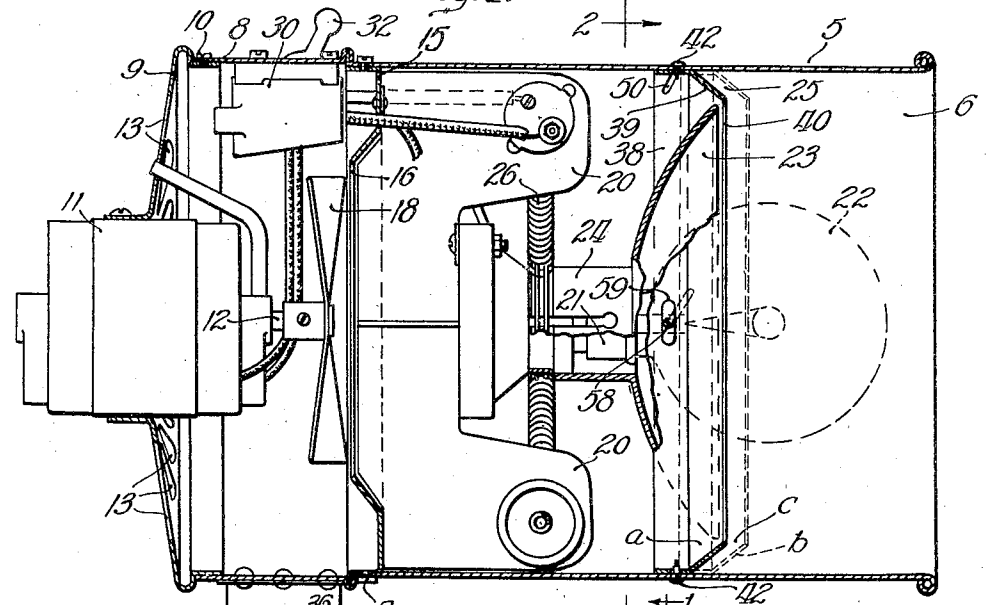
Dec. 16, 1930. W. MEYER 1,785,418

HAIR DRIER

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Fig. 1.



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UNITED STATES PATENT OFFICE

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HAIR DRIER

Application filed September 4, 1928. Serial No. 303,893.

This invention relates to hair driers.

The present invention may be characterized and is illustrated as an improvement upon the hair drier illustrated and described in my copending application, Serial No. 211,121 filed August 6, 1927, but it is to be understood that the present invention is not limited to embodiment in the drier of the above referred to application but may be embodied in other types of driers as or where suitable or desired and that the details of the drier not entering into the present invention may be varied widely.

Heretofore in devices of this character, it has been common to project a blast of air upon the scalp and hair to be dried and to simultaneously heat the air above atmospheric temperature to expand it and to lower its water vapor pressure.

I find, however, where the room temperature is relatively high that there is frequently a distinct and unpleasant heating of the head and with this in view, it is the object of the present invention to provide a generally improved and simplified device that may be economically produced and conveniently manipulated to increase or decrease, at will, the heat which is applied to the scalp and hair.

According to the particular embodiment of the invention which I have shown and described for the purpose of illustrating the invention and which may be varied within the scope of the appended claims, the drier is provided with means for concentrating the air in its passage through the device and this air concentrating means is adjustably mounted so that the quantity of air projected through the outlet of the device and upon the head may be increased or reduced, at will. By adjusting the air concentrating means in one direction, the quantity of air projected from the device and upon the hair or head is increased and the heat is simultaneously increased and by adjusting the air concentrating means in the opposite direction, the quantity of air projected upon the head is decreased with an accompanying reduction in the heat application to the scalp and hair.

The invention is illustrated and described in the accompanying drawing, in which:

Fig. 1 is a longitudinal section through an embodiment of the invention on the line 1—1 of Fig. 2;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary elevational view of the interior of the adjustable air concentrating ring adjacent one of the supporting and guiding connections between said ring and the shell or casing of the device;

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary elevational view taken externally of the shell or casing of the device and adjacent the finger piece for manipulating or adjusting the air concentrating ring; and

Fig. 6 is a fragmentary sectional view taken on the line 6—6 of Fig. 5.

The particular drier shown comprises a generally cylindrical shell or casing 5 having an open outlet end 6. The rear end of the shell 5 is attached at 7 to a generally cylindrical drum 8 which forms a continuation of the inner or rear end of the shell 5. The cross section of the drum 8 and shell 5 may, of course, vary from cylindrical as desired. The drum 8 and shell 5 may be of suitable sheet metal construction, although this too may, of course, be varied widely.

