June 4, 1968 E. ANGELILLO 3,386,185

HEATED AIR CIRCULATING HAIR BRUSH

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Fig. 1.

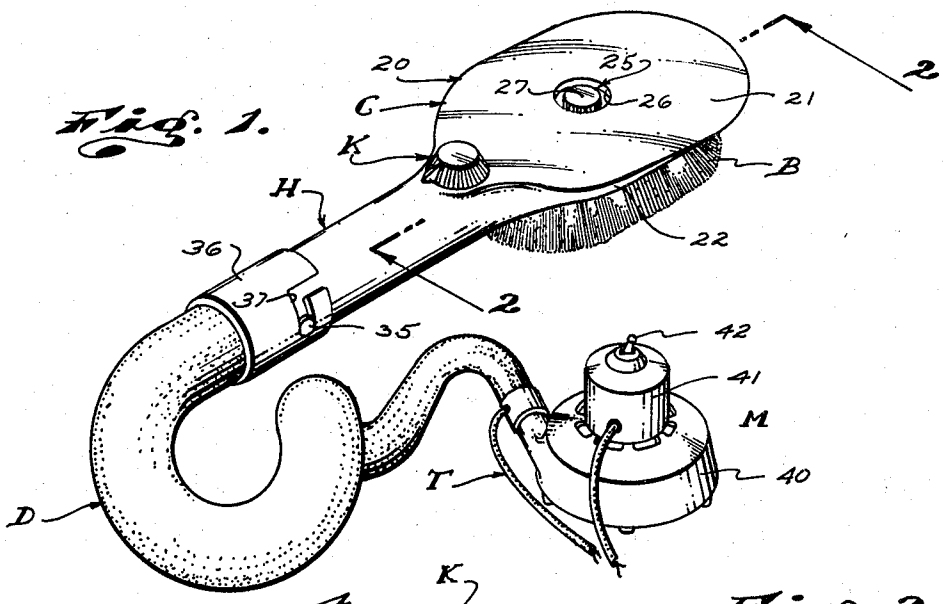


Fig. 2.

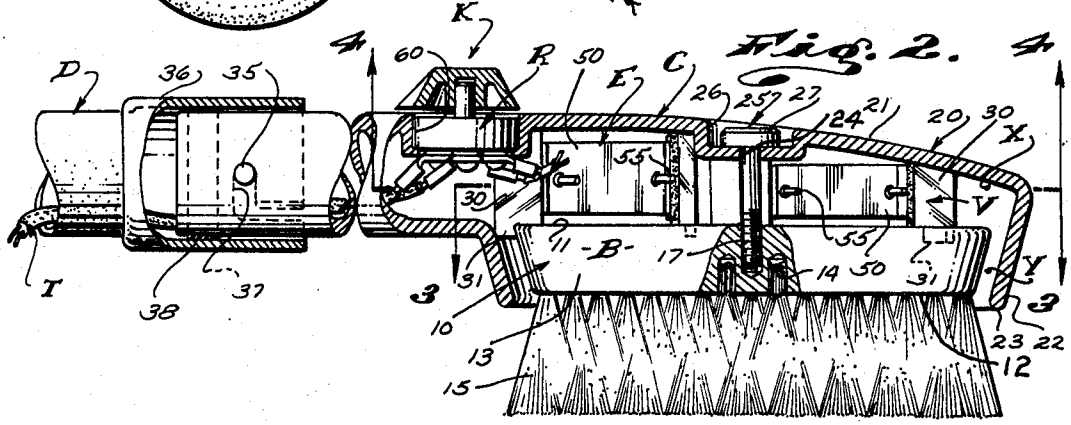


Fig. 3.

