

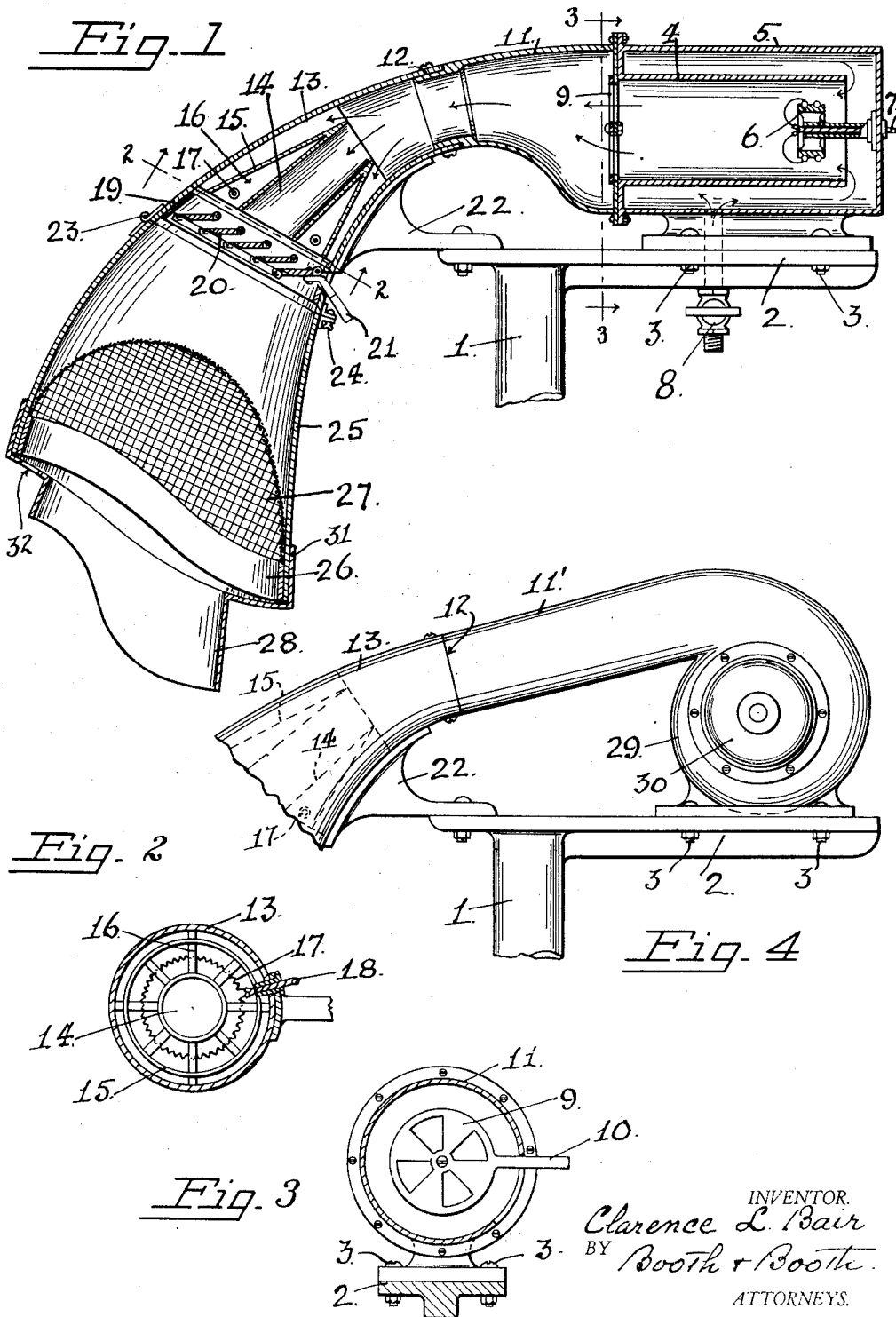
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HAIR DRIER

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UNITED STATES PATENT OFFICE

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HAIR DRIER

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My invention relates to that type of hair-driers in which a head-fitting member is carried by and communicates with a conduit-connection for supplying a stream of air, which in its passage has its temperature raised by contact with a heating device in said connection.

The principal object of the invention is to eliminate all danger of scorching the hair, and to protect both the user and the operator from burns and electric shocks. In order to achieve this object, the entire shell of the device is constructed of a material non-conductive of both heat and electricity, means are provided for screening the hair from direct radiation from the heating element, and for preventing the head from approaching too close to said element; and the air current is so regulated as to prevent over-heating and to insure its distribution to every part of the hair.

