March 27, 1928. 1,664,000

H. STEFFEN

PROCESS AND APPARATUS FOR WAVING THE HAIR

Filed Jan. 13, 1927 2 Sheets-Sheet 1

Fig. 1

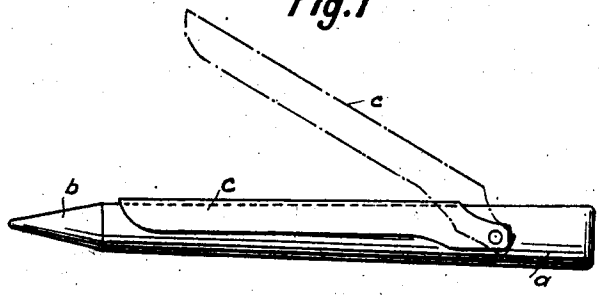


Fig. 2

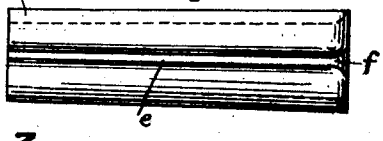


Fig. 3

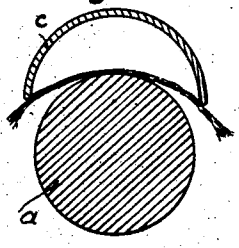


Fig. 4

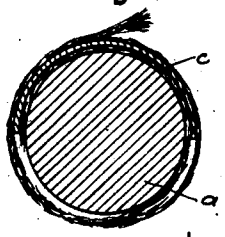


Fig. 5

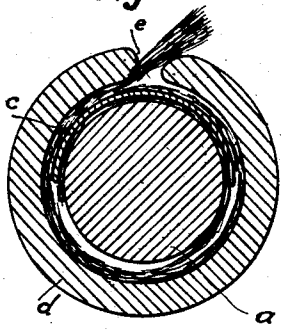
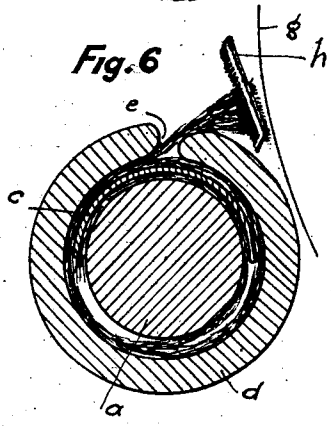


Fig. 6



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March 27, 1928. 1,664,000

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PROCESS AND APPARATUS FOR WAVING THE HAIR

Filed Jan. 13, 1927 2 Sheets-Sheet 2

Fig. 8

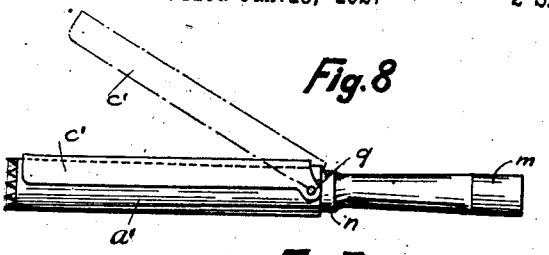


Fig. 7

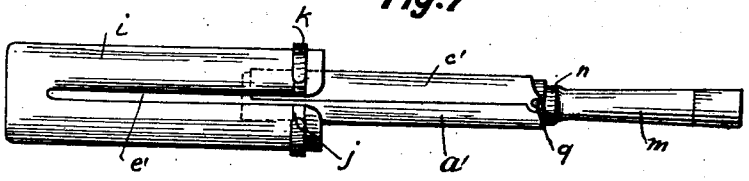


Fig. 9

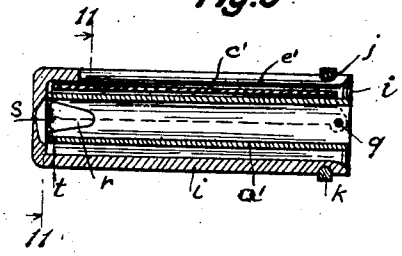


Fig. 10

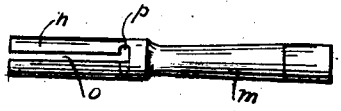


Fig. 11

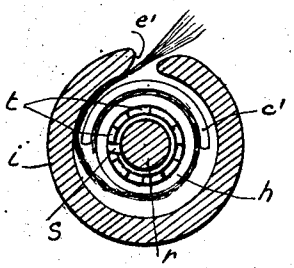


Fig. 12

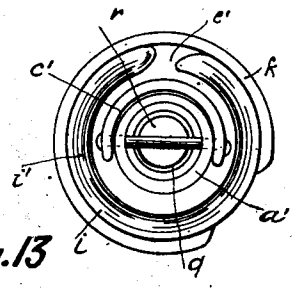
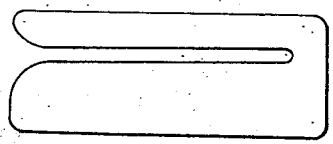


Fig. 13



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Patented Mar. 27, 1928. 1,664,000

UNITED STATES PATENT OFFICE.