At the rear end of the drum 8 is a head or end member 9, suitably secured to the adjacent rear end of the drum 8 at 10. A suitable electric motor 11 is mounted axially or centrally in the head or end member 9, preferably with the revolvable motor shaft 12 disposed axially with respect to the drum 8 and shell 5. The end or head member 9 is also provided with suitable inlet openings 13 through which the air is drawn into the device and discharged or projected longitudinally thru the shell or casing 5 toward and from the outlet or discharge end 6.

Arranged forwardly of the motor 11 and mounted marginally in the rear end of the shell 5 is a transverse partition 15. The partition 15 has a conical axially disposed opening 16, the smaller end of which opens rear-

wardly as shown. The fan or propeller 18 is disposed adjacent the rear of the opening 16, preferably with its forward edge in substantially the plane of the rear end of the opening 16. The propeller 18 is suitably fixed upon the motor shaft 12 so that it will rotate with the motor shaft, upon rotation of said shaft, drawing air through the rear inlet openings and impelling or projecting the same forwardly through the shell or casing 5 and out through the outlet 6.

For the purpose of preventing swirling or circular motion of the air through the device, the shell or casing 5 may be provided, forwardly of the partition 15 with suitable anti-swirling members 20, which may be arranged radially within the shell 5 and may be suitably attached or mounted along their rear edges upon the partition 15.

A standard or other suitable electric light socket 21 is mounted axially within the shell 5 upon the anti-swirling members 20 and is adapted to receive a lamp 22 which may be a high power electric light or incandescent lamp, such as a nitrogen or high powered tungsten filament lamp. The lamp 22 is provided with a reflector 23 disposed rearwardly of the lamp and directed forwardly, the lamp 22 being preferably positioned in the focus of the reflector, although it may be disposed otherwise as desired with respect to the reflector 23. The reflector 23 is shown as mounted at 24 upon the socket 21 and the periphery of the reflector 23 is preferably spaced annularly at 25 from the inner surface of the shell 5. A heating coil 26 is shown as mounted upon the anti-swirling members 20 for the purpose of suitably heating the stream or blast of air in its passage from the inlets 13 to and out through the outlet 6.

The drier may be provided with a switch 30 and the current supply conductor means (not shown) may be connected to the motor 11, heater 26 and lamp 22 through the switch means 30. The switch 30 is provided with suitable lever means or with a suitable fingerpiece 32 which is preferably adapted for separately controlling the motor, heater and lamp circuits, although, of course, the particular circuit connections may be varied. The conductor means is preferably provided with a suitable connector for connection with a standard or other suitable current outlet. The device is provided with suitable means 34 for mounting the drier upon an upright stand 35 or other suitable support.

The drier is preferably swingable about the pivot 36 and is preferably adjustable up and down vertically to adjust the height or vertical position of the outlet and the path of projection of the heated blast of air.

In operating the drier, the lamp 22 constitutes the source of radiant heat and radiant light. The rays of light and the heat emitted by the lamp 22 are reflected by the reflector 23 and projected outwardly through the outlet end 6. The reflector 23 forms a deflector for the air stream projected through the casing.

When the motor circuit is closed, the fan 18 is started and air is drawn in thru the inlet openings 13 and may be projected with the radiant heat and light through the discharge end 6 of the device, and upon the hair and scalp or other surface. The air is blown across the heater 26 which when the heater circuit is closed, heats the stream of air in its passage through the device and the blades or anti-swirling members 20 prevent circular or swirling motion of the air and are adapted to direct the same in substantially a straight line through the device.

The periphery of the reflector 23 is, as already pointed out spaced from the inner surface or interior of the shell or casing 5 and supported and adjustable adjacent the periphery of the reflector 23 is an annular ring 38 which may be of suitable sheet metal construction, although this may be varied. The annular ring 38 preferably fits snugly within the interior of the shell or casing 5 and is adapted for turning and longitudinal movement therein. The forward or outer end of the ring 38 is provided with a forwardly or outwardly converging conical flange 39, which is preferably formed integral with the ring 38, as shown.

The smaller or converging forward outlet end 40 of the conical flange 39 is preferably of an internal diameter substantially equal to the external diameter of the reflector 23, it being understood that where I say substantially the same, there may be some variation, either way and that particularly the internal diameter of the smaller outlet end 40 of the conical flange 39 may be slightly greater than the external diameter of the reflector 23.

