Aug. 30, 1949. E. G. McDONOUGH ET AL 2,480,588

METHOD AND MEANS FOR WINDING HAIR

Filed Sept. 30, 1947

2 Sheets-Sheet 1

Fig. 1.

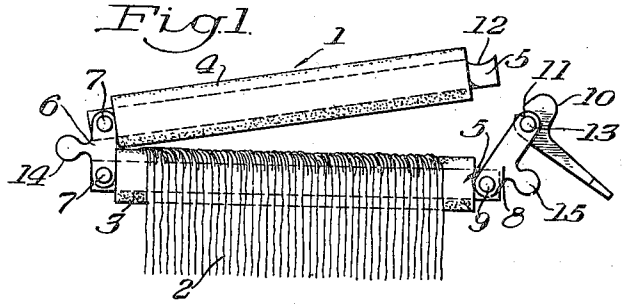


Fig. 2.

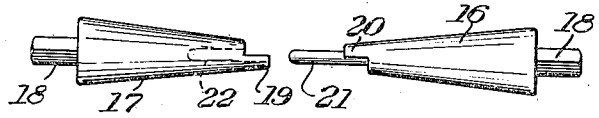


Fig. 3.

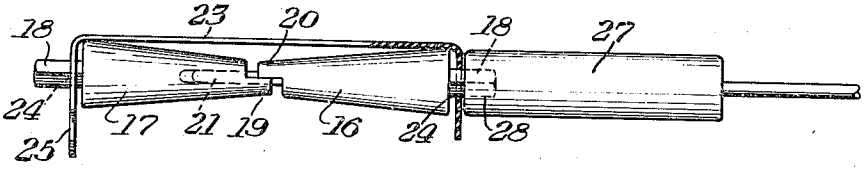


Fig. 4A.

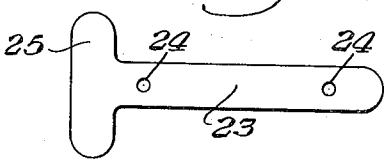
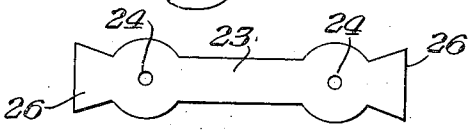


Fig. 4B.



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2 Sheets-Sheet 2

Fig. 5.

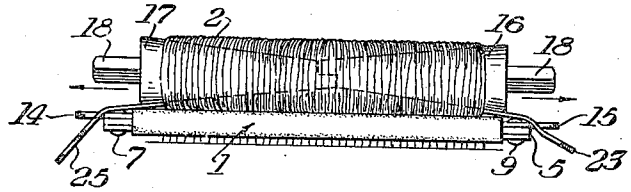


Fig. 6.

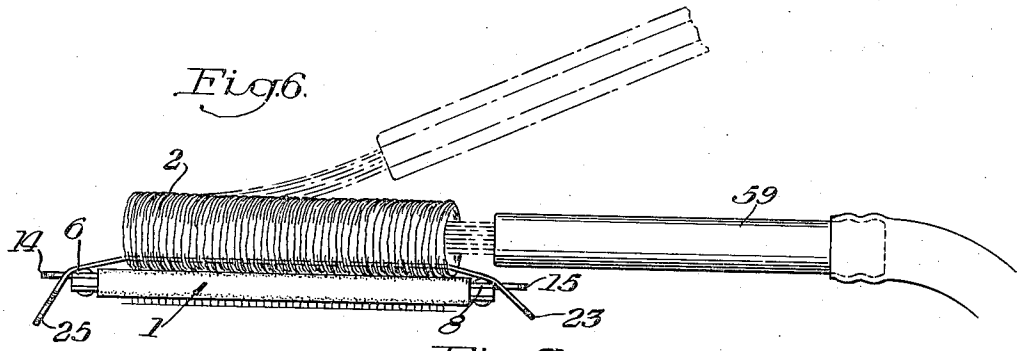


Fig. 7.

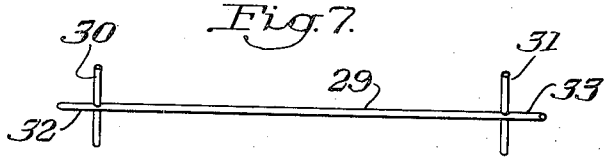


Fig. 8.

