HAIR TREATING APPARATUS
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The present invention relates to a method for dyeing, bleaching and similar handling of the hair of the head. A further aim of the invention is to create a device for carrying out the method.

It is known to dye and to bleach the hair of the head by covering the hair purely externally with the dye or with the bleaching means respectively, or when dyeing by using special dyes that dye right to the core. The handling means penetrate slowly into the hair, oxidize in the air, and thus effect the dyeing or bleaching respectively. Hitherto the dyeing or bleaching operation lasted half an hour, and the dyeing is very irregular unless the dye is applied strictly evenly and uniformly. When dyeing, the hair painted with the dye was afterwards subjected to the action of water-vapour, since it swells up because of the water-vapour and the dye can thus penetrate and act quicker. This method certainly shortens the time required for handling, but has the great disadvantage that the hair, especially if fine, becomes limp and lifeless because of the swelling and the relatively long time still taken by the handling, 15 by 20 minutes. These drawbacks, which are found very serious in practice, are encountered by the method according to the present invention by the hair painted with the dyes or preparations being subjected to the influence of ozonized water-vapour.

This ozonized water-vapour makes possible not only an absolutely uniform and complete dyeing or bleaching of the hair, but also a shortening of the time of handling to 6–10 minutes, so that the hair no longer becomes limp and the handling itself can be borne without discomfort. Besides that, the ozonized water-vapour exercises a disinfecting and regenerating action on the hair and the skin of the head, and this makes itself shown by more beautiful and stronger hair.

The method according to the invention is described in the following pages, with reference to the accompanying drawing which illustrates diagrammatically two examples of execution according to the invention.

In the drawing:
FIG. 1 shows a longitudinal section through a device according to the first example of execution.
FIG. 2 a longitudinal section through a device according to the second example of execution, and
FIG. 3 a variant of a detail for the example of execution according to FIG. 2.

The device according to FIG. 1 has a vapor producer consisting of a water container 1 with an electric heating element 2 arranged within it for heating the water and for producing the water-vapour. The water container 1 is closed by means of a cover 3, out of which a tube 4, with an outlet nozzle 5, is led upwards and laterally. The water container is preferably made transparent, for instance of glass and arranged easily visible and detachable, so that the water level in it can be checked and the water easily filled in.

The end of the tube 4, provided with the nozzle 5, is surrounded concentrically by an ozone producer. The ozone producer has a tube 6, surrounding the tube 4 concentrically and consisting of a dielectric. The tube 6 has also a nozzle opening 7 in the neighbourhood of the nozzle 5 on the outer side. The tube 6 carries a covering 8 on its outer side and a covering 9. These coverings 8 and 9 are connected to an electric high-voltage or high-frequency source 10. The tube 4, the tube 6 and the source 10 are enclosed in a casing 11 with the air inlet opening 12, whereby the casing 11 is connected to the hood 13 over the hair-covered portion of the head. The ozonized water-vapour issuing from the nozzles 5 and 7 passes through an opening 14 in the hood 13. The casing 11 and the hood 13 are carried on a stand 15, which can be drawn out telescopically, and are supported swivelling on it through a joint 16.

In the wires leading to the heating element 2 and to the high-voltage or high-frequency source 10, regulating members 17 are provided for regulating their output.

The casing 11 forms an air duct for the air entering through the opening 12. When the described device is in service, water-vapour is produced in the water container 1. This vapour flows into the hood through the nozzle of the vapour pipe 4, and here comes against the hair or skin of the head, flowing over these uniformly. At the coverings 8 and 9 an electric high voltage of at least 2500 v. or a high-frequency current is applied. Through the injector action of the vapour jet, there is under-pressure in tube 6, in consequence of which air is drawn in from the back, whereby it flows particularly over the inner electrical covering 9 and is ozonized. The ozonized air therefore passes into the hood 13 along with the vapour jet, and there both media act on the hair and skin of the head.

In the form of execution of the device according to FIG. 2, the casing 17, that carries the hood 18, has arranged in it a blower 19, an ozone producer 20, an electric heating element 21, and a water container 22 with an electric heating element 23. All these parts are enclosed in an air duct 24 leading from the blower 19 to the hood 18.

Regulating members 25 are provided to regulate the output of these parts. The quantity of air drawn in, the quantity ozone produced, the heating of the ozonized air, and the quantity of water-vapour produced can all be adjusted to each other in a desired proportion with which the best result is obtained.

The method of working of this device is the same as of the device according to FIG. 1.

In the case of the variant according to FIG. 3, the water container according to FIG. 2 is closed with a cover 26, which carries a vapour outlet tube 27. The other parts of the device correspond to those according to FIG. 2.

The water-vapour enriched with ozone, or the ozonized air enriched with water-vapour, have the property of essentially accelerating the dyeing and bleaching of the hair of the head and of improving its quality, because of the more intensive oxidizing of the dyes and bleaching means through the ozone, as well as its disinfecting action on the skin of the head and the hair, and because of the swelling of the hair through the water-vapour, and the hyperbolic action of the vapour on the skin of the head.

What I claim is:
1. Apparatus for accelerating the bleaching and dyeing of hair by coloring substance applied to the latter, comprising a hood adapted to be placed over the head of a person whose hair has had coloring substance applied thereto, a duct opening at one end into said hood and adapted to have a flow of air produced therethrough, ozonizing means in said duct for ozonizing the flow of air through the duct, and water vapor producing means, opening into said duct at a location along the latter between said ozonizing means and said one end of the duct for introducing a flow of water vapor into the ozonized flow of air in the duct.
2. Apparatus as in claim 1 wherein said water vapor producing means includes a container for water having heating means therein for vaporizing the water, and a
3. Apparatus as in claim 2; wherein said ozonizing means includes an open ended tube of dielectric surrounding said nozzle in said duct and being spaced radially from both said nozzle and the interior of said duct, conducting layers on the inner and outer surfaces of said dielectric tube, and electrical energizing means connected to said layers to ozonize the air flowing between said tube and said duct and nozzle, respectively.

4. Apparatus as in claim 1; further comprising a blower having an outlet connected to the other end of said duct to induce the flow of air through the latter.

5. Apparatus as in claim 4; further comprising electrical heating means in said duct to heat the flow of air through the latter.

6. Apparatus as in claim 4; wherein said water vapor producing means includes a container for water having heating means therein for vaporizing the water, and a vapor outlet tube extending from said container and opening into said duct.

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