Aug. 9, 1938. I. B. CALVETE 2,126,170

PERMANENT WAVING OF HAIR

Filed Feb. 18, 1937 3 Sheets-Sheet 1

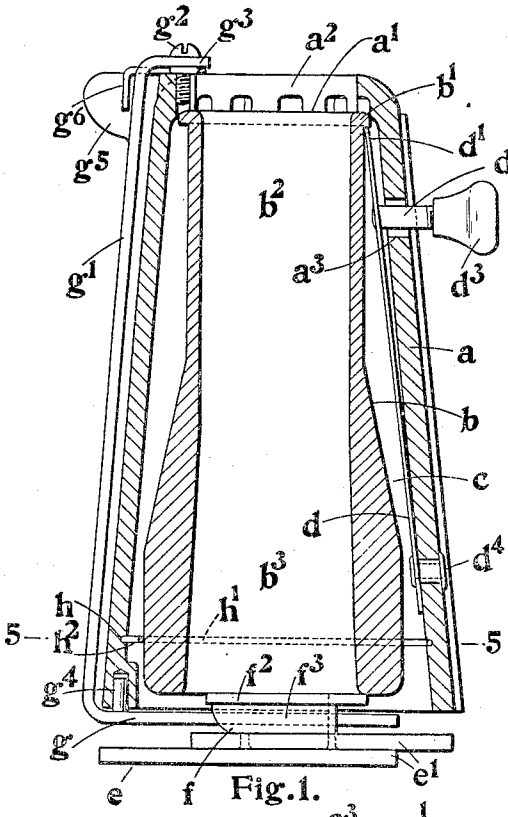



Fig.1.

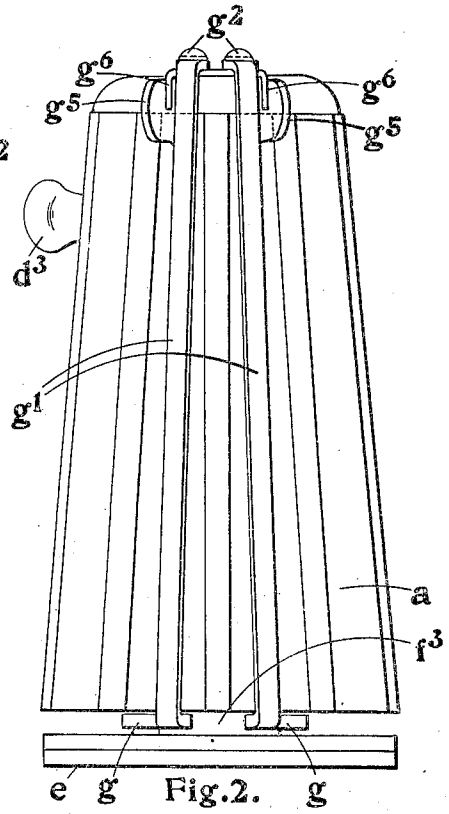



Fig.2.

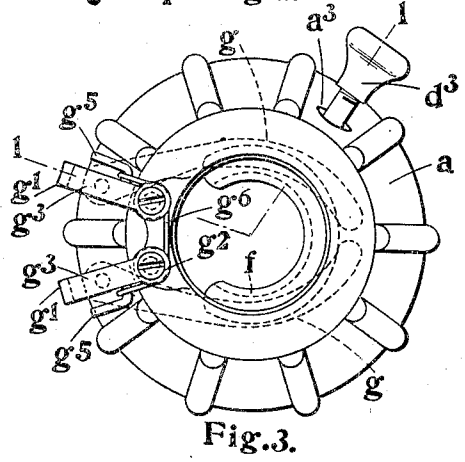



Fig.3.

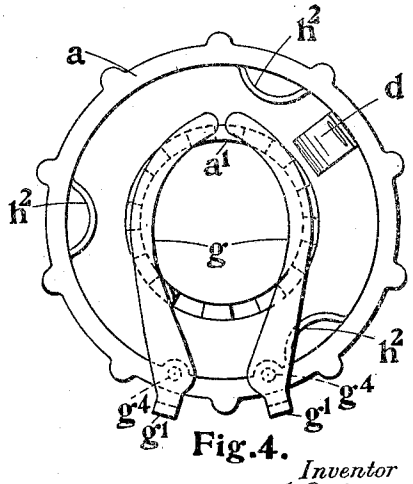



Fig.4.

Inventor
I. B. Calvete:

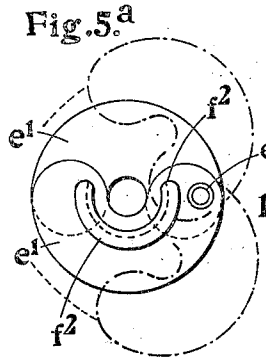
Morgan Finnegan & Dunham
by
Attorneys.

Aug. 9, 1938. I. B. CALVETE 2,126,170

PERMANENT WAVING OF HAIR

Filed Feb. 18, 1937 3 Sheets-Sheet 2

Fig.5.a



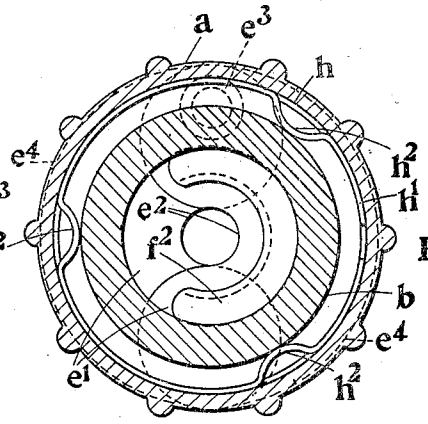




Fig.5.

