Aug. 12, 1924. 1,504,567

W. MacDONALD ET AL

WAVING OF HAIR

Filed Oct. 5, 1923

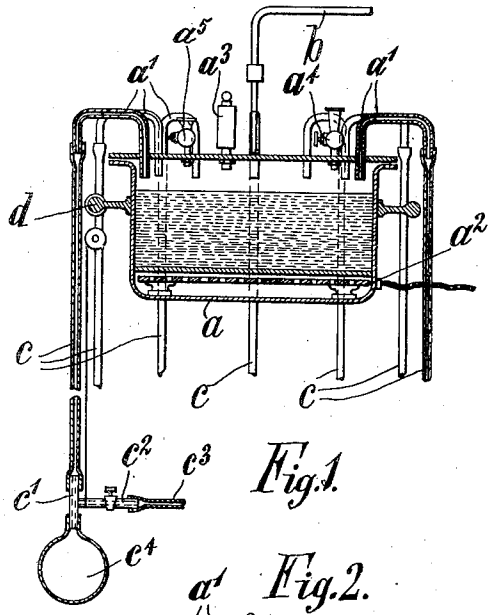

Fig.1.

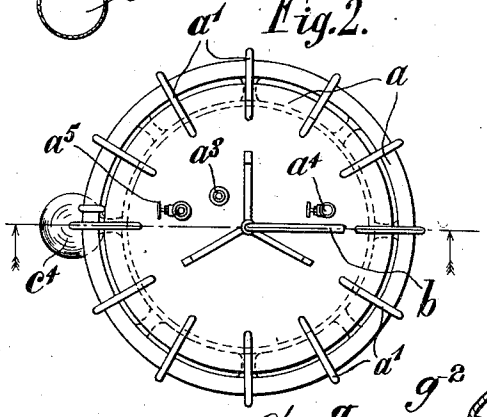

Fig.2.

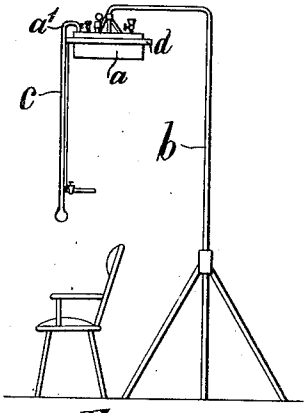

Fig.3.

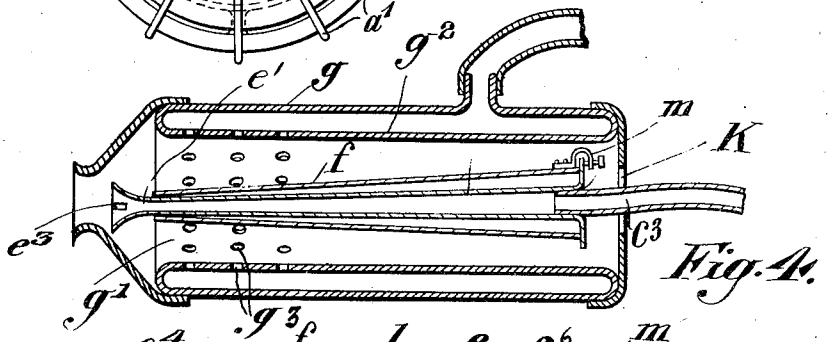

Fig.4.

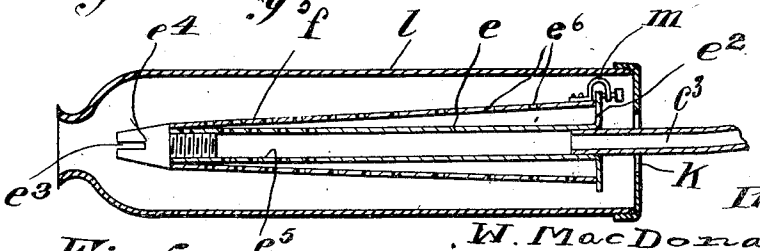

Fig.5.

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UNITED STATES PATENT OFFICE.

WILLIAM MacDONALD AND HUGH MacDONALD, OF INVERNESS, SCOTLAND.

WAVING OF HAIR.

