Feb. 21, 1928. 1,659,780

W. MEYER

HAIR DRIER

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Fig. 1.

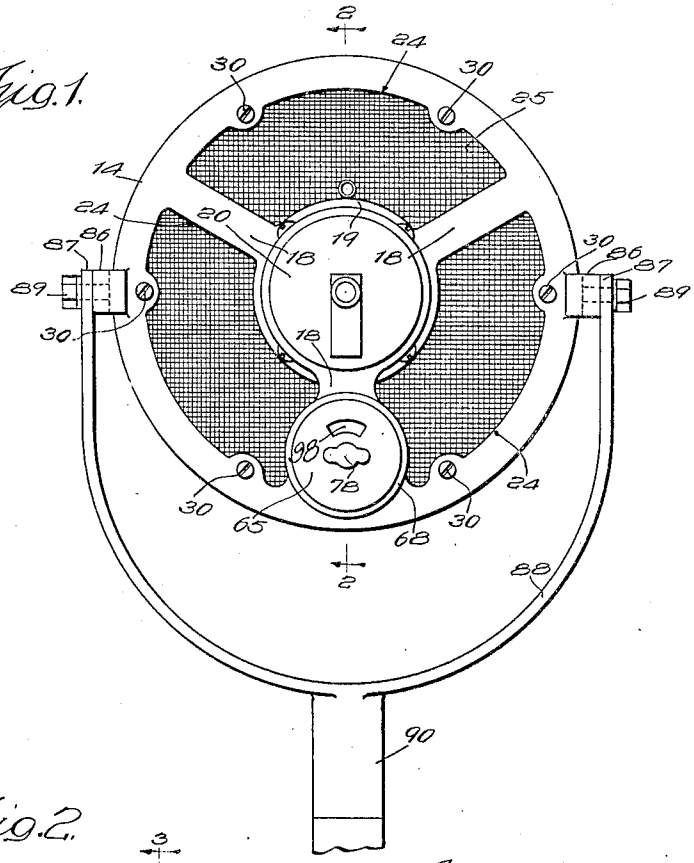
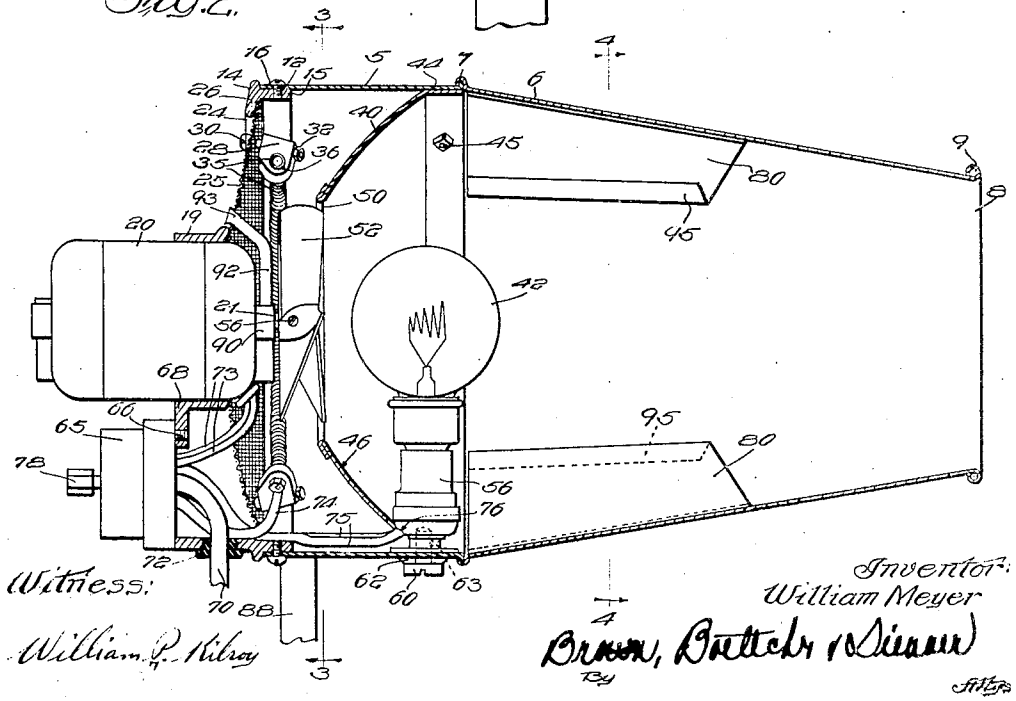


Fig. 2.



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Fig. 3.