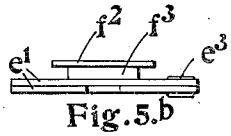



Fig.5.b

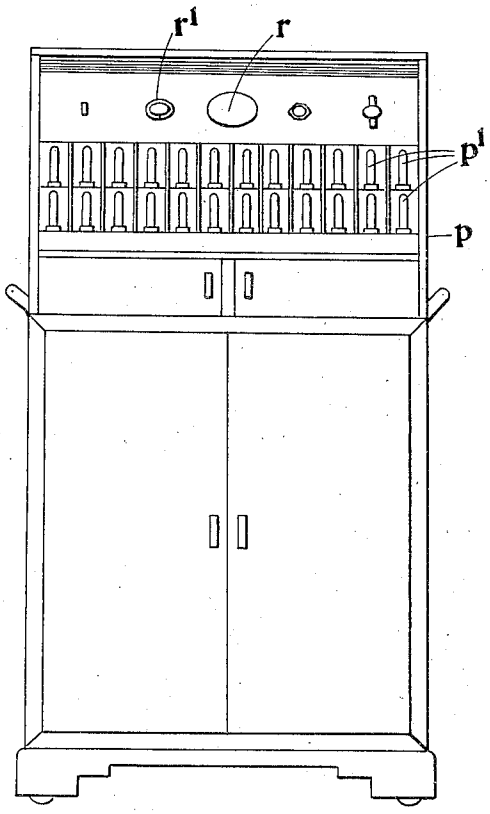



Fig.14.

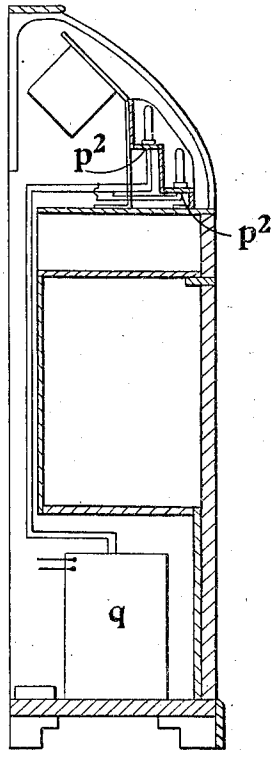



Fig.15.

*Inventor*
*I. B. Calvete:*
*by*
*Morgan Finnegan & Durham*
*Attorneys*

Aug. 9, 1938. I. B. CALVETE 2,126,170

PERMANENT WAVING OF HAIR

Filed Feb. 18, 1937 3 Sheets-Sheet 3

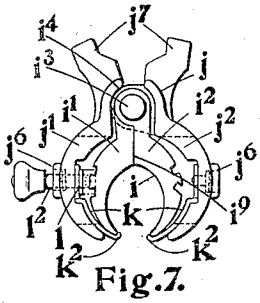


Fig.7.

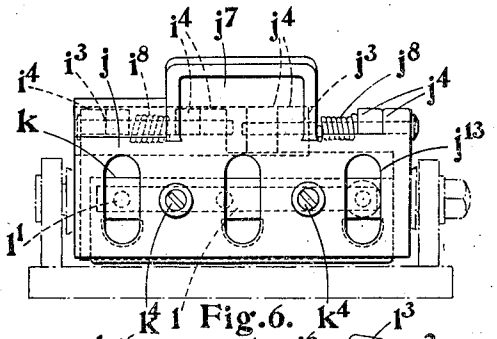


Fig.6.

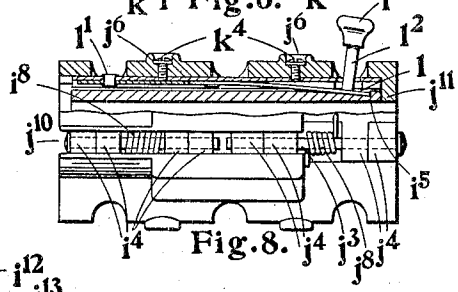


Fig.8.

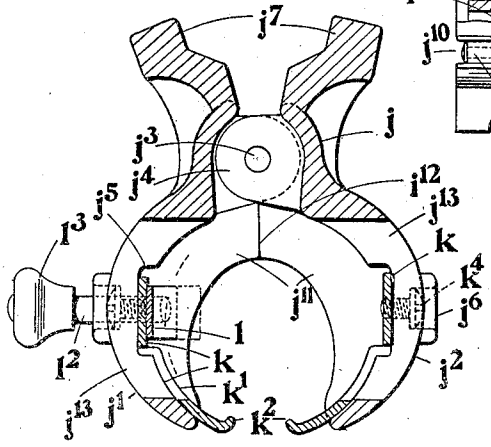


Fig.9.

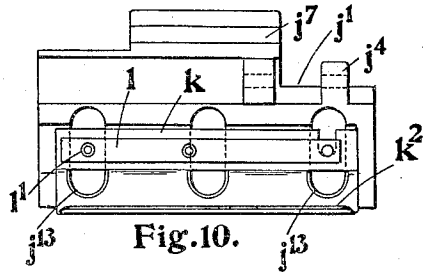


Fig.10.

