

[54] DEVICE FOR DRYING HAIR

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219/370, 219/373, 219/374

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[58] Field of Search 219/366-373,
219/374-376, 379-382; 34/96-100, 243 R

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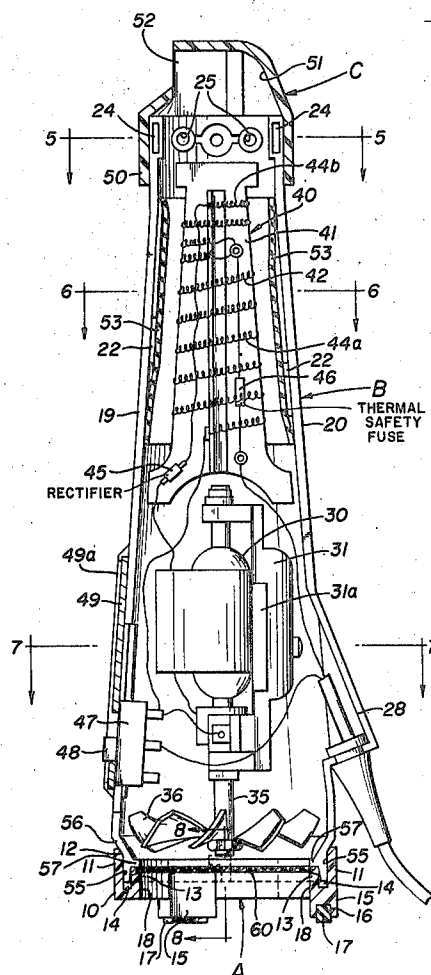
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[57] ABSTRACT

A device for drying hair including a base member, an elongated tubular casing and a cap. Internally the device includes a heating element and a fan. The device sets vertically on legs so that upon rotation of the fan air is drawn horizontally between the base and the surface on which it is resting, is forced upwardly then turned by the cap to pass the air outwardly in a horizontal direction. Additional features include a special connection of the casing and the base where the casing engages a groove in the base, also the inclusion of a screen held between the casing and the base. Other features include having the cap turnable on the casing to change the angular direction of air, and a special tongue and groove motor mounting.

