

July 9, 1929.

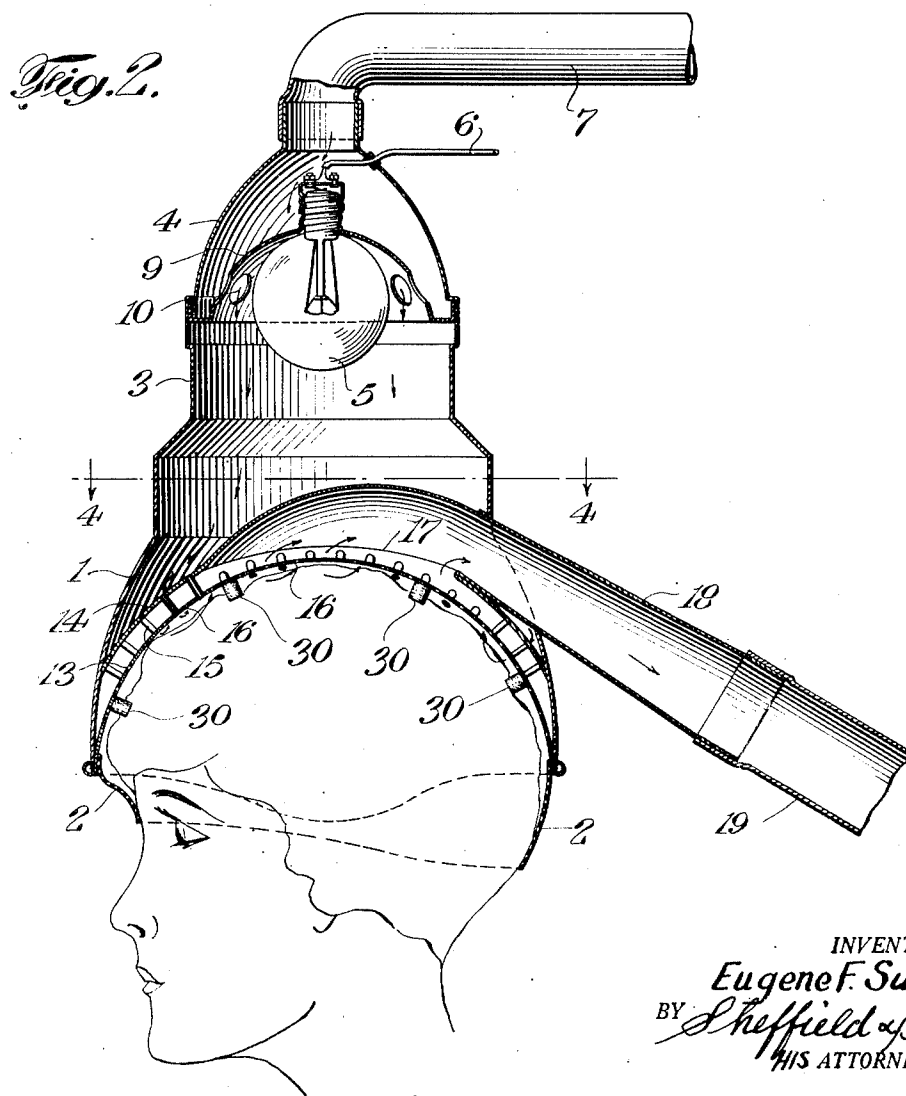
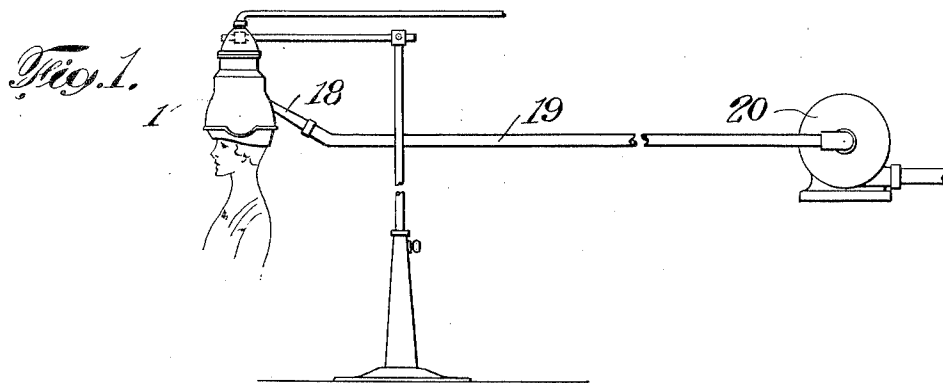
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1,720,301

HAIR DRYING

Filed Jan. 26, 1927

2 Sheets-Sheet 1



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Fig. 3.