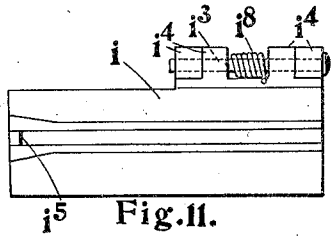


Fig.11.

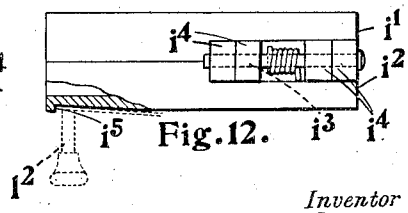


Fig.12.

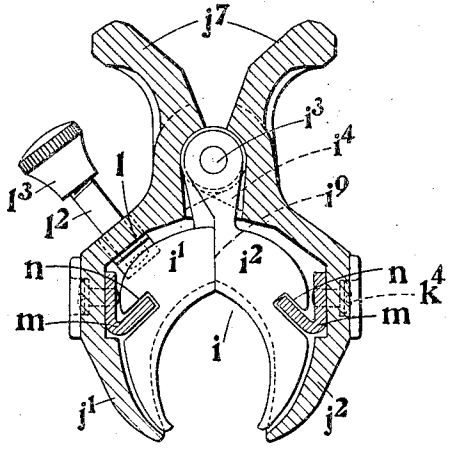


Fig.13.

Inventor
I. B. Calvete:
by
Morgan, Finnegan & Durham
Attorney.

Patented Aug. 9, 1938 2,126,170

# UNITED STATES PATENT OFFICE

2,126,170

## PERMANENT WAVING OF HAIR

Isidoro Bibiano Calvete, Clapham, London, England, assignor to Eugene, Ltd., New York, N. Y., a corporation of New York

Application February 18, 1937, Serial No. 126,351
In Great Britain February 20, 1936

17 Claims. (Cl. 132—36)

The invention relates to means for the permanent waving of hair of the kind in which heating elements are employed which are first heated before use and thus heated are applied upon the tress of hair to be waved after the tress has been wound and secured upon a curling rod and then enclosed within a sachet or pad impregnated with a hair waving lotion.

The invention has among its objects to ensure safety and security against injury or burning of the person undergoing such a treatment of the hair, to provide the quantity of heat and the temperature applied adequate for the purpose and regulable according to the character of the hair to be waved and to render the treatment convenient, expeditious and effective.

According to the invention a holder is equipped with means for enclosing within it a heating element as a lining, whereby the latter is securely engaged and held within the holder on the mere application of the holder upon or over the heating element, while the latter is disposed in position upon one of a number of tubular and substantially cylindrical or other shaped supports that are adapted in shape, dimensions and otherwise as heaters to accommodate such heating elements and to impart heat to the heating elements when applied upon them, whereby the heating elements may be heated to the determined temperature at which they are to be used in the permanent hair waving treatment, the supports referred to being conveniently heated by electrical resistance elements. The heating elements are adapted in shape and dimensions to the shape and dimensions of the holder so that a heating element may be enclosed within a holder by the application of the holder over the heating element whereby it is enclosed and held within the holder and the heated element thus be conveniently transferred from the support upon which it is heated and applied upon the wound hair tress for its treatment while the heating element is held in the holder.

It will be understood that the heating elements on being applied upon the tubular, cylindrical or other supports are quickly heated to the determined temperature whereupon a holder may be applied upon or over a heating element for its enclosure and engagement, whereby the heating element passes into the central cavity within the holder and is securely held in position therein as a liner, whereby the heated element within the holder may then immediately be applied upon the wound tress which has first been prepared and has wrapped around it and secured to it a sachet or pad impregnated with a waving lotion whereby the permanent waving treatment may be carried out under the effect of heat within the heating element. At the conclusion of the treatment the holder may be withdrawn from the wound tress, carrying with it the cooled heating element and by means provided upon the holder the cooled heating element may be released therefrom or be again applied upon a cylindrical or other support by which it may be again heated for use.

The present invention has among its especial objects in its application for the permanent waving of hair tresses helically wound upon curling rods, so to provide the heating elements and the means by which they may respectively be engaged within a holder that top-heaviness of the charged holder is avoided, the weight of the heating element or of the holder being reduced at the upper end, and the holder fastened in the position of use advantageously by being secured to a clamp or fastening device such as is usually provided to seal the sachet or heating pad around the wound tress, or the holder otherwise fastened in position from its lower end.

Thus according to the invention a clamp similar to the clamps usually employed in permanent hair waving for sealing the lower end of the enclosing sachet or pad in position near the scalp may be employed in the treatment of helically wound tresses, and the clamp or one of the elements of the clamp may be provided above with a ring or a segment or segments or the equilavent of such a shape that on the closure of the clamp around the hair tress near the roots the segment or the equivalent may be securely engaged by the means provided at the lower end of the holder or casing for the purpose, whereby the holder may thus be held upright during the treatment. Such means may comprise transversely extended curvilinear arms or the equivalent that are disposed immediately beneath the lower end of the holder and adapted under spring pressure or otherwise to engage the segment or the equivalent so that thus the holder may be securely supported in position on the clamp at the lower end of the tress near the scalp. When it is desired to release the holder carrying the cooled heating element the arms are separated, whereby the heating element may be removed whereupon the heating element may then be released under its own weight by simple means provided for the purpose hereinafter described, or the heating element may again be applied upon supports to be again heated for use.