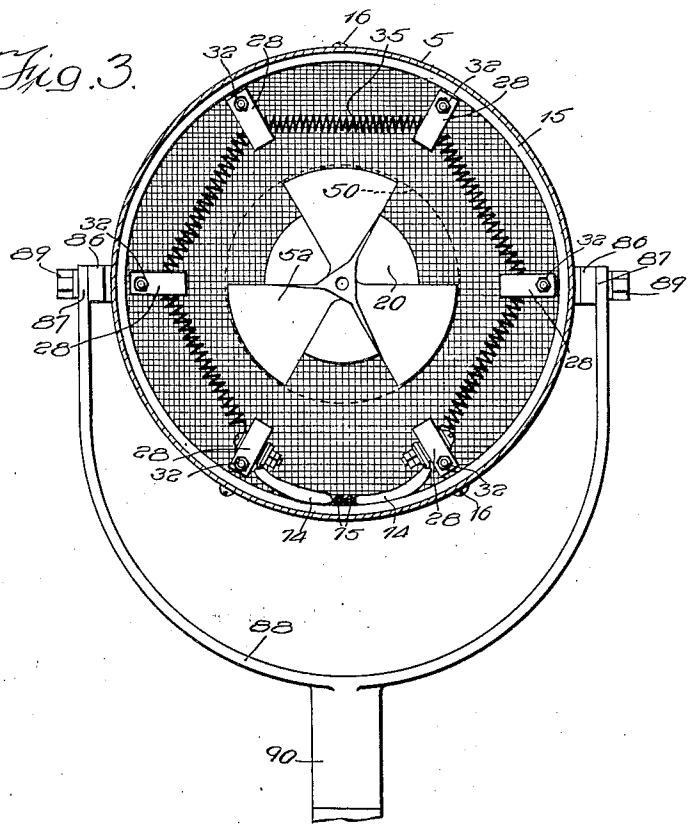
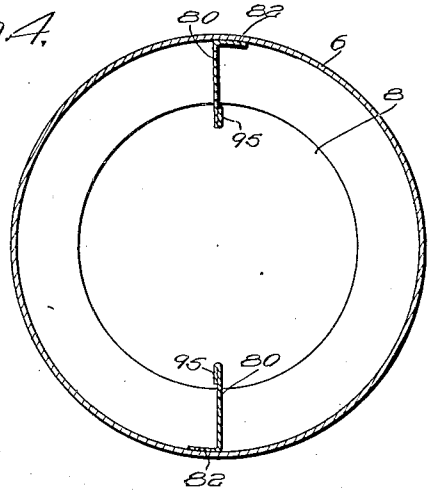


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM MEYER, OF CHICAGO, ILLINOIS.

HAIR DRIER.

Application filed January 17, 1927. Serial No. 161,480.

This invention relates to hair driers and may be characterized as an improvement upon the hair drier illustrated and described in my prior Patent No. 1,541,988, of June 16, 1925.

The object of the present invention is to improve the operation of the device and provide a generally improved and simplified construction that may be economically produced.

The invention is illustrated in the accompanying drawings, in which

Fig. 1 is an end view of a device embodying the present invention;

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

Fig. 3 is a vertical transverse section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a vertical transverse section taken on the line 4—4 of Fig. 2.

The device shown comprises an open ended circular shell or drum 5 having a tapering discharge tube 6 attached at its larger end at 7, to the open outlet end of the drum 5.

The discharge tube 6 receives and directs the air and radiant heat and light to the scalp and hair, or other surface or substance, as it is delivered from the device, and the attachment at 7 may be secured by forming a radial flange at the discharge tube end of the drum 5 and reflexing the adjacent margin of the tube 6 into interengagement with the radial flange of the drum and pressing it securely thereupon. The outlet end 8 of the tube 6 may be beaded at 9, for strengthening and finishing the same.

The drum 5 and tube 6 are preferably of suitable sheet metal construction, although this may, of course be varied widely within the spirit and scope of the present invention.

At the inlet end 12 of the drum 5 is a spider 14 having an annular longitudinal rim or flange 15 which fits telescopically into the inlet end 12 of the drum 5 and is secured therein, as by means of suitable screws 16. The spider 14 is secured therein, as by means of suitable screws 16. The spider 14 is preferably in the form of a casting, although this, too, may be varied, and its radial arms or spokes 18 support an integral hub-like portion 19 axially with respect to the drum 5 and in which axial hub-like portion 19 an electric motor 20 is mounted with revolvable motor shaft 21 disposed axially with respect to the drum 5.

The openings 24 between the arms 18 of the spider 14 constitute jointly the inlet through which the air is drawn into the device and this inlet is preferably covered by a suitable screen 25 secured peripherally between the generally radial flange 26 of the spider 14 and blocks 28.

The blocks 28 are of earthenware, porcelain, or other suitable non-inflammable material, and they are clamped to the interior of the flange 26 by screws 30, the shanks of which extend through the flange 26 and through the blocks 28 and engage at their inner ends in suitable nuts 32. The outer headed ends of the screws 30 are disposed for convenient access from the end of the drier.

A heating coil 35 comprising a suitable metallic conducting wire is wound helically and supported in an open figure upon the interior of the spider 14 and about the openings 24 by the blocks 28. The coil 35 is supported by the blocks 28 simply by extending it through openings 36 in said blocks 28, and while the blocks 28 are secured to the flange 26, they have a radial dimension which disposes the coil 35 in the path of the incoming air.

Mounted within the drum 5 is the reflector 40 in the focus of which the lamp 42 is disposed to emit radiant heat and light through the discharge outlet 8. The reflector 40 has a generally longitudinal annular flange 43 which fits tightly in the outer end 44 of the drum 5 and is secured therein by suitable screws and nuts 45. The axis of the reflector 40 is coincident with the axis of the drum 5 and tube 6 and its polished surface 46 is positioned toward the lamp 42 and outwardly toward the outlet 8.

The reflector 40 has an axial opening 50 in which the fan or impeller 52 rotates to draw the air through the rear inlet openings 24 and screen 25 and across the heating coil 35 and impels the air in the form of an axial stream or blast over the lamp 42 and out through the tube 6 and outlet 8.

The impeller 52 is suitably fixed upon the motor shaft 21, as by means of a set screw 56 so that it will rotate with the motor shaft upon rotation of the same. The lamp 42 which may be a high power electric light or incandescent lamp such as a nitrogen or high powered tungsten filament lamp, is mounted in vertical position in a standard or ordinary "Edison" socket 58, which sock-

et 58 is in turn clamped to the wall of the drum 5 by a screw 60. The screw 60 may be provided with a washer or collar 62 and the socket 58 extends radially inwardly from the wall of the drum 5. A diametrical set screw 63 secures the shank of the screw 60 against displacement from the internally threaded end of the socket 58. Sockets of this sort, with the internally threaded end as shown, are of standard formation, and by mounting the same within the drum by merely passing the screw 60 through the wall of the drum and threading it into the internally threaded end of the socket, a simplified and highly effective lamp mounting is provided.

One of the arms 18 of the spider 14 has a hollow boss or hub-like portion to which a suitable three-way switch 65 is secured at 66. The hollow boss or hub-like formation is indicated at 68. The current supply conductor 70, which may be connected with any suitable source of current supply, enters the hollow boss 68 through an insulating bushing and has connection with the switch 65. The insulating bushing through which the conductor 70 enters is indicated at 72. The conductors leading to and from the motor 20 are indicated at 73, the conductors leading to and from the heating coil 35 are indicated at 74, and the conductors leading to and from the lamp 42 are indicated at 75. The conductors 75 enter the lamp socket 58 through a suitable lateral opening 76 in the base of the socket 58.

The switch 65 has a finger piece 78 which, as already pointed out, has three positions, one for closing the motor and lamp circuits together, another for closing the circuit of the heating coil with the motor and lamp circuits and a third or "off" position in which the motor, lamp and heating coil circuits are all opened.

In carrying out the present invention, as in the invention of my prior patent, the lamp 42 constitutes the source of radiant heat and radiant light. The rays of light and heat emitted by the lamp 42 are reflected by the reflector 40 and projected outwardly through the outlet end of the tube 6 which, in use, is directed toward the hair and scalp or other surface. The discharge tube 6 directs the stream or blast of air and the rays of radiant heat and light, together to the field of operation and focuses them there. By closing the motor and lamp circuits together, the fan 52 is started and air is drawn in through the inlet opening 24 and projected with the radiant heat and light from the discharge end of the tube 6 upon the hair and scalp. Both the light and the heat rays from the lamp 42, stimulate the circulation of the scalp, and by so proportioning them relative the stream or blast of air, the resulting chill is counteracted and the wet, clammy feeling is eliminated. Drying is quickened and the hair and scalp are benefited to a marked extent. By closing the circuit through the heating coil 35 with the closed motor and lamp circuits, the air may be heated, in addition, as desired in its passage through the device.

The axial opening 50 in the reflector 40 with the disposition of the impeller or fan 52 therein, results in the air being propelled through the device in the form of an axial stream or blast. By blowing the air over the lamp, the lamp is cooled and the possibility of its overheating in the confined space is decreased. The cooling of the lamp prolongs its life and brilliancy. The relatively tight fit of the periphery of the reflector 40 in the drum 5 prevents back pressures around the reflector and a considerably smaller, high speed fan is permitted. The fan may be cast, punched or otherwise inexpensively formed and the motor 20 may be a relatively small high speed motor. The cost of the fan and motor may be thereby materially reduced and the reflector, by its extension to the inner periphery of the drum 5, in addition to preventing the back pressures referred to, increases the reflecting power to the inner periphery of the drum. The weight and vibration is reduced and the life of the entire device is increased.

For the purpose of preventing swirling, churning or circular motion of the air through the device, the tube 6 is provided with a pair of diametrically opposite ribs or fins 80. These ribs or fins are of angular formation with their lateral legs 82 secured to the interior of the tube 6. The other legs of these ribs or fins project radially into the tube 6 and are relatively flat or straight and extend longitudinally through the tube 6. Their purpose is to project the air in a straight line from the device without swirling, churning or circular motion, and the width or radial dimension of each is therefore sufficiently great to reach the axial blast or stream through the device and cut the same so as to straighten it out and prevent swirling, churning or circular motion.

The spider or end member 14, which, as already pointed out, is preferably in the form of a casting, has diametrically opposite lugs 86 (Fig. 3) and the legs 87 of the mounting yoke 88 straddle these lugs and are pivoted thereto at 89. Intermediate its ends, the yoke 88 is shown as provided with a post 90 for mounting the yoke and drier upon a suitable stand or other support.

For oiling the forward bearing 90 for the motor shaft 21, a tube 92 communicating therewith extends radially and is turned at 93 out through the screen 25 so that suitable oil may be introduced therein and will be conveyed to the bearing 90.

The inner free longitudinal edges of the

fins 80 may be reenforced or strengthened and finished by doubling or folding back these marginal edges as indicated at 95.

The condition of the switch 65 may be indicated at 98.

I do not, of course, intend to be limited to the precise details shown or described.

I claim:—

1. In a device of the class described, the combination of a casing, a reflector mounted within and extending marginally to the interior of the casing and having an axial opening, a heating element rearwardly of the reflector, an electric light forwardly of the reflector and in the focus thereof, and a fan disposed in the axial reflector opening and between the heating element and the light for drawing a stream of air across said heating element and for projecting same in an axial stream over the lamp.

2. In a device of the class described, the combination of a drum having an inlet and an outlet, a discharge tube leading from the outlet, a stationary reflector mounted within the drum, said reflector having an axial opening and extending marginally to the interior of the drum to close off communication between the inlet and outlet of the drum peripherally about the reflector and prevent back pressures thereabout, and a fan disposed in the axial reflector opening for drawing a stream of air through said inlet and projecting same in an axial stream through the axial opening in the reflector and out through the discharge tube.

3. In a device of the class described, the combination of a drum having an inlet and an outlet, a discharge tube leading from the outlet, a stationary reflector mounted within the drum, said reflector having an axial opening and extending marginally to the interior of the drum to close off communication between the inlet and outlet of the drum peripherally about the reflector and prevent back pressures thereabout, a fan disposed in the axial reflector opening for drawing a stream of air through said inlet and projecting same in an axial stream through the axial opening in the reflector and out through the discharge tube, and an electric light in the focus of the reflector and in the path of the stream of air.

4. In a device of the class described, the combination of a drum having an inlet and an outlet, a discharge tube leading from the outlet, a stationary reflector mounted within the drum, said reflector having an axial opening and extending marginally to the interior of the drum to close off communication between the inlet and outlet of the drum peripherally about the reflector and prevent back pressures thereabout, a fan disposed at the axial reflector opening for drawing a stream of air through said inlet and projecting same in an axial stream through the axial opening in the reflector and out through the discharge tube, an electric light in the focus of the reflector and in the path of the stream of air, and a heating element disposed behind the reflector and in the path of the air entering said inlet.

5. In a device of the class described, the combination of a drum, a spider having a longitudinal flange secured telescopically within the end of the drum, said spider having an axial hub-like portion for supporting a motor and radial spokes with air inlets therebetween, a radial flange at the outer periphery of said spider, a flame resisting heating coil support, means for clamping said support to said flange, a screen covering the air inlets and secured marginally between said flange and support, a heating coil carried by said support, a reflector in the drum, said reflector being forwardly of the heating coil and having an axial opening, an electric light in the focus of the reflector, a fan for drawing air through said inlets and projecting same in an axial stream through the reflector and over the light, a motor for driving said fan, a hollow boss on one of said radial spokes, and a snap switch mounted on said boss and controlling the motor, light and heating coil circuits.

In witness whereof, I have hereunto subscribed my name this 13th day of January, 1927.

WILLIAM MEYER.