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To all whom it may concern:

Be it known that we, WILLIAM MacDONALD and HUGH MacDONALD, both subjects of the King of Great Britain and Ireland, and both residing at Heathfield, 4 Kenneth Street, Inverness, in the county of Inverness, Scotland, have invented certain new and useful Improvements in and Relating to the Waving of Hair, of which the following is a specification.

This invention relates to hair waving processes, more particularly of the type known as "permanent hair waving," which consists in winding a lock or tress of hair upon a tubular member, tightening the hair thus coiled by rotating the tubular member relatively to another element and locking the two together in the tightened position and subjecting the hair thus wound to steam or vapour treatment.

It has hitherto been the practice to enclose the wound hair within a casing containing a preparation such as borax, adapted to give off steam or moisture when the casing is heated by an externally applied electrical heater.

It has been proposed to employ a dry heat to hair waving appliances by admitting steam to a closed elastic walled jacket so that the hair was subjected to the heat and pressure of the steam.

The object of the invention is to provide an improved heat, steam or moisture treatment for the coiled hair, either alone or in the presence of some suitable preparation or together with another vapour or other vapours.

The invention consists in providing means for waving hair comprising a steam generator (or a series of steam generators) located away from the head of the subject, adapted to generate steam suitable for use as a heating and moisture supplying medium for the waving of hair, and adjustable conduits for conveying the steam from the generator (or generators) to hair-waving appliances.

The invention also consists in providing means whereby the steam or vapour may be applied from the centre of the convolutions of hair outwardly and externally of the wound or coiled hair.

Further features of the invention will hereinafter appear.

In carrying the invention into effect according to one convenient mode, by way of example, a steam generator or a series of steam generators of any appropriate known type is provided and has any suitable means for applying the required heat thereto. In the case of a single generator a series or plurality of valve-controlled outlets or connections is provided through which the steam generated may be passed, either singly or in groups. The generator may be provided with a safety valve or a device adapted to maintain a suitable pressure within the generator.

The valve-controlled outlets from the generators are preferably coupled with flexible tubes or pipes adapted to be connected to the hair-waving appliances. Suitable means for supporting or suspending the tubular connections may be provided in the neighbourhood of the subject so that the hair-waving appliances may be held or supported in suitable relationship to the head of the subject.

If desired, permanent or rigid tubular connections may be provided from the steam generator to a suitable point over or adjacent the subject's position and flexible connections employed simply from the extremities of the permanent or rigid pipes to the appliances.

Where a plurality of steam generators is employed, each connected to its own hair-waving appliance, it may not be necessary to provide a control valve, it being only necessary to remove the source of heat in order to terminate the treatment. A series of such independent steam generators may be heated by a gas flame or by an electric heating element.

Each hair-waving appliance may be separately connected to a valve-controlled outlet from the generator or a single outlet may be connected to a plurality of hair-waving appliances and valve means employed for selective or mass treatment.

The steam may be applied to the hair under treatment by introducing it into casings of known type surrounding the hair but it is preferred that the treatment of the hair should be carried out according to the subjoined description.

In the accompanying drawings:—

Figure 1 is a side elevation of a steam generating device adapted to supply steam to a plurality of hair-waving appliances;

Figure 2 is a plan view of Figure 1;

Figure 3 is a diagram illustrating an arrangement of the appliance in relation to the position of the subject to be treated;

Figure 4 is a diagrammatic sectional view of a hair-waving appliance according to the invention, and

Figure 5 is a similar view of a modified form of hair-waving appliance.

According to one convenient mode of carrying the invention into effect as illustrated by way of example in Figures 1 to 3 of the accompanying drawings, a steam generator a supported by an arm or bracket of a stand b is provided with a series of inverted U-shaped pipes or tubes a' which on the one side communicate with the steam space of the generator and on the outer side are downwardly directed and adapted to receive rubber connections, such as c. In the present example, a series of twelve U-shaped pipes a' is illustrated in the drawings but it is to be understood that this number may be varied according to requirements.

The generator a is provided with a false bottom beneath which an electric heating element a^2 is fitted.

The generator is provided with a safety valve a^3, a valve-controlled filling connection a^4 and a blow-off or relief cock a^5.

Upon the outer side of the generator may be provided a rail or guard d adapted to hold off or prevent the flexible tubes or pipe connections c from coming into contact with the generator surface.