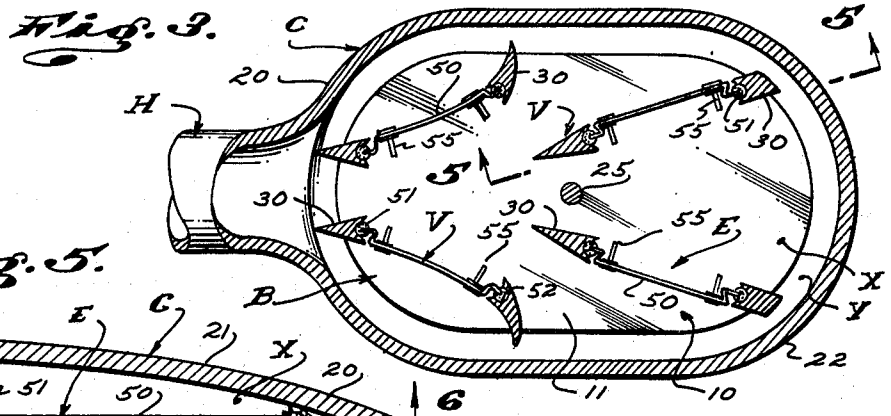
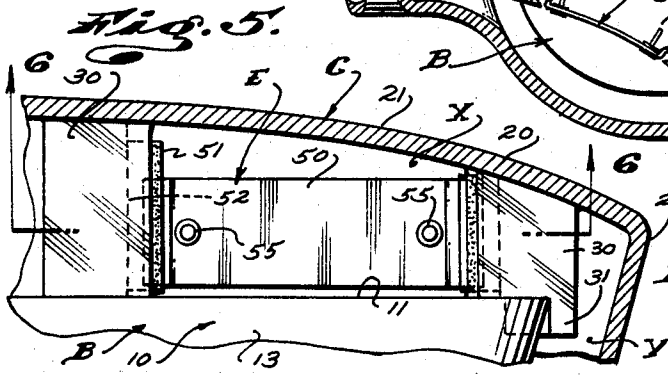


Fig. 5.



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Fig. 4.

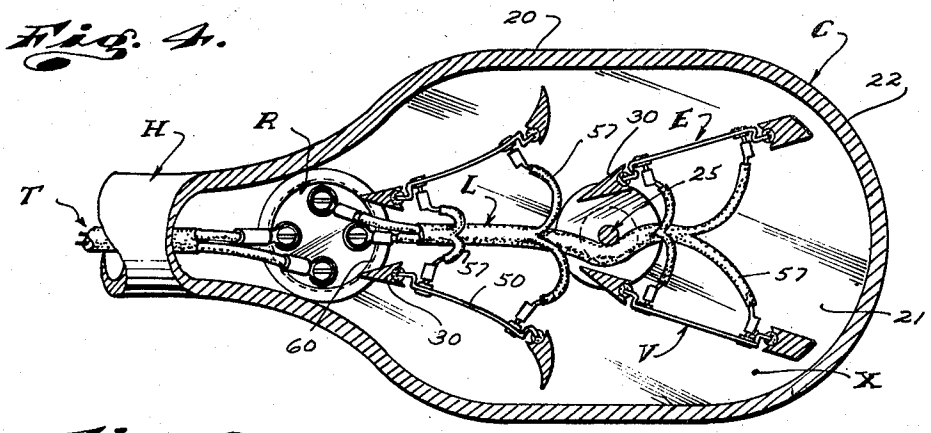


Fig. 6.

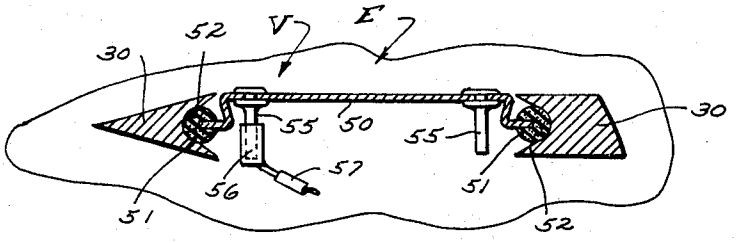
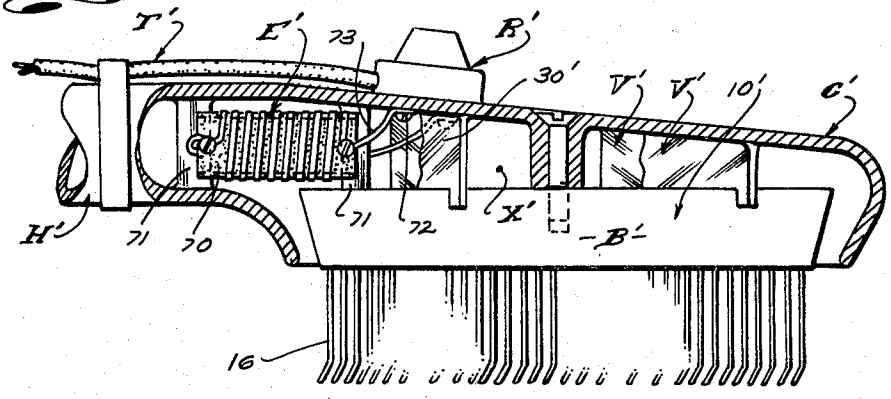


Fig. 2.



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HEATED AIR CIRCULATING HAIR BRUSH

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ABSTRACT OF THE DISCLOSURE

A hair brush with heated air circulating means including, a horizontal brush body having a flat top surface and a side edge about its perimeter, a plurality of bristles carried by and depending from the brush body, a unitary, molded plastic carrier having a top wall overlying the brush body in spaced relationship and a depending side wall occurring about the side edge of the brush body in spaced relationship, the top and side walls of the carrier cooperating with the top and side edge of the brush body to define a chamber above the body and a downwardly opening flow passage about the body, an elongate tubular air conducting handle communicating with the chamber and projecting outwardly from the carrier, an elongate flexible air conducting hose connected with and extending outwardly from the handle and connected with a power driven blower to conduct air under pressure unto the chamber for discharge through said passage, vane means formed on and depending from the top wall of the carrier into the chamber and arranged to direct the air for substantially uniform distribution through said passage and adapted to engage the top of the brush body to orient the brush in the carrier and heating means within the chamber to heat air flowing into and through the chamber.

This invention has to do with an improved hair brush and is more particularly concerned with such a brush having air circulating and heating means related thereto.

An object of my invention is to provide an improved hair brush construction having air circulating means adapted to direct a flow of air into and about the bristles of a hair brush and into and through which the bristles of the brush are engaged and moved.

A further object of this invention is to provide such a brush having means to heat the air conducted through and discharged from it.

It is still another object of this invention to provide means for moving and conducting a supply of air to the brush.

Yet another object of the present invention is to provide a brush of the character referred to having easy and convenient hand-engaging means.

Another object is to provide a structure of the character referred to in which the heating means is related to the brush structure whereby the hand engaging means does not become heated and uncomfortable to handle and such that great heat loss does not occur when the heated air reaches hair being worked upon.

Another object of my invention is to provide a structure of the character referred to which is such that hair which has been washed and rinsed can be brushed and conditioned while it is being dried, and a structure which is such that the time required to dry the hair is substantially less than that time required to dry hair with ordinary or conventional hair drying means.

The above and other features of my invention will be fully understood from the following detailed description of typical preferred forms and applications of my invention, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is an isometric view of a brush construction embodying the present invention;

FIG. 2 is a sectional view taken as indicated by line 2—2 on FIG. 1;

FIG. 3 is a sectional view taken as indicated by line 3—3 on FIG. 2;

FIG. 4 is a sectional view taken as indicated by line 4—4 on FIG. 2;

FIG. 5 is a sectional view taken as indicated by line 5—5 on FIG. 3;

FIG. 6 is a sectional view taken as indicated by line 6—6 on FIG. 5; and,

FIG. 7 is a sectional view showing another form of heater means in my new brush construction.

The hair brush construction that I provide includes a brush B, an air conducting carrier C with a hand engaging handle H carrying and supporting the brush and adapted to conduct air to and about the brush, an air supply means M, an elongate, flexible air duct D extending between and connected with the means M and carrier C and electrical resistant heater means E to heat the air handled by and flowing through the construction.

The brush B can be of any suitable design and construction. In the case illustrated the brush B is shown as involving a flat, horizontal substantially ovoidal shaped body **10** having flat top and bottom surfaces **11** and **12** and a substantially straight, downwardly and inwardly inclined side edge or surface **13** about its perimeter. The body **10** is provided with a plurality of downwardly opening sockets **14** entering its bottom surface **12** and in which bunches or bundles of bristles **15** are engaged to project downwardly from the body a predetermined distance and in a substantially downward divergent relationship to each other.

The body **10** is further provided with a central, upwardly opening threaded socket or opening **17** in its upper or top surface **11**.

It will be apparent that the brush construction B described above and illustrated in the drawings can be etsablished of any combination of materials selected from a great number of materials suitable for the establishment of such brushes. Further, it is to be understood that the brush structure B illustrated is but one very simple form of brush structure that can be employed and that, in practice, any one of a great number and variety of brush structures could be substituted for that structure shown without departing from the spirit of this invention.

For example, as illustrated in the form of the invention shown in FIG. 7 of the drawings, the brush B′ can be a currying brush having wire bristles **16** carried by a rubber core (not shown) in the body **10′**. The body **10′** can be a simple, downwardly opening metal or plastic shell-like part.

The carrier C is an elongate, horizontal metal or plastic part having a shell-like body **20** with front and rear ends. The body has a substantially flat, horizontally top wall **21** adapted to overlie the body **10** of the brush B in spaced relationship above the top surface **11** thereof and a downwardly and preferably laterally inwardly inclined side wall **22** about the perimeter of the top wall **21** and adapted to occur about the side edge or surface **13** of the brush body **10** in radial or lateral outward spaced relationship therefrom.

The lower edge **23** of the side wall **22** can terminate on a common plane with the bottom surface of the brush **10**, or, as illustrated, can terminate on a plane spaced a short distance below the plane of said bottom surface of the brush body.

The opening defined by the lower edge **23** of the side wall **22** of the carrier body is substantially the same size and shape as the outer perimeter of the top surface **11** of the brush body **10** whereby the brush body can be slidably entered into the confines of the carrier body to effect assembly and disassembly of the construction.

The top wall 21 of the carrier body 20 is provided with a central opening 24 through which an elongate vertical screw fastener 25 is engaged.

The fastener 25 is adapted to enter the opening 17 in the top of the brush body 10 and is operable to releasably couple the brush and the carrier.

In practice, the top wall can, as illustrated, be provided with an upwardly opening recess 26 about the opening 24 and the fastener 25 can be provided with a finger-engaging head 27 at its upper end to normally occur in the recess. With such a relationship of parts it will be apparent that the head is positioned in such a manner that it will not present an obstruction that might cause injury or damage to persons or objects which the brush structure is moved into contact with.

It will be apparent that the top wall 21 of the carrier body 20 cooperates with the top surface 11 of the brush body 10 to define an air-conducting chamber X coextensive with the top surface of the brush body and extending outwardly about the perimeter thereof.

The side wall 22 of the carrier body and the side edge or surface of the brush body cooperate to define a continuous downwardly and radially or laterally inwardly inclined flow passage Y communicating with the chamber X and which opens and is adapted to direct air flowing into and through the body downwardly and laterally inwardly below the brush body about and/or into the bristles 15 and into hair into which and through which the bristles 15 are engaged and moved.

In addition to the foregoing, the top wall 21 of the body 20 of the carrier C is provided with a plurality of longitudinally and laterally spaced, depending stop members 30. The members 30 can be formed integrally with the carrier body or can be separate parts suitably fixed to the body. The members 30 are adapted to engage the top surface 11 of the brush body 10 and to limit upward movement of the brush body in the carrier. It will be apparent that when the screw 25 is advanced into the body of the brush the brush is urged upwardly into tight clamped engagement with the stop members so as to be held in fixed predetermined relationship in the carrier C.

In practice, at least one and preferably more of the stop members 30 can be elongated bar-like members carried by the top wall 21 of the carrier and provided with depending portions 31 that depend about the perimeter of the brush body 10 to maintain the brush in proper oriented position in the carrier body, as clearly illustrated in the drawings.

The handle portion H of the carrier C is a simple, elongate, tubular extension on the rear end of the carrier body communicating with the chamber X and opening rearwardly. The handle portion H is preferably cylindrical in form and of sufficient longitudinal extent to provide comfortable and convenient means for engaging the construction in one's hands for desired manipulation.

The outer rear end of the handle is adapted to connect with the flexible duct D.

In the case illustrated, I have shown the handle provided with a pair of radially outwardly projecting, circumferentially spaced, bayonet slot-engaging lugs 35.

The flexible air duct D is a simple, larger diameter thin walled, elongate flexible air hose having rear and front inlet and outlet ends. The front outlet end is provided with a forwardly opening elongate coupling sleeve 36 with circumferentially spaced, forwardly opening bayonet slots 37 and an annular, radially inwardly disposed seal 38, rearward of said slots.

The sleeve 36 is adapted to be slidably engaged over and onto the rear end portion of the handle H with the lugs 35 engaged in the slots 37 and with the seal 38 engaged about the handle in the manner illustrated in the drawings and so that the carrier, with the brush is releasably coupled with the hose.

In practice, any other suitable coupling means can be substituted for the coupling means just described without departing from the spirit of this invention.

The front end of the duct is suitably coupled with the discharge end or fitting of the air supply means M.

The air supply means M can be of any desired form and construction and is shown as including a blower 40 which can be a squirrel cage, centrifugal, or any other suitable type of air supply means, driven by an electric motor 41, which motor is under control of an on and off switch 42.

The motor and blower can be unitized and housed in any suitable or desired manner.

In practice, to assure uniform distribution of air through the chamber X and out through the passage Y, about the perimeter of the brush B, I provide vane means V, which means includes longitudinally and laterally spaced vanes in the chamber X and arranged and disposed to separate, divide and direct the air flowing through the handle and into the chamber in such a manner as illustrated to obtain the desired uniform distribution of air about the brush.

In practice and as illustrated in FIG. 7 of the drawings, the vane means V' can be established by the stop members 30'. As illustrated in the first form of the invention, the vane means V is established by horizontally extending vertical, metallic strips 50 suitably fixed to and extending between certain of the stop members 30. In such a case, the stop members 30 are in effect and might be referred to as stop and support posts adapted to stop and position the brush B and to engage and support the ends of the vane forming strips 50.

The electric resistance heater means E in the preferred carrying out of the invention and as illustrated in FIGS. 2 through 6 of the drawings, includes a plurality of elongate strips of resistance metal in the chamber X and arranged so as to be intimately contacted by the air flowing into and through the chamber. The resistance strips are established by the same strips 50 that establish the vane means V.

If necessary or desired the strips 50 can be simple strips of resistance metal or, if desired, can be established of resistance metal ribbon stock wrapped about strips of dielectric material, such as mica.

In the case illustrated, I have elected to show the strips 50 as simple lengths of ribbon stock of resistance metal and as having their ends engaged and supported in ceramic support bars 51, which bars are engaged in suitable notches 52 provided in the stops 30 (see FIGS. 5 and 6).

The support bars 51 are such that they support the strips 50 free and clear of the top wall 21 of the carrier and top surface 11 of the brush body as they extend through the chamber X.

The strips 50 are suitably offset and/or bent to establish the desired vane effect and are provided at their ends or end portions with suitable terminal posts 55, which posts connect with fittings 56 on the ends of related branch lines 57 of an elongate electric loom L extending centrally and longitudinally of the chamber X, adjacent the top wall 21 of the carrier.

The loom L is connected with a manually operable, variable resistance switch or rheostat R carried by the carrier C. The Rheostat R is shown arranged in a cavity or socket opening 60 in the carrier at or about the junction of the handle H with the top wall 21 and has an operating knob K accessible at the exterior of the carrier.

The power line T extends rearwardly through the handle H and the air duct D and exits the air duct, through a suitable opening, adjacent the forward end thereof and is provided with a sufficient lead to extend to and connect with a suitable power source (not shown).

In practice, a suitable disconnect plug (not shown) is provided in the line T adjacent the connection between the duct and handle to permit separation and dis-assembly of the construction.

The rheostat R is also such that the power to the resistance elements or strips 50 can be turned off.

With the structure thus far described, it will be apparent that the temperature of the air, as it discharges

from the construction, can be advantageously controlled.

In the form of the invention illustrated in FIG. 7 of the drawings, the means E' involves a mica carrier **70** supported in the rear portion of the cavity X' and forward portion of the handle H' and about which a ribbon of resistance wire is wound.

In this form of the invention the mica carrier **70** is fixed to and supported on suitable posts **71** provided in the carrier body C'. Suitable contact fasteners **72** extend through the top wall **21'** of the carrier C', forward of the heater means E', where they connect with a rheostat R' at the exterior of the carrier. Suitable leads **73** extend between the heater means and the fasteners **72.**

The rheostat R' is connected with a power line T' which occurs at and extends longitudinally of the exterior of the duct handle H' and D' (not shown).

In this second form of the invention, as pointed out above, the stop members **30** are formed to establish the vane means V for directing and properly distributing the heated air through the chamber X and out through the duct Y.

With the structure, or structures, that I provide, it will be apparent that one can brush and simultaneously dry one's hair with a blast of heated air.

It will be further apparent that as the hair is stroked with the brush it is repeatedly parted and moved about in such a manner as to open the hair for the free admission and circulation of the heated air therethrough, with the result that drying the hair is greatly accelerated.

It will also be apparent that the air moving from the means M, through the duct D and handle H, is cool and does not heat the duct and/or handle in such a manner as would make it inconvenient or uncomfortable for an operator to handle and manipulate the construction. Further, since the heating means is located in the chamber X, little or no heat loss is experienced. As a result, the means for heating the air need not be excessively large and need not use a great amount of electric power.