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PROCESS AND APPARATUS FOR WAVING THE HAIR.

Application filed January 13, 1927, Serial No. 160,893, and in Switzerland January 23, 1926.

Our invention relates to a process for semi-permanently undulating the hair and to an apparatus particularly adapted to carry out that process.

One of the objects of the invention is to provide a process of the character indicated in which each tress of hair is heat treated as it is rolled up in a manner well known in the art whereby a uniform amount of heat is imparted to each layer of hair thus formed.

Another object of the invention is to provide an apparatus of the character indicated which shall be simple but reliable in operation, constitute a minimum number of parts and dispense with the necessity of a source of electricity for carrying out the said process.

Other objects of our invention will be obvious to those skilled in the art to which it relates with reference to the accompanying drawing forming a part of this specification and in which—

Fig. 1 shows a front elevation of the special clip adapted to grip the locks of hair.

Fig. 2 is an elevation of the heating sheath.

Figs. 3 to 6, which are drawn to a larger scale, are sectional details showing the different stages of the employment of the device.

Fig. 7 is an elevation of the special clip provided with handle and partially introduced into the heating sheath.

Fig. 8 is an elevation of the clip with its removable handle.

Fig. 9 is a longitudinal section of the sheath into which the clip is introduced.

Fig. 10 is an elevation of the removable handle.

Fig. 11 is a section to a larger scale of the sheath with its clip during the coiling of a lock.

Fig. 12 is an end elevation to a larger scale with handle removed.

Fig. 13 shows an insulating sheath for sliding over the device and preventing all contact with the scalp or skin.

The special clip is constituted by a rod *a* of appropriate length, of aluminium for instance, of circular section, slightly tapered, and terminating at one of its extremities in a conical point *b*. Near the other extremity is hinged a member *c* of aluminium, for instance, having a semicircular section and adapted to fit exactly on the tapered portion of the rod *a*.

The sheath *d* of aluminium for instance, is shaped as a truncated cone having a longitudinal slot *e* extending throughout its whole length. The two edges of the slot have a rounded form. One of them is slightly further away from the axis than the other, so that the slot taken as a whole is disposed obliquely to the plane containing the axis of the sheath and the median line of the said slot, so as to facilitate the passage of the hair and to avoid its being wrongly waved. One of the extremities of the sheath is slightly flared at *f* so as to facilitate the introduction of the rod *a* of the clip.

The device described above is utilized as follows.

The rod *a* of the clip is grasped with the right hand. The member *c* is raised. Then the point *b* is slidden under the lock of hair to be gripped (Fig. 3) which is smoothed by means of a comb so that it is flat. Then the member *c* is turned down on the lock to hold it. Then the rod *a* is rotated two or three times to coil the tress (Fig. 4). Then the rod *a* of the clip is slidden into the sheath *d*, the tress being passed through the slot *e*. The sheath, which has been previously heated, is held in the left hand by means of a special grip. When the rod has thus been inserted into the sheath, it is rotated upon itself (Fig. 5) until the sheath is near the skin *g* (Fig. 6); by thus rotating it, various portions of the hair are brought into direct contact with the heated sheath, and so a satisfactory curling or waving is obtained. A comb *h* is interposed between the skin and the sheath *d* to prevent all contact of the scalp with the device.

After this first operation has been effected, a second lock is treated in the same manner by means of a second rod and a second sheath, and so on. When the whole or a portion of the curling or waving in general is terminated, the first rods and sheaths and then the second are removed, and so forth. The hair thus remains for a certain time in direct or indirect contact, according to the parts treated, with the sheath *d*. Some ten of the devices may for instance be utilized.

The conical shape of the rod *a* of the clip and of the sheath *d* not only facilitates the introduction of the first into the second but also allows for the hair to be pressed against the sheath *d* by pushing in the rod *a*.

Two rods *a* may be provided of different

mean diameters for the same sheath d, so as to take into account the various thicknesses of the coiled hair.

The rods may be hollow in order to reduce the weight.

Referring to Figs. 7 to 13 showing a slight modification of the invention, as above described, the rod a' has a length at most equal to that of the sheath and is provided with a removable handle so as to facilitate its manipulation and to permit in addition the placing of a plurality of devices quite close to one another.

The rod a' is of tubular form and has hinged near one of its extremities a member c' of semi-circular section and adapted to fit exactly upon the rod a', the members a' and c' constituting the hair gripping clip and being made of aluminium for example.

The sheath i, of aluminium or other appropriate metal, is of cylindrical form closed at one of its extremities and having a longitudinal slot e' similar to that described with reference to the first embodiment. The sheath i is slightly flared at i' at its open extremity to facilitate the introduction of the rod a'. It is furnished near said extremity with a groove j in which is located a resilient split metal ring k. When the gap in the ring k is opposite to the slot e' of the sheath i (Fig. 7), the hair may be introduced from the side into the said slot and it is retained therein by turning the ring k in the groove j so that the two gaps are no longer opposite to one another (Fig. 12).

The rod a' is of such a length that the extremity thereof lies flush with the open extremity of sheath i and is provided with a removable handle m, above mentioned for the proper manipulation of the member a'.

The extremity of said handle m is provided with a tubular cylindrical portion n, the diameter of which is slightly less than the inner diameter of the rod a'. This cylindrical portion is provided with two bayonet slots o—p. The channels o allow for the manipulation of the rod h when they are passed over the pin q. By pushing further forward the handle m, this latter may be attached to the rod h when the pin penetrates into the channel p after partial rotation.

The sheath i is provided on the interior at its closed extremity with an axially projecting portion r adapted to engage in the rod a' and integral with a radial pin s suitable for engagement with the teeth of a ratchet t fixed to the extremity of the rod a'.

The device described is employed in the following manner.

The handle m is introduced into the rod a' by means of the bayonet joint o—p. Then the jaw c' is raised and the left hand end of the rod a' is passed under the lock of hair which is smoothed by means of a comb so that it is flat. Then the member c' is turned down on the lock to be gripped and held in position. The rod a is rotated two or three times about its own axis to coil the lock thereon. Then the rod a' is introduced longitudinally into the sheath i, whilst the lock is passed through the slot e'. The ring k is in such a position on the sheath i as to allow for the introduction of the lock, the sheath i which has been previously heated being held in the left hand by means of a special clip. When the rod has thus been introduced into the bottom of the sheath i, it is rotated about its own axis by means of the handle m until it is near to the skin. It cannot roll backwards owing to the fact that the teeth t come one after another into engagement with the pin s. Various portions of the hair are brought in succession into direct contact with the said heated sheath i, so that a good curling or waving is obtained. Lastly the device shown at Fig. 13 of insulating material is interposed between the skin and the sheath i which remains in position momentarily, as also the rod a', the handle being withdrawn. The device shown at Fig. 13 may be made of any heat insulating material, such for instance as fibre. The ring k is brought into the closing position of the slot e', as soon as the lock of hair has been introduced and before complete coiling.

After this operation, a second lock is treated in the same manner with the use of a second rod a' and a second sheath i and so forth.

It is possible with the device described to dispose groups including a rod a' and a sheath i very close to one another, this arrangement being more difficult when making use of the devices according to the first embodiment.

What I claim and desire to secure by Letters Patent of the United States of America is:—

1. The process of semi-permanently undulating the hair which comprises winding a tress of hair on a cold element and applying heat to each turn of tress during said winding operation.

2. The process of semi-permanently undulating the hair which comprises gripping a tress of hair by a cold element, surrounding said cold element with a previously heated element and winding said tress on said first mentioned element whereby each tress is subjected to substantially the same amount of heat.

3. The process of semi-permanently undulating the hair which comprises combing a tress of hair to the form of a flat rectangular shape, gripping the tress at the end in a cold core element, winding said tress in successive layers on said core element up to the roots of the hair and subjecting each successive layer thus formed to substantially the

same quantity of heat during said winding operation.

4. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces and an elongated hair receiving slot in said sheath opening into said winding space.

5. An apparatus for semi-permanently undulating the hair comprising a winding core, means comprising a complementary gripping member hinged to said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces and an elongated hair receiving slot in said sheath opening into said winding space.

6. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space and a detachable handle for said core.

7. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space, a handle for said core and means for detachably securing said handle to said core comprising a bayonet slot in said handle and a cooperating pin carried by said core.

8. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space, a circumferentially extending groove adjacent the open end of said sheath and a split hair-retaining ring in said groove.

9. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space and an outwardly flared extremity on the open end of said sheath.

10. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space and an inturned and an out-turned edge along said slot for facilitating the introduction of said tress into said sheath.

11. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces and a concentric centering pin disposed in said sheath adapted to engage said core when inserted within said sheath.

12. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, a concentric centering pin disposed in said sheath adapted to engage said core when inserted within said sheath, a plurality of ratchet teeth on the extremity of said core and a pawl carried by said first mentioned pin cooperating with said ratchet.

13. An apparatus for semi-permanently undulating the hair comprising a winding core, means on said core for gripping the extremity of a tress of hair, a detachable heat conveying sheath for said core, said sheath and said core being adapted to form a winding space between adjacent surfaces, an elongated hair receiving slot in said sheath opening into said winding space, a handle for said core and means for detachably securing said handle to said core comprising a bayonet slot in said handle and a cooperating pin carried by said core, a concentric centering pin disposed in said sheath adapted to engage said core when inserted within said sheath, a plurality of ratchet teeth on the extremity of said core and a pawl carried by said pin cooperating with said ratchet.

In witness whereof I affix my signature.

HENRI STEFFEN.