

May 27, 1930.

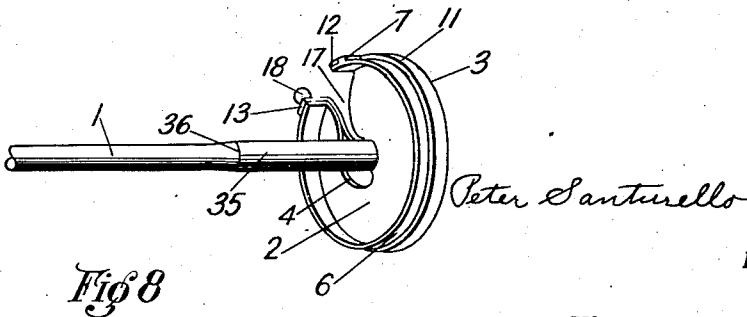
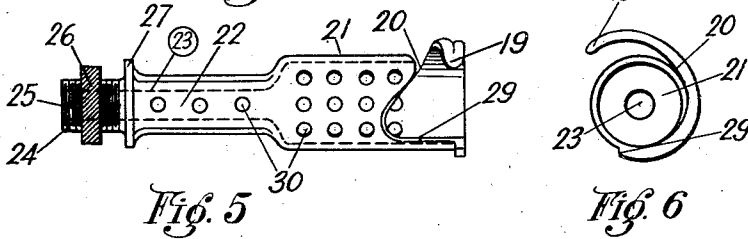
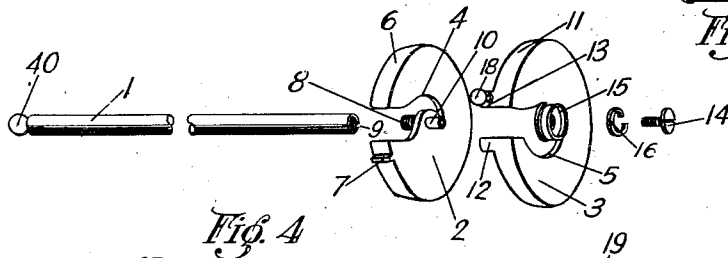
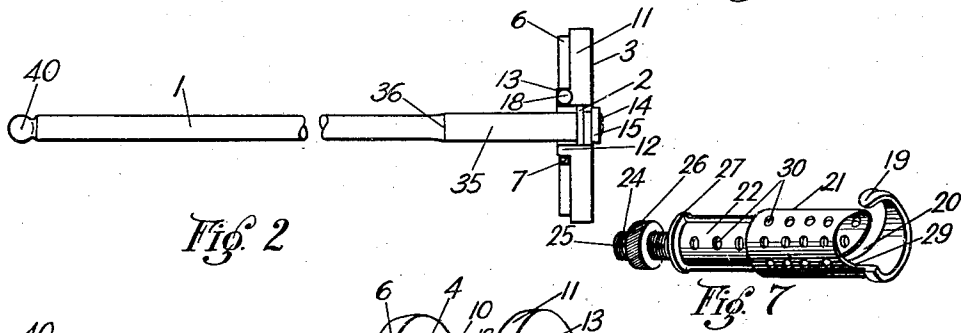
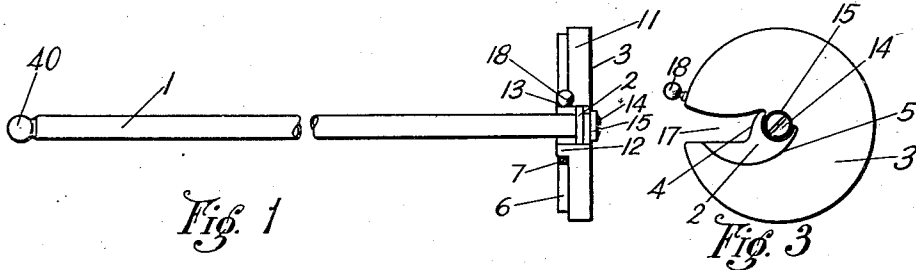
P. SANTURELLO

1,760,320

HAIR CURLING APPARATUS

Filed Jan. 9, 1926

2 Sheets-Sheet 1



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May 27, 1930.

