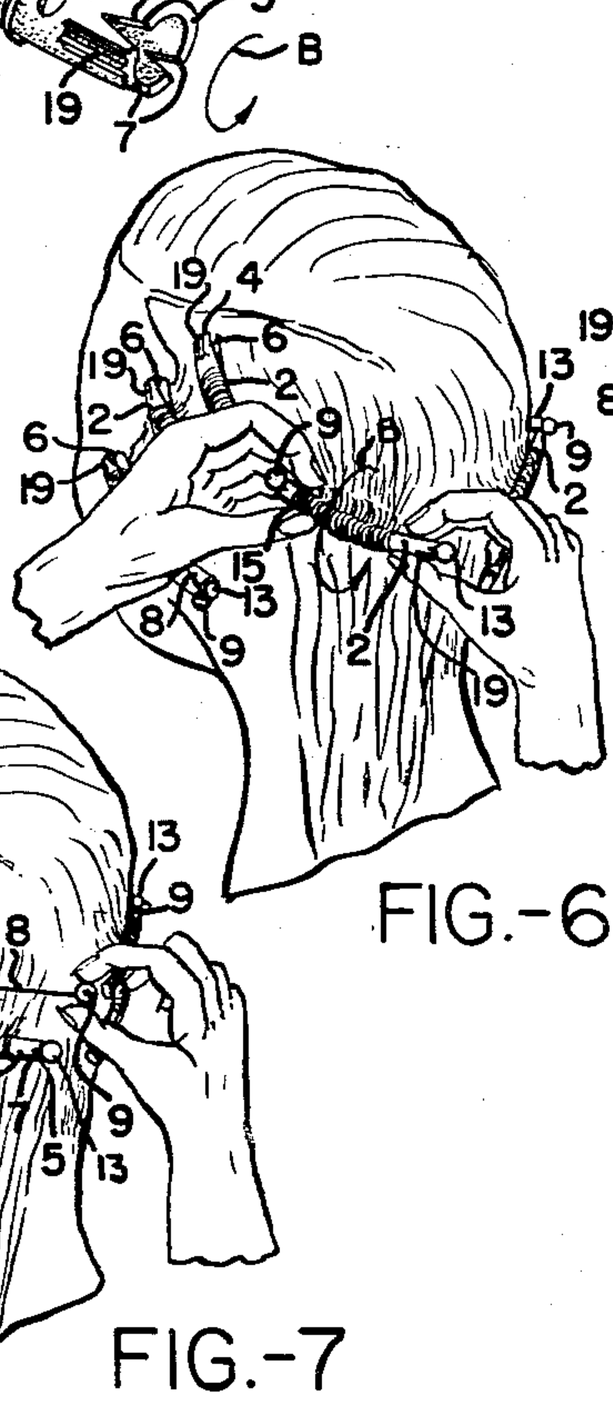

FIG.-5

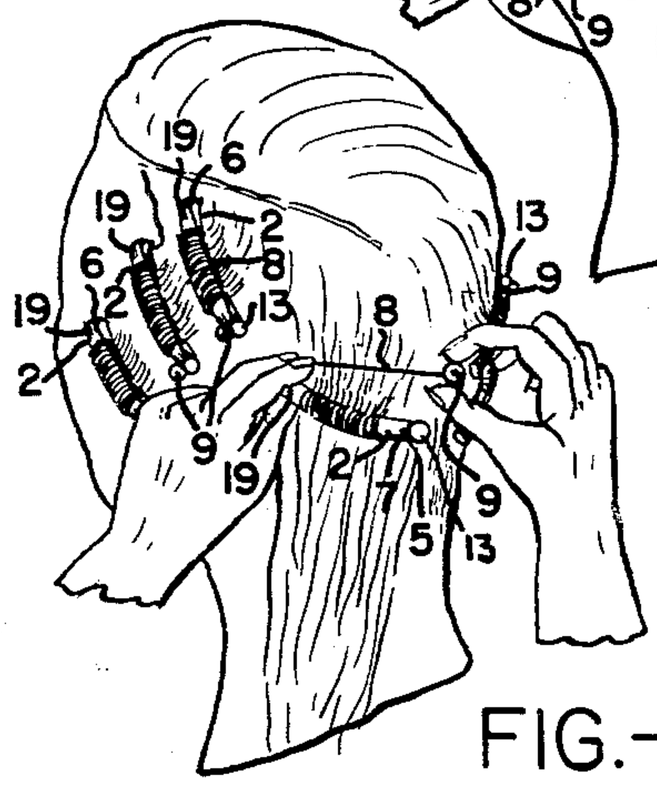

FIG.-6

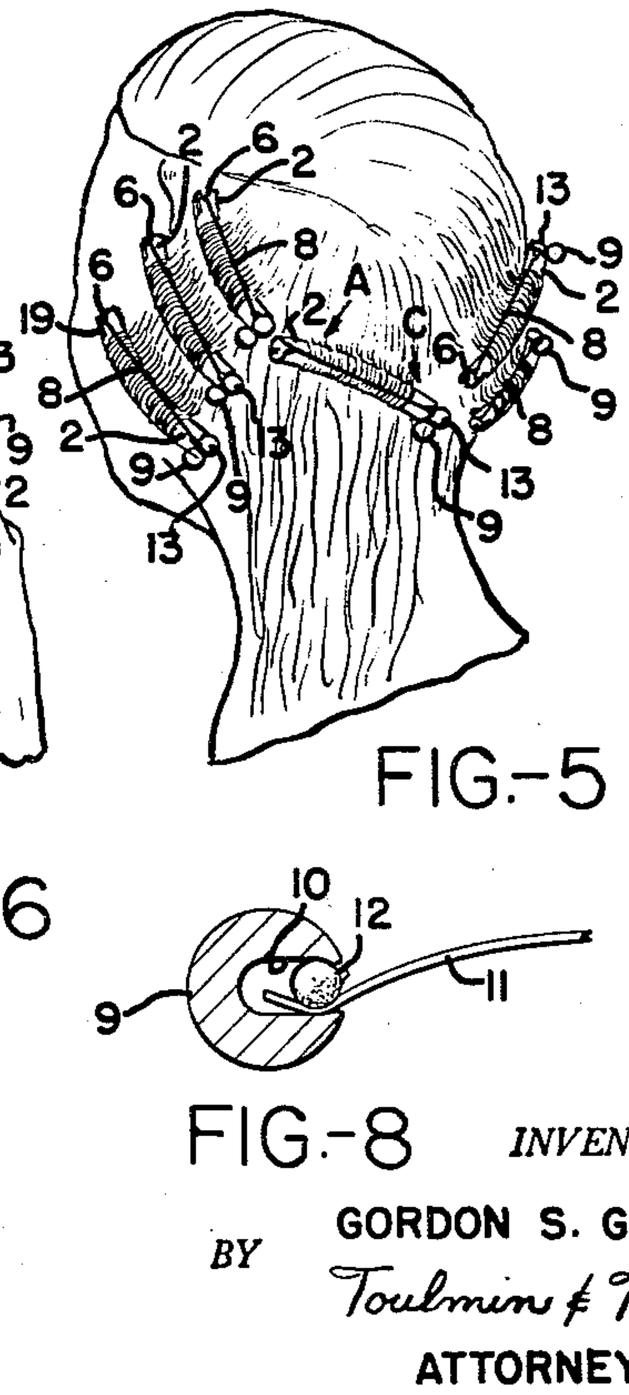

FIG.-7

FIG.-8

INVENTOR.

GORDON S. GOFF

BY Toulmin & Toulmin

ATTORNEYS

United States Patent Office

2,953,140

Patented Sept. 20, 1960

2,953,140

MOLDING DEVICE FOR HAIR WAVING

Gordon S. Goff, 575 N. Limestone St., Springfield, Ohio

Filed Feb. 20, 1959, Ser. No. 794,641

1 Claim. (Cl. 132—42)

This invention relates to improvements in curling rods for imparting permanent waves to the hair and is particularly directed to a molding rod for forming permanent waves in which the hair is rolled in substantially perfect circles along a circular path around the head.

