

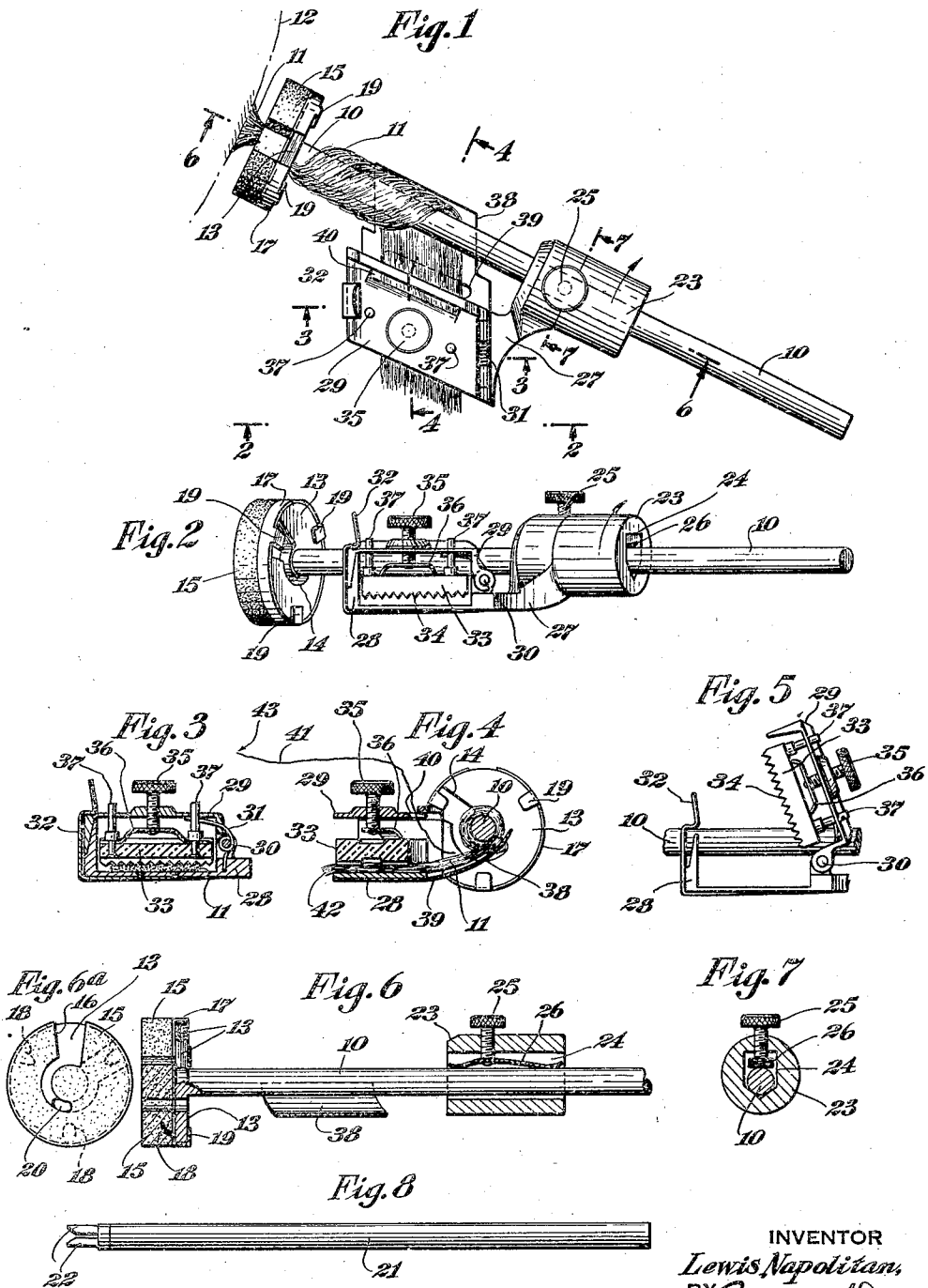
April 19, 1932.

L. NAPOLITAN

1,854,523

HAIR WAVING APPARATUS

Filed March 30, 1931



INVENTOR  
*Lewis Napolitan*  
 BY *Gustav Drews*  
 ATTORNEY

## UNITED STATES PATENT OFFICE

LEWIS NAPOLITAN, OF FLUSHING, NEW YORK

## HAIR WAVING APPARATUS

Application filed March 30, 1931. Serial No. 526,377.

My present invention relates generally to hair-waving apparatus, and has particular reference to an improved mandrel device adapted to receive a tuft of hair in spirally wound relationship.