By such means it will be understood that the

holder is held on a secure foundation in position around the lower end of the tress near the scalp, whereby the holder is thus adapted to be self-supporting or partially self-supporting with no tendency to top-heaviness by reason of the distribution of the greater part of the weight of the liner and the holder or casing at the lower part thereof.

According to the invention moreover heating elements may be similarly provided for use in Croquignole or point waving.

The invention comprises the features of construction and conditions of method hereinafter described.

Figures 1, 2, 3, 4 and 5 illustrate on a scale double actual size a holder and a tubular heating element for use in the application of heat in the permanent waving treatment of a hair tress helically wound upon a curling rod.

Figure 1 is a vertical section on the line 1—1 Figure 3 of the holder with the heating element in position within the holder, the holder being mounted upon a clamp by which the hair tress is embraced near the roots, the clamp being removably secured in position beneath the holder by means carried by the holder that can be actuated to release the holder from the clamp.

Figures 2 and 3 are respectively an elevation and plan corresponding to Figure 1.

Figure 4 is an under-plan of the holder with the clamp removed as well as the heating element.

Figure 5 is a transverse cross-section on the line **5—5** of Figure 1, and Figures 5*a* and 5*b* are detail elevation and plan respectively of the clamp on a smaller scale than Figures 1 to 5.

Figures 6 to 12 illustrate a holder and heating element for use in the application of heat in the permanent waving treatment according to the Croquignole method or for point waving, that is to say, for treating hair tresses in a spiral curl. Figures 6, 7, 8, 10, 11 and 12 are illustrations of actual size, while Figure 9 is on an enlarged scale.

Figure 6 is a side elevation,

Figure 7 is a corresponding end elevation, and

Figure 8 a corresponding plan partly in section of a holder and a heating element within the holder.

Figure 9 is an enlarged view in transverse section corresponding to Figure 7 of the holder from which the heating element has been withdrawn.

Figure 10 is an elevation of one part of the holder showing its internal surface and equipment.

Figures 11 and 12 show separately the heating element used in the construction of Figures 7 to 9 respectively in elevation and in plan.

Figure 13 is a view on an enlarged scale similar to Figure 9 of a modification of construction showing the heating element in position.

Figures 14 and 15 are respectively front view and corresponding cross-sectional elevation of a cabinet or stand in which the electrical equipment for the application of heat to the heating elements is provided for the supply of current to electric resistance elements enclosed within tubular metal supports arranged in series, for the mounting thereon of the heating elements, whereby the heating elements may be heated to a determined temperature before insertion within their respective holders.

In carrying the invention into effect as illustrated in Figures 1 to 5 of the accompanying drawings the holder *a* may be made of a wide variety of materials such as a thermo-plastic or thermal-setting substance, advantageously of a heat insulating or non-conducting character or that is resistant to heat at the temperature (for example 700° F.) to which the tubular heating elements are to be raised before their use in the permanent waving treatment of the hair. The heating elements intended for use in the treatment of hair tresses helically wound upon curling rods may be tubular and conical or tapered in form externally and internally. Such a tubular heating element *b* may generally correspond in form to the internal cavity *c* of the holder *a*, being advantageously made of metal such as aluminium or aluminium alloy, being massive at the lower part and reduced to a small thickness of wall at the upper part. At the upper end the holder *a* is provided with an integral inwardly extending flange $a^1$ that leaves a circular hole $a^2$ at the top through which the upper end of the curling rod may extend upon which the tress of hair to be treated is wound, the flange $a^1$ serving on its underface for contact with the top face of the outwardly extending flange $b^1$ of the heating element *b*.

Upon the inner face of the holder *a* means are provided by which the tubular heating element *b* may be held in the position in which it is completely enclosed by the holder. Such means may consist of a blade spring arm *d* extending substantially vertically and having its lower end secured to the wall of the holder *a* as by means of a tubular rivet $d^4$ and disposed towards the upper end to extend inward into the cavity *c*, whereby on the tubular heating element *b* passing into the cavity, the upper end $d^1$ of the spring blade *d* comes to lie immediately beneath the upper outwardly extending flange $b^1$ or in an under-cut annular recess beneath that flange, whereby the tubular heating element *b* is thus securely held completely enclosed within the holder *a*. At the upper end of the spring blade *d* the end of a transversely disposed pin $d^2$ may be secured that extends outward through a hole $a^3$ provided for the purpose in the peripheral wall of the holder *a*, a knob or the equivalent $d^3$ being applied upon the outwardly extending end of the pin $d^2$, whereby the spring blade *d* may when required be drawn towards the inner wall of the holder *a*. By such simple means the upper end $d^1$ of the spring blade is withdrawn from beneath the outwardly extending flange $b^1$ or from an under-cut annular recess beneath it, whereby the tubular heating element *b* may then be released under its own weight from the holder *a*.