The annular flange or ring 38 of the air concentrating and air quantity adjusting ring is supported, guided and secured internally within the shell 5 at circumferentially spaced points thereabout by pins or posts, all but one of which are designated by the reference characters 42 and the remaining pin or post is designated by the reference character 45. Each of the pins or posts 42, the number of which may be varied circumferentially around the shell 5 as desired comprises a relatively small screw 46, the shank of which passes radially through the wall of the shell casing 5 and has threaded engagement with a small bearing or bushing sleeve 48 which may be of suitable bearing metal. The heads of the screws 46 may be disposed for external access, as shown and the bearing or bushing sleeves 48 are clamped or bound firmly to the interior of the shell 5 by the threaded engagement of the screws therewith. The inwardly projecting ends of the

posts or pins 42 and particularly the bushing or bearing sleeves 46 enter diagonal slots 50 suitably formed in the annular flange or ring 38 of the concentrating and heat adjusting ring.

The other pin or post 45 is fixedly anchored at 52 in the concentrating ring or flange 38 and passes outwardly through a corresponding diagonal opening 54 in the shell or casing 5. At its outer end the pin or post 45 is provided with a suitable knob or finger piece 56 which may be grasped and manipulated to move the post 45 through the diagonal slot 54 which movement imparts a partial turning and longitudinal shifting movement to the ring 38 and flange 39. The manipulating post or pin 45 may, as shown, comprise a screw 58 having a small plate or block 59 interposed between its internally disposed head and the inner surface of the ring 38 and its shank projecting outwardly and secured in the knob or finger piece 56. The plate 59 may be soldered or otherwise secured to the adjacent inner surface of the ring 38 and the head of the screw 45 may be soldered or otherwise secured to the plate 59.

From the foregoing, it will now be apparent that by grasping the knob or finger piece 56 and manipulating the stem or pin 45 through the diagonal slot 54 in the wall of the shell 5, the ring 38 is turned partially with an accompanying longitudinal movement of the same within the shell 5. This longitudinal movement of the ring 38 with respect to the reflector 23 increases or decreases the annular opening between the periphery of the reflector 23 and the inner periphery of the forward open end of the conical flange 39. For example, when the ring 38 is in the position shown in full lines in Fig. 1, the annular opening between the periphery of the reflector 23 and the forwardly opening end 40 of the flange 39 is substantially closed with a resulting small quantity of air projection therethrough in the operation of the device.

When the ring 38 is moved, for example, to the position indicated more or less diagrammatically at *b*, the opening around the periphery of the reflector 23 is increased as shown at *c* with an accompanying increase in the quantity of air projected around the reflector in the operation of the device. With the heater circuit turned on and the blast or stream of air heated in its projection or movement through the device, the heat applied to the head or scalp may obviously be decreased by decreasing the opening *c* between the periphery of the reflector 23 and the flange 39 and by increasing the opening *c* and thereby the quantity of air projected around the reflector in the operation of the device the heat applied to the head or scalp may be increased. An effective adjustment of the heat application to the head or scalp is thus provided and at the same time, wherever there is a flow of air around the reflector and through the annular opening *c*, the forwardly converging conical flange 39 concentrates the air in its passage through the device and its application to the head.

The external surface of the shell or casing 5 may be provided with suitable markings or calibrations or with a suitable scale as indicated at 60 in Fig. 5 adjacent the diagonal slot 54 for indicating by the position of the knob 56 the degree of opening of the annular opening *c* and thereby the degree of application of heat to the head and scalp. The knob 56 or pin or post 52 may obviously be provided with a suitable pointer for cooperation with the markings or calibrations 60 although the position of the knob itself with reference to these markings will ordinarily suffice.

I do not intend to be limited to the precise details or precise embodiment shown or described.

I claim:

1. In a device of the class described, the combination of a casing, means for projecting a blast of air therefrom, means for simultaneously heating the air and means for adjusting the volume of the air blast projected from said casing for adjusting the heat effect upon the head, said means comprising a deflector spaced peripherally from the interior of the casing with a peripheral passage between the periphery of the deflector and the interior of the casing and a ring adjustable within the casing for adjusting said peripheral passage.