It is a general object of my invention to provide a device of improved characteristics, more especially, one which is of simplified construction and easy to operate; and provided with a novel arrangement of parts and elements which increases the efficiency with which a tuft of hair may be manipulated.

A more particular object of my invention is to provide a device, in combination with a mandrel adapted at one end to engage a tuft of hair near its root, said device being designed to engage the free portion of the tuft in an improved manner for spiralling the same simply and expeditiously around the mandrel.

In accordance with my invention, I provide a toothed tuft guide which is adapted slidably to engage the free portion of a tuft and to enable the tuft to be helically wound around the mandrel in a thoroughly combed condition. The advantages of this arrangement will be more readily understood when it is borne in mind that under ordinary conditions the winding of a tuft around a mandrel usually necessitates tedious and skillful manipulation accompanied by repeated procedures of combing to prevent the tuft from becoming tangled.

Briefly, my invention resides in the provision of an arrangement wherein a guide or collar is mounted for rotation and axial movement around and along the mandrel, and wherein a combing sleeve or guide is carried by such collar for slidably engaging the tuft and laying the same in a spirally wound and thoroughly combed condition upon the mandrel as the collar or guide is rotated and shifted.

A particular feature of my invention lies in providing a combing sleeve or guide wherein the teeth or grooves are arranged in an oblique manner with respect to the axis of the mandrel so that the helical winding of the tuft is facilitated.

Another feature lies in providing the comb-

ing guide in the form of a sleeve composed of a pair of superposable members constructed in such a manner as to be adjustable for purposes of engaging thinner or heavier tufts of hair.

Another feature of my invention lies in providing the combing guide in such a form that auxiliary binding tapes or strips may be expeditiously interwound with the tuft of hair, when desired.

My present construction also permits a tuft of hair to be wound in either direction around a mandrel.

I achieve the foregoing objects and advantages, and such other objects and advantages as may hereinafter appear or be pointed out, in the manner illustratively exemplified in the accompanying drawings, wherein—

Figure 1 is a plan view of my improved hair-waving device showing the manner in which the device is used in connection with an illustrative tuft of hair;

Figure 2 is a front view of the device by itself taken substantially in the direction 2—2 of Figure 1;

Figure 3 is a fragmentary cross-sectional view taken substantially along the line 3—3 of Figure 1;

Figure 4 is a cross-sectional view taken substantially along the line 4—4 of Figure 1;

Figure 5 is a view similar to the midportion of Figure 2, showing the combing sleeve in open condition;

Figure 6 is a cross-sectional view taken substantially along the line 6—6 of Figure 1;

Figure 6A is an end view of Figure 6 taken from the left;

Figure 7 is a cross-sectional view taken substantially along the line 7—7 of Figure 1; and

Figure 8 is a modified type of mandrel with which my invention may be used.

The mandrel I have illustrated in Figures 1-7 consists essentially of a rod of suitable material and preferably of substantially circular cross-section, this rod being provided at one end with means for engaging a tuft of hair 11 near its root. This tuft may, for example, emanate from a human head 12 in

the manner diagrammatically shown in Figure 1.

Although my invention is not restricted to any specific type of tuft-engaging means, I have illustratively shown an arrangement wherein the end of the member 10 is enlarged to form a disc 13, the latter being provided with a hook-shaped slot 14, this slot extending from the periphery of the disc 13 toward the center thereof and then in an annular direction concentric with respect to the rod 10. The disc 13 is rotatably mounted with respect to a disc 15 which is preferably of felt or similar heat-insulating material. The disc 15 is provided with a similar hook-shaped slot 16 which is more fully illustrated in Figure 6A, and the annular portion of which extends in the opposite direction from the annular portion of the slot 14. The relative rotatability of the disc 13 may be provided for by securing a ring-shaped bearing 17 to the disc 15, as, for example, by claws 18, the bearing 17 being provided with the tabs 19 which engage loosely around the disc 13.

When a tuft of hair is to be engaged, the discs 13 and 15 are rotated so that the open ends of their respective slots register with each other, the tuft being then inserted into these slots. The disc 13 is then rotated with respect to the disc 15, as a result of which the tuft is ultimately engaged in the inner ends 20 of the slots 14 and 16, these inner ends being the only portions of the slots which remain in registry.

Any other suitable or desirable means may be provided for engaging a tuft of hair in a similar manner; and in Figure 8, for example, I have shown a simplified and conventional type of mandrel 21 which is provided with the forked end 22 adapted to engage a tuft of hair simply by frictionally engaging the latter between the forks. The construction of Figures 1-7 is preferred, however, because the tuft, when engaged, lies substantially along the line parallel to the axis of the mandrel and facilitates the further engagement and winding of the free portion thereof.

In accordance with my invention, a collar 23 is mounted upon the mandrel 10 in a manner which permits the same to be rotated, moved in an axial direction, and clamped, if desired. This collar is preferably provided with a bore 24 having a cross-sectional configuration substantially as shown in Figure 7, whereby a clamping screw 25 adjusts the position of a spring 26 or the like which bears against the mandrel 10. By tightening the screw 25, the collar 23 may be clamped to the mandrel; and by loosening it the collar may be rotated and axially shifted.

Carried by this collar, as, for example, upon an arm 27 formed integrally therewith, is a combing guide or sleeve which is arranged alongside of the mandrel 10 and between

the collar 23 and the tuft-engaging end of the mandrel. This sleeve may be constructed in any desired or suitable manner, and I prefer to provide two hinged jaws 28 and 29, each in the form of an oblique parallelogram. More particularly, it is to be noted that the longitudinal axis, and the longitudinal edges of the upper jaw 29, are substantially parallel to the axis of the mandrel 10, while the transverse axis and the transverse side edges of the jaw are arranged along parallel lines forming an oblique or acute angle with respect to the axis of the mandrel 10. The showing of Figure 1, although in some respects resembling a perspective view, is a true plan view and the obliquity referred to is clearly shown in this figure.

The jaws are pivoted, as at 30, and a spring 31 is preferably provided which normally tends to hold the jaws apart in the manner shown in Figure 5. A spring clamp 32 may be secured to the bottom wall of the bottom jaw 28 to engage over the free edge of the upper jaw to hold the jaws in closed or superposed relationship, as shown in Figures 1-4.

Carried by the upper jaw 29, and, more especially, on its inner surface, is a combing member 33 provided with the teeth or grooves 34, these grooves being arranged along parallel lines which are substantially parallel to the side edges of the jaw 29, i. e., along lines forming an acute angle with the axis of the mandrel 10. The grooved face of the member 33 is adapted to cooperate with the inner or upper face of the lower jaw 28 to slidably engage the tuft of hair in sandwiched relationship, as shown most clearly in Figures 3 and 4.

The lower jaw 28 and the member 33 may be said to constitute a pair of superposable members adapted slidably to engage the tuft of hair between them. To permit these members, which together form a combing guide or sleeve, to be adjusted for purposes of engaging thinner or heavier tufts of hair the member 33 is adjustably mounted with respect to the jaw 29, as shown most clearly in Figures 3 and 5. An adjustment screw 35 is mounted in the top wall of the jaw 29 and is secured at its inner end to a spring member 36 having its spaced ends secured to the member 33. A pair of guide pins 37 may be carried by the member 33 and extend upwardly through guide openings in the jaw 29, so that by manipulation of the screw 35 the member 33 may be adjusted in an accurate manner toward or away from the jaw 29.

In accordance with my invention, I also provide a guard plate extension 38 upon the lower jaw 28, this plate extending toward the mandrel 10 in an arcuate manner, as shown in Figures 4 and 6, and terminating adjacent to the mandrel 10 in substantially tangent relationship thereto. For a purpose presently to be described, a slot or opening

39 is provided in the plate 38 adjacent to the jaw 28, and a similar slot or opening 40 is provided in the upper jaw 29. When the device is used, a tuft is engaged near its root, as illustrated in Figure 1; and where the tuft is to be wound in a clockwise direction around the mandrel 10, it is threaded through my device in the manner illustrated, passing around the mandrel 10 and between the latter and the guard plate 38, and thence through the combining sleeve as shown in Figure 4. For purposes of threading the tuft into this engaged relationship, the jaws may be opened as shown in Figure 5 and thereafter closed and secured in closed relationship by means of the spring 32.

When thus engaged, the collar 23 is helically rotated in a clockwise direction around the mandrel 10 in the manner illustrated in Figure 1, as a result of which the tuft is spirally or helically wound around the mandrel 10 in a thoroughly combed condition, its slidable passage through the combing sleeve automatically causing the same to be combed and preventing the same from becoming tangled. The pitch of the helix may be controlled at will, as will be readily understood.

Although it is not essential, it is preferable to interwind the tuft, especially near its end, with a separate binding member or strip which will serve to hold the tuft in wound condition upon the mandrel and permit the collar 23 to be entirely removed from the mandrel. One manner in which this may be accomplished is illustrated in Figure 4, wherein I have shown a binding strip 41, preferably a woven fabric or netting with which reinforcing wires have been associated. Preferably, the strip 41 is provided with a pair of reinforcing wires extending longitudinally thereof and arranged adjacent to its opposite longitudinal edges. This strip is fed through the opening 40 into the relationship of Figure 4, and is interwound with the tuft onto the mandrel 10. The end of the tuft is shown in Figure 4 at 42, and the end of the strip 41 is shown at 43; and it will be obvious that during the interwinding which takes place, the binding member 41 will ultimately envelop or enclose the end 42 of the tuft completely. Accordingly, when the collar 23 is removed from the mandrel 10, the tuft will be held in wound condition by means of the binding member 41 which is interwound with the free end portion of the tuft and completely encircles the latter. Thereafter, the wound hair may be treated in any desired manner, as, for example, by heating the same by any suitable means.

If it is desired to wind the tuft in a counterclockwise direction, it is merely necessary to thread the same in the opposite direction between the mandrel 10 and the guard plate 38, and then to lay the same into sandwiched relationship between the members of the

combing sleeve. A binding member, under such circumstances, may be interwound with the end portion of the tuft by feeding it through the opening 39 instead of through the opening 40.

Obviously, the various parts herein illustrated and the details of construction may be varied in a number of ways to suit differing requirements. It will be obvious that changes in the details herein described and illustrated for the purpose of explaining the nature of my invention may be made by those skilled in the art without departing from the spirit and scope of the invention as expressed in the appended claims. It is therefore intended that these details be interpreted as illustrative, and not in a limiting sense.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is—

1. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel, and a combing guide carried by said collar and adapted to slidably engage the free portion of the tuft, said guide comprising a pair of superposed members adapted to receive said tuft between them, one of said members being integral with said collar and the other hingedly connected thereto and at least one of said members being provided with combing grooves engaging said tuft.
2. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel, and a combing guide carried by said collar and adapted to slidably engage the free portion of the tuft without effecting the engagement of the mandrel by said collar, said guide comprising a pair of superposed members adapted to receive said tuft between them, at least one of said members being provided with combing grooves engaging said tuft, and means for adjusting said members toward and away from each other to accommodate thinner and heavier tufts, respectively.

3. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel, and a combing guide carried by said collar and adapted to slidably engage the free portion of the tuft, said guide comprising a pair of superposable members adapted to sandwich said tuft between them, means for separating said members without effecting the engagement of the mandrel by said collar to permit insertion of the tuft, means for securing said members in superposed spaced relationship, and means

for adjusting said members to vary the spacing between them.

4. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel, and a combing guide carried by said collar and adapted to slidably engage the free portion of the tuft, said guide comprising a pair of superposed members adapted to receive said tuft between them, at least one of said members being provided with combing grooves disposed in a plane that is spaced from said mandrel and engaging said tuft; said grooves being substantially parallel to a plane which forms an acute angle with the axis of the mandrel.

5. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a pair of spaced superposed members adapted to engage said tuft in threaded relationship therebetween.

6. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a pair of spaced superposed members adapted to engage said tuft in threaded relationship therebetween; one of said members being provided with combing grooves arranged at an oblique angularity to the axis of the mandrel.

7. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a pair of spaced superposed members adapted to engage said tuft in threaded relationship therebetween; one of said members being integral with said collar and having a guard-plate extension extending toward the mandrel into a substantially tangent relationship thereto and the other of said members being hinged to said first mentioned member.

8. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a jaw member integral with said collar and extending parallel to but spaced apart from said mandrel and a second jaw member hinged to said integral jaw member, means for opening and closing said jaw members, and a grooved combing member carried by the hinged jaw member and adapted to cooperate with the other jaw member to engage said tuft.

9. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a jaw member integral with said collar and extending parallel to but spaced apart from said mandrel and a second jaw member hinged to said integral jaw member, means for opening and closing said jaw members, a grooved combing member carried by the inner face of the hinged jaw member for cooperation with the inner face of the other jaw member to engage said tuft, and means for adjusting said combing member toward and away from the jaw member which carries it.

10. In a hair-waving device, a mandrel provided with means at one end for engaging a tuft of hair near its root, a collar loosely mounted for rotational and axial movement upon said mandrel to permit helical movement thereof away from said tuft-engaging end of the mandrel, and a combing guide carried by said collar and extending therefrom into position alongside of the mandrel between said tuft-engaging end and said collar; said guide comprising a jaw member integral with said collar and extending parallel to but spaced apart from said mandrel and a second jaw member hinged to said integral jaw member, means for opening and closing said jaw members, and a grooved combing member carried by said hinged jaw member and adapted to cooperate with the other jaw member to engage said tuft; each of said jaw members being provided with a slot adjacent to the mandrel and adapted to receive there-through a binding member to be interwound with the tuft on said mandrel.