Means are provided at the lower end of the holder *a* by which it may be secured upon a supporting base or foundation such as one of two segments of a clamp *e* of the kind usually employed in permanent hair waving, each segment $e^1$ of the clamp being formed to a substantially semi-circular or similar shape of rubber-fibre or other insulating material. The outer circumferential edge $e^4$ of the segments is advantageously provided greater than a semi-circle, and each segment is provided with an inner edge $e^2$ of semi-circular form, concentric with the outer circumferential edge $e^4$. The segments $e^1$ are pivotally connected together at $e^3$ (Figure 5) by such means as a rivet, whereby the segments may be brought into concentric relation with the semi-circular inner edges $e^2$ oppositely and concentrically disposed, whereby a central circular hole $e^2$, $e^2$ on the segments thus being brought into the opposite and concentric relation is formed as indicated in Figure 5, by which the

clamp is closed upon the tress near the scalp, and the tress is thus tightly held in the closed position of the clamp. The respective segments $e^1$ may be held in the closed position of the clamp under the friction imposed by the rivet at $e^3$, or known means may be provided by which the respective segments of the clamp may be positively held in the closed position and the segments $e^1$ may be released when it is desired to remove from around the wound tress the holder $a$ with the contained tubular heating element $b$.

One of the segments of the clamp $e$ advantageously the upper segment may have mounted on its top face means by which the holder $a$ at its lower end may be mounted upon it. For this purpose a metal ring $f$ may be concentrically mounted upon the upper segment of the clamp $e$ and be firmly secured to it as for example by screw-threaded pins or by downwardly extending integral projections beneath the ring that are inserted into corresponding holes in the upper segment the lower pointed ends of the pins being riveted over. By such means the ring or segment $f$ extends short of the ends of the upper segment of the clamp. The segment of the ring $f$ is provided with an outwardly extending flange $f^2$ by which a channel $f^3$ is formed and is adapted to be engaged by the two retaining arms $g$.

The means provided on the holder $a$ to engage the ring segment $f$ provided on the upper segment $e^1$ of the clamp may consist of two upstanding rods $g^1$ disposed adjacent to each other and approximately parallel with the vertical centre line of the holder $a$, the rods being mounted to rotate at their respective ends upon substantially vertically disposed pivots pins $g^2$ and $g^4$. The rods at the upper ends are provided with transversely disposed and inwardly extending parts $g^3$ through which the pivot pin $g^2$ passes, while at the lower end the transversely disposed arms $g$ are integrally formed as part of the rods $g^1$, the arms $g$ being formed of a curvilinear shape and adapted to engage the circumferential channel in the ring segment $f$, it being understood that the respective pivot pins $g^4$ are secured to the respective arms $g$ and extend into holes provided for their reception in the lower part of the holder $a$. Thus it will be understood that the arms $g$ may be moved away from each other on the holder $a$ being applied upon the wound tress, whereby the upper part of the tress upon the curling rod may enter the tubular heater $b$ from the lower end of the holder and on being substantially completely enclosed the arms $g$ may be released to approach each other for their engagement in the channel $f^3$ beneath the flange $f^2$ in opposite positions by which the holder is thus firmly secured in position upon the upper part $e^1$ of the clamp. Near the upper end of the rods $g^1$ they are provided with outwardly directed lugs $g^5$ that in the normal position may be held outwardly extended close to the holder as by a spring device $g^6$ conveniently made of thin steel wire formed of a substantially bow-shaped and having its ends downwardly diverted whereby the central part of the wire extends at the inner side of the ends of the pivot pins $g^2$, the inwardly diverted ends of the rods $g^1$ being pivotally carried at the upper end of the holder and the ends of the wire brought forward into position across the outer faces of the lugs $g^5$. The lugs, being thus maintained in their outermost position by the spring, may be engaged by the thumb and finger against the resistance of the spring device $g^6$, whereby the arms $g$ are separated for the release of the clamp or in preparation for its engagement.

It will be understood that the pivot pins $g^2$ and $g^4$ upon which the two rods $g^1$ are mounted are set in substantial coincidence, so that the axes of the respective rods $g^1$ pass through or approximately through a line passing through the respective pivot pins $g^2$, $g^4$.

The upper part $b^2$ of the tubular heating element $b$ may be of cylindrical form, while the lower part $b^3$ of the element may be provided of cylindrical form externally and in an intermediate position it may be provided of a conical form externally merging to the cylindrical form at the upper and lower parts. At the upper part the tubular heating element $b$ may be of conical form internally, flaring outwardly towards the lower end. In such or similar form of the heating element $b$ its lower part $b^3$ is provided massive while at the upper part $b^2$ it is provided of a small thickness of wall.

Means are provided advantageously near the lower end of the holder $a$ to maintain the heating element $b$ concentric with the holder. For this purpose an annular groove $h$ may be provided on the inner wall of the holder for the reception of an interrupted wire ring $h^1$ which is formed at intervals with inwardly protruding curved parts $h^2$ which bear elastically against the outer peripheral surface of the heating element $b$ to centralize it.