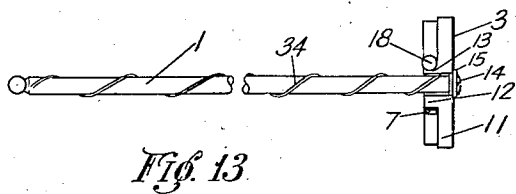
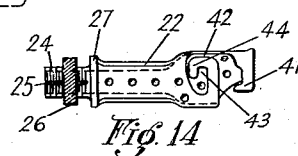
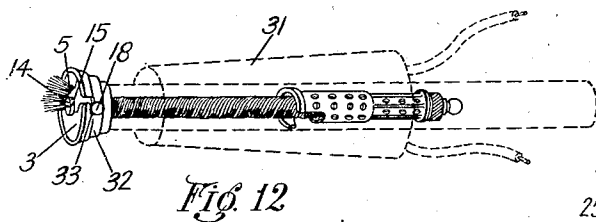
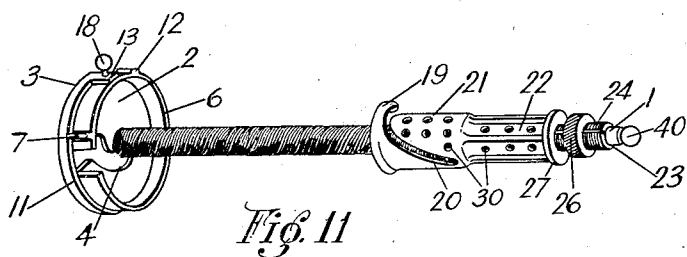
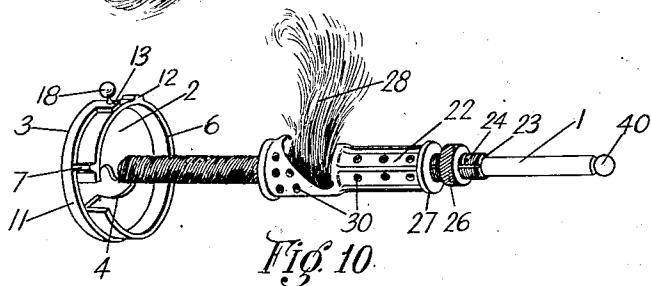
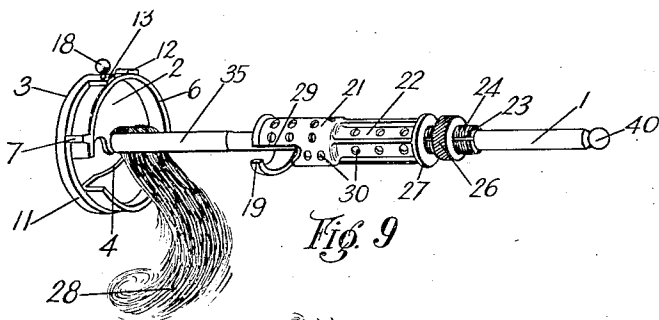
P. SANTURELLO

1,760,320

HAIR CURLING APPARATUS

Filed Jan. 9, 1926

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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HAIR-CURLING APPARATUS

Application filed January 9, 1926. Serial No. 80,321.

My invention relates to a hair curling apparatus and has to do particularly with the provision of a device for winding and curling hair upon a mandrel as a preliminary step in the permanent wave hair dressing process.

In the past, in the permanent waving of hair, it has been the practice to secure a mandrel to a lock or bunch of hair adjacent the scalp by means of a piece of string or the like, and to then wind the hair by hand about the mandrel and secure the remote ends thereof to the mandrel by a second piece of string. This process is not only laborious, complicated and slow but it involves the use of various tools for tensioning the hair upon the mandrel, which is usually provided with a ratchet mechanism for securing the hair in taut position. Also, this process requires considerable skill on the part of the operator and uniform and satisfactory results are not always obtained.