For forming these permanent waves a mold member in the form of a rod is employed, which rod is substantially circular in cross-section throughout its operative length; also the rod is concavo-convexly shaped over the length thereof. A hair tress wound upon this rod assumes the circular shape of the rod transverse cross-section, each complete winding about the rod forming a half wave. The concavo-convex shape of the rod conforms the wave circularly around the head; the utilization of a plurality of these rods on the hair at any given level in substantially end to end abutment provides in the finished permanent wave a hair style in which the hair falls in a substantially perfect circular arrangement in duplication of naturally wavy hair.

The circular arrangements, including the basic, usually complete first crown circle, are most generally three or four in number. Suitably the rod diameters differ for each circular arrangement, although the rod lengths may be substantially the same; accordingly the upper basic crown circle usually requires about five rods in its formation, while the lower circles require a larger number.

To facilitate the insertion of these concavo-convex rods into the hair, while still maintaining the hair molding properties of the rods, I have provided a keeper of resilient material. This keeper is disposed on the outer surface of the rod of mold member and conforms substantially to the outer surface of the mold member, at least in that portion of the mold member which receives the hair tress. Accordingly the keeper does not upset the contour provided in the hair by the mold member and the mold member and keeper together are adapted to support the hair wound thereon.

I so provide the keeper however that the mold member may be rotated relatively to the keeper. Thus when a tress of hair has been wound upon the combination of mold member and keeper, and rolled close to the head, the mold member may be adjusted without disturbing the hair tress. This provides that the mold member may readily be brought into substantial conformity with the arc of the head. Unrolling and re-rolling are eliminated and without movement of the rolled hair tress.

The keeper thus provides for retaining the hair tress positioned while yet permitting a substantially perfect disposition of the rods or mold members about the head.

I have found that the keeper may suitably comprise an appropriately wound spring structure which is sufficiently resilient transversely to provide it in close conformity with the concavo-convex mold member as the member is rotated within the keeper. Such spring structure in addition tends to spread the hair, resulting in even distribution.

A mesh-like sleeve of resilient material which conforms to the curvature of the mold member is effective

as a keeper, since in the course of the application of the usual waving and neutralizing solution the material of the keeper will be exposed to the solutions, the material should be such as to retain its characteristics of rotation relative to the mold member when wetted. Also the member should be substantially non-corrosive when subjected to the action of such solutions.

Springs of stainless steel, plastic covered wire, coils of plastic material, and mesh-like sleeves of plastic serve well as keepers.

The structure of the hair molder may include grip means to facilitate turning of the mold member to position. Such grip means may be in the form of a projection on a mold member end portion or may be a groove in the mold member end portion.

To secure the hair tress after the mold member is in appropriate alignment fastening means are provided in the form of a length of resilient material arranged to be extended between end portions of the mold member across the wound tress. Thus unwinding of the tress is prevented during the time period in which the waving solution and the neutralizing solution are exerting their actions.

Accordingly it is a primary object of this invention to provide a hair molder which may be readily and accurately positioned; which is economical to manufacture and which has proved thoroughly efficient in the attainment of the objectives for which it is constructed.

The invention will be more fully understood by reference to the following detailed description and accompanying drawings wherein:

Figure 1 is a longitudinal elevational view of one embodiment of the hair molder of the invention in substantially full size;

Figure 2 is a sectional view taken on line 2—2 of Figure 1;

Figure 3 is a view illustrating a first step in the application of a hair tress to the hair molder;

Figure 4 is a view similar to that of Figure 3 but illustrating a succeeding step in the application of the hair tress to the air molder;

Figure 5 is a view similar to that of Figure 4 but illustrating a succeeding step in the application of the hair to the hair molders with one mold member close to the head and in a position such that the mold member does not conform to the curvature of the head;

Figure 6 is a view similar to that of Figure 5 but with all mold members in position such that the members conform in curvature with the head;

Figure 7 illustrates the mode of effecting the fastening of the hair tress; and

Figure 8 is a fragmentary view illustrating a portion of the fastening means.

Initially it is to be noted that in the usual cold permanent wave process the hair is first saturated with waving solution and is divided into tresses, the tresses are then wound separately on curling rods. Each tress is retained on the rod and prohibited from unwinding, and after a predetermined period of time the waving solution is rinsed out. Neutralizing solution is then applied and this neutralizing solution stops the action of the waving solution and itself requires a predetermined period of time for its function. Thereafter the neutralizing solution is rinsed out, the rods are removed and the wave is set either by finger-waving or with the use of pin curlers or the like. The hair is then dried by forced air or otherwise, and the pin curlers or the like removed.

With the structure of this invention it is not necessary to remove the hair molder prior to setting—the hair may be set with the mold members in position. Whereafter the dry waved hair is combed out, the wave being com-

plete. However, the hair molders of this invention may be employed to simply set a wave if so desired.

Referring now specifically to the drawings there is shown at **1** in Figure 1 a hair molder which includes an elongated, apertured, tubular mold member **2**. Mold member **2** is concavo-convex over its length and is circular in cross-section (Figure 2). The degree of curvature of the mold member is such that it will conform well with the portion of the head to which it is to be applied. The apertures of the mold member are designated by the numeral **3**; as shown the mold member has eight such apertures in four pairs, the apertures of a pair being oppositely disposed (Figure 2). These apertures assist penetration of the waving and neutralizing solutions.

At the ends **4** and **5** the mold member **2** is provided with tapered slots **6**, **7**, respectively. The slots **6** are three in number and are disposed substantially 60 degrees apart around the mold member circumference; also the slots extend longitudinally into rod tapering downwardly to their inner ends. Slots **7** on end **5** are similarly provided and accordingly need not be further specifically described; however, it is to be noted that the slots **5** and **6** are provided in longitudinal alignment and are disposed across the convex portion of the mold member, the concave portion being un-slotted.

Extending lengthwise through the tubular mold member is a length of an elastic material **8** such as a rubber band. A spherical bead **9** at end **4** of the mold member receives one extremity of the elastic material **8**. As shown in Figure 8 bead **9** has an opening **10** into which the extremity **11** of the elastic material extends. A cap **12** of plastic material in opening **10** securely retains the extremity **11** positioned. Bead **13** at mold member end **5** similarly receives the second end of the elastic material **8** and accordingly need not be described in detail.

The elastic material **8** is cut of such a length that normally it is shorter than the length of the mold member **2**; accordingly, as shown in Figure 1, the elastic material is in tension and draws the beads **9** and **13** into abutment with the ends **4**, **5**, respectively, of the mold member.

In this connection it is to be noted that the beads suitably have a diameter which is substantially the same as the outside diameter of the mold member and accordingly enter the mold member but very slightly, thus minimizing friction. Also, one bead is applied to the elastic material after the other bead is positioned and the elastic material is passed through the mold member.

The combination of the slots, beads and the elastic material form the fastening means for a hair tress on the mold member; while other fastening means may be employed. I prefer the combination described for reasons which will be apparent hereinafter.

Wound around the mold member **2** (Figure 1) is a left hand wound helical spring **14** having free ends **15**, **16**. This spring is suitably of stainless steel and it conforms very closely to and is disposed on the outer surface of the tubular mold member; the spring is sleeved on the mold member over a bead in assembly. The frictional engagement of the spring and mold member and the transverse resiliency of the spring is such that the concavo-convex mold member **2** may be rotated within the spring while the configuration of the combination is maintained. This spring extends over at least the central portion of the mold member (Figure 1) and terminates short of the end portions of the member.

Rotation of the mold member **2** within the spring wound as illustrated in Figure 1 is completely free when the spring is retained by finger pressure in the area designated as A (Figure 5) and the direction of rotation of the mold member is that of arrow B (Figure 3), that is, out of the plane of the paper. Rotation in the opposite direction under the same condition is limited as the left hand wound spring tends to tighten on the mold member. This latter feature tends to inhibit an operator from rotating the mold member incorrectly and thereby

prevents accidental unwinding of a tress from the hair molder.

The mode of the use of the structure of Figures 1 and 2 is illustrated in Figures 3–7, inclusive. As shown in Figure 3 a hair tress **17**, wetted with waving solution, is extended downwardly and the usual tissue **18** is applied beneath the tress and over the tress to protect the ends of the hair.

The combination of the tress and paper is then positioned on the hair molder as shown in Figure 3. The hair is then rolled under and upwardly toward the head by winding the hair about the hair molder, as indicated in Figure 4. As the molder approaches the head it may assume the position illustrated in Figure 5 by the centrally positioned molder. The concave side of the central molder is away from the head, while the remaining molders of this Figure 5 are properly adjusted. Adjustment of the molder may be made as the molder is applied or after a series of molders is applied, as Figures 5 and 6 illustrate.

The tress of hair and the tissue paper are tightly on the central hair molder (Figure 5), and in the absence of a keeper element such as the spring **14** it would be necessary to unroll the hair and to rewind it with such a length that the concave side of the hair molder would conform to the head. The provision of the spring, however, permits finger pressure to be applied (Figures 5, 6 and 7) in the area A over the hair and spring end. Finger pressure may then be exerted at C to rotate the mold member into the position indicated in Figure 6. The mold now conforms to the curvature of the head.

The spring **14** tends to extend slightly during the rotation and thus tends to spread the hair along the molder providing for improved penetration of the solutions used in the process.

For the purpose of aiding rotation of the mold member grip means, comprising a protuberance **19**, may be provided on the mold member. The grip means may constitute a series of protuberances, disposed circumferentially around the mold and may be on each end of the molder (Figure 5).

With the mold member positioned and the left hand still pressuring the molder at the area A (Figure 6), the right hand of the operator may withdraw the ball **9** outwardly from the end **4** of the mold member through a slot **6**, over the hair tress, and against the tension in the elastic material **8**. The elastic material **8** is then inserted through two of the slots **7** in the end **5** by slightly temporarily upsetting the bead **13**. The bead **9** is then supported outwardly of the mold member as indicated by the adjusted molders in Figures 5, 6 and 7, and the elastic material bears against the hair tress as shown and retains the same positioned on the rod. It is to be noted that with this arrangement the bead **9** does not interfere with positioning of the hair molders in substantial end to end abutment.

It is also to be particularly noted that the direction of rotation of the mold member **2** to accurately position it is such that the tress does not tend to be loosened by such rotation. The spring **14** is so wound that the winding is opposite in direction to the mold member rotation.

The permanent wave is then set by permitting the predetermined period of time to elapse, whereafter the waving solution is rinsed from the hair. Then the neutralizing solution is applied in the usual manner, and a predetermined period of time, usually about 5 minutes, is allowed to elapse. Thereafter the neutralizing solution is rinsed from the hair. This latter rinsing is effected while the hair molder is in position, and all of the solution is effectively removed thereby. The hair is then dried with the molder in position.

It will be apparent that by abutting a plurality of the hair molders of the invention in position on the head, circularly disposed about the head, that a wave of circular contour will be achieved.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions and accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claim.

What is claimed is:

A hair molder comprising an elongated foraminous tubular mold member of substantially circular cross-section and which is concavo-convex over its length, said tubular mold member having slots extending into opposed ends thereof, resilient keeper means in the form of a coil spring disposed centrally on the outer surface of the tubular mold member conforming substantially to the outer surface configuration of the mold member and adapted with the mold member to have a hair tress wound thereon, fastener means retained by the mold member arranged to extend across a hair tress wound

about the coil spring and member to prevent said tress from unwinding, said mold member and said coil spring being relatively rotatable without substantial deformation of the hair molder structure to provide for accurate positioning of the mold member in conformity with an arc of a head to which the molder is applied, and said fastener means comprising a pair of beads and an elastic element which extends through the tubular mold member, said beads abutting opposite ends of the molder member and said elastic element being passable through the slots of the mold member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,531,291	Ingrassia	Mar. 31, 1925
2,204,361	Huppert	June 11, 1940