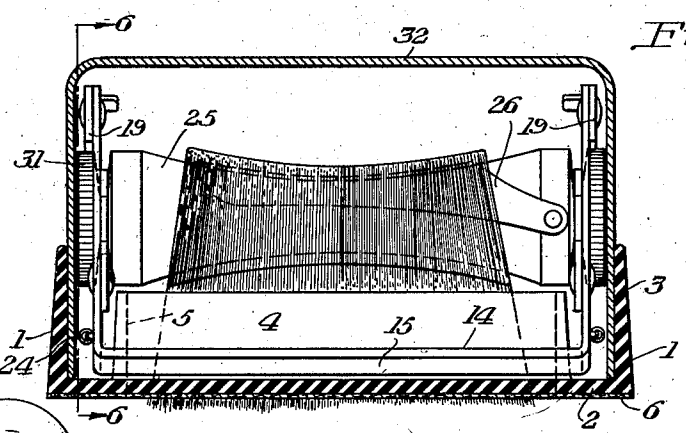
Jan. 19, 1937. W. H. BLEUEL ET AL 2,068,366

APPARATUS FOR WAVING HUMAN HAIR

Filed April 24, 1934 2 Sheets-Sheet 1

Fig. 1.



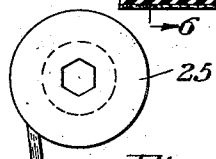


Fig. 2.

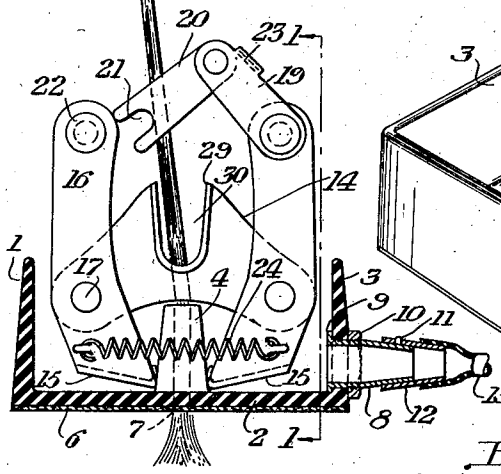


Fig. 3.

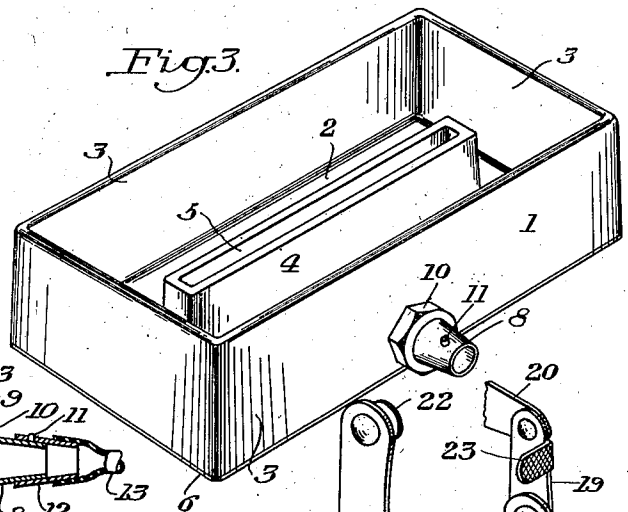
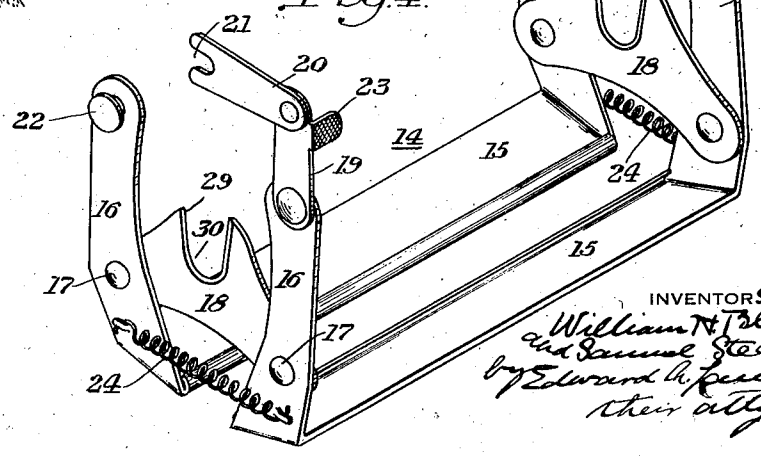


Fig. 4.