A further object of the invention is to provide a hair drier which can be connected with a remote source of compressed air. In shops using a number of machines, it is economical to employ a single compressor connected by pipes and flexible tubes with the driers, rather than to provide each drier with its individual motor and blower. My invention includes an expansion and preheating chamber adapted for separable connection with a compressed air line, in which the pressure and velocity of the air is reduced to that suitable for drying purposes.

A still further object is to reduce manufacturing cost by providing a machine in which the principal parts can be used without change either in a device adapted as described above for connection with a compressed air line, or in a device having its own motor driven blower. Thus the manufacturer can supply both types of machine merely by assembling the principal parts, viz:—the supporting stand, the main heater conduit, and the head enveloping dome, either with an expansion and preheating chamber adapted for connection with a compressed air line, or with a motor driven blower.

In the accompanying drawings, I have illustrated my hair drier in its preferred form,

including the expansion and preheating chamber, together with a modified form, employing a motor driven blower, but it will be understood that other changes may be made without departing from the spirit of my invention as defined by the claims hereunto appended.

In the drawings, Fig. 1 is a vertical central section of my hair drier.

Fig. 2 is a cross-section on the line 2—2 of Fig. 1.

Fig. 3 is a cross-section on the line 3—3 of Fig. 1.

Fig. 4 is a side elevation, broken, of a modification of my hair drier.

1 is the upper end of the usual portable standard. Upon a bracket 2 of the standard is secured, by the bolts 3, an expansion and preheating device, which comprises an inner tube 4; a spaced outer jacket 5, communicating at one end with the inner tube; and a source of heat within the inner tube, preferably comprising an electric heating element 6 supplied by circuit wires 7.

8 indicates a controllable nipple adapted for connection with a source of compressed air, not shown, said nipple opening into the jacket space of the expansion and preheating device, so that the air, as shown by the arrows, passes into said space and thence into and through the inner tube 4, and thus expands and is initially heated. The delivery end of the expansion and preheating device has fitted to it an oscillatable controlling valve or shutter 9 with a handle 10 operable from the exterior, Fig. 3. The volume of air delivered is thus under regulation, both at the nipple 8 and the shutter 9. Bolted to the delivery end of the expansion and preheating device is a conduit-connection comprising a shell 11, preferably somewhat nozzle shaped or tapering in section, and to which is secured, by a suitable joint at 12, a second shell 13, preferably of a flaring arcuate shape. Within this latter shell is a heater having an inner tube 14 with a flaring outer wall or shell 15 contiguous with said tube at its upper end and spaced therefrom at its lower ends by radial electrically insulating partitions 16. A heating coil 17 is housed within the space

between the tube and its outer shell, said coil being supported by the insulating partitions 16 and supplied with electric current by the cable 18, Fig. 2. Fitted within the delivery end of the conduit-connection shell 13 is a combined radiation screen and air controlling shutter comprising an annular frame or ring 19 with a series of swinging slats or vanes 20 operable from the exterior by a handle 21. A bracket 22 supports the shell 13 from the bracket 2 of the standard 1.

Hinged at 23 to the end of the conduit-connection shell 13, and detachably controlled by a wing nut 24 so that interior parts may be conveniently reached, is a flaring head enveloping dome 25. A ring 26 is fitted within the lower or outer end of the dome 25, and to said ring is secured a dome-shaped guard screen 27, which prevents the head from being raised within the dome 25 too close to the heating element. The guard 27 is made of open mesh material, preferably non-heat conducting, so that the air passes freely through it.

A flexible fabric hood 28, adapted to fit closely about the head of the user, is fitted to the lower end of the dome 25, preferably by a flange or band 31 which encircles said dome and may be secured thereupon in any convenient manner not shown. The hood 28 is provided with apertures, one of which is shown at 32, which permit escape of air from within the dome, even if said hood be so tightly bound about the user's head as to prevent the air from passing through his hair.

In the use of the device, the air enters the expansion chamber 5 at high velocity, and expands therein, its velocity and pressure being reduced, and is initially heated by the element 6. It then passes through the connecting tube 11 and flows through and around the heater 14—15, whose walls prevent it from coming in direct contact with the heating element 17. Final heating of the air is accomplished by contact with the walls 14 and 15, which are heated by radiation from said element 17. The air then passes through the shutter 20, which may be adjusted to control its volume and velocity, and which also prevents direct radiation from the element 17 from reaching the user's hair, and then passes through the guard screen 27 and the hair.

