

May 29, 1923.

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1,456,830

PROCESS AND APPARATUS FOR PERMANENT UNDULATION OF HAIR

Filed Sept. 11, 1922

2 Sheets-Sheet 1

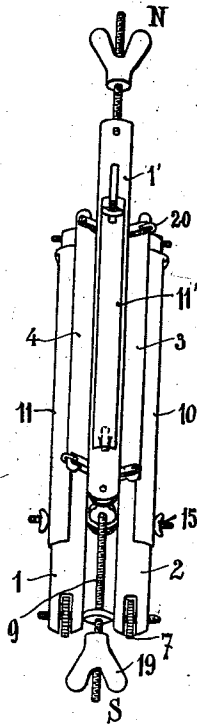


Fig. 1.

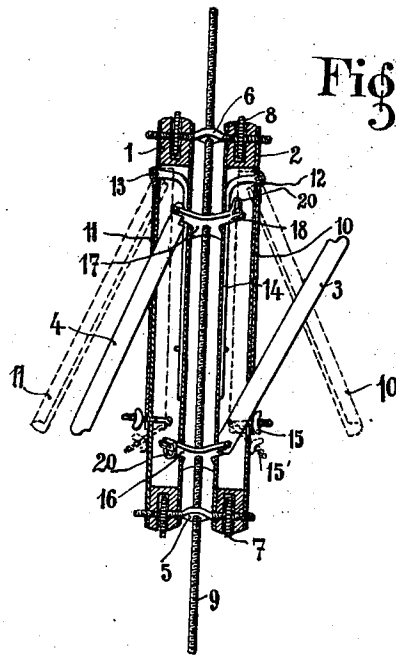


Fig. 2.

Fig. 3.

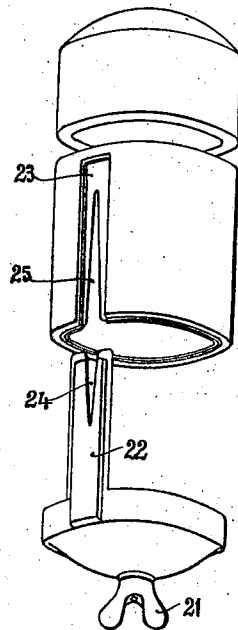
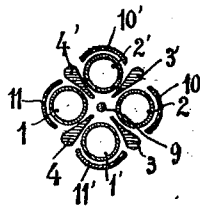


Fig. 4.

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PROCESS AND APPARATUS FOR PERMANENT UNDULATION OF HAIR.

Application filed September 11, 1922. Serial No. 587,439.

To all whom it may concern:

Be it known that I, PIERRE FRANÇOIS MARIE ROBLIN, a citizen of France, and a resident of St. Nazaire, in the Department of Loire Inferieure, France, have invented some new and useful Improvements in Processes and Apparatus for Permanent Undulation of Hair, of which the following is a specification.

The invention relates to process and apparatus for permanent undulation of the human hair, and its object is to improve the means known heretofore in a manner to render the undulation more efficient and more perfect, and to facilitate the same.

According to the present invention the hair is undulated in crosslike layers whereupon the tresses rendered supple in the necessary degree are submitted to further undulations in directions other than the longitudinal direction of the tress; if required, then submitted to boiling and finally dried.

I employ, by preference for execution of this process a special apparatus constituting an essential part of this invention.

This apparatus is so designed as to render the work easier than with the iron called "Marcel". The duration of the undulation is established either by heating with hot air or by boiling with addition of a liquid or a special powder.

In order to elucidate more fully the subject matter of the invention, reference will be had to the accompanying drawings, showing:

In Fig. 1 a perspective view of the apparatus for undulation of the hair,

In Fig. 2 the same in a vertical section,

In Fig. 3 the same in a transverse section,

In Fig. 4 a device for drying by means of hot air, and

In Figs. 5-7 a device for drying by ebullition.

The main body of the apparatus comprises two twin pieces 1, 2 and 3, 4.

1 and 2 are hollow tubes joined at their extremities by two wings 5 and 6. These tubes are mobile upon their wings by means of nuts 7 and 8 at the one end and nuts 7' and 8' at the other end; in order to maintain these nuts in their relative positions, the tubes 1 and 2 are at their extremities, of solid section. The said wings pierced in their centre in order to slide freely on a threaded spindle 9.

Upon the tubes 1 and 2 are disposed

gutterlike members 10, 11, connected at one extremity to a spring 14. This spring is riveted to the interior of the tubes 1 and 2 and presses the members 1 and 2 against the tress. The other extremities of said members 1, 2, are retained by means of winged nuts 15 and 15' in closed position.

The threaded spindle 9 carries two crosslike pieces 16, 17 destined to carry two knifelike members 3, 4 closing against each other upon the crosslike pieces and kept in their position of closing by means of little latches 18.

The crosslike members mentioned hereabove permit a sliding motion of the parts 1 and 2. To the one pair of said pieces 1, 2 is arranged perpendicularly with regard to the plane, a second identical pair of bars 1' and 2'. These sets of tubes may be developed in opposite directions, the one set in the direction against N and the other set in the direction against S.

By simple pressure of the winged nuts 19 the twin pieces are assembled in a determined position.

The mode of operation of the device is as follows:

The apparatus is at first opened, that means to say, that the nuts 7, 8 are lifted in order to distance the tubes 1, 2 and 1', 2' from their axis in the required degree whereupon the tubes are adjusted and arranged against N and S respectively. Now the knifelike members 3 and 4 and 3' and 4' and also the gutterlike members 10, 11, 10' and 11' are opened.

Thereupon a hair tress is rolled in spirals upon the four tubes 1, 2, 1' and 2', commencing from the root of the stress. The first knifelike member is brought into the closing position and then, simultaneously the gutterlike and the knifelike members are closed until the required length of the undulated tress is obtained.

Each gutterlike member is pressed with an effort upon the rolled hair, by means of the nuts 15, 15'. The closing of the knifelike members is effected by means of the little latches 18. By loosening the nuts 7, 8 maintaining the tubes 1, 2 and 1', 2' the hair is extended between the four tubes. If turning correspondingly the nuts 19 the tresses will be tensioned and squeezed in a transverse direction, and will become undulated in the same. By means of the twin tubes it is rendered easy to regulate the size

of the undulation. Thereupon nothing remains to be done than to shut up the apparatus with the hair on the same in an apparatus working with hot air as indicated in Fig. 4, in order to fix the undulation, or in an apparatus according to Figs. 5 to 7 working with boiling.

The device shown in Fig. 4 is constituted by a cylindrical tube provided with a resistance to be heated electrically and an insulating substance for protection of the hair. The cover of this receptacle is fixed upon the latter by means of a winged nut 21 threaded upon a spindle disposed in a suitable manner not shown. The cover is, as shown provided with a prolonged part 22 sliding in a corresponding lodging 23 of the receptacle and slotted at 24 in order to permit through the same and the corresponding slot 25, 25 in the receptacle the introduction of the hair tress into the receptacle.

The duration of the process is established with aid of any known means (liquid and electric heater), but I prefer to employ the apparatus working with boiling, as shown in Figs. 5 and 7.

This device comprises a boiler connected by tubes 26, 27 to a reservoir of boiling water. The boiler is composed of two identical cylindrical half parts 28, 29 closed at their extremities. These parts are connected at one side by two hinges 30, 31 and are kept hermetically closed by means of two bolts 32, 33 with nuts which may be screwed home against abutments 34, 35 on the boiler body. The tightness of the joint is secured by means of a layer of india rubber 36. At the extremities and upon the same side are disposed the forementioned two tubes 26, 27.

Two handles 37, 38 serve to facilitate the manipulation of the apparatus. On its extremities the boiler is provided with apertures for the passage of the spindle 9.

When the boiling is finished the water is removed from the boiler. After removal of the hair the same is disposed into a drying box as indicated in Fig. 7.

The drying box, is composed of two bushes 39, 40, the one bush being of smaller diameter than the other, a resistance being

placed between the two bushes. A handle 41 serves to facilitate the manipulation. A slot 42 extends in the direction of the length of the bush.

The invention is not limited to the executional forms illustrated in the drawings. Many deviations within the scope of the main inventional idea are possible. A reduced model of the boiler equipped with a simple metal rod replacing the apparatus for automatic hair curling may serve to undulate small tresses. A plurality of such simplified apparatus may be provided in a suitable combination, in order to assure a more rapid work.

What I claim is:

1. Process of permanent undulation of the hair, consisting in undulating the hair in crosslike layers, in rendering supple the undulated tresses, in extending the tresses at certain points in a direction perpendicular to the direction of the tresses, in fixing the tresses thus undulated, in submitting the same to boiling and in drying the same.

2. Process of permanent undulation of the hair, consisting in undulating the hair in crosslike layers, in rendering supple the undulated tresses, in extending the tresses at suitable points in directions different from the direction of the length of the tress, in fixing the tresses thus undulated, in submitting the same to boiling and in drying the same finally electrically.

3. Apparatus for permanent undulation of the hair, a plurality of bars in the same disposed parallel to one another, means to distance the same from their common axis, and to move the same toward this axis, gutterlike members, articulated to cover closely said bars when in their closed position knifelike members between said bars and articulated to permit access to the space intermediate to the bars when said knifelike members are in open position, means to fix said gutterlike members and said knifelike members in their closed position adjacent to the said bars, an axial member to guide the said bars and the said members and means to axially adjust the same.

In witness whereof I affix my signature.

PIERRE FRANÇOIS MARIE ROBLIN.