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APPARATUS FOR WAVING HUMAN HAIR

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Fig.5.

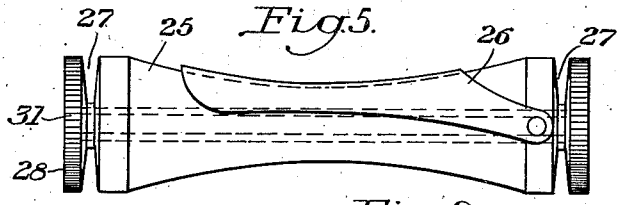


Fig.6.

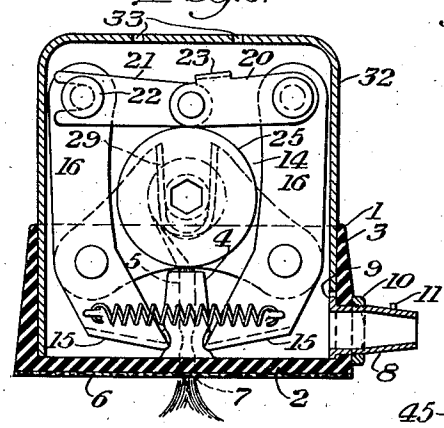


Fig.9.

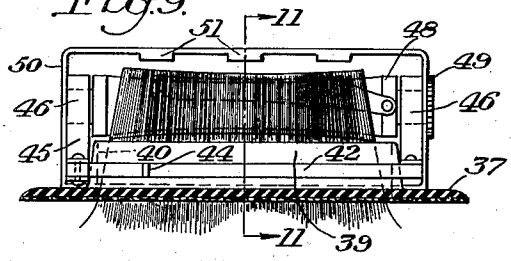


Fig.10.

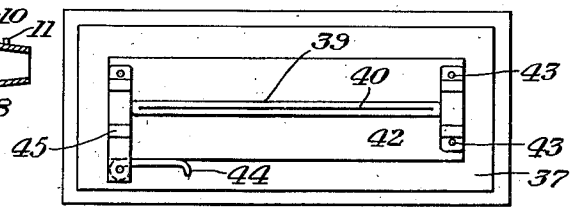


Fig.7.

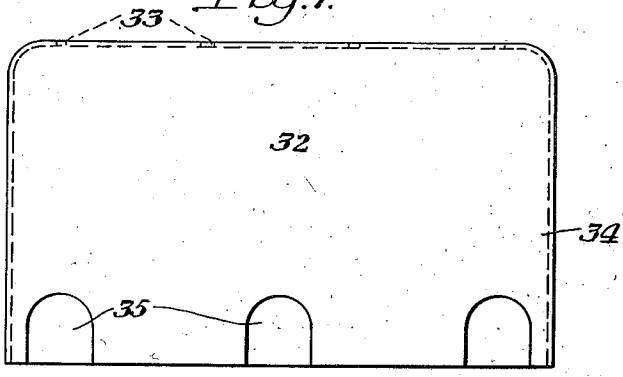


Fig.11.

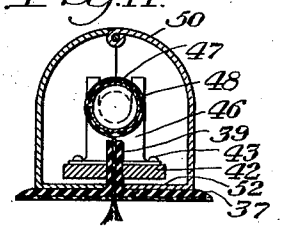
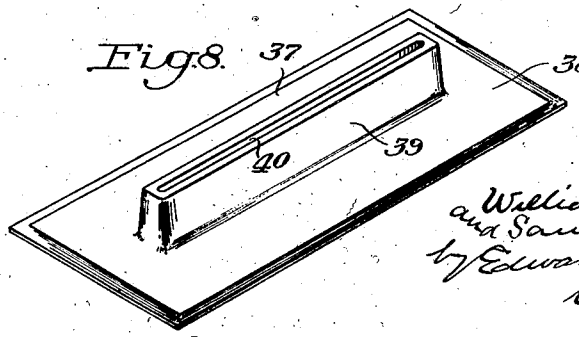


Fig.8.



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UNITED STATES PATENT OFFICE

2,068,366

APPARATUS FOR WAVING HUMAN HAIR

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Application April 24, 1934, Serial No. 722,115

16 Claims. (Cl. 132—36)

This invention relates generally to improvements in apparatus for waving hair and more particularly to the apparatus for waving hair by the croquignole method.