Since in my device, as in others of this class, the operation involves the use of electric current, I have, as part of my invention, discarded metal in those parts brought into contact or proximity with the person. I, therefore, make the entire conduit or shell, including the head fitting dome 25, of some insulating material, preferably some phenol condensation product, thereby eliminating danger of shock in the event of grounding of one of the electrical conductors upon the frame. Such material, being also a very poor conductor of heat, cannot be heated by the

interior heating elements to a temperature which would cause scorching of the hair or burning of the hands of the operator.

In Fig. 4 I have shown a modification of the device in which the air is supplied by a blower 29 driven by a motor 30. It is to be noted that the standard 1, bracket 2, and heater conduit 13, are identical with the form shown in Fig. 1, the only difference being that the motor driven blower 29 with its discharge tube 11', are substituted for the expansion chamber 5 and connecting member 11. The conduit 13 contains the same heater as in Fig. 1, as shown by dotted lines, and is understood to have the same radiation screen, guard screen, dome and hood attached thereto, although the latter parts have been omitted from Fig. 4 as being a mere repetition of Fig. 1.

It is not absolutely essential to my invention, in its broadest aspect, that two heaters be employed. The pre-heater 6 of Fig. 1 may be omitted, and is preferably omitted in the form of device shown in Fig. 4. It is of advantage in connection with the expansion chamber 5, however, both to counteract the cooling effect of the expansion of the air in said chamber, and to provide additional heat to save time in initially warming up the device.

I claim:—

1. A hair drier comprising a head-fitting member with a flexible hood attachment; a screen-mesh guard in said member for limiting the penetration of the head; a conduit connection carrying said head-fitting member; air heating means within said conduit connection preceding said screen-mesh guard; means for passing a current of air through said conduit connection and head-fitting member; and a device in said conduit connection succeeding said air-heating means adapted for both distributively regulating the air current as it passes from the conduit connection into the head-fitting member and screening the head from direct radiation from said heating member.

2. A hair drier comprising a head-fitting member with a flexible hood attachment; a screen-mesh guard in said member for limiting the penetration of the head; a conduit connection carrying said head-fitting member; air heating means within said conduit connection; means for passing a current of air through said conduit connection and head-fitting member; and a shutter in the conduit connection succeeding said air heating means for screening the head from direct radiation from the heating means and distributively regulating the air current as it passes into the head-fitting member.

3. A hair drier comprising a head-fitting member; a conduit-connection carrying said member; a heating device with spaced double walls, spaced within said conduit-connection;

an electrically active element housed within the wall space of the heating device; a shutter within said conduit-connection succeeding the heating device and operable from the exterior for both screening the head from direct radiation from the heating device and distributively controlling a current of air passing through the communication between the conduit-connection and the head-fitting member; and means for passing a current of air through said conduit connection and head-fitting member.

4. A hair drier comprising an initial heater composed of concentric, spaced shells communicating at one end; a nipple connection with a source of compressed air opening into the space between the shells; an electric heating element within the inner shell; a conduit-connection into which the inner shell opens; means controlling said communication; a second electrically heated device in the other end of the conduit-connection; a head-fitting member carried by and communicating with said conduit connection; and a shutter in said communication for screening the head from the heating device and regulating the passage of the air.

5. A hair drier comprising an initial heater; a compressed-air connection therewith; a conduit connection coupled to said initial heater; a second heater within the conduit connection, composed of an inner tube, and a flaring outer shell spaced from the inner tube and from the conduit wall; an electric heating element housed in the space between the inner tube and outer shell wall of the heater; a head-fitting member communicating with the second heater; and a shutter in said communication for screening the head from the heating element.

6. A hair drier comprising an initial heater; a compressed-air connection therewith; a conduit connection coupled to said initial heater; a second heater within the conduit connection, composed of an inner tube, and a flaring outer shell spaced from the inner tube and from the conduit wall; an electric heating element housed in the space between the inner tube and outer shell wall of the heater; a head-fitting member communicating with the second heater; a shutter in said communication for screening the head from the heating element; and a screen-mesh guard within the head-fitting member.

7. A hair-drier comprising a conduit of material having low electrical and heat conductivity, said conduit including a head-fitting member with flexible hood attachment; a screen-mesh guard in said head-fitting member for limiting the penetration of the head; electrically active heating means within said conduit preceding said screen-mesh guard; means for passing a current of air through said conduit; and a shutter in the conduit between said air-heating means and said screen-

mesh guard, adapted to shield the head from direct radiation from the heating means, and to distributively regulate the air current as it passes into the head-fitting member.

In testimony whereof I have signed my name to this specification.

CLARENCE L. BAIR.

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