

Nov. 30, 1965

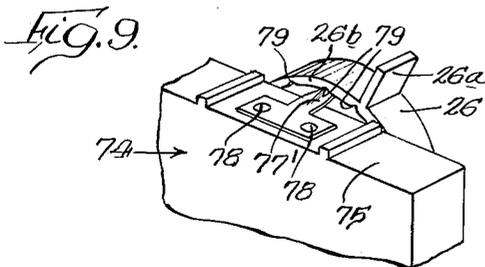
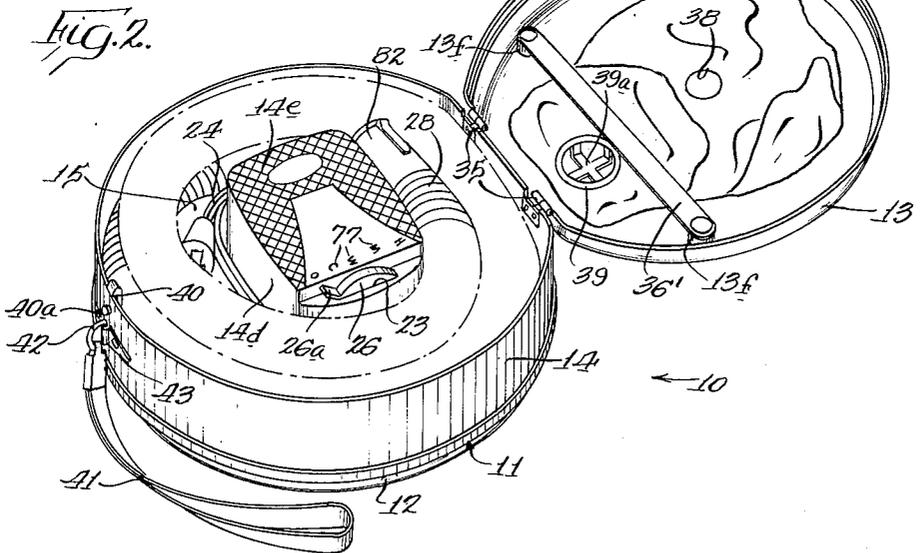
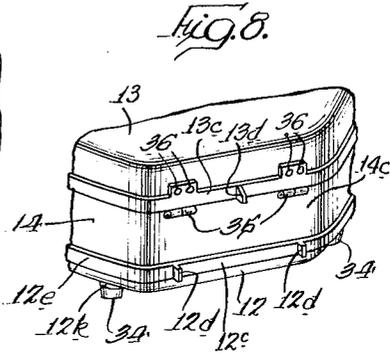
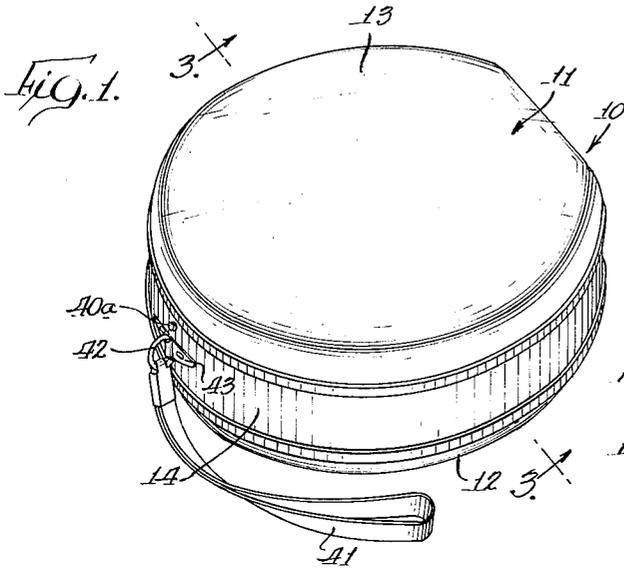
I. JEPSON ETAL

3,220,119

HAIR DRYER

Filed April 6, 1962

3 Sheets-Sheet 1



INVENTORS:
Ivar Jepson
Herman C. DeBoer, Jr.
Gilbert R. Wolter
By George F. Clark, atty