In the croquignole method the patient's hair is separated in broad flat strands, anointed with suitable lotion and wound tightly around a curler mandrel or spindle. The hair is then clasped by a hinged clamp which supports the mandrel.

In the case of the steam process a hinged box, provided with steam connections, encloses the hair wound on the mandrel and sometimes a portion of the hinge clamp and steam is then admitted to the box.

In the apparatus now in common use with the electric process the hair is similarly chemically treated and as it is wound around the mandrel a felt strip is wound therearound extending contiguous with the hair so as to absorb the vapors or condensate during the heating of the hair, preventing the same from passing to the patient's scalp. The hair is then clamped by a hinge clamp and enclosed by electric heating coils which are carried by the jaws of a clip that extends down around the hair on the mandrel and engages the clamp.

It will be noted that both of these processes employ apparatus for enclosing the hair which is parted or opens at the bottom thereof or adjacent the patient's scalp. The hinged hair clamp is similar in both processes and it is usually provided with rubber lined edges to seal the hair where it extends therethrough. However, there is no provision for tightly sealing the exterior shell that encloses the hair and a portion or all of the clamp. The abutting edges of these hinged boxes or clips are usually provided with rubber or other resilient material but such an arrangement does not provide a positive mode to prevent vapors or hot condensate from contact with the patient's scalp.

One object of this invention is to provide a new and improved means for clamping the hair adjacent the roots and preventing access to the scalp of steam condensate or other fluid which would tend to burn or scorch the scalp during the process of curling hair by either the steam or electric process.

For this purpose we provide a novel form of unitary scalp protector which is preferably formed of rubber or similar flexible waterproof material and which comprises a relative broadly extended base which fits against the scalp, and which is further provided with a longitudinally and upwardly extended neck having an elongated or slotted throat through which the hair strand is led, a clamp being applied to the exterior walls of said neck to press the same inwardly and tightly clamp and seal the hair. This protector will not permit the escape of any vapors or condensate around the clamp or through exterior shell or enclosure or through the throat to discharge against the scalp of the patient.

Our invention further provides for a novel hair clamping mechanism that we provide for use in combination with the scalp protector for sealing the hair as it extends through the throat of the latter. The clamping mechanism disclosed herein provides for a uniform clamping pressure on the hair throughout the width of the strand. This cannot be accomplished by the ordinary hinge clamp which produces an ununiform pressure on the hair because of its construction as the hinge clamp of the old art tends to permit the vapors or condensate to leak between the rubber jaws to the patient's scalp because of the non-uniformity of the clamping pressure.

This invention further provides a new means for supporting and preventing the unwinding of the strand of hair on the mandrel after it has been adjusted in position on the clamp support.

To enclose our improved apparatus we provide a box-like enclosure which is placed down over the strand of hair wound on the mandrel and which bears against the protector. The protector is preferably provided with an upwardly extending perimetral flange or wall within which the lower edge of the enclosure member is stepped.

Means are provided for the admission of steam and to the draining away of condensate from the enclosure at a point or points adjacent the base of the protector, the same means or tube being preferably for both purposes

Other objects and means to effect the same will appear from the following description.

In the accompanying drawings, wherein we have illustrated a practical embodiment of the principles of our invention, Fig. 1 is a longitudinal sectional view of the assembled apparatus taken along the line 1—1 of Fig. 2 and showing the scalp protector, the enclosure box in section, and the clamp and hair mandrel in elevation.

Fig. 2 is an end elevation of the clamp with the box omitted, the mandrel elevated and the scalp protector in section.

Fig. 3 is a perspective view of the scalp protector.

Fig. 4 is a perspective view of the clamp.

Fig. 5 is a side elevation of the hair mandrel.

Fig. 6 is a sectional view taken along the line 6—6 in Fig. 1 showing an end elevation of the clamp when assembled, the enclosure being in section.

Fig. 7 is a side elevation of the enclosure box.

Fig. 8 is a perspective view of a modified form of the scalp protector.

Fig. 9 is a side elevation partly in section showing the form of protector illustrated in Fig. 8 in use with a known form of apparatus.

Fig. 10 is a plan view of the form of clamp now in use as applied to the scalp protector shown in Fig. 8.

Fig. 11 is a cross sectional view taken along the line 11—11 in Fig. 9.