In carrying the invention into effect as illustrated in Figures 6 to 12 in its application to Croquignole or point waving of the hair, means are provided by which a heating element $i$ formed of two symmetrical parts or jaws $i^1$, $i^2$ hingedly connected together may also be enclosed within a holder $j$ of a similar form and construction provided of two symmetrical parts or jaws $j^1$, $j^2$ hingedly connected together, whereby the heating element $i$ previously heated upon tubular supports or the equivalent to a determined temperature may be engaged on the holder $j$ being applied upon corresponding parts of the heating element $i$, whereby the holder set in line with the heating element longitudinally slides over the heating element so as completely to enclose it, whereby also the heating element is engaged and held within the holder so that it may be removed enclosed within the holder. In this way the holder $j$ may serve as means for removing the heating element from the support upon which it is heated and for applying the heating element after being heated around the spirally wound tress on the sachet or pad impregnated with the hair waving lotion being first applied around the wound tress. After the application of heat to the wound tress for a determined time the holder may then be engaged for releasing the heating element from its engagement around the wound sachet so that it may be heated again for repeated use in the treatment.

The two symmetrical parts or jaws $j^1$, $j^2$ of the holder $j$ are connected together by means of a hinge pin $j^3$ at one end which may be the upper end in the position in which the holder is held when engaging the heating element for its removal from the support on which it is heated, while at the other end a space $j^{10}$ is provided between the respective parts or jaws of the holder within which is accommodated the hinge pin $i^3$, and the arms $i^4$ of the respective parts of the heating element $i$ through which the hinge pin $i^3$ passes which is similarly provided at one end

of the heating element opposite to that at which the interstitial space $j^{10}$ is provided between the jaws of the holder. By such means the dimensions of the holder $j$ and heating element $i$ at positions of the connection of their respective jaws together are minimized by reason of the respective hinge pins and hinging arms $i^3$ and $i^4$ and $j^3$ and $j^4$ of the heating element and holder respectively being set together at opposite ends, so that the respective hinge pins of the heating element and holder $i^3$ and $j^3$ are disposed in alignment when the heating element is engaged within the holder, it being understood that the respective jaws of the heating element and the holder are maintained closed with the respective contact faces of the heating element $i^9$ and the respective contact faces of the holder $i^{12}$ in contact by means respectively of the helical springs $i^8$ and $j^8$.

The closed jaws $i^1$ and $i^2$ of the heating element $i$ engage within the closed jaws $j^1$ and $j^2$ of the holder $j$ in relative endwise movement of the holder with respect to the heating element when the respective holders and heating elements have their jaws set in the closed positions indicated at Figures 7 and 9. For the purpose of permitting the free sliding movement of the closed heating element $i$ within the closed holder $j$ the jaws of the holder may be internally recessed at $j^5$ for mounting on their inner faces strips or liners of metal $k$, the inner parts being adapted to lie in the recesses $j^5$, while the curved outwardly extending parts $k^1$ of the strips or liners $k$ are provided of a curvilinear shape corresponding to the shape of the inner face of the jaws $j^1$, $j^2$ with their outer edges $k^2$ turned inward for the purpose of positive engagement of the front edges of the respective jaws $i^1$, $i^2$ of the heating element. The respective strips or liners $k$ are secured in position by means of a number of retaining screws $k^4$ which pass through the holes provided in the jaws $j^1$, $j^2$, the heads of the screws being accommodated and protected within recesses that are extended by the formation of outwardly extending bosses $j^6$ formed integrally of the material of the jaws $j^1$, $j^2$. The heating element $i$ is retained in the position of use completely enclosed by the holder $j$ by means of a spring arm $l$ that near its lower end is secured to the strips or liners $k$ by means of rivets $l^1$ and at its upper end the spring arm extends inwardly and carries a transversely disposed pin $l^2$ extending outwardly to carry a knob $l^3$. Thus in the closed position of the respective heating element and holder in which the respective contact faces $i^9$ (Figure 7) and $i^{12}$ (Figure 9) contact, the heating element may pass axially into the central cavity within and between the respective jaws $j^1$, $j^2$ of the holder, so that its upper end comes to lie against the upper flange $j^{11}$ on the respective jaws of the holder in which position the inwardly extending upper end of the spring arm $l$ engages beneath a notch or under a projection $i^5$ by which the heating element is positively retained within the holder, it being understood that the front edges of the jaws $i^1$, $i^2$ of the heating element slide against the inturned edges $k^2$ of the strips or liners by which the movement into position of the heating element is facilitated. Thus it will be understood that while in the closed position of the respective parts the drawing outward of the knob $l^3$ for the release of the end of the spring arm permits of the heating element to fall under its own weight when the holder is held upright, that is to say with the flanges $j^{11}$ in the uppermost position, the hinging arms $i^4$ of the heating element are released from the interstitial space $j^{10}$ between the inner edges of the jaws at the lower part thereof.

The jaws $j^1$, $j^2$ of the holder $j$ may be provided with slots $j^{13}$ set in oppositely disposed positions but these are not essential.

It will be understood that on the heating element being mounted upon a tubular support or the equivalent adapted for being heated to the determined temperature at which the treatment is to be carried out as by means of electric resistance heaters, the holder may be set in an endwise position with respect to the heating element $i$ and in a relative axial movement of the parts the holder may be caused completely to enclose the heating element, whereupon the heating element becomes fixedly held within it by the spring arm $l$ engaging under the projection $i^5$. The respective jaws $j^1$, $j^2$ of the holder $j$ are provided with extensions above the axis of the hinge pin $j^3$, which extensions may be formed as handles $j^7$ that can be grasped by the thumb and fingers so that pressure thus exercised upon them may serve to bring the handles together for opening the jaws $j^1$, $j^2$ of the holder to permit the parts of the holder with the contained heating element $i$ to be opened out so that the jaws of the heating element may be applied around the spirally wound tress of hair upon which a sachet or pad may first be applied in order that the treatment of the hair tress may be carried out on the application of heat from the heating element.