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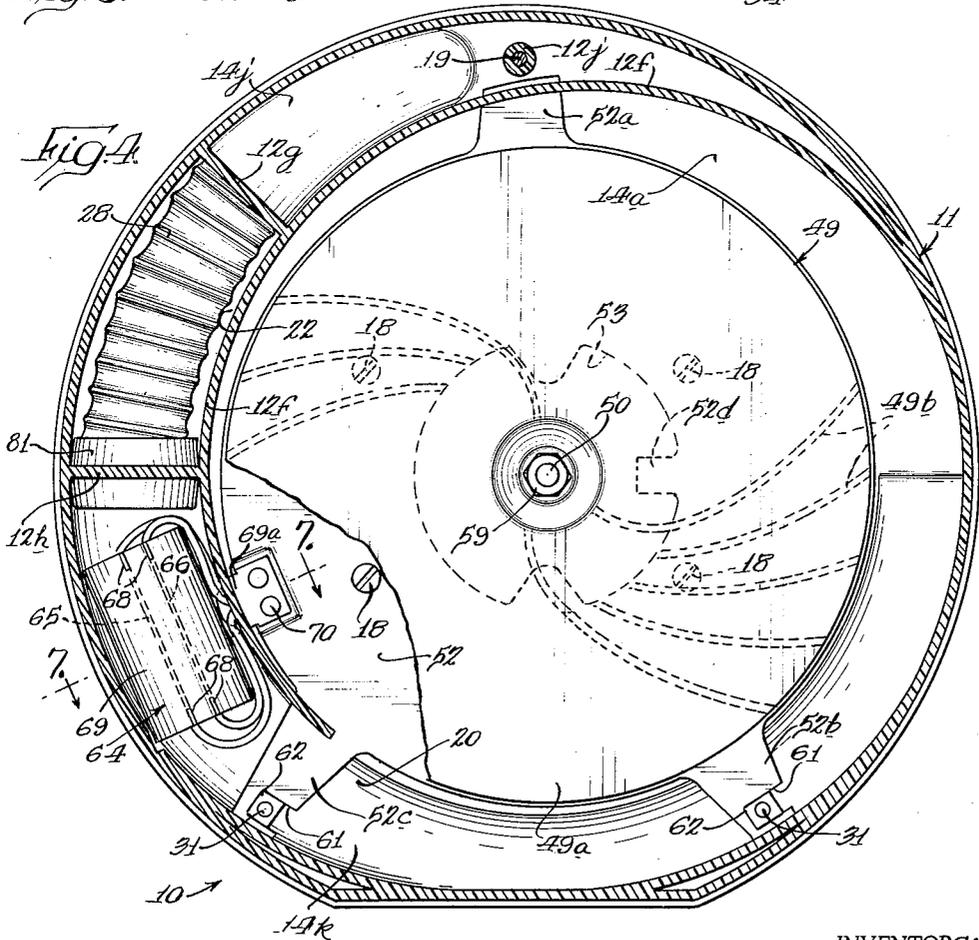
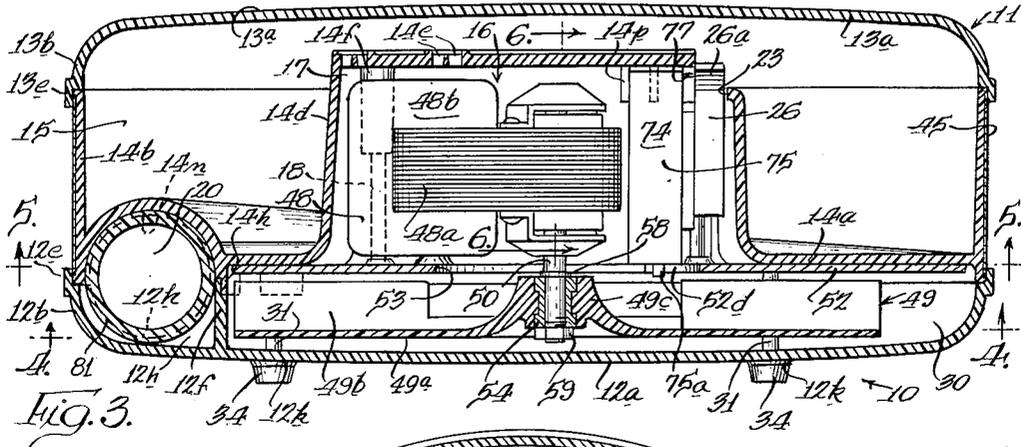
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HAIR DRYER

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3 Sheets-Sheet 2



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Ivar Jepson
Herman O. DeBoer, Jr.
Gilbert R. Wolter
By George F. Clark, atty