Referring first to Figs. 1 to 7 inclusive, 1 represents the scalp protector which is preferably made of soft rubber or similar material capable of withstanding a considerable amount of heat without endangering its elastic gripping qualities. The protector comprises the base 2 having the integral upstanding perimetral flange or wall 3 forming therewith an open box-like structure. The base 2 is provided with an integral and upwardly extending wall 4 forming a neck portion having an elongated or slotted throat or passage 5, centered longitudinally with the base 2 and through which a flat or ribbon-like strand of the patient's hair extends, the protector being pressed down against the scalp. The neck 4 with its throat 5 preferably extends up into the box protector for about one-half or three-quarters of the heighth of the wall. The upper mouth of the throat 5 is thus spaced a considerable distance from the base 2.

The long narrow heavy walled neck and throat containing the hair is arranged to permit the latter to be uniformly distributed so that when clamped the rubber produces a tight seal on the hair, preventing any vapor, steam or condensate from reaching the patient's scalp through the neck.

The under side of the protector is provided with the facing 6 of felt or similar material to further insulate the scalp from heat. Such facing may be a separate mat if desired. The felt pad 6 is provided with the slot 7 which registers with the lower end of the throat 5.

One of the sides of the wall 3 of the protector is pierced adjacent the base 2 to provide for the installation of the hose connection 8 having its inner end flanged as at 9 and being exteriorly threaded to receive the nut 10 for clamping the wall between said nut and the flange to hold the connector in place and to seal the edge of the aperture in the wall of the protector. The flange 9 is cut away at the bottom thereof to provide for a minimum distance between the bore of the hose connection 8 and the base 2.

The wall 3 of the protector may be provided with a tubular spout integral therewith as a substitute of the hose connector 8, but the arrangement described is preferable because of ease of manufacture.

The outer portion of the connector 8 is tapered and provided with the pin 11 so that the hose sleeve 12 may be mounted on the connector 8 by a bayonet lock. The hose or tube 13 is attached to the sleeve 12. The hose connector 8 and the complementary sleeve 12 enable the operator to readily connect the steam hose line to and disconnect it from the curling chamber.

The steam or vapor generator with the controls of the individual steam lines are well known in the art and are therefore not shown.

Referring specifically to Figs. 1, 2, 4 and 6, 14 represents our novel hair clamping device comprising a pair of coacting lipped jaw members 15 whose angular ends are extended upwardly to form the levers 16, which levers are pivoted adjacent their lower ends to the opposite ends of the bridge members 18. The upper end of the levers 16 of one of the jaw members 15 have pivoted thereto one end of the toggle levers 19—20, the outer end of the lever portions being notched as at 21 to engage the necks of the headed pins 22 mounted on the upper end of the opposed levers 16.

It is obvious that the portions of the levers 16 above their pivot points 17 are the longer and that the length of the toggle levers 19—20 when extended, as shown in Fig. 6 is such, so that when the notches 21 are in engagement with the pins 22 and the toggle levers are forced downwardly slightly past their dead centers the jaws 15 will clamp the neck 4 adjacent its base with such force as to prevent relative movement of the strand of hair and the neck 4 and also effectually seal the strand of hair in the throat 5, preventing the travel of steam or condensate down said throat to the scalp. It is evident that when the toggle levers are forced downwardly past their dead centers they will be automatically locked against accidental upward movement which would contract the jaws. 23 represents a finger piece for conveniently operating the said toggle levers.

24 represents helical springs connecting the jaws 15 together at their ends and tending to urge them toward each other. As will hereinafter appear the flat strand of hair is previously wound on a mandrel before the jaws are tightly clamped on the neck 4 by the application of the toggle levers, and the springs 24 act to hold the jaws in place against the neck 4 while the winding up of the strand of hair is being accomplished and the mandrel is mounted in position.

Referring now to Fig. 5, 25 represents the mandrel upon which the ribbon-like strand of hair is wound. The mandrel is circular in cross section and preferably tapers in diameter toward its center. It is provided with the complementary shaped clamp 26 which is used to hold the outer end of the hair on the mandrel preparatory to the winding operation.

The ends of the mandrel are provided with the annular grooves 27 whose walls converge inwardly to engage the double beveled edges 29 of the upwardly open flaring notches 30 formed in the centers of the bridge members 18. The edges of said notches are beveled at either side so as to wedge into the annular grooves 27.

After the end of the lock of hair is secured to the mandrel 25 by the clamp 26, the mandrel is rotated to wind the hair in a flat roll, and as the mandrel moves toward the head the annular grooves 27 move down into the notches 30 until they become wedged therein. As these grooves 27 and the beveled edges 29 wear with use the mandrel will come to rest lower in the slots which are deep enough to compensate for such wear.

After the hair has been wound on the mandrel and the latter has been seated on the bridge member, the toggle levers 19—20 are engaged with the pins 22 and the toggle levers are forced downwardly past their dead center until they rest upon the outer ends of the mandrel which prevent their further depression.

The extremities of the mandrel are preferably knurled as at **31** to facilitate the handling of the mandrel.

The mandrel is provided with a non-round or hexagonal bore to insure a substantially uniform heat throughout the layers of the wound hair, and a key may be inserted into the end of the bore, after the mandrel has been mounted on the bridge members, to rotate the mandrel and thus tighten the hair on the same. This is done after the jaws **15** are clamped tightly on the neck **4** and thus there will be no pull on the roots of the hair.

32 represents the enclosure or box, which may be made of light material, such as aluminum, and which has an open bottom with straight edges so that it may be downwardly inserted in place with a snug fit within the continuous wall **3** of the protector **1**, the said box being notched as at **35** to provide clearance for the flange **9** of the hose connection **8**. The resilient wall 3 snugly grips the box to hold and seal it in place. The top of the box is provided with one or more vents **33** to provide a sufficient escape of vapor or steam to produce the necessary circulation.

To permit the same box to be used in connection with protectors having hose connections at various locations, the bottom edge of the box may be provided with a plurality of notches **35** in various portions as may be found necessary.

After the wound and enclosed strand of hair has been treated, as by steam, for the desired period the heating agent is shut off, the box **32** removed, the toggle levers **19—20** elevated and released from the pins **22**, and the mandrel **25** is rotated in the reverse direction to unwind the hair and simultaneously lift it from its place until the lock of hair is unwound from the mandrel and its ends released from the clamp **26**. The jaws **15** are then spread apart and raised until they clear the lock of hair, and the protector **1** is then raised over the lock of hair to release the latter.

In curling a lock of hair in any portion of the head a protector is selected which has its hose connection in such position that it will be at the lowest point so that the condensates will drain by gravity back through the hose.

In Fig. 8 we show a modified form of the protector indicated at **37** which is unprovided with the perimetral walls **3** having simply a flat base **38** which may be provided with a downwardly beveled edge. The protector is provided with the elongated neck **39** and the slotted throat **40** as in the case of the protector **1** previously described. This form of protector is particularly designed for use in apparatus now in common service wherein either electricity or steam is used for providing the heat.

In Figs. 9 to 11, inclusive, we illustrate the use of the protector **37** in combination with the form of hinged clamp disclosed in letters patent to Davis No. 1,320,783. **42** represents twin clamping arms hinged together at one end as at **43** and having means to close together their other ends comprising cam lever **44** carried by the locking bar **45**. The ends of the clamps are provided with the stands or brackets **46** having upwardly opening notches to receive the ends of the mandrel **48**, the mandrel and one of the brackets being provided with a ratchet and pawl mechanism **49** to prevent accidental reverse rotation of the mandrel. A box **50** formed of two parts hinged together at **51** and having complementary floor members **52** arranged to close beneath the protector **37** is used to inclose the apparatus.

Thus our improved scalp protector may be employed with great advantage not only in combination with our improved hair waving apparatus first above described, but also with the various types of apparatus now in use for the waving of human hair.

The improved hair waving apparatus above described is convenient to use and may be expeditiously applied and removed. No steam, condensate or fluid of any kind can come in contact with the head and any condensation or fluid which accumulates in the base **1** is drained back through the tube. If desired the heating agent may be electricity instead of steam.

We claim:—

1. In apparatus for waving human hair, the combination with a mandrel upon which the lock of hair is wound, of a scalp protector of flexible waterproof material such as rubber comprising an extended oblong base arranged to bear on the scalp and an elongated neck disposed along the longitudinal center of the base and stepped inwardly from the perimetral edges of the same, said neck having a similarly elongated throat through which the hair is led to the mandrel, means arranged to laterally compress the neck to clamp and seal the hair in the throat, and an inclosure consisting of an open bottom box arranged to be set down over the apparatus, said protector having an upwardly extending continuous flange into which the lower edge of said box is stepped for sealing the same against the escape of fluid therefrom.