According to a modification of the construction immediately before described the jaws $i^1$, $i^2$ of the heating element may be guided into position within and between the jaws $j^1$, $j^2$ of the holder by means of longitudinal guide rails $m$ (Figure 13) respectively set in oppositely disposed positions on the internal faces prepared for their reception on the jaws $j^1$, $j^2$. The guide rails $m$ are provided of an angular or V-shaped form as illustrated in Figure 13, one part of the guide rails being engaged by retaining screws $k^4$ as in the construction illustrated in Figure 9, while the inwardly extending parts of the guide rails $m$ engage in obliquely disposed open slots $n$ formed at the outer faces of the jaws $i^1$, $i^2$ of the heating element, the construction of the holder and of the heating element being otherwise substantially the same as hereinbefore described, it being understood that the jaws of the heating element $i$ (Figure 13) do not contact with the inner faces of the jaws of the holder and that the respective heating element and holder are so provided that the heating element is adapted to move freely into position to be completely enclosed within the holder and to be positively engaged in the completely enclosed position by the blade spring $l$ engaging in a notch or under a projection near the upper end of one of the jaws of the heating element, the heating element being similarly released under its own weight on the withdrawal of the blade spring $l$ in the upstanding position of the holder in which the flanges $j^{11}$ are disposed uppermost.

It will be understood that in the innermost position of the parts or jaws of the holder the longitudinal edges of the parts or jaws of the holder are not brought into contact, it being only necessary that the parts or jaws of the holder may be permitted a movement by which the longitudinal edges of the parts or jaws may be passed

around the wound tress and the sachet or pad surrounding it, and that the longitudinal edges may then be brought to bear in position along the lower parts of the external faces of the sachet or pad in position between the clamps of the holder upon which the hinging pin is carried, the extent of movement thus provided in the separation of the jaws being sufficient for the purpose of disengaging the holder and the heating element from position around the hair tress.

Means may be provided to cause the positive connection of the upper ends of the respective parts or jaws of the heating element *i* with the parts or jaws of the holder *j*. Such means for example consist of a pair of pins at the upper or front ends of the parts of the heating element opposite to that at which the hinge is provided, the pins being disposed to extend beyond the end of the heating element, one pin at each side of the hinging axis, while at the corresponding end of the parts of the holder the transversely extending flanges $j^{11}$ are provided in which a pair of holes may be provided, one at each side of the respective contact faces, whereby on the heating element passing into its position within the holder the pins are adapted to enter the respective holes in the flanges $j^{11}$.

As illustrated in Figures 14 and 15 a cabinet, panel or the equivalent may be provided, situated within convenient access of the operator and may be equipped for electrical heating of the heating elements *b* and *i*. The heating elements may be of such a number as are required to be used together in carrying out the permanent waving treatment of the hair, there being provided for their reception on the cabinet or panel *p* tubular metal supports $p^1$, one for each heating element *b* or *i*, all of which are of dimensions corresponding to those of the supports and are arranged in series. The tubular supports $p^1$ are adapted to be heated by electrical resistance elements set in the heating circuit, being arranged in order or groups on insulating supports $p^2$. The voltage of the main current supply may be reduced by a step-down transformer or rheostat *q*, and a volt-meter *r* suitably calibrated as also a controlling or selector switch $r^1$, may be connected in the circuit, whereby the voltage may be varied in order that the heating elements may be heated to the temperature determined according to the character and condition of the hair to be waved. For this purpose the voltmeter may be calibrated according to the determined temperatures to which the supports are to be heated which may in general correspond to the character of the hair which is respectively readily waved or normal or difficult to wave so that on the operation of the control or selector switch $r^1$ the tubular supports for the heating elements *b* or *i* may be heated for a determined time to the determined degree to suit the character and condition of the hair of the person whose hair is to be treated. Or instead, a number of long vertically or longitudinally disposed metal tubes may be provided for the reception of the heating elements *i* intended for Croquignole or point waving which may be similarly heated and the heating similarly controlled.

Instead of mounting the holder *a* by the arms and rods *g*, $g^1$ as illustrated in Figures 1 to 5, the holder may be mounted upon a clamp surrounding the hair tress near the roots, the clamp or a part mounted upon the clamp being engaged by spring closing arms mounted on and beneath the holder, or the holder may be held in position around the curling rod by spring closing arms mounted at its upper end to engage the upper end of the curling rod by the engagement of the arms within an annular channel or beneath a flange provided at or upon the upper end of the curling rod for the purpose, or the knob usually provided at the upper end of the central spindle of curling rods used for helically wound hair may be adapted or used for the purpose. It will be understood that by such means as well as by the means described with reference to Figures 1 to 5, the holder with the contained tubular heating element which is provided massive only at the lower part may be held substantially upright without top-heaviness, and without the necessity of suspending the holder in its position of use. The heating elements *i* (Figures 7 and 13) are provided massive for substantially their whole length.

I claim:—

1. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder, and means for retaining the heating element within the holder and for the release of the heating element from within the holder.

2. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder, means for the determination of the limit of movement of the heating element into the holder and means for retaining the heating element within the holder and for the release of the heating element from within the holder.

3. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder, means upon the holder for maintaining it in the position of use in the permanent waving treatment, and means for the release of the cooled heating element from within the holder.

4. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder and a device for engaging and retaining the heating element within the holder on reaching the position of enclosure therein, the said device being operable at the will of the operator for the release of the cooled heating element on the holder being so positioned that the heating element can fall out of the holder under its own weight.

5. Means for the permanent waving treatment

of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder, a spring blade mounted within the holder and adapted in form and position to engage and retain the heating element within the holder on reaching the position at which it is enclosed therein, the spring blade being accessible to the operator for the release of the heating element when the holder is so positioned that the heating element may fall out of the holder under its own weight.

6. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, a holder for the heating element, the heating element and the holder being respectively adapted for the endwise movement of the one into the other for the enclosure of the heating element within the holder, the holder being adapted by the heat-insulating character of the material of which it is made to be held without inconvenience to the operator for the enclosure of the heating element for transfer from the position in which it is heated to the position in which it is to be used.

7. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, formed of two substantially symmetrical metal jaws hinged together, a holder for the heating element, said holder being formed of two substantially symmetrical jaws hinged together, the heating element and holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element.

8. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element formed of two massive and substantially symmetrical metal jaws hinged together near one end of the heating element, a holder for the heating element, the said holder being formed of two substantially symmetrical jaws hinged together at one end, the heating element and the holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element, and the holder being provided near the end opposite to that at which its jaws are hinged with a space between the adjacent rear edges of the jaws, the hinges by which the metal jaws of the heating element are connected being accommodated in the said space.

9. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element formed of two substantially symmetrical jaws hinged together, a holder for the heating element, said holder being formed of two substantially symmetrical jaws hinged together, the heating element and holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element, the holder being adapted by the heat insulating character of the material of which it is made to be held without inconvenience to the operator for the enclosure of the heating element for transfer from the position in which it is heated to the position in which it is to be used.

10. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element formed of two substantially symmetrical jaws hinged together, a holder for the heating element, said holder being formed of two substantially symmetrical jaws hinged together, the heating element and holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element, and means for retaining the heating element within the holder and for releasing the cooled heating element from within the holder.

11. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, formed of two substantially symmetrical metal jaws hinged together, a holder for the heating element, said holder being formed of two substantially symmetrical jaws hinged together, the heating element and holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element, and a device for engaging and retaining the heating element within the holder on its reaching the position of enclosure therein, said device being operable at the will of the operator for the release of the heating element on the holder being so positioned that the cooled heating element can fall out of the holder under its own weight.

12. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of the heating element, formed of two substantially symmetrical metal jaws hinged together, a holder for the heating element, said holder being formed of two substantially symmetrical jaws hinged together, the heating element and holder being adapted for endwise movement of the heating element within the holder for the enclosure therein of the heating element, and means for the determination of the limit of movement of the heating element within the holder.

13. A method for the permanent waving treatment of the hair in the use of heating elements first heated before being applied upon the wound trees to be treated, consisting in causing the heating element on being heated to the desired temperature while supported in the position in which it is heated to be enclosed within a holder in an endwise movement of the holder upon the heating element, causing the retention of the heating element within the holder on its enclosure therein, then transferring the heating element held within the holder over the prepared and enwrapped hair tress wound upon a curling rod, then subjecting the hair tress to radiant heat from the heating element for a determined time, and then withdrawing the holder and cooled heating element from the treated hair tress.

14. A method for the permanent waving treatment of the hair in the use of heating elements first heated before being applied upon the wound tress to be treated, consisting in causing the heating element on being heated to the desired

temperature while supported in the position in which it is heated to be enclosed within a holder in an endwise movement of the holder upon the heating element, causing the retention of the heating element within the holder on its enclosure therein, then transferring the heating element held within the holder over the prepared and enwrapped hair tress wound upon a curling rod, then subjecting the hair tress to radiant heat from the heating element for a determined time, and then withdrawing the holder and cooled heating element from the treated hair tress, and means for releasing the cooled heating element on the holder being so held as to permit the heating element to fall under its own weight.

15. Means for the permanent waving treatment of hair in the use of heating elements, first heated before being applied upon the wound hair tress to be treated, consisting of a holder for the heating element adapted as an enclosure for the heating element, and for the hair tress and the curling rod on which it is helically wound, a tubular heating element, the heating element and holder being respectively adapted for the endwise movement of the one within the other for the enclosure of the heating element within the holder and means for maintaining the holder in the position of use in the permanent waving treatment.

16. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of a holder for the heating element adapted as an enclosure for the heating element and for the hair tress and the curling rod on which it is helically wound, a tubular heating element, the heating element and holder being respectively adapted for the endwise movement of the one within the other for the enclosure of the heating element within the holder, means for maintaining the holder in the position of use in the permanent waving treatment and means for the release of the cooled tubular heating element from within the holder.

17. Means for the permanent waving treatment of hair in the use of heating elements first heated before being applied upon the wound hair tress to be treated, consisting of a holder for the heating element adapted as an enclosure for the heating element and for the hair tress and the curling rod on which it is helically wound, tubular heating element, the heating element and holder being respectively adapted for the endwise movement of the one within the other for the enclosure of the heating element within the holder, means for maintaining the holder in the position of use in the permanent waving treatment and means for maintaining the tubular heating element concentric with the holder.

ISIDORO BIBIANO CALVETE.