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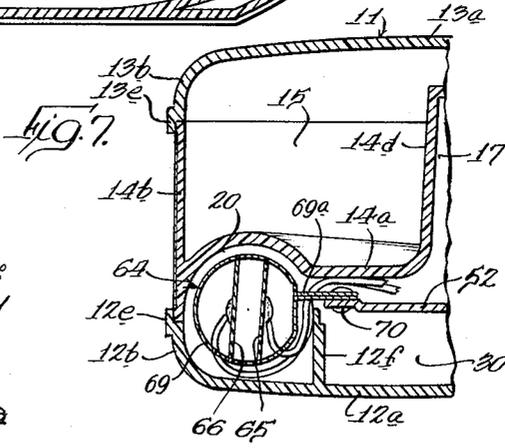
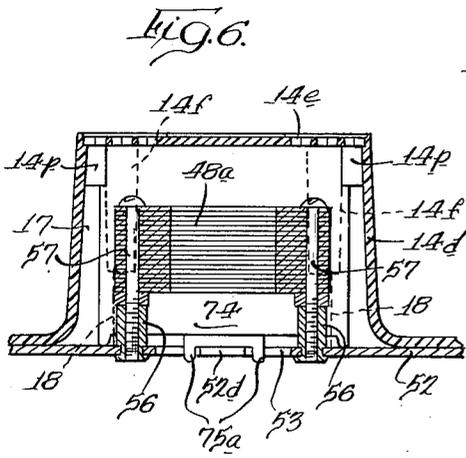
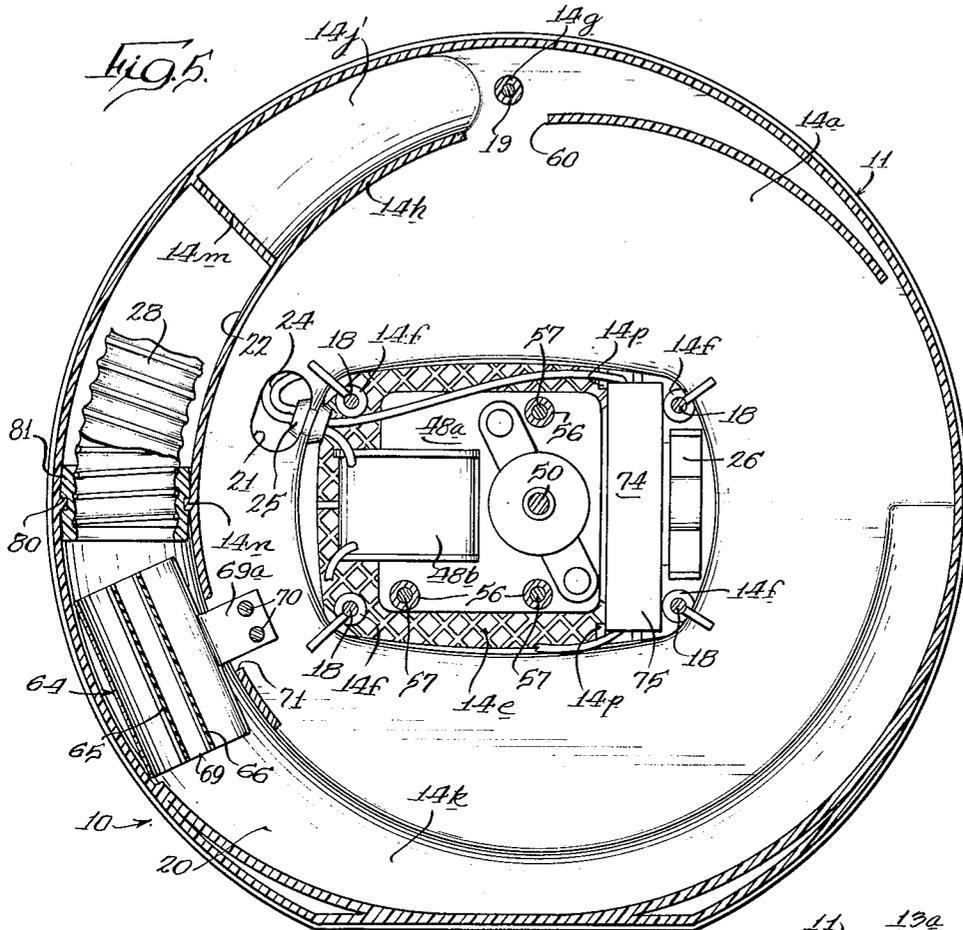
I. JEPSON ET AL

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HAIR DRYER

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3 Sheets-Sheet 3



INVENTORS:

Ivar Jepson
 Herman C. DeBoer, Jr.
 Gilbert R. Wolter

By George R. Clark atty

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3,220,119

HAIR DRYER

Ivar Jepson, Oak Park, Herman O. De Boer, Jr., Wheaton, and Gilbert R. Wolter, Elmhurst, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois

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1 Claim. (Cl. 34-99)

The present invention relates to hair dryers of the portable type which obviously may have uses other than drying hair. Specifically, the present invention is in the nature of an improvement on Jepson Patent No. 3,006,079, granted October 31, 1961, and assigned to the same assignee as the instant application.