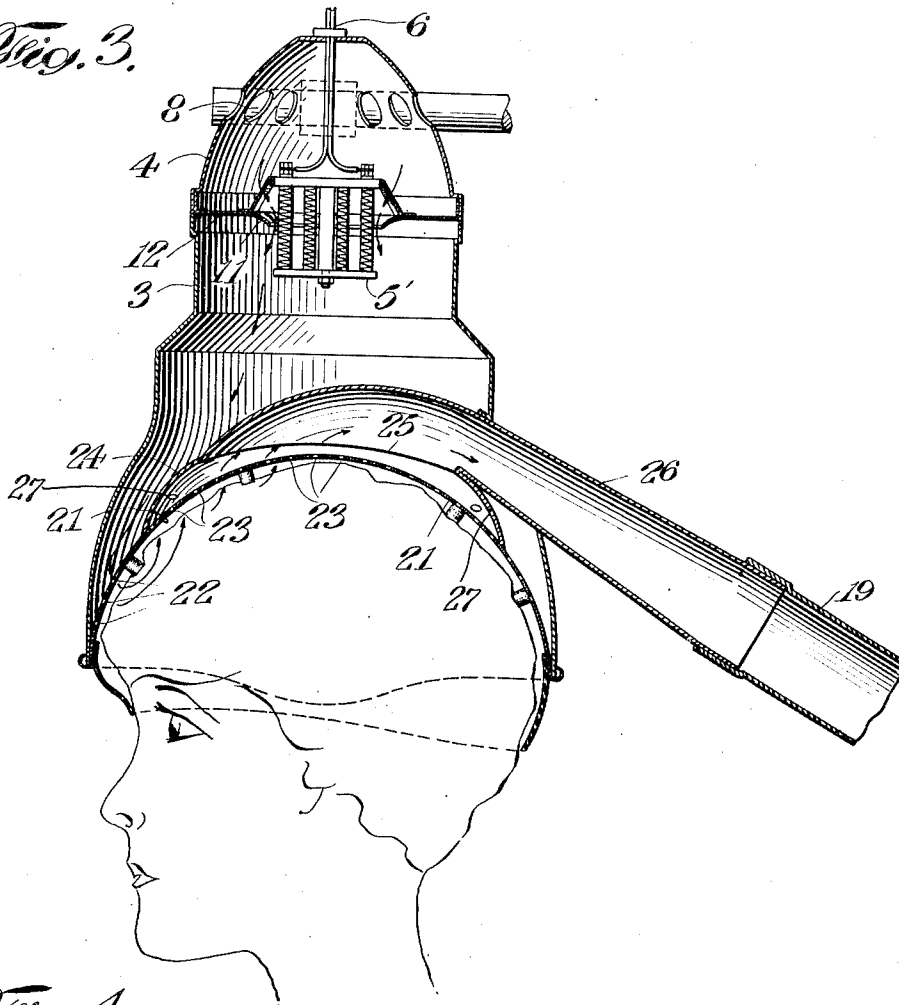
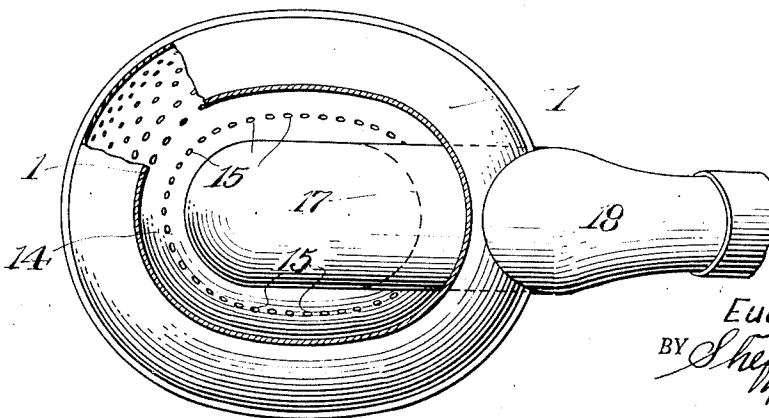


Fig. 4.



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HAIR DRYING.

Application filed January 26, 1927, Serial No. 163,838, and in Great Britain October 7, 1926.

This invention relates to the drying of hair on a person's head when it is unduly moist or wet after being shampooed or subjected to a treatment with moisture, such as for waving or curling the hair.

The principal object of the invention is to remove the surplus liquid from the hair so that it may rapidly regain its normal condition without discomfort to the person and without applying the heating medium over the person's face or neck and without bringing the heating elements into close proximity with the person's scalp.