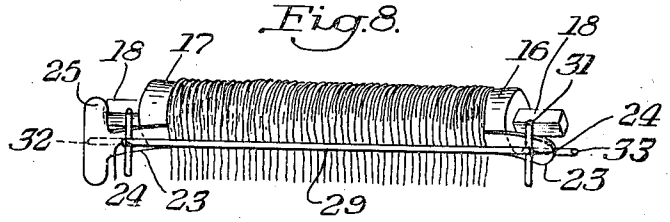
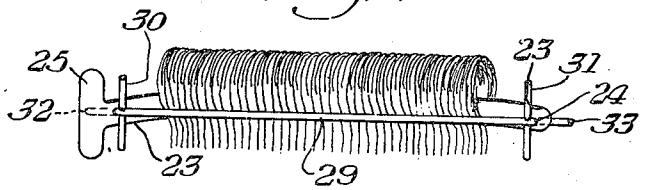


Fig. 9.



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METHOD AND MEANS FOR WINDING HAIR

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Application September 30, 1947, Serial No. 777,090

11 Claims. (Cl. 132—33)

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This invention relates generally to improvements in the art of waving hair and more particularly to the art of winding and holding hollow curls of hair for subsequent hair waving treatment.

This application is a continuation in part of our co-pending application Serial Number 444,320, filed May 25, 1942, patented January 13, 1948, No. 2,434,279. In that application is disclosed and claimed a method of and means for permanently waving hair which involves first winding each curl in hollow form. The instant application relates essentially to our preferred method of and means for winding such a hollow curl and holding it in position to receive the waving solutions. Objects and advantages in the use of such hollow curl are fully set forth in our said patent.

Our method of producing the hollow tubular wound tress and of attaching it in that form to the clamp without disturbing the shape or position of any of the hairs therein is an important feature of our invention. To accomplish this we provide a sectional mandrel preferably of two similar parts normally maintained in alignment with each other by appropriate means at their inner ends and prevented from separating by a strip, preferably flexible and elastic, the ends of which are removably attached to the respective free ends of the assembled mandrel. The tress, starting with the free end, is wound about the complete assembly, including the strip, until it is fully wound and in substantial contact with the clamp. The ends of the strip are then removed from their engagement with the ends of the mandrel and are attached to the respective ends of the clamp, thereby locking the wound tress thereto. Each section of the mandrel is then pulled outwardly, leaving the hollow tubular wound tress in situ, bound to the clamp. To facilitate this operation each section of the mandrel is preferably of a truncated cone shape, the truncated ends of the two sections being adjacent each other when assembled.

A modification of our invention makes it unnecessary to clamp the hair prior to winding it on the mandrel and also permits the winding of the tress to any desired distance from the scalp, or to the scalp, if desired. This is accomplished by employing a light weight binding bar in lieu of the heavier clamp. In use, a tress of hair, not clamped at the roots, is wound on the mandrel from the tips toward the scalp as far as it is desired to impart the wave. The binding bar is then put across the outside coil of hair. The ends of the strip are then removed from their engagement with the ends of the mandrel and are attached to the respective ends of the binding bar, thereby locking the bound tress thereto. Each section of the mandrel is then pulled outwardly, leaving the hollow tubular wound tress in situ bound to the binding bar.

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Other advantages inherent in our invention will be apparent from the detailed description thereof.

For the purpose of exemplification and without limiting our invention or claims thereto, certain preferred embodiments of our invention are shown in the accompanying drawings in which:

Fig. 1 is a plan view of a clamp for holding a tress of hair adjacent its roots;

Fig. 2 is a plan view of a sectional mandrel on which the tress is wound;

Fig. 3 shows the mandrel with its associated parts assembled ready for winding the tress thereon;

Fig. 4A and 4B are plan views of two forms of retaining members for use in the assembly of Fig. 3;

Fig. 5 shows a tress of hair wound on the assembled mandrel of Fig. 3 and secured to the clamp of Fig. 1 by the retaining member of Fig. 4A;

Fig. 6 is a view similar to Fig. 5 with the mandrel removed and showing the manner in which a fluid may be applied to the hollow wound tress;

Fig. 7 is a plan view of a modified form of holding means for the wound tress comprising a binding bar to which the wound tress may be secured;

Fig. 8 is a perspective view showing a tress of hair wound on the assembled mandrel of Fig. 3 and secured to the binding bar by the retaining member of Fig. 4; and

Fig. 9 is a view similar to Fig. 8 with the mandrel removed and showing the hollow wound tress ready for application of fluid thereto.