In the above-mentioned Jepson patent, three different types of hair dryers were discussed and the advantages of the type of hair dryer disclosed in the Jepson patent were set forth in detail. The hair dryer of this patent achieved great commercial success during the past five years and one could say that it was the start of a whole new industry. This hair dryer is a very compact device so that it can readily be stored in a small space which is important in this modern day when the householder has so many appliances to store. The hair dryer, at least for women, has become a necessity rather than a luxury and even when traveling is taken along as an essential item. Consequently, it is desirable for such hair dryers not only to be small and compact for storage purposes, but they should be designed so that they are easy to transport. It would be desirable to provide such a hair dryer in the form of a compact casing, such as a small piece of luggage, which casing in itself stores all the portions thereof, including the flexible cap or hood and the hose or conduit connecting the cap or hood to the source of drying air. Moreover, this casing, like a piece of luggage, should have no external knobs or other protrusions.

Accordingly, it is an object of the present invention to provide a new and improved hair dryer.

It is another object of the present invention to provide a portable hair dryer comprising a unitary casing in which all portions of the dryer are housed in the casing in operative condition.

It is another object of the present invention to provide an improved hair dryer which is compactly arranged comprising a light weight unit which is an integral part of a compact casing and which by itself may be readily transported like a small piece of luggage.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention, reference may be had to the accompanying drawings in which:

FIG. 1 is a perspective view of the hair dryer of the present invention shown in the closed position for storage or for transportation from place to place;

FIG. 2 is a perspective view similar to FIG. 1 showing the hair dryer in open position ready for use and showing how the portions thereof are supported in a unitary structure;

FIG. 3 is an enlarged sectional view taken substantially

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on line 3—3 of FIG. 1 but with the hose and cap removed from storage position;

FIG. 4 is a sectional view taken on line 4—4 of FIG. 3, assuming that FIG. 3 shows the complete structure but with certain portions cut away more clearly to illustrate the invention;

FIG. 5 is a sectional view taken on line 5—5 of FIG. 3, again assuming that FIG. 3 shows the complete structure;

FIG. 6 is a sectional view taken on line 6—6 of FIG. 3, assuming that FIG. 3 shows the complete structure, but with the armature of the motor omitted;

FIG. 7 is a fragmentary sectional view taken on line 7—7 of FIG. 4 with certain portions cut away, assuming that FIG. 4 shows the complete structure;

FIG. 8 is a fragmentary perspective view of a portion of the casing showing a flattened portion of the periphery thereof; and

FIG. 9 is a fragmentary perspective view of a portion of a switch housing and control knob of the hair dryer of the present invention.

Briefly, the present invention is concerned with a portable hair dryer which, when not in use, is a completely enclosed unit which has the appearance of a small piece of luggage, such as a small hat box, with the hair dryer built as an integral part of this unit. Moreover, like a piece of luggage, this unit has a pivotally mounted cover affording access to the controls of the dryer, the cap or hood to be placed over the user's head, and the hose disposed in connected position ready for use for conveying either heated or other air which is to be supplied to the cap or hood. The unit includes a motor driven fan and heating means together with various control means.

Referring now to the drawings, there is illustrated a hair dryer, generally indicated at 10, which has the external appearance of a small piece of luggage commonly designated as a hat box. The portion of the hair dryer 10 which looks like a piece of luggage might be designated the casing, housing or container of the hair dryer and is generally designated by the reference numeral 11. In accordance with the present invention, this hat box-type casing 11 is formed of three separate pieces, each of which is preferably molded from a suitable plastic material. As illustrated in the drawings, the casing 11 comprises a bottom 12, a cover 13, and a central casing portion 14. Each of these elements has a generally circular configuration with a small segment of the circle being flattened so that the casing 11 may be supported by the flat surface defined by the flattened segment or means projecting therefrom. The bottom 12 is secured to the central casing portion 14 by means described hereinafter and similarly cover 13 is pivotally related to casing portion 14, as described hereinafter. Each of the portions 12, 13 and 14 includes a horizontal wall portion when viewed in the position of FIG. 3 of the drawings designated as 12a, 13a and 14a, respectively, to the periphery of which wall portions are integrally attached vertical wall portions 12b, 13b and 14b, respectively. These wall portions 12b, 13b and 14b include flattened sections 12c, 13c and 14c, respectively, as best shown in FIG. 8 of the drawings. So that the casing 11 may be supported from the flattened surface described, preferably a pair of spaced legs 12d (FIG. 8) project from bottom 12 and a single leg 13d projects from cover 13, thus providing a tripod support. These legs are illustrated as molded integrally with the

corresponding casing sections 12 and 13, respectively.