This and other objects which will be apparent from the following description when read in connection with the accompanying drawings showing apparatus in which the desired results are accomplished by the use of a relatively small volume of heated air which is caused to impinge upon or to pass over or through the hair to be dried, after which the moisture laden air is withdrawn whereby the evaporation of the surplus moisture in the air is rapidly effected.

In the drawings Fig. 1 is a view in elevation illustrating the general application of the apparatus for carrying out my invention as applied to the head of a person whose hair is being treated. Fig. 2 is a vertical sectional view of the main portion of my improved apparatus showing the internal construction of one form thereof and its relation to the head of the person being treated. Fig. 3 is a vertical sectional view of a modified form of the device also showing the application to the head of the person being treated. Fig. 4 is a horizontal sectional view of the apparatus of Fig. 2 showing the arrangement of orifices for producing the flow of heated air to the scalp to which the process is being applied.

Referring to the drawings, the numeral 1 indicates an external casing, the lower end of which is adapted to fit rather closely the head of the average person being treated. The lower margin of the casing preferably has attached thereto a flexible strip of non-porous and preferably water-proof material, as indicated at 2. This may be made of rubberized cloth or other non-porous material, and its purpose is to prevent the inflow of air between the margin of the casing and the skin of the person being treated. The upper

portion of the casing is somewhat reduced in size, as illustrated by the numeral 3, and supports a dome-shaped member 4 containing a heating element 5, which may be of any preferred or suitable type, the same being shown in Fig. 2 as an incandescent lamp of sufficient power to produce the necessary heat, and in Fig. 3 as a heater 5' composed of helical resistance coils supported within the lower end of the dome 4. The lamp or heater 5 or 5' is connected with a suitable source of electric current by means of the leads, 6. In Fig. 2 the top of the dome is provided with an inlet pipe 7. The air may be otherwise allowed to enter through suitable openings in the sides of the dome, as indicated at 8 in Fig. 3. In case an incandescent lamp is used, as indicated in Fig. 2, there is an inner dome-shaped partition or support 9 which is provided with holes 10 to allow the air to enter the lower part of the casing and come into contact with the surface of the heating lamp 5. In the modification shown in Fig. 3 the air, after entering the holes 8, is deflected by the margin 11 of the deflector 12 so that the air is forced to pass through the helical coils of the heater 5'.

Referring further to Fig. 2, the lower part of the casing adjacent the head of the person being treated is arranged as follows: A curved piece of sheet metal or other suitable material indicated at 13 is so shaped as to approximate the form of the head of the average person. Concentric with this is a second piece of sheet material 14 which is spaced from the first sheet 13 a suitable distance to allow a free circulation of air between the two sheets. Between the sheets 13 and 14 are small conducting tubes 15 each end of which registers with openings in said sheets, so that there is communication from the interior of the casing below the heater to the space between the head of the person and the lower sheet 13. The lower sheet 13 is also provided with a series of small holes or orifices which may be circular, elongated slots or of other preferred form, as indicated at 16. A portion of the upper partition of sheet material 14 is cut away, as indicated at 17 in Figs. 2 and 4, and the opening thereby formed communicates with a tube 18, forming an outlet housing also preferably of sheet metal, the end of the tube 18 being attached to the

flexible pipe 19 which communicates with the inlet of a suitable suction device, such as the suction pump or fan 20.

In Fig. 2 the path followed by the air is as follows: The air enters through the pipe 7, passes downward through the holes 10 in the inner supporting plate 9, after which it comes in contact with the heater 5, which causes the air to be heated to such an extent that it readily absorbs moisture. The air then proceeds downward, passing through the small tubes 15 into the space between the curved plate 13 and the head of the person being treated. The passage through the pipes 15 tends to form the air into jets which impinge upon and enter the body of the hair on the head below. Owing to the suction or partial vacuum in the pipe 18 produced by the pump 20 the air laden with the moisture absorbed from the hair is then drawn through the small orifices 16 into the pipe 18, the pipe 19 and thence to the pump 20. In Fig. 3 the incoming air enters through the openings 8 from which it is drawn downward, passing the deflector 11, through the heater 5, and into the lower part of the casing 3. In this case the casing 3 is provided with a curved plate 21 which is provided with two sets of holes or orifices 22 and 23. To this is attached a second curved plate 24 which is cut away as indicated at 25, and the cut-away portion communicates with the metallic tube 26 to which is attached the flexible tube 19, as before described. The second curved plate 24 is preferably provided with one set of orifices 27.