My invention provides, among other things, mechanism for securing a mandrel to the hair without the use of strings, et cetera, mechanical means for winding or coiling the hair upon the mandrel, and means for simultaneously stretching and overlapping the successive spirals. The principal object of my invention is to provide means whereby the curling operation may be rapidly accomplished in a more satisfactory and uniform manner without damaging the hair or requiring the services of a highly skilled operator.

One object of my invention is the provision of a positive, effective and easily manipulated gripping and locking device for attaching the mandrel to a lock of hair adjacent the scalp.

Another object of my invention is the provision of a device for mechanically winding hair about a mandrel in a manner which ensures overlapping of the successive spirals and produces uniform, deep, flat and equally tensioned curls.

A further object of my invention is the provision of a simple and effective device for placing all parts of the hair wound upon the mandrel under substantially equal tensional strains.

A further object of my invention is the provision of means for winding a lock of hair upon a mandrel and for securing and maintaining it in stretched position during the subsequent dampening and heating or steaming operations.

Other important features of my invention will appear as the description progresses and will be more particularly defined in the appended claims. The various objects may be obtained by the embodiment illustrated in the accompanying drawings wherein similar reference numerals designate similar parts and wherein—

Figure 1 is a side elevation of a curling mandrel showing my improved hair gripping and locking device attached thereto.

Figure 2 is a side elevation of a curling mandrel and hair gripping device showing my novel sleeve arrangement for tensioning the hair adjacent the scalp.

Figure 3 is an end elevation of the hair gripping and locking device shown in Figures 1 and 2.

Figure 4 is a perspective view of the mandrel and gripping device shown in Figure 1 with parts disassembled and showing the manner of securing the different parts in operative relation, and the spirally recessed plates which coact to attach the mandrel to a lock of hair.

Figure 5 is an enlarged side elevation of the device employed for winding a lock of hair upon the mandrel.

Figure 6 is an end elevation of the hair winding device shown in Figure 5.

Figure 7 is a perspective view of the hair winder shown in Figures 5 and 6, which shows the helical winding slot to better advantage.

Figure 8 is a fragmentary perspective view of the mandrel and tensioning sleeve shown in Figure 2 and also showing the underside of the bottom plate of the hair gripping device.

Figure 9 is a perspective view of the mandrel and hair winder in assembled relation showing a lock of hair secured in the gripping head preparatory to the winding or curling operation.

Figure 10 is a perspective view similar to Figure 9 showing the relation of the parts when the lock of hair secured in the gripping device has been partially wound upon the mandrel.

Figure 11 is a perspective view similar to Figures 9 and 10 showing the relation of the different parts when the lock of hair has been completely wound upon the mandrel.

Figure 12 is a perspective and partly diagrammatic view showing the hair wound upon the mandrel and positioned within a heating apparatus and also showing my novel adapter for use with different types and sizes of heaters.

Figure 13 is a side elevation of a modified mandrel having a spiral thread for advancing the winding device along the mandrel as the hair is wound.

Figure 14 is a side elevation view of a modified winder.

In the drawings, my invention is shown as comprising a mandrel 1 which is preferably of hollow, cylindrical construction but which obviously may have any desired cross sectional shape and dimensions of any convenient magnitude. Attached to one end of the mandrel 1, I have provided a gripping and locking device for securing the mandrel to a lock of hair in close proximity to the scalp.

This gripping device comprises the superimposed plates 2 and 3 which are coaxially mounted and formed with the opposed spiral recesses or slots 4 and 5 for a purpose which will hereafter appear. The lower plate 2 may be formed with a downwardly depending flange 6 carrying a stop 7, a centrally disposed externally threaded projection 8, adapted to interfit with the internally threaded end 9 of the mandrel 1, and an oppositely extending internally threaded post 10 forming a bearing portion for the upper plate 3. The upper plate 3 may be formed with a flange 11 which incloses part of the flange 6 of the plate 2 when the two plates are superimposed, and may also be provided with the lugs 12 and 13 which abut the stop 7 formed on the flange 6 of the plate 2 when the upper plate is revolved or oscillated about the post 10.