Each tube c is adapted to be connected either directly or indirectly to a hair-waving appliance. According to the preferred mode each tube is connected by means of a T-piece c' having a control valve c^2, on the one hand to another flexible or rigid tube c^3 and on the other hand to a container such as a flexible bulb or ball c^4. The tube c^3 is intended to be connected to a hair-waving appliance. The bulb or ball is employed to collect any water which may condense in the pipe c and is readily removable so that it may be emptied when an accumulation occurs. The length of the pipes c should be such as to bring the more or less horizontal connection c^3 into the vicinity of the head of the subject to be treated.

In order that the height of the branch connection may be adjusted and in order to take the weight from the tube, a suspending device may be clamped to the rail d. This suspending device may be used in conjunction with individual tubes or with groups thereof.

The preferred form of suspending device comprises a clamp adapted to be secured to the rail d in any adjusted position provided with a spring roll-up steel or other tape, wire or chain, which may be released by a catch somewhat on the principle of the well-known measuring tape.

The tubes c^3 may be each connected to a hair-waving appliance, the end of a tube being introduced between the appliance upon which the hair has been wound and the outer jacket or case with which it is customary to surround the hair. According to this method the heat treatment of the hair is effected in the humid atmosphere of the steam applied externally.

A special covering or jacket may be provided consisting of a substantially rigid double-walled cylinder g, the central cylindrical space g' of which is closable around a tress of hair at one end. The inner wall g^2 of the jacket is provided with perforations g^3 through which the steam is adapted to act upon the hair wound upon any suitable hair-waving appliance which is introduced into the central space through the open end of the jacket. The space between the double walls is closed at the end adapted to lie adjacent the head of the subject and may be open as at k or partially closed to allow the steam finally to escape at the other end. The steam may be supplied to the jacket through any suitable nipple or nozzle to which the flexible connection may be connected.

According to another mode of applying steam and heat treatment, the hair-waving appliance may consist of an inner tube or tubular member e (see Figure 4) into one end of which a tube c^3 may be fitted in a manner suitable to supply steam through the tube e.

At the inner end, that is to say at the end of the tube e which will be adjacent the head of the subject, it is preferred to provide a bell-shaped mouth e' or to provide a flange or thickening at this portion with a view to positioning an outer tube which will be referred to below. At the other end of the tube a milled flange or ring e^2 is provided. Upon the tube e an outer tube or tubular member f is mounted upon which the hair is adapted to be wound.

The outer tube f is arranged upon the inner tube so that relative rotary motion may be effected between the two tubes by aid of the milled flange or ring e^2 and any convenient locking means m may be employed to secure the two tubes in fixed relation after rotation has taken place when the coils of hair upon the outer tube f have been tightened.

If desired, the end e' of the tube e may be provided with a slot e^3 or other means to facilitate the gripping of the hair adjacent the roots of the tress under treatment.

The two tubes, after the hair has been wound upon the outer one, are suitably enclosed within a jacket or cover g of rubber, material generally known as cellophane, or oilskin or like material.

Steam supplied by the pipe c enters the tube e and finds its egress through the end e'

and passes backwardly over the coiled hair to find its egress at *k* between the cover or casing and the end of the tube to which the pipe c^3 is connected.

It will be observed that in this mode of treatment the hair is treated externally with the humid atmosphere of steam while the heat in passing along the tubular member *e* causes heat to be disseminated and applied to the coiled hair from the centre of the tress outwardly.

The foregoing description has been confined to the treatment of hair by steam applied externally to the tress. According to the invention steam may be admitted internally so that it finds its way out from the centre of the tress and percolates through the hair which is wound under tension, for example an inner tubular member *e* (see Figure 5) is provided with an end which is closed by an element e^4 which may engage the tube by screwthreaded means. This element may be of forked or slotted form as at e^3 in order to accommodate the tress of hair and facilitate securing it by the aid of a tying member. At the other end the tube *e* may be provided with a flange or ring e^2 similar to that described in connection with Figure 4 and a steam supplying tube c^3 may be introduced into the end of the tube adjacent the flange or ring.

Around the tubular member *e* is mounted an outer tubular member *f* and arranged so that relative rotary movement may be effected between itself and the tube *e*. Appropriate locking means *m* may be provided for the two tubes.