The heated air having entered the space between the casing 3 and the plates 21 and 24, escapes mainly through the holes 22 into the space between the plate 21 and the head. In thus passing through said holes 22 currents of air are formed which impinge upon the hair and are drawn through the same until adjacent the holes 23, where it flows outward into the tube 26, and thence through the tube 19 to the suction pump. The small holes 27 in the curved plate 24 are provided to permit the passage of heated air directly from the interior of the casing to the space above the plate 21 in order to give some supply of dry air to the moisture-laden air withdrawn through the holes 23, thus preventing any possible condensation of moisture on the parts above the plate 21 and within the tube 26.

It will thus be seen, according to my invention, that jets or streams of heated air are applied at a plurality of points within a casing which, in the process of treatment, encloses the part of the head being treated and is brought into proximity but preferably not into contact with the scalp of the person undergoing the treatment.

The outer casing is preferably not applied so as to contact with the hair or with the

scalp and insulating stops, supports or spacers 30 may project from the underface of the casing in order to insure that the appliance in use will not approach too nearly to the scalp or to the hair to be dried. The outer casing is preferably provided in such form that its lower edges are adapted to make a substantially air tight contact with the head or with the scalp whereby a substantial completely enclosed space is provided over the hair to be dried and in which the streams of heated air are caused to pass over or through the hair to be dried on their way to the outlet orifices.

The appliance may be of such size and shape as to effect the drying of the hair over the whole of the scalp with one setting of the outer casing but, for convenience, it is preferably of smaller size and is adapted to dry but a relatively small section of the hair while in any particular position with respect to the scalp over which it may be moved to successive positions. By employing an appliance of such size it may be very conveniently handled and may be readily supported from the ceiling or upon stands in such manner as to be capable of adjustment in height and position. Flexible metallic tubing and connections are provided for supplying the heated air to the appliance and for withdrawing the moisture laden air therefrom. It is obvious that a number of such appliances may be served by the same exhaustor.

The moisture laden air withdrawn by the suction or partial vacuum maintained by the exhaustor in the manner described may be discharged into the atmosphere or, if desirable, it may be passed into a condenser or through an absorbent substance whereby the moisture content is withdrawn. The upper part of the outer casing may be provided with means such as described above for separating the moisture from the air withdrawn or the moisture laden air may be withdrawn from a number of the hair drying appliances by means of flexible metallic tubing to a common condenser or chamber of absorbent material.

What I claim and desire to protect by Letters Patent is:

1. The method of drying hair which comprises, heating a stream of air, causing a portion of said stream to circulate in an enclosed space constituting a continuous layer immediately above the scalp, causing the remainder of said stream to circulate in close proximity to, but out of contact with, the hair and then withdrawing the moisture-laden air from said layer by means of a partial vacuum.

2. The method of drying hair which comprises, heating a stream of air, causing a portion of said stream to circulate in an enclosed space constituting a continuous layer immediately above the scalp, causing the remain-

der of said stream to circulate in close proximity to, but out of contact with, the hair and then withdrawing said portion and remainder simultaneously by means of a partial vacuum.

3. Apparatus for drying hair comprising, a casing adapted to be placed upon the human head, a heating element therein, a closure for the bottom of said casing and having perforations therein through which streams of heated air may pass to impinge upon the hair to be dried and means for producing a partial vacuum to withdraw the moisture-laden air from the space below said closure.

4. Apparatus for drying hair comprising, a casing adapted to be placed upon the human head, a heating element therein, a closure for the bottom of said casing and having perforations therein through which streams of heated air may pass to impinge upon the hair to be dried, an outlet housing mounted on said closure and means for producing a partial vacuum connected with said outlet housing to withdraw the moisture-laden air from the space below said closure.

5. Apparatus for drying hair comprising, a casing adapted to be placed upon the human head, a heating element therein, a closure for the bottom of said casing and having perforations therein through which streams of heated air may pass to impinge upon the hair to be dried, an outlet housing mounted on said

closure and having openings therein communicating with the space within said casing and means for producing a partial vacuum within said housing whereby a flow of air is established through said casing and the moisture-laden air below said closure withdrawn.

6. The method of drying hair which comprises, heating a stream of air, causing a portion of said stream to circulate in an enclosed space constituting a continuous layer immediately above the scalp, causing the remainder of said stream to circulate in close proximity to, but out of contact with, the hair, and then withdrawing the reunited stream of air by means of a partial vacuum.

7. The method of drying hair which comprises, heating a stream of air, causing a portion of said stream to circulate in an enclosed space constituting a continuous layer immediately above the scalp, causing the remainder of said stream to circulate in close proximity to, but out of contact with, the hair, and then withdrawing the reunited stream of air by means of a partial vacuum, said remainder being of such volume as to prevent the condensation of moisture from said reunited stream as it is being withdrawn.

Signed this 21 day of January, 1927.

EUGÈNE FRANÇOIS SUTER.