2. In apparatus for waving human hair, the combination with a mandrel upon which the lock of hair is wound, of a scalp protector of flexible waterproof material such as rubber comprising an extended oblong base arranged to bear on the scalp and an elongated neck disposed along the longitudinal center of the base and stepped inwardly from the perimentral edges of the same, said neck having a similarly elongated throat through which the hair is led to the mandrel, means arranged to laterally compress the neck to clamp and seal the hair in the throat, and an inclosure consisting of an open bottom box arranged to be set down over the apparatus, said protector having an upwardly extending continuous flange into which the lower edge of said box is stepped, said flange being resilient to grip and hold said box against accidental displacement and for sealing the same against the escape of fluid therefrom.

3. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaws having levers connected to their extremities, said levers being pivotally mounted intermediate of their ends, and means arranged to be interposed between the free ends of said levers to cause said jaws to converge.

4. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaw plates having levers connected to their extremities, said levers being pivotally mounted intermediate of their ends, and toggle levers arranged to be interposed intermediate of their free ends to spread the same apart and cause said jaws to converge.

5. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaw plates having angularly disposed levers connected to their ends, bridge members to which pairs of opposed levers are pivotally attached, and toggle levers arranged to be connected to the free ends of said levers to cause said jaw members to converge.

6. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaw plates having angularly disposed levers connected to their ends, bridge members to which pairs of opposed levers are pivotally attached, toggle levers arranged to be connected to the free end of said levers to cause said jaw members to converge, and means whereby said mandrel is supported by said bridge members when the hair is wound upon the mandrel.

7. In a protector, a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal, and a skirt extending substantially normal from the perimeter of the base and arranged to form with the base a part of a closure for a strand of hair in the seal.

8. In a protector, a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal, and a skirt extending substantially normal from the perimeter of the base and access means through said skirt adjacent the base.

9. In a protector, a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal and a skirt extending substantially normal from the perimeter of the base and surrounding the seal and arranged to form with the base a part of a closure for a strand of hair in the seal.

10. In a closure member for waving human hair, the combination of a protector comprising a single piece of resilient material formed to provide a base arranged for admitting a strand of hair to be waved and a skirt extending substantially normal from the perimeter of the base, and a closure member having its perimetral portion arranged to engage the skirt to complete the enclosure.

11. In a closure member for waving human hair, the combination of a protector comprising a single piece of resilient material formed to provide a base arranged for admitting a strand of hair to be waved and a skirt extending substantially normal from the perimeter of the base, a closure member having its perimetral portion arranged to engage the skirt to complete the enclosure, and access means through said skirt adjacent the base.

12. In a closure member for waving human hair, the combination of a protector comprising a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal, a skirt extending substantially normal from the perimeter of the base, and a closure member having its perimetral portion arranged to be engaged by the skirt to form a seal.

13. In a closure member for waving human hair, the combination of a protector comprising a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal, a skirt extending substantially normal from the perimeter of the base, a closure member having its perimetral portion arranged to be engaged by the skirt to form a seal, and access means through said skirt adjacent the base.

14. In a closure member for waving human hair, the combination of a protector comprising a single piece of resilient material formed to provide a longitudinally slotted seal arranged to engage opposite sides of a strand of hair, a base extending laterally from the sides and ends of the seal, a skirt extending substantially normal from the perimeter of the base and surrounding the seal, and a closure member having its perimetral portion arranged to be engaged by the skirt to form a seal.

15. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaw plates having levers connected to their extremities, said levers being pivotally mounted intermediate of their ends, toggle levers arranged to be interposed intermediate of their free ends to spread the same apart and cause said jaws to converge, said mandrel being supported by said clamping means, and means whereby when said toggle levers are extended the mandrel is locked in position.

16. In apparatus for waving human hair, the combination with a mandrel upon which a lock of hair is rolled, of means for clamping the hair between said mandrel and the scalp comprising a pair of opposed jaw plates having angularly disposed levers connected to their ends, bridge members to which pairs of opposed levers are pivotally attached, toggle levers arranged to be connected to the free end of said levers to cause said jaw members to converge, means whereby said mandrel is supported by said bridge members when the hair is wound upon the mandrel, and means whereby when the jaws are in their converged position the mandrel is locked in place.

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