The inner tube *e* towards the end bearing the element e^4 is provided with a series of perforations e^5 in order that the steam may first issue adjacent that part of the tube which lies nearest the roots of the hair. The outer tube may be perforated throughout its length as at e^6 or for a suitable portion thereof. Where the tube is not perforated throughout its length, it is preferred that near the flange e^2 perforations are provided so as finally to ensure the free escape of the steam.

Steam supplied through the pipe c^3 and issuing through the perforations of the inner member, passes outwardly through the tress of hair by means of the perforations in the outer tubes, the portion of the tress of hair being treated by the steam at its greatest heat being that in the vicinity of the perforations in the inner member. The tubes with the hair appropriately wound thereon may be provided with a covering L so that the steam on escaping from the inside of the curler will also fill this envelope thus giving an extra external application of steam in addition to the internal application.

If desired the external mode of treatment may be combined with the internal mode as described in connection with Figure 5, for example, tubes may be provided whereby the steam is supplied internally and at the same time externally to the hair by aid of a double walled or other jacket device or by employing an axial escape for the steam into a covering element such as described in connection with Figure 5.

Any preparation such as borax or the like may be introduced into a jacket or adjacent the wound hair in such a manner that the preparation will come under the action of the steam. Furthermore, if desired, any appropriate oil or volatile substance or preparation may be introduced into the steam generator so that the vapours or oil or volatile matter pass over with the steam to treat the hair.

While it is preferred to treat the coiled hair to the humidity of the steam in addition to the heating quality thereof, moisture may be supplied from another source such as any of those modes known at the present time by the use of sachets, containers for preparations and so forth, in which event the steam may be employed solely as an internal heating medium and may not come into contact with the hair at all. With this purpose in view the hair may be dampened or a sachet containing borax or other preparation may be employed and the steam supplied internally of the wound hair and conveyed away to an appropriate situation for escape after the heat thereof has served its purpose.

Having now described our invention what we claim as new and desire to secure by Letters Patent is:—

1. Improvements relating to the waving of hair comprising in combination, means for generating steam away from the head of the subject, a hair-waving appliance having an outer tubular member on which the hair is wound, an inner member to which the hair is attached and adapted to be rotated relatively to the other member, and a jacket enclosing the hair-waving appliance and comprising an outer wall and an inner wall which enclose between them a steam space supplied with steam from the generator, the said inner wall having a series of perforations for permitting the steam to be liberated interiorly of the jacket towards the hair wound upon the appliance.

2. Improvements relating to the waving of hair comprising in combination, means for generating steam away from the head of the subject, a hair-waving appliance upon which the hair is wound, a jacket enclosing the hair upon the appliance and means for supplying an internal heat to hair wound upon the appliance and for liberating steam

within the jacket, comprising a tubular member arranged internally of the hair-waving appliance.

3. Improvements relating to the waving of hair including a hair waving appliance composed of an inner tubular member to which steam is supplied, an outer tubular member on which the hair is wound, the two tubular members being adapted to be rotated relatively to one another and means for locking such in the required position.

4. Improvements relating to the waving of hair comprising means for generating steam away from the head of a subject, a conduit for conveying steam, a hair waving appliance consisting of an inner tubular member open at one end and attached to the steam conduit at the other, an outer tubular member on which the hair is wound, the two tubular members being adapted to be rotated, relatively to one another and means for locking such in the required position to maintain tension upon the wound hair.

5. Improvements relating to the waving of hair comprising means for generating steam away from the head of a subject, a conduit for conveying steam, a hair waving appliance consisting in an inner tubular member closed at one end and connected to the conduit at the other and having perforations, an outer tubular member about which the hair is wound and having perforations and the two members being adapted to be rotated relatively to one another and means for locking such in the required position to maintain tension upon the wound hair.

6. Improvements relating to the waving of hair as claimed in claim 5 wherein the perforations in the inner tubular member are located in the region where the tress of hair nearest its roots is wound.

7. Improvements relating to the waving of hair as claimed in claim 5 wherein the outer tubular member is provided with openings towards its extremity away from the head of the subject, to ensure the free escape of steam substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification.

WILLIAM MacDONALD.
HUGH MacDONALD.