Considering now casing section 14 in more detail, the wall portion 14a thereof includes a centrally disposed raised housing portion 14d thereby defining an annular storage chamber 15 (FIGS. 2, 3 and 7) between wall portion 14a and central housing portion 14d. The top of housing portion 14d is flat and is provided with integrally formed grillwork 14e which defines an air intake for a motor driven fan unit 16 (FIG. 3), at least the motor of which described hereinafter is disposed within a chamber 17 (FIGS. 3, 6 and 7) defined by centrally disposed housing portion 14d. Depending within chamber 17, as best shown in FIG. 5 of the drawings, are a plurality of posts 14f (FIGS. 3 and 5) integrally formed with casing section 14. These posts 14f preferably contain tapped inserts for threadedly receiving suitable fastening means 18 (FIGS. 3, 4 and 5) by means of which the motor driven fan unit 16 and the bottom 12 may be secured in assembled relationship therewith. For a similar purpose, a post 14g (FIG. 5) also containing a tapped insert depends from the wall section 14a near the periphery thereof for receiving a fastening means 19.

To define a scroll-shaped air outlet from the fan chamber described hereinafter, there depends from the underside of wall portion 14a a spiral wall portion 14h which cooperates with a similar wall portion projection 12f from wall portion 12a of the bottom 12 to define a spiral or scroll-shaped air outlet chamber 20. The wall portion 14a, when viewed from the bottom, as shown in FIG. 4 of the drawings, includes near the periphery a short convex section 14j and a concave section 14k which latter defines the upper surface of air passageway 20.

Defined in the wall portion 14a are a plurality of openings, designated as 21, 22 and 23, not considering the plurality of openings provided by the integral grillwork 14e. The opening 21 is merely for the purpose of permitting a conventional electric power cord 24, which is normally housed within the casing 11, to enter the motor chamber 17. Actually, the opening 21 (FIG. 5) is provided with a notch extending into one of the walls defining central housing portion 14d for receiving a strain relief member 25 secured to the power cord 24. The opening 22, on the other hand, is disposed between wall portions 14j and 14k (FIG. 5). Actually, one end of the opening 22 is defined by a depending integral wall portion 14m, as best shown in FIG. 5 of the drawings, which is at the end of the convex section 14j, and the other end of this opening is defined by a semicircular flange 14n also integrally formed with the casing section 14 and depending into passageway 20. The opening 23 (FIGS. 2 and 3) is actually defined in housing portion 14d and permits a switch knob 26, described hereinafter, to project therethrough so that it may be manipulated by the user.

Considering the bottom 12 in more detail, it is generally in the form of a shallow vessel of circular configuration except for flattened section 12c. The wall portion 12a defines the bottom of casing 11 when the casing is disposed in the positions of FIGS. 1, 2 and 3 of the drawings. The wall portion 12b terminates in an offset flange 12e to define a continuous shoulder for receiving one edge of the wall portion 14b of casing section 14, as clearly shown in FIGS. 3 and 7 of the drawings. Projecting upwardly from the bottom 12 is an integral wall portion 12f of spiral configuration, as best shown in FIGS. 3, 4 and 7 of the drawings, which mates with the spiral wall portion 14h, thereby defining the air passageway 20. The wall portion 12f covers slightly more than half of the circumference of the bottom 12 and at one end is joined with the outside wall 12b and at the other end is spaced a substantial distance therefrom, as clearly indicated in FIG. 4 to provide the desired scroll or tangential air passageway 20. Preferably

the abutting edges of spiral wall portions 12f and 14h are provided with interlocking portions, as clearly shown in FIG. 3 of the drawings so that when the bottom 12 is assembled to the section 14, the wall portions 12f and 14h abut in interlocking relationship to define the tangential air passageway 20. The bottom 12 is also provided with a pair of spaced wall portions 12g and 12h integrally formed therewith which are spaced so as to be disposed at the ends of the opening 22 defined in the casing section 14 described above. As a matter of fact, the wall portion 12g is a partition which abuts with the wall portion 14m to define the terminus of the tangential air chamber 20. The wall portion 12h, on the other hand, is a semicircular flange like the flange 14n and when casing sections 12 and 14 are assembled, these flanges 12h and 14n define a circular flange (FIG. 3) for making an effectively airtight connection with a flexible conductor air hose 28, described hereinafter. The space within the bottom 12 exclusively of the air passageway 20 might be designated as the fan chamber and is indicated in FIGS. 3 and 7 by the reference numeral 30. An integral tubular projection 12j from casing section 12 (FIG. 4) is disposed in the same position as the projection 14g from the casing section 14, so that when the sections 12 and 14 are assembled these projections 12j and 14g are coaxially arranged so that the fastening means 19 may pass through the projection 12j and engage the tapped opening defined in the insert molded within the projection 14g.