4 Claims, 10 Drawing Figures



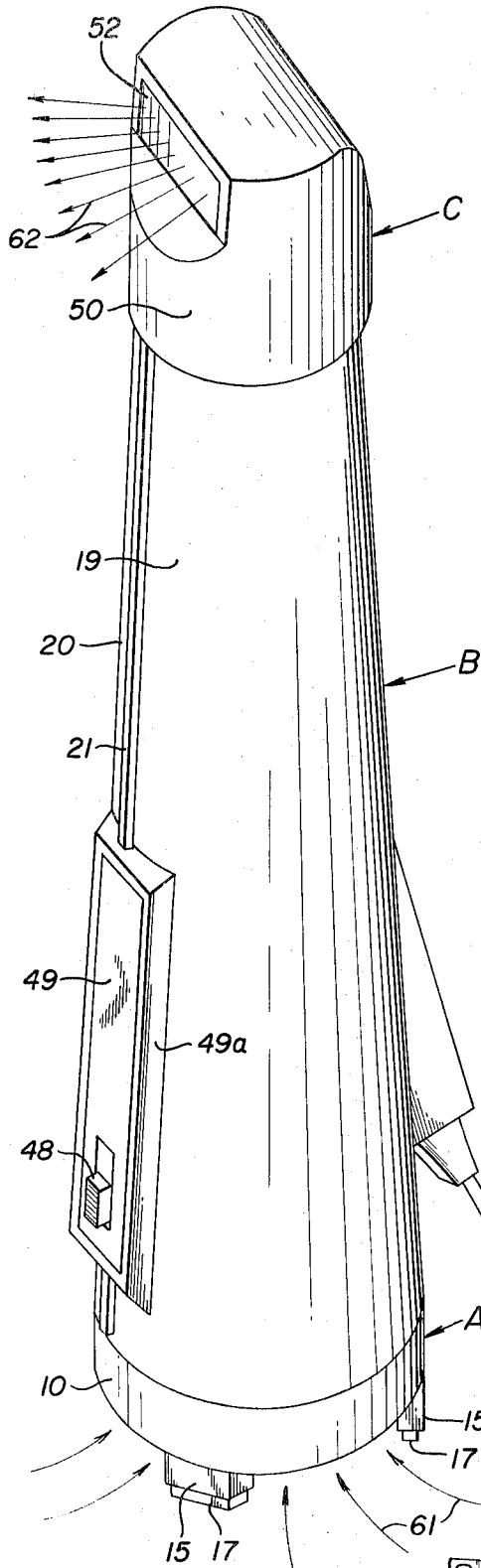


FIG. 1

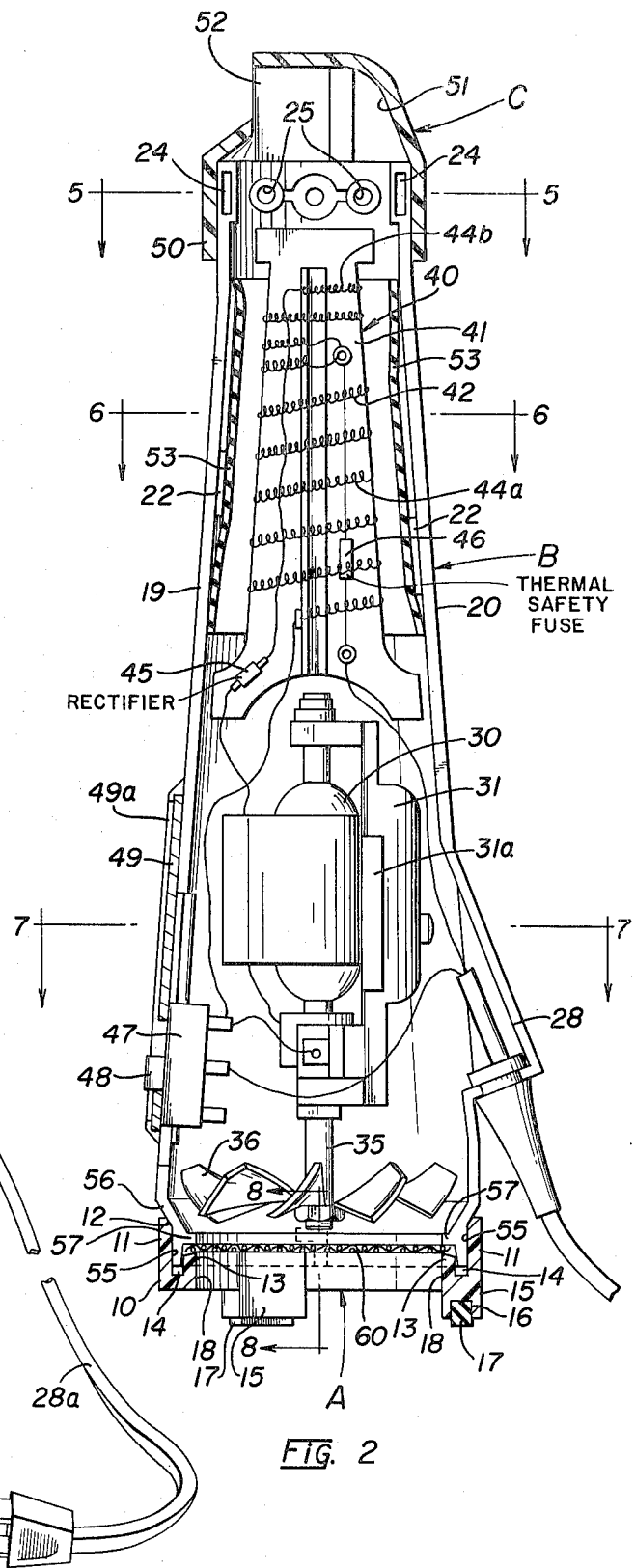


FIG. 2

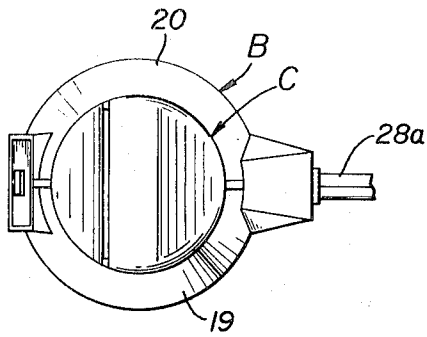


FIG. 3

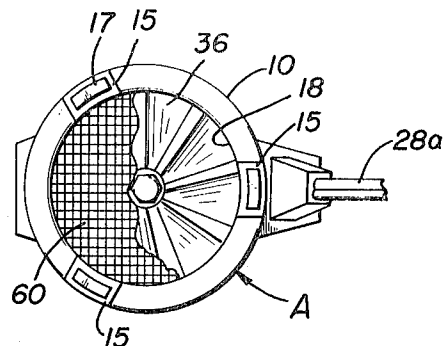


FIG. 4

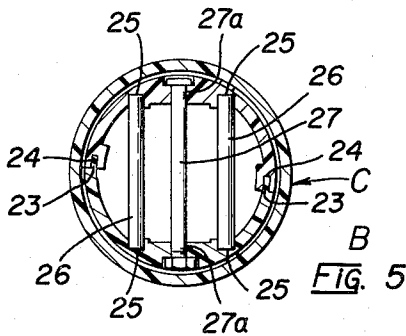


FIG. 5

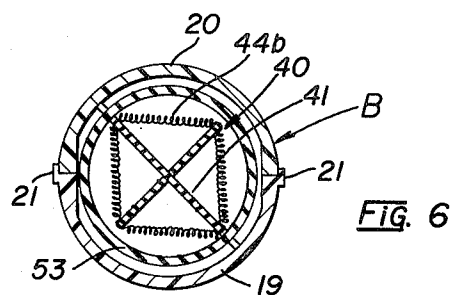


FIG. 6

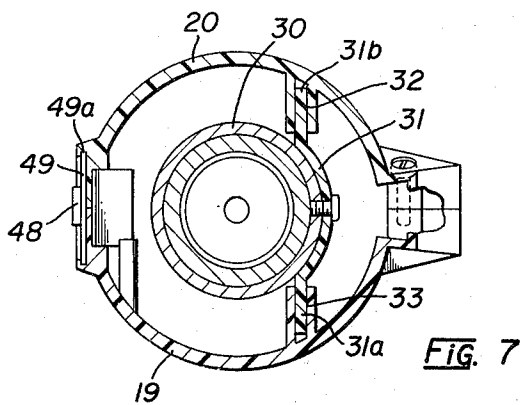


FIG. 7

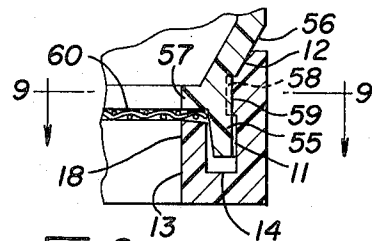


FIG. 8

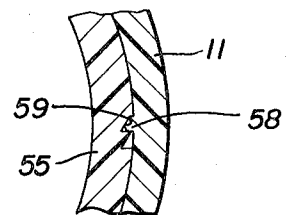


FIG. 9

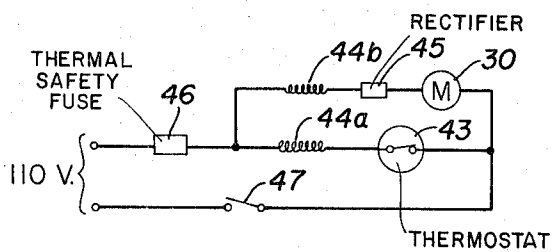


FIG. 10

DEVICE FOR DRYING HAIR

This invention relates to a hair dryer device of the type which would deliver a stream of warm air to dry the hair.

BACKGROUND

Some of the devices of this character which have heretofore been provided involve elongated tubes which may be grasped by the hand and contain fans and heating elements so that the person operating the device may point the tube toward her hair and a stream of warm air will be delivered to the hair. Other such devices have been provided with handles extending transversely of the tube, it being intended that the person operating the device will grasp the handle to focus the tube on the hair to be dried. Still other devices of this type have the tube disposed horizontally and mounted on a base or standard.

While it is desirable that the operator may grasp the tubular device and focus it upon a portion of the hair to be treated it would be especially desirable if such a device could be set upright on a dressing table or other horizontal surface and yet deliver warm air to the hair to dry it while a person sits next to the dressing table and does other things such as combing the hair, applying make-up to the face, manicuring finger nails, and the like.

It has not heretofore been thought possible that the tubular hair dryer be set on end on a dressing table due to the need for taking in air and due to the unstable character of a tubular device which is placed on end. However, we have set ourselves to the provision of such a device. Further we had as an object the provision of such a tubular dryer which will be quite stable when placed erect on a horizontal surface and which will not travel on the surface when the device is in operation. Also it is another object to provide such a device which is efficient in operation and which will deliver a strong stream of warm air, and with provision for adjustment of the direction of the stream of warm air. As another object we want to provide such a dryer which is simple to construct and which gives a neat appearance with smooth exterior lines which gives it eye appeal. These and other objects and advantages of our improved hair dryer will become apparent as this specification proceeds.

DRAWINGS

One embodiment of our improved hair dryer device is illustrated in the accompanying drawings in which

FIG. 1 is a perspective view of the dryer in its upright position, with arrows being utilized to illustrate the entrance and exit of air;

FIG. 2 is a vertical sectional view of the device with one side of the tubular casing removed;

FIG. 3 is a top view of the device;

FIG. 4 is the bottom view of the device with the protective screen broken away;

FIG. 5 is a sectional view taken along line 5—5 of FIG. 2;

FIG. 6 is a sectional view taken along line 6—6 of FIG. 2;

FIG. 7 is a sectional view taken along line 7—7 of FIG. 2;

FIG. 8 is an enlarged detail sectional view showing the engagement between the base and the vertical casing, the section being taken at line 8—8 of FIG. 2;

FIG. 9 is an enlarged sectional view taken at line 9—9 of FIG. 8; and

FIG. 10 is a schematic circuit diagram of the electrical circuit which energizes the fan motor and the heating coils.

DETAILED DESCRIPTION

As illustrated, the device includes a base A, a tubular casing B, and a cap C, each of which may be moulded of a suitable plastic material.

The base A has a circular rim 10 having an annular outer lip 11 which extends upwardly and has its upper edge beveled at 12. An annular inner lip 13 also extends upwardly and forms with lip 12 an annular groove 14 which is formed to receive therein the lower edge of the casing B.

Descending from rim 10 are three legs 15 which are annularly spaced about the rim. A greater number of spaced legs could be employed, if desired. Each of legs 15 have in their ends a depression 16 into which extends a tip 17 which is made of rubber or other frictional material and may be secured in place with a suitable adhesive. On the interior of rim 10 is the circular opening 18 which serves as the air inlet to the casing.

The casing B may be, as shown in FIG. 1 frustoconical in shape and formed of two parts, a front side 19 and a rear side 20. Sides 19 and 20 are mates and the side edges of part 19 are each provided with a flange 21 which fit over the side edges of part 20 and each of sides 19 and 20 are provided with internal flange pieces 22 which fit under the side edges of the other side. Also part 19 has tongues 23 which fit into grooves 24 in part 20. Each of parts 19 and 20 has sockets 25 into which the ends of pins 26 are received when the two parts are assembled, and each is provided with a hole 27a through which a bolt 27 may be extended.

Each of parts 19 and 20 have an internally depressed portion 28 which when these parts are together provide a passage which opens downwardly and at an angle with the axis of the casing as shown particularly in FIG. 2. The electrical cord 28a, when secured at such an angle extends downwardly and along the table on which the device may rest and itself contributes some degree of stability.

An electric motor 30, preferably a DC motor employing permanent magnets, is housed within casing B and is mounted on frame 31. At one side of frame 31 is a tongue 31a which extends into a socket 32 on part 20, and on the other side of frame 31 is a tongue 31b which extends into a socket 33 on part 19. The shaft 35 of motor 30 extends downwardly along the axis of casing B and has mounted at its lower end the fan 36.

Above the motor 30 and in the upper portion of casing B is the heating element 40. This heating element includes a matrix 41 of insulating material about which is the heating coil 42. The heating circuit (see especially FIG. 8) includes a thermostat 43 which shuts off the circuit of heating coil 44a when a predetermined temperature is reached. In the motor circuit is a coil 44b which is designed to reduce the voltage applied to the motor to approximately half the regular voltage and a rectifier 45 to convert the regular AC voltage to DC.

A fusible link safety cut-off 46 is also included so that if a critical temperature is reached this will break the circuit both to the heating element and the motor shutting off both of these devices.

An on-off switch 47 is provided to start and stop the operation of the device. Desirably, the toggle 48 of this switch may extend thru the switch panel or name plate 49 which is retained on the exterior of the casing by means of the casing flanges 49a.

The cap C may be moulded in one piece without the need for separate side cores in the mould. The cap is hollow and has a cylindrical lower portion 50 which fits over the upper edge portion of the casing. The bolt 27 has its head and nut recessed into the casing so that the cap fits neatly about the upper portion of the casing and can be turned angularly with respect to the casing and about the axis of the casing. Normally a small amount of friction holds the cap in place but the cap may be turned angularly against this small amount of friction to adjust the direction of the air. The interior of the cap has an inclined wall 51 which assists in turning the direction of the upwardly moving air transversely towards the horizontal, and has an outlet opening 52 which faces in a lateral direction transverse of the axis of the casing.

Assembly of the parts is very simple. The motor, fan, and coils may be placed in part 20 with the wiring put in place. An insulating sheet material 53 may be placed about the coils if desired to isolate the coils and prevent their dislocation. Then with the pins 26 in place either in part 19 or part 20 the part 19 may be fitted onto the part 20.

It may be noted that the lower edge of the casing is annularly recessed at 55, the portion which is recessed being connected with the main part of the casing by the annular inclined wall 56, and on the interior of the annularly recessed edge portion 55 is an annular ridge 57 which when portion 55 is inserted inside the annular lip 11, abuts the upper edge of lip 13.

When the lower recessed edge 55 of the casing is thus received into the base between lips 11 and 13, the outer surface of the casing B is flush with the outer surface of the rim 10 and the two parts of casing B are effectively held together by the lip 11 of rim 10. In order to lock the casing to the base we provide, as more clearly illustrated in FIGS. 8 and 9, a tooth 58 on the interior surface of lip 11 which when the base is turned with respect to the casing and about the axis of the casing, engages a notch 59 on the surface 55 to hold the base and the casing together.

Optionally a circular screen 60 may be included to guard the inlet opening 18 against passage of any type of debris which might otherwise be drawn in with the air. Such a screen can be placed in the base with its edges resting on top of lip 13, and when the casing is inserted into the base the ridge 57 of the casing will hold the screen in place.

The cap C may simply be placed over the top of the casing, and the device is ready for use. At this point it may be observed that no bolts or screws have been necessary to assemble the base, the casing, and the cap part, except for the one bolt 27 which secures the top of the casing parts together.

To use the improved hair dryer a person may plug in the cord, turn the switch 47 to "on" and set the device on a dressing table with the legs 15 resting on the horizontal surface of the table. The operating of fan 36 cre-

ates therebelow a reduced air pressure which may be thought of as a partial vacuum. This reduced air pressure draws air along the top of the table toward the base A, then between the table and rim 10 and between legs 15 as indicated by arrows 61 in FIG. 1, and upwardly through opening 18 to the fan. Such reduced pressure of partial vacuum also contributes to an extent to stabilize the device in upright position in that it tends to press the legs more tightly to the surface on which the base rests. This also contributes to holding the device in place avoiding travelling along the supporting surface during operation. To direct the warm air in the desired angular direction the operator may simply turn cap C in one or another direction about the axis of the casing until the outlet opening 52 in the cap is faced in the desired direction. The direction of the projected warm air is illustrated in FIG. 1 by the arrows 62.

If desired, and for finishing the drying of the hair the operator may grasp hold of the casing B, remove cap C and focus the warm air on specific areas of the hair being dried, thus obtaining the advantage of portable use as well as the function of drying the hair as the dryer sets on a surface. It is a further feature of our drying device that the casing B is frusto-conical in shape, and that the fan 36 being located at the lower larger end portion of the casing adjacent the relatively large inlet opening, has maximum efficiency both for drawing air into the casing and for pressing the air upwardly around the motor and through the heating coils and out the top of the casing. The sides of the casing taper inwardly to form a top opening of the casing which is substantially smaller in area than the inlet opening 18, and this, along with the expansion of the air as it is passed over the heating coils, tends to increase the velocity of the air passing out the top of the casing. It is yet a further advantage that the motor 30, being relatively heavy is mounted in the lower portion of casing B, and also contributes to stability when the casing rests in an upright position.

While only certain embodiments of our invention have been illustrated and described it is understood that the invention may take many forms and many changes may be made in the structure and parts thereof all within the spirit of the invention and embodied within the scope of the appended claims.

I claim:

1. A device for drying hair comprising a base having a circular rim providing a circular inlet opening at the bottom of said rim and having at least three radially spaced legs depending from said rim, said rim containing a circular downwardly extending groove, an elongated tubular casing frustoconical in shape having a circular lower edge engaging said groove said casing having its longitudinal axis extending vertically from the center of said base, a hollow cap having rigid walls and having a lower cylindrical portion which extends over the upper portion of said casing, said cap having an internal passage through which air may exit from said device, said passage containing an exit opening facing in a horizontal direction, a fan in the lower portion of said casing, a motor within said casing and arranged to drive said fan, and an electrical heating element in the upper portion of said casing, said base being adapted to set on a horizontal surface with said legs resting on said surface, whereby rotation of said fan draws air horizontally between said surface and said rim and passes the

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air upwardly within said casing and cap and outwardly from said cap in a horizontal direction.

2. A device as set forth in claim 1 wherein said cap contains an inclined wall providing a baffle for directing the outgoing air in a horizontal direction.

3. A device as set forth in claim 1 including a circular screen having its edge portion resting on said rim inward of said groove, said casing having an internal annular ridge engaging the top of the edge portion of said screen whereby to hold said screen between said rim and said ridge.

4. A device as set forth in claim 1 wherein said casing

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is in two parts and includes a front side and a rear side and wherein said device includes a motor mounting frame, said frame having a projection extending toward the said front side of the casing and the projection extending toward said rear side of the casing, said casing having flanges extending inwardly from its front side providing a channel which receives said first mentioned projection and having flanges extending inwardly from its rear side providing a channel receiving said second mentioned projection whereby said frame is anchored securely in said casing.

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