2. In a device of the class described, the combination of a casing, means for projecting a blast of air therefrom, means for simultaneously heating the air and means for adjusting the volume of the air blast projected from said casing for adjusting the heat effect upon the head, said means comprising a deflector spaced peripherally from the interior of the casing with a peripheral passage between the periphery of the deflector and the interior of the casing and a ring adjustable within the casing for adjusting said peripheral passage, said ring having a flange adjustably mounted upon the interior of the casing and a forwardly opening conical flange converging forwardly of said ring.

3. In a device of the class described, the combination of a casing having a discharge opening, a deflector mounted in said casing with its periphery spaced from the interior of the casing, with a peripheral passage between the periphery of the deflector and the interior of the casing, said casing surrounding and extending forwardly of the deflector and an air concentrating ring having a generally conical opening directed forwardly of the periphery of the deflector, said ring being

adjustable to adjust the peripheral passage between the periphery of the deflector and the interior of the casing.

4. In a drier, the combination of a casing having an inlet and an outlet, an annular passage disposed near and reduced toward the outlet with its smallest section at the outlet to concentrate and increase the air velocity and drying effect, means for blowing a stream of air through said annular passage and from said outlet and means for adjusting said annular passage to vary the quantity of air projected therethrough.

5. In a drier, the combination of a casing having an inlet and an outlet, an annular passage disposed near and reduced toward the outlet with its smallest section at the outlet to concentrate and increase the air velocity and drying effect, means for blowing a stream of air through said annular passage and from said outlet, the casing extending beyond said annular passage at the outlet end with said annular passage terminating short of the adjacent extension and means for adjusting said annular passage.

6. In a drier, the combination of a casing having an inlet and an outlet, means for blowing a stream of air through said casing and from said outlet, said drier having means for preventing the air from issuing in ring form and with a dead center from said outlet, and means for adjusting said last means.

7. In a device of the class described, the combination of a casing having a discharge opening, a deflector mounted in said casing with its periphery spaced from the interior of the casing, an air concentrating ring having a forwardly directed conical opening spaced forwardly of and of substantially the same diameter as the periphery of the reflector and means for adjusting said air concentrating ring.

8. In a device of the class described, the combination of a casing having a discharge opening, means toward the rear of said casing for projecting a stream of air therethrough, an incandescent lamp at the front of the casing, a heater disposed within the casing between said air projecting means and said lamp, a reflector for the lamp and having its periphery spaced from the interior of the casing, an air concentrating ring having a forwardly directed conical opening forwardly of the reflector and means for adjusting the position of said ring with reference to the periphery of the reflector.

9. In a device of the class described, the combination of a casing having a discharge opening, a deflector mounted in said casing with its periphery spaced from the interior of the casing, an air concentrating ring disposed within the casing and baffling same along the inner periphery, said concentrating ring having an opening therethrough, and means for adjusting said air concentrating ring.

10. In a device of the class described the combination of a casing, means for projecting a blast of air therethrough, a deflector part spaced peripherally from the interior of the casing and an outer baffle part closed at its outer margin by the casing and having an opening defining with the periphery of said deflector a space for the passage of the air blast through the casing, one of said last two parts being adjustable for adjusting said space.

11. In a device of the class described the combination of a casing, means for projecting a blast of air therethrough, means for varying the volume of said air blast, said means comprising a deflector spaced peripherally from the interior of the casing with a peripheral passage between the periphery of the deflector and the interior of the casing and an outer ring part, said deflector and outer ring part being relatively adjustable for adjusting the peripheral passage between said deflector and the interior of the casing.

12. In a device of the class described the combination of a casing, means for projecting a blast of air through said casing, and means for adjusting the volume of the air blast, said air blast adjusting means comprising a deflector spaced peripherally from the interior of the casing with a peripheral passage between the periphery of the deflector and the interior of the casing, and an outer baffle part adjustable relative said deflector for adjusting the peripheral passage between the deflector and the interior of the casing, said outer baffle part being slotted and positioning and guide means for said outer baffle part secured to the casing and engaging in the slotted portion of said baffle part.

13. In a device of the class described the combination of a casing, means for projecting a blast of air through said casing, and means for adjusting the volume of the air blast, said air blast adjusting means comprising a deflector spaced peripherally from the interior of the casing with a peripheral passage between the periphery of the deflector and the interior of the casing, and an outer baffle part adjustable relative said deflector for adjusting the peripheral passage between the deflector and the interior of the casing, said casing being slotted adjacent said baffle part and finger piece means for adjusting said baffle part secured thereto and projecting out through the slotted part of the casing.

In witness whereof, I hereunto subscribe my name this 31st day of August, 1928.

WILLIAM MEYER.