Referring to Fig. 1 of the drawings, there is shown a clamp 1 for engaging a strand of hair 2, said clamp being of special construction and of a type preferred in the practice of our system and method of hair waving. Said clamp is provided with two jaws 3 and 4, preferably of resilient material, such as rubber surrounding bars 5. One end of each bar 5 is pivotally connected to the corresponding end of a link 6 by pivots 7. At the other end of the clamp there is provided a link 8 pivoted at 9 to one end of bar 5 and provided at its other end with a pivoted cam member 10 having a shoulder 11 adapted to engage a notch 12 in the free end of the other bar 5. When the two jaw members are manually pressed together against the strand of hair, the cam

member 10 is manually swung upon its pivot 13 causing the shoulder 11 to engage the notch 12 and on further movement the cam member causes the jaws to firmly grip the strand between them and to be locked in this position. In order that the coil of hair, when formed, may be firmly held upon the clamp we have provided lugs or ears 14 and 15, integral with and extending outwardly from the centers of the links 6 and 8 and adapted to operate in a manner hereinafter described. The rubber covered jaws are made as thin as possible, in order that the hair may be grasped and held close to the scalp.

In accordance with the preferred embodiment of our invention it is necessary that the wound coil of hair shall not, during its treatment with waving solutions and after, have any mandrel or like winding device within its center, i. e. that it shall be a hollow coil. Accordingly we have devised a mandrel which is readily removable after winding the strand thereon without disturbing the wound coil.

In Figs. 2 and 3 is illustrated such a mandrel. This mandrel comprises two separate body sections, 16 and 17, each preferably being of truncated cone shape, the outer or larger end of each section terminating in an outwardly extending reduced portion or pin 18 preferably square in cross-section. The inner or truncated ends of the sections are adapted to fit in interlocked relationship to each other in such manner as to prevent relative turning of the two sections. To accomplish this result we have cut away a portion of each truncated end to form step-shaped portions 19 and 20, respectively, adapted to overlap each other on their inner or flat faces to form a smooth continuous mandrel tapered from its outside ends inwardly to the center which is of minimum diameter. To hold the two sections in alignment and to permit them to be readily separated, when desired, there is provided a pin 21 extending axially, say, from the section 16, which is adapted to seat in an axial bore 22 in the corresponding end of the other section 17.

For the successful performance of our preferred method of waving it is necessary that the sections of the mandrel be firmly held together during the winding operation and that the strand, after it has been completely wound on the mandrel, shall be firmly attached to the clamp of Fig. 1, in such manner that the form of the wound coil will be exactly maintained after the mandrel is removed therefrom. To this end we preferably associate with the mandrel, as shown in Fig. 3, an elastic and extensible member 23, which may comprise a strip of rubber, or equivalent means, provided with a hole 24 in each end, said strip being adapted to be stretched and its perforated ends carried over the pins 18 on each end of the mandrel, said pins passing through said holes 24, thus retaining said extensible member in place which in turn holds the two sections of the mandrel together against any force tending to separate them.

The parts of the mandrel being assembled as shown in Fig. 3, the strand is wound about both the body of the mandrel and the elastic member 23, the latter conforming to the shape of the mandrel under the pressure of winding. The strand is wound from its tip to the clamp. The winding may be conveniently accomplished by a key 27 of conventional type, provided with an aperture 28 squared to fit over the square pins 18. When the hair has been wound into substantial engagement with the clamp, as shown in

Fig. 5, the wound coil is bound thereto by removing the ends of the elastic extensible member 23 from the pins 18 of the mandrel and attaching them, respectively, to the adjacent ears 14 and 15 of the clamp. Since the extensible member 23 is on the inside of the coil, this operation results in the wound coil being firmly held for its entire length against the clamp. The two sections 16 and 17 of the mandrel are now easily removed from the opposite ends of the wound coil, leaving the hollow coil firmly attached to the clamp as shown in Fig. 6, without there having been any opportunity for the hairs constituting the coil to become displaced. This has been easily and effectively accomplished by a single element, the strip 23, in association with parts of the mandrel sections and clamp. This simple combination of parts therefore performs three highly essential functions, i. e. holds the sections of the mandrel together to permit winding a coil of hair thereon, transfers anchorage of the coil when fully wound from the mandrel to the clamp, and firmly binds the coil to the clamp during its subsequent treatment with waving solutions.

In Figs. 4A and 4B two forms of the extensible member 23 are shown. The extensible member 23 of Fig. 4A is provided with a tab 25 at one end to aid in attaching and detaching that end from the corresponding ends of the mandrel and clamp. The other end is readily attached or detached when dry, as in assembling the mandrel. When both ends are wet, as when treatment with the waving solution has been completed and it is desired to release the waved curl from the clamp, the tab 25 permits easy removal of its end from the ear 14 of the clamp which relaxes the tabless end of the strip sufficiently to permit its easy removal from the ear 15 of the clamp. The strip is then easily removed from the waved curl by pulling on the tab, since the tabless end readily passes through the curl without disturbing it. In Fig. 4B the tab portions 26 at each end of the strip 23 assist in attaching and removing either end from the corresponding ends of the mandrel and clamp.

Fig. 7 shows a modified form of holding means for the wound tress in which a binding bar 29 of special construction for use in our system and method of hair waving is substituted for the clamp 1 of Fig. 1. In order that the coil of hair when formed may be securely held in place, we have provided the binding bar 29 near each of its ends with a short cross bar, 30 and 31 respectively, preferably integral therewith and extending at right angles thereto, thus forming bar extensions 32, 33, constituting tab lugs or ears for attachment of the respective ends of the extensible member 23 thereto.

The parts of the mandrel being assembled as shown in Fig. 3, the strand is wound about both the body of the mandrel and the elastic member 23, the latter conforming to the shape of the mandrel under the pressure of the winding. When the desired length of the strand has been wound, the binding bar is placed back of the wound coil as in Fig. 8 and the wound coil is bound thereto by removing the ends of the elastic member 23 from the pins 18 of the mandrel and attaching them, respectively, to the adjacent ears 32 and 33 of the bar. Since the extensible member 23 is on the inside of the coil, this operation results in the wound coil being firmly held for its entire length against the binding bar. The two sections 16 and 17 of the mandrel are now easily removed from the opposite ends of the

wound coil, leaving the hollow coil firmly attached to the bar as shown in Fig. 9 without there having been any opportunity for the hairs constituting the coil to become displaced.

As has been already indicated the ultimate purpose in producing a hollow coil of hair held firmly in its place on the head by the clamp is to enable the operator to apply waving solution to any part of the coil, inside or outside, necessary to impart to the curl the final individualistic characteristics desired.

From the foregoing it is seen that our system is exceedingly flexible and is at all times under the direct control of the operator. In applying the waving solution a nozzle 59 of any preferred form may be used and if desired it may be of sufficiently small diameter to actually enter the hollow coil of hair, and directly apply the solution to any point or points desired; or, if desired, a larger nozzle may be used which insures a stream of solution of sufficient size to wet the entire inner surface of the coil. In prior systems the mandrel remains in the coil throughout the waving operation and the solution is applied either to the exterior surface of the coil alone or through a hollow mandrel with radial openings leading to the wound coil. The latter method has the distinct disadvantage that the tip of the strand which is usually abused and therefore the easiest to wave and accordingly should have the least of the solution applied to it, receives the most and the portions of the strand nearer the roots which should receive the most actually receive the least. This follows from the fact that the coil of hair offers substantial resistance to the passage of the solution through it and by-passes of least resistance are formed through which much of the solution passes. In our system the coils of hair do not act as barriers since the solution may be applied both to the inner and outer surfaces of the coil in the exact proportion indicated by the condition of the hair.

While our invention has been explained with reference to croquignole winding as an example, it is obvious that it is equally applicable to any other form of winding or disposition of the hair, e. g., hair wound helically about a mandrel (spiral waving).

In the foregoing, preferred embodiments of our invention have been specifically described but it is obvious that many modifications within the spirit and scope of our invention and claims may be made.

We claim:

1. Apparatus for use in permanently waving hair on the human head comprising: a clamp for firmly holding a strand of hair near its roots said clamp being provided with a projection at each end; a mandrel composed of two sections separably joined together intermediate its ends; each section having a projection extending from its outer end; and a flexible elastic strip provided with openings in its ends, said openings, when the strip is stretched, being adapted to engage, respectively, the corresponding projections on the ends of the mandrel to hold the mandrel parts together while the strand is being wound thereon, and adapted to be removed from said projections when the strand is completely wound into substantial contact with the clamp, and to be attached, respectively, to the corresponding projections on the ends of the clamp, to bind the wound coil thereon and to permit removal of the mandrel sections from said coil without disturbing its turns.

2. Apparatus for use in permanently waving hair on the human head comprising: a clamp for firmly holding a strand of hair near its roots; a mandrel composed of two sections separably joined together intermediate its ends; and a flexible elastic strip having ends atachable to the respective ends of the mandrel, when the strip is stretched, to hold the mandrel parts together while the strand is being wound thereon, said ends being adapted to be removed from the ends of the mandrel when the strand is completely wound into substantial contact with the clamp, and to be attached respectively to the corresponding ends of the clamp, to bind the wound coil thereon and to permit removal of the mandrel sections from said coil without disturbing its turns.

3. Binding means for holding a coil of hair in situ, comprising: a longitudinal bar adapted to be applied longitudinally along the outer side of the coil; and means adapted to pass through said coil and provided with end portions adapted to be attached to the corresponding end portions of said bar, respectively, to clamp said coil between said means and said bar.

4. The combination defined in claim 3, in which said bar is provided with a stop adjacent each end to limit the inner movements of the respective end portions of the means adapted to pass through the hollow coil.

5. A mandrel for use in permanently waving hair comprising two sections separably attached to each other at their inner ends, and an elastic strip having ends detachably secured, respectively, to the corresponding outer ends of the mandrel, whereby when a coil of hair is wound thereon the ends of said strip may be detached and the sections of the mandrel may be withdrawn without disturbing the wound coil.

6. The combination defined in claim 5 in which the flexible strip has a tab at one end only to permit said end to be easily removed when wet, the other end of said strip being of a width permitting it, when released, to be drawn through the wound coil without disturbing its turns.

7. The method of winding a curl of hair for subsequent application of a permanent waving solution thereto, to produce a permanent waving of the hair, comprising applying retaining means to a selected strand of hair adjacent its roots, stretching an elastic extensible member longitudinally along a winding mandrel having two separable interconnected parts, attaching the ends of said member to the respective ends of said mandrel to hold said parts together, winding the strand of hair on said mandrel and over said member, detaching the ends of said member from said mandrel and attaching them to the respective adjacent ends of said retaining means to anchor the wound curl of hair there against and finally withdrawing said two parts of the mandrel from the respective ends of said wound curl to produce a hollow curl of hair.

8. The method of winding a hollow coil of hair for application of a permanent waving solution thereto which comprises clamping a strand of hair to be waved near its roots, winding said strand from its tip to the clamp on a mandrel capable of removal from the wound coil of hair without disturbing its turns, securing the wound coil directly to the clamp, and removing said mandrel from the wound coil.

9. The method of winding a hollow coil of hair

comprising: winding at least a portion of a strand of hair in coil form on a removable core; effecting engagement between the wound coil and a coil retaining means, longitudinally of the outer surface of said coil; transferring anchorage of the coil on said core to said retaining means along their line of contact; and removing said core.

10. Apparatus for forming a hollow self-supporting curl in a tress of hair preparatory to permanent waving thereof including in combination a supporting member for engaging the tress near the roots to form a substantially flat band of hair, a mandrel for engaging the tress at a point remote from the scalp and about which the curl is wound toward the supporting member, said mandrel being removable from within the curl when wound, and means for holding the hollow curl adjacent the supporting member after removal of the mandrel.

11. Apparatus for forming a hollow self-supporting curl in a tress of hair preparatory to permanent waving thereof including in combination a supporting member for engaging the tress near the roots to form a substantially flat band of hair, a mandrel for engaging the tress at a point remote from the scalp and about which the curl is wound toward the supporting member, said mandrel being separable into at least two parts for removal from within the curl when wound, and elastic means for holding the hollow curl adjacent the supporting member after removal of the mandrel.

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The following references are of record in the file of this patent:

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