The two plates 2 and 3 may be secured in contacting relation by means of a screw 14 which engages a threaded socket in the post 10. The head of screw 14 is preferably countersunk or positioned in the cup 15 formed on plate 3 and a resilient washer or spring 16 may be interposed between the cup 15 and the head of the screw 14 for increasing the friction between plates 2 and 3. With the construction just described, the plates 2 and 3 are revoluble or oscillatable with reference to each other and they remain in any relative position to which they have been revolved or oscillated. When in the position shown in Figure 3, a lock of hair may be inserted in

opening 17 and either plate revolved relatively to the other by turning plate 3 by means of projection 18 or by turning the mandrel 1 to which the plate 2 is secured. The plates 2 and 3 are arranged in overlapping relation and the screw 14 countersunk or encased by cup 15 to prevent the hair from becoming entangled or fast in the device when in use.

In the use of the gripping device as described, when a lock of hair on the scalp has been segregated and positioned in the opening 17, one of the plates 2 or 3 is revolved or turned with relation to the other and the spiral slots 4 and 5 progressively eclipse the opening 17 until the mandrel is tightly secured to the hair, as shown in Figure 9. The friction between plates 2 and 3 will be sufficient to prevent loosening of the plates or disengagement of the hair during succeeding operations. The opening 17 first completely encloses the lock of hair and then becomes progressively smaller as the plates 2 and 3 are revolved, and my invention thus provides means for accommodating different sized locks or bunches of hair.

The winding device for wrapping or coiling the hair around the mandrel 1 comprises an outwardly extending finger 19, a helical slot 20 and an enlarged cup portion 21, which is formed in continuation of the gripping portion 22. The gripping portion 22 is preferably polygonal in external shape to make possible a tight grasp thereof during the winding of the hair upon the mandrel. The opening 23 is intended to fit upon the mandrel 1 so that the winder may be slid and revolved as is necessary in the winding operation.

One end of the winder may be threaded as at 24 and slotted as at 25, so that it may be constricted by the knurled nut 26 to secure the winder in any desired position upon the mandrel 1. The enlargement or flange 27 between the threaded portion 24 and the gripping portion 22 may be provided for centering the winder and mandrel 1 within the heating apparatus as hereafter described.

The enlarged cup portion 21 contains the lock or bunch of hair 28, which is carried thereinto by the finger 19 and helical slot 20, as shown in Figure 10, and the lip 29 functions to smooth and stretch the hair as it is being wound. The helical slot 20 is preferably proportioned to carry the hair into the cup portion 21, stretch it and overlap the successive spirals to form uniform, deep and properly tensioned coils or curls upon the mandrel. The cup portion 21 and the gripping portion 22 of the winder may be perforated as at 30 to permit the heat and moistening liquid, which is usually of an alkaline nature, to have access to the hair enclosed within the cup portion 21, and to prevent clogging by any foreign substance. It is understood that the winder may be formed

to permit of winding the hair in either or both directions around the mandrel.

In operation, when the mandrel 1 has been secured to a previously segregated lock or bunch of hair adjacent the scalp by revolving or oscillating either of the plates 2 or 3 as previously described, the winder is slid into contact with the under side of plate 2 and revolved, when the finger 19 will engage the hair 28 extending through the opening formed by spiral slots 4 and 5, and carry it into the helical slot 20 and cup portion 21 of the winder. As the revolving of the winder is continued, it is progressively slid downward or toward the end of mandrel 1 and the hair is wound or coiled about the mandrel in a uniform and systematic manner. The hair is also stretched, smoothed, spread and the successive spirals overlapped by the turning of the winder. When about all of the hair 28 has been wound upon the mandrel it is desirable to discontinue the downward movement of the winder and to simply revolve it until all of the ends of the individual hairs have disappeared into the cup portion 21. When this has occurred, the winder may be forced against the wound hair upon the mandrel to compact it lengthwise, the winder being preferably simultaneously revolved to give the hair a final stretching, and then the nut 26 may be tightened to secure the winder and hair in place upon the mandrel during succeeding operations. It will be noted that the cup portion 21 of the mandrel contains all of the ends of the hair so that they are properly curled during the heating or steaming.

When the winding or curling of the hair has been completed and the winder secured in place upon the mandrel by means of nut 26, the electric heater or the like 31 is slid around the mandrel and hair, as shown in Figure 12, and the hair is steamed and heated, and the solution with which the hair wound upon the mandrel has been previously dampened is effective to impart a permanent wave or curl to the hair.

I have provided an adapter 32 (Figure 12) which may be formed with a bayonet slot 33 for engaging with the projection 18 on the plate 3 to make a tight fit between the mandrel and heater, and this adapter may also be advantageously employed to make possible the use of my invention with any type or size of heating apparatus.

When the heating and steaming operation has been completed it is only necessary to remove the mandrel from the heater by disengaging the bayonet slot 33 and the projection 18, loosen the lock nut 26, slide the winder out of contact with the hair and revolve either of the plates 2 or 3 to release the hair from the gripping device. The knob 40 on the opposite end of mandrel 1 is provided to frictionally engage the winder to make its re-

moval from the mandrel rather difficult so that the operator will not have to search for the device or stop to pick it up from the floor. It will be noted that the entire apparatus may be readily disassembled for cleaning or other purposes and that when the different parts are assembled the threaded portions are all in opposition so that the tightening or revolving of one part will not loosen other parts which have been previously tightened.

In Figure 13, I illustrate a modified mandrel having a spiral groove or thread 34 for advancing the winder along the mandrel as the hair is being wound. This arrangement may be used by unskilled operators or where great uniformity is desired, but the mandrel previously described is satisfactory in most cases.

In Figures 2, 8 and 9, I show a supplemental tensioning device consisting of a sleeve 35 which may be revolvably positioned upon the mandrel 1 by means of a shoulder 36. This sleeve 35 operates by revolving or tending to revolve upon the mandrel 1 during the winding operation and results in equalizing the strain upon the hair wound on the mandrel and places all parts of the hair under substantially equal tensional strains, in contrast to most devices in common use which are effective to tighten only the portion of the hair immediately adjacent the point of application of the tensioning force.

In Figure 14 is shown a modified winder having a finger or projection 41 which corresponds generally with the finger 19 of the type of winder shown in Figure 5, a slot 42 which functions in much the same manner as the helical slot 20 but which communicates with another opening 43 formed in the hook member 44. When using this winder the hair may be guided into slot 42 by finger 41 and then under the hook member 44 into opening 43. This opening 43 contains the lock of hair which is wound upon the mandrel and guides it toward and under the slot 42 when the winder is being turned in one direction and toward and under the hook member 44 when the winder is being turned in the opposite direction. An important feature of this form of winder is that it makes possible winding of the hair in either direction about a mandrel and also tends to guide the hair and form a more compact spiral upon the mandrel.

From the foregoing description it will be apparent that I have produced a device which may be employed for curling hair in a minimum time and in a uniform and systematic manner. My invention in addition to greatly reducing the time also does more satisfactory work, requires less skill than other processes, curls the ends of the hair, subjects all parts of the hair to substantially the same strain, eliminates strings and the inconvenience and damage attending their use. It further obvi-

ates the necessity for using pliers or other similar means for stretching the hair, is positive and certain in operation, substantially constructed, simple to operate, cheap to manufacture and renders unnecessary the employment of any other material, such as tape, etc., to obtain superior results.

Claims:

1. In a hair-waving apparatus, the combination of a mandrel, relatively movable recessed plates secured to one end of said mandrel for attaching said mandrel to a bunch of hair in close proximity to the root ends thereof and a device slidably and revolvably mounted on said mandrel for spirally coiling said bunch of hair around said mandrel.

2. A device of the class described comprising a mandrel, relatively revoluble means for securing said mandrel to a bunch of hairs in close proximity to the scalp, means for winding the bunch of hairs so secured around said mandrel and a sleeve on said mandrel for tensioning said hairs during winding.

3. A device for wrapping hair around a mandrel in successively overlapping spirals, said device comprising a helically slotted member revolvably and slidably mounted upon said mandrel.

4. A device for attaching a curling mandrel to a lock of hair comprising relatively movable spirally recessed plates.

5. In hair curling apparatus, a mandrel and means for wrapping hair around the said mandrel secured to a lock of hair in proximity to the scalp, said means comprising a helically slotted revoluble cup member.

6. In hair curling apparatus, a mandrel and means for securing the said mandrel to a lock of hair, said means comprising relatively movable spirally recessed plates having registering openings adapted to form a hair receiving recess which varies in size as either of said plates are moved relative to each other.

7. In combination, a mandrel, a hair winder upon said mandrel, said winder being formed with a cup portion for retaining the ends of the hairs during subsequent operations.

8. In hair curling apparatus, a mandrel, a winder for curling hair around said mandrel, and a sleeve revolvably mounted on said mandrel for tensioning the hair as it is being wound thereon.

9. In combination, a mandrel, a hair winder upon said mandrel, a heating apparatus and means formed on said winder for centering said mandrel within said heating apparatus.

10. A device for securing a hair curling device to a lock of hair, said device comprising superimposed plates which are held in frictional contact by a resilient member.

11. In hair curling apparatus, a mandrel,

relatively movable recessed plates secured to one end of said mandrel for attaching said mandrel to a bunch of hair, a heater adapted to surround the said mandrel, and means surrounding said mandrel and secured to one of said plates for adapting the said mandrel to the inserting opening of said heater.

12. In hair curling apparatus, a mandrel, relatively movable recessed plates secured to one end of said mandrel for attaching said mandrel to a bunch of hair, a projection depending from the periphery of one of said plates, a heater adapted to surround said mandrel, and a cylindrical member provided with a slot surrounding said mandrel for adapting the said mandrel to the inserting opening of said heater, said projection engaging with the slot of said cylindrical member.

13. In hair curling apparatus including a surrounding heater, a winding device embodying a cylindrical member having perforations about its periphery thereof for permitting the access of heat and hair treating liquids therethrough.

14. A hair winder having a projecting finger and a helical slot.

15. A hair winder having a projecting off-center finger and a cup portion.

16. A hair winder having a projecting off-center finger, a helical slot and a cup portion.

17. A hair gripping device comprising a hair embracing portion in the form of a slot of progressively decreasing width, and means for forcing the hair into the narrowing portion of said slot.

18. In hair curling apparatus, a winder comprising a cylindrical shaped member having an enlarged cup portion provided with a slot and a finger, the slot being so formed as to conduct a lock of hair in a helical path.

19. In hair curling apparatus, a mandrel, a winder comprising a cylindrical shaped member having an enlarged cup portion provided with a slot and a finger, the slot being so formed as to conduct a lock of hair in a helical path about said mandrel.

20. In combination, a mandrel, a winder for conducting a lock of hair around said mandrel and thread means for moving said winder longitudinally of said mandrel.

21. In hair curling apparatus, a mandrel, relatively movable spirally recessed plates secured to one end of said mandrel for attaching said mandrel to a bunch of hair in close proximity to the root ends thereof, and a winder for curling said bunch of hair around said mandrel.

22. In hair curling apparatus, a mandrel, relatively movable recessed plates secured to one end of said mandrel for attaching said mandrel to a bunch of hair in close proximity to the root ends thereof, a winder for curling said bunch of hair around said mandrel, and revoluble means mounted on said mandrel for

tensioning the hair as it is being wound upon the mandrel.

23. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, and means for securing said lock of hair within said recessed member.

24. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, means for securing said lock of hair within said recessed member, and a winder mounted upon said mandrel for curling said lock of hair around said mandrel.

25. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, means for securing said lock of hair within said recessed member, and means for securing the hair upon the said mandrel when wound thereon.

26. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, means for securing said lock of hair within said recessed member, and a winder mounted upon said mandrel for curling said lock of hair around said mandrel, said winder comprising a revoluble member including a hair engaging finger.

27. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, means for securing said lock of hair within said recessed member, a winder adapted to be mounted upon said mandrel and revoluble thereon for curling the said lock of hair around said mandrel, and means for securing the hair upon said mandrel when wound thereon.

28. In hair curling apparatus, a mandrel embodying a helically shaped recessed member for the reception of a lock of hair therein, means for securing said lock of hair within said recessed member, a winder adapted to be mounted upon said mandrel and revoluble thereon for curling the said lock of hair around said mandrel, and means for securing the hair upon said mandrel when wound thereon, said winder comprising a revoluble member including a hair engaging finger.

29. In hair curling apparatus, a mandrel, a winder for curling a bunch of hair around said mandrel, and means carried by the mandrel for advancing the winder along the said mandrel.

30. In hair curling apparatus, a mandrel having a spiral thread disposed about its periphery thereof, and a winder for curling a bunch of hair around said mandrel.

31. A device for winding a strand of hair on a curling rod, consisting of a sleeve, split to expand and frictionally grip the curling rod on insertion of the rod into the sleeve, while permitting of rotary and longitudinal

movement of the sleeve on the rod; the sleeve having a pick-up and guiding finger for the strand of hair to be wound thereby.

32. A device for winding a strand of hair on a curling rod, consisting of a sleeve, split to expand and frictionally grip the curling rod on insertion of the rod into the sleeve, while permitting of rotary and longitudinal movement of the sleeve on the rod; the sleeve having a pick-up and guiding finger for the strand of hair to be wound thereby and having an abutment for packing the turns of hair as the sleeve is rotated and fed backward on the rod in the winding operation.

33. In a hair winder adapted to cooperate with a curling member, the combination of a sleeve, hair-receiving means on said sleeve, and means for holding said sleeve in frictional contact with the member.

34. A hair winder having a projecting member and a sleeve portion.

35. A hair winder having a projecting member, a slot for receiving the hair, and a sleeve portion.

36. In a hair winder, the combination of a rod, and a member for coiling the hair around the rod, said member being formed with a slot for receiving the hair.

37. In a hair winding apparatus a combination of a member about which a lock of hair is to be wound, and a device for winding a lock of hair spirally around said member.

38. A hair winder comprising a sleeve having a transverse slot for receiving a lock of hair.

39. A hair winder comprising a sleeve formed with a transverse slot merging into a longitudinal slot.

40. A hair winder comprising a sleeve having a projecting member shaped so as to form a slot for receiving a lock of hair.

41. In a hair winder, the combination of a rod, and a member for coiling the hair around the rod, said member being formed with a slot and a recess for receiving the hair.

42. A hair-waving device of the class described comprising a mandrel, means for attaching said mandrel to a bunch of hair in close proximity to the root ends thereof and a winder for curling said bunch of hair around said mandrel.

43. A device of the class described comprising a mandrel having means for securing it to a lock of hair adjacent the scalp, means for winding said lock of hair spirally around said mandrel and means for locking said winding means in place upon said mandrel.

44. In a hair-waving apparatus, the combination of a mandrel and a winder for curling a strand of hair around said mandrel.

45. A hair curling apparatus comprising a mandrel, means for securing said mandrel to a lock of hair in proximity to the scalp and means for winding said lock of hair around

said mandrel in successively overlapping spirals.

46. A device for attaching a curling mandrel to a lock of hair comprising relatively movable recessed plates.

47. A device for wrapping hair spirally around a mandrel, said device embodying means for stretching and flattening the successive spirals of hair.

48. A mandrel having a sleeve revolubly mounted thereon.

49. In combination with a hair curling mandrel and a heating appartaus, means for adapting parts of said curling mandrel to the size of the inserting opening in said heating apparatus.

50. In a hair-curling apparatus, the combination of a mandrel embodying means for positioning one end thereof in close proximity to the root ends of a lock of hair on the scalp and a winder for curling such lock of hair around said mandrel and maintaining it in such curled position.

51. A hair winder having a projecting off-center finger.

52. In combination with a mandrel upon which hair is to be wound, a means for gripping the hair adjacent the scalp, said means being frictionally maintained in gripping position.

53. A hair winding device for conducting a lock of hair in a helical path and for subjecting the hair to a smoothing action.

54. A hair winding device comprising means for conducting a lock of hair in a helical path and for causing the hair to overlap.

In testimony whereof I hereby affix my signature.

PETER SANTURELLO.