For support purposes, the outside of the bottom or casing section 12 is provided with a plurality of integral projections 12k having an opening defined therein for receiving suitable fastening means, such as 19 and 31 (FIG. 4), which fastening means preferably secure suitable feet, such as 34, to the bottom 12. As best shown in FIG. 3 of the drawings, the fastening means 19 and 31 not only secure the feet 34 in position, but simultaneously secure the bottom 12 either directly to the casing section 14 or to other means secured to this casing section. The feet 34 may be made of a resilient material, such as rubber or one of the plastics. With this arrangement, the hair dryer 10 may be disposed either on its legs 12d and 13d or its feet 34. In FIGS. 1, 2 and 3, the hair dryer is illustrated as being supported on the feet 34. In a device built in accordance with the present invention, three feet 34 were employed, two of them being disposed at either ends of the flattened portions 12c 13c and 14c of casing 11, as indicated by the position of the screws 31 in FIG. 4 of the drawings, and the third foot disposed coaxially with the fastening means 19 shown at the upper end near the top of FIGS. 4 and 5 of the drawings.

The cover or lid 13 is preferably formed of the same molded plastic as the casing sections 12 and 14, and in many respects is very similar to the section 12, described above. The wall portion 13a is obviously the top of casing 11, as viewed in the drawings. Like the bottom 12, the circular wall portion 13b of cover 13 is provided with a continuous offset flange 13e corresponding to the flange 12e for engaging the upper edge of the wall portion 14b of the casing 11, as clearly indicated in FIGS. 3 and 7 of the drawings.

For the purpose of pivotally relating the cover 13 to the casing section 14, a pair of hinges 35 are provided having corresponding portions thereof riveted or otherwise secured to the flat portion 14c of the casing section 14, as best shown in FIG. 2 of the drawings, and also having corresponding portions thereof riveted as by rivets 36 (FIG. 8) to the flattened portion 13c of cover 13. Preferably the hinges are of the well known type which permit disconnection by moving the cover 13 along the axis of the pivot pins of the hinges 35 whereby cover 13 may be bodily separated from the remainder of the hair dryer 10. In accordance with the present invention, the cover 13 is provided with a pair of integral posts

13f for supporting a resilient strap 36' for retaining a cap or hood 37 of the hair dryer within the cover, as clearly shown in FIG. 2 of the drawings when not in use. The particular construction of the hood or cap 37 forms no part of the present invention, but may be like that disclosed and claimed in Jepson Patent No. 3,006,079. Such a cap will include an air discharge opening 38, which may be identical with the corresponding air discharge opening in the above-mentioned Jepson patent, identified in the patent by the reference numeral 32, and an air inlet passageway defined by a suitable rigid grommet or other means 39 and located essentially in the same position as that disclosed in Jepson Patent No. 3,006,079. As illustrated in FIG. 2 of the drawings, the grommet may be formed of a molded plastic and to provide the desired rigidity may include integral cross shaped reinforcing members 39a engaging the periphery of a rigid grommet 39 which reinforcing members also limit the insertion of the cap end of the air hose 28 described hereinafter.

In order that the cover may be latched in a closed position, the inside wall of the circular wall portion 13a opposite the hinges 35 is preferably provided with a latch projection 13g, for making latching engagement with a hook-shaped latching member 40 (FIG. 2 of the drawings) suitably mounted on a resilient leaf spring, not shown, secured to the interior of wall portion 14b as by suitable rivets or the like. Preferably latching member 40 is provided with an integral fingerlike projection 40a extending through an opening in the wall portion 14b which may be depressed by the user to deflect the leaf spring, not shown, and unlatch the cover 13 from the remainder of the hair dryer casing 11.

So that the user may readily carry the hair dryer 10 to any desired place, a suitable loop-type handle or strap 41 is provided connected to a suitable ring 42 which may be secured in any suitable manner to the casing 11 as by a metal strap 43 riveted or otherwise secured to the casing 11. Also, for aesthetic purposes, the exterior of the wall portion 14b may be covered with a suitable decorative member, designated by the reference numeral 45 (FIG. 3), which in an embodiment built in accordance with the present invention involved a thin layer of material giving the appearance of gold. For matching purposes, the strap or handle 44 may also have a similar layer on the exterior thereof of corresponding color. Obviously, the decorative or aesthetic features of the hair dryer of the present invention form no part of the present invention.