It is to be noted that, with the construction that I provide, if it becomes necessary to wash and clean the brush, as is frequently the case, the brush can be readily and conveniently removed for such care by simply releasing the screw fasteners **25.**

Having described only typical preferred forms and applications of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications that may appear to those skilled in the art and which fall within the scope of the following claims:

Having described my invention, I claim:

1. A hair brush of the character referred to including, a horizontal brush body having a flat top surface and a side edge about its perimeter, a plurality of bristles carried by and depending from the brush body, a carrier having a top wall overlying the brush body in spaced relationship above said top surface and a depending side wall occurring about the side edge of the brush body in spaced relationship therefrom, means securing the brush body and carrier together, said top and side walls cooperating with the brush body to define a chamber above the body and a downwardly opening flow passage about the body, an elongate tubular handle communicating with the chamber and projecting outwardly from the carrier, an elongate flexible air conducting hose connected with and extending outwardly from the handle and connected with a power driven blower to direct air under pressure into and through the hose and carrier for discharge through said passage, vane means formed on and depending from the top wall of the carrier into the chamber and arranged to direct the air for substantially uniform distribution through said passage and heater means carried by the carrier within the chamber to heat air flowing into and through the chamber.

2. A structure as set forth in claim **1** wherein the side edge of the brush body and side wall of the carrier are downwardly and laterally inwardly inclined whereby the passage is inclined and opens to direct air flowing therethrough downwardly and laterally inwardly below the brush body and into and about the bristles.

3. A structure as set forth in claim **1** wherein the means securing the body and carrier together includes a plurality of spaced depending stops on the top wall to engage the top surface of the body and a screw fastener carried by the carrier and engaging the body to hold the body tight against said stop.

4. A structure as set forth in claim **1** wherein the means securing the body and carrier together includes a plurality of spaced depending stops on the top wall to engage the top surface of the body and a screw fastener carried by the carrier and engaging the body to hold the body tight against said stop, said stops being elongate vertical vane-like members and establishing the said vane means.

5. A structure as set forth in claim **1** wherein the means securing the body and carrier together includes a plurality of spaced depending stops on the top wall to engage the top surface of the body and a screw fastener carried by the carrier and engaging the body to hold the body tight against said stop, said stops being elongate vertical vane-like members and establishing the said vane means, said heater means including an electrical resistance heater in the chamber adjacent and between the handle and the stops.

6. A structure as set forth in claim **1** wherein said heater means and vane means includes spaced, elongate ribbon-like strips of resistance metal mounted in the chamber to heat and direct the air and connected with and under control of a manually operable variable resistance switch carried by the carrier.

7. A structure as set forth in claim **1** wherein said heater means and vane means includes spaced elongate ribbon-like strips of resistance metal mounted in the chamber to heat and direct the air and connected with and under control of a manually operable variable resistance switch carried by the carrier, said strips having ends connected with and supported by stop and support posts depending from the top wall and engaging the top surface of the brush body and fastener means releasably holding the body tight against said posts.

8. A structure as set forth in claim **1** wherein the means securing the body and carrier together includes a plurality of spaced depending stops on the top wall to engage the top surface of the body and a screw fastener carried by the carrier and engaging the body to hold the body tight against said stop, the side edge of the brush body and side wall of the carrier being downwardly and laterally inwardly inclined whereby the passage is inclined and opens to direct air flowing therethrough downwardly and laterally inwardly below the brush body and into and about the bristles.

9. A structure as set forth in claim **1** wherein said heater means and vane means includes spaced, elongate ribbon-like strips of resistance metal mounted in the chamber to heat and direct the air and connected with and under control of a manually operable variable resistance switch carried by the carrier, the side edge of the brush body and side wall of the carrier being downwardly and laterally inwardly inclined whereby the passage is inclined and opens to direct air flowing therethrough downwardly and laterally inwardly below the brush body and into and about the bristles.

10. A structure as set forth in claim **1** wherein said heater means and vane means includes spaced, elongate ribbon-like strips of resistance metal mounted in the chamber to heat and direct the air and connected with and under control of a manually operable variable resistance switch carried by the carrier, said strips having ends connected with and supported by stop and support posts depending from the top wall and engaging the top

surface of the brush body and fastener means releasably holding the body tight against said posts, the side edge of the brush body and side wall of the carrier being downwardly and laterally inwardly inclined whereby the passage is inclined and opens to direct air flowing therethrough downwardly and laterally inwardly below the brush body and into and about the bristles.

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