Considering now the motor driven fan unit 16 for producing a flow of air for drying the hair, it includes an electric motor 48 and a fan 49 drivingly connected thereto. The motor 48 is disposed in motor chamber 17, while the fan 49 is disposed in fan chamber 30. The motor might be similar to that disclosed in the above-mentioned Jepson patent but preferably comprises a shaded pole motor of conventional form having a field structure 48a, a field winding 48b and a motor shaft 50 drivingly connected to fan 49. In accordance with the present invention, the motor and fan chambers 17 and 30 are separated by a metal mounting plate 52 from which all of the electric parts are supported. Thus, the motor 48, fan 49 and a switch and heater, described hereinafter, together with mounting plate 52 comprise a subassembly. The mounting plate 52 includes a central opening 53 which defines an axial air inlet opening to the fan chamber 30. The fan 49 is preferably molded from a suitable plastic including a disklike plate 49a having curved blades 49b projecting upwardly therefrom. These blades extend from the periphery of disk 49a to the edge of axial inlet 53. Fan 49 also includes an integral central upstanding hub portion 49c into which is molded a suitable bushing 54.

In order that motor 48 may be secured to mounting plate 52 with the motor shaft 50 extending through axial air inlet 53, a plurality of tubular rivets and spacing mem-

bers 56 (FIGS. 5 and 6) are secured to mounting plate 52 so as to extend upwardly therefrom into motor chamber 17 when the hair dryer is assembled as shown in the drawings. These rivets are provided with tapped openings for receiving suitable fastening means 57 shown as extending through the field structure 48a of the motor 48. These rivets 56 also space the motor 48 above the mounting plate 52. The lower end of motor shaft 50 is threaded and the fan 49 is secured to the subassembly including the mounting plate 52 by inserting the motor shaft 50 into the bushing 54 of the fan until one end of the bushing engages the C-ring 58 (FIG. 3) secured to the motor shaft 50, whereupon the fan 49 is clamped by a clamping nut 59 in the position shown in FIG. 3 of the drawings against the C-ring 58.

The subassembly comprising the motor fan unit 16 and the mounting plate 52 is secured to the casing section 14 by the fastening means 18 described above (FIGS. 3, 4 and 5), which fastening means extend through the mounting plate 52 and engage the tapped openings in the inserts molded into the posts 14f. For properly orientating the mounting plate 52 and so that the casing section 12 and the associated feet 34 may be secured to the remainder of the casing 11, the mounting plate 52 is provided with peripheral projections 52a, 52b and 52c which are disposed in the plane of the disklike mounting plate 52. The spiral wall portion 14h (FIG. 5) is provided with a discontinuous portion defining a notch 60 for receiving the peripheral projection 52a, thus properly orientating the mounting plate 52. The projections 52b and 52c are provided at one edge with notches 61 for receiving suitable U-shaped speed nuts 62. Moreover, the projections 52b and 52c are provided with openings aligned with the threaded portion of the speed nuts 62 for receiving the fastening means 31. Since the mounting plate 52 is rigidly secured to the casing section 14, the fastening means 31 then secure the associated feet 34 and the casing section 12 to the mounting plate. Moreover, the fastening means 19 secures the other foot 34 to the casing section 14 as well as aids in securing casing section 12 to casing section 14.

From the above description, it will be apparent that air drawn through the axial fan inlet 53 and into the fan chamber 30 must enter the motor chamber 17 through the grillwork 14e and, hence, will serve to cool the electric motor 48. Also, the mounting plate 52, being of large area, provides a heat dissipating structure for heating means described hereinafter, and the air passing over the motor 48 will also tend to cool the mounting plate 52, and hence, protect the plastic casing 11 from being subjected to high temperatures. The fan 49 will discharge the air tangentially into the passageway 20 and cause it to flow toward the circular opening defined by the flanges 12h and 14n which are provided for making an airtight connection with the flexible conduit 28 as described above.

In order to provide heating means so that warm, medium or hot air may be supplied to the hose 28 for drying purposes, there is provided a suitable multiheat heater unit, generally designated at 64 (FIGS. 4, 5 and 7), which heater unit is disposed within the air passageway 20 adjacent the inlet to the air hose 28. The heater unit 64 comprises a pair of heater elements 65 and 66 which may be identical with the corresponding heater elements of the above-mentioned Jepson patent which are designated as 85a and 85b in that patent. These heater elements each comprise an insulating card such as mica or the like having corrugated edges about which is wrapped a suitable resistance wire, the corrugations causing the turns thereof to remain separated. Preferably, one of the heater elements 65 or 66 is a higher resistance element than the other so as to produce a lower wattage output whereby different heating is obtained by selectively energizing one or the other of these resistors. In an embodiment built in accordance with the

present invention, one of the resistors had a resistance of between ninety-seven and one hundred three ohms, and the other had a resistance of between one hundred fifty-four and one hundred sixty ohms. For a purpose which will become apparent from the ensuing description, the insulating cards upon which the resistors are wound defining the heater elements 65 and 66 are provided at either end with edge projections 68, best shown in FIG. 4 of the drawings, where the edge projections from one edge adjacent the ends thereof are shown. It will be understood that identical edge projections are provided from the opposite edge of the insulating cards defining heater elements 65 and 66.

For the purpose of supporting the heater elements 65 and 66 within the fan outlet passageway 20, and also to protect the casing 14 from the high heat produced when the electric heater elements 65 and 66 are energized, there is provided a combined support and shield element 69 which comprises a thin sheet of highly reflective material which is deformed to define a tubular sleeve with slits at the edges to receive the projections 68 and, hence, to support the heater elements 65 and 66 within an effectively open-ended tube in generally spaced parallel relationship. The ends of the support and reflector 69, which are deformed into abutting relationship to define the tubular sleeve, are provided with integral supporting tab members 69a which are riveted as indicated at 70 to the mounting plate 52. The spiral wall portion 14h is provided with a notch 71 to permit the tabs 69a to extend therethrough. It will be apparent that the heater unit 64 also comprises a part of the subassembly including the mounting plate 52 and the motor fan unit 16. It will also be apparent that once the tabs 69a are riveted to the mounting plate the heater elements 65 and 66 are rigidly supported in the air passageway 20 by virtue of the projections 68 and corresponding slits in the sleeve 69.

For the purpose of selectively controlling the motor 48 and the electrical heater unit 64, and hence for selectively controlling the temperature of the air supplied to the hose 28, there is provided a knob control switch generally designated at 74 of which the knob 26 described above is a part. The particular construction of this knob control switch 74 forms no part of the present invention and it preferably is identical with that disclosed and described in great detail in the above-mentioned Jepson patent. The present invention is primarily concerned with the mounting arrangement of this knob control switch 74 which comprises a rectangular housing 75, best shown in FIGS. 3, 5, 6 and 9 of the drawings. As illustrated, the housing 75 is generally rectangular and is supported by a projection 52d of the mounting plate 52 extending into the axial fan inlet 53, as best shown in FIGS. 4 and 6 of the drawings. The switch housing 75 is provided with a pair of depending fingers 75a (FIGS. 3 and 6) which are disposed one on either side of the projection 52d. Moreover, the upper portion of the switch housing 75 is supported by depending projections 14p integrally formed with the casing section 14. When supported in this manner, the knob control switch 74 is disposed so that the knob 26 partially projects through the opening 23 and an index portion 26a of this knob cooperates with suitable indicia designated at 77 (FIG. 2) defined on the top of housing section 14e. In an embodiment built in accordance with the present invention, this indicia involved the words "OFF," "COOL," "WARM," "MEDIUM" and "HOT," thus indicating five operating conditions of the knob control switch 74. In FIG. 2 of the drawings, the indicator portion 26a of the knob 26 is in the "OFF" position, which means that neither the motor 48 nor the heater unit 64 is energized.

In order selectively to retain the knob 26 in any one of the selected positions, there is provided a detent 77' riveted to the top of the switch housing 75, as in-

dicated at 78 (FIG. 9), which detent extends beneath an annular rim 26b of the knob 26. The inside of this annular rim is provided with a plurality of notches 79 for receiving the detent and, hence, selectively positioning the knob.

It will be understood that electrical connections between the power cord 24, the motor 48 and the heater unit 64 are provided in a manner substantially identical with that disclosed in the above-mentioned Jepson patent so that unheated air or air of any one of three different temperatures may be supplied to the conduit 28. The heater unit 64 will provide two different temperatures by energizing one or the other only of the heater elements 65 or 66 and a higher temperature is provided when both of these heater elements are energized in parallel.

From the above description, it will be understood that the support and shield 69 formed of highly reflective materials prevents the heat produced by the heater unit 64 from deleteriously affecting the casing 11. Furthermore, the tab members 69a conduct heat to the mounting plate 52 which forms a good heat dissipator for heat which is not supplied to the air flowing through discharge passageway 20.

The flexible conduit 28 may be like that disclosed in the above-mentioned Jepson patent, comprising a corrugated hose reinforced by a spiral steel wire covered with a plastic material bonded to the hose. For the purpose of connecting this flexible conduit to the outlet of passageway 20, which connection is permanently made, there is provided a hose coupling 81 of rigid molded material, as best shown in FIGS. 3, 4 and 5, which is provided with a peripheral groove 80 for receiving therein the circular flanges 12h and 14n, thus not only securing the flexible conduit 28 in operative position, but also providing an effective airtight connection between the discharge passageway 20 and the flexible conduit 28. The other end of the air conduit 28 is preferably provided with a suitable coupling member 82 (FIG. 2) of molded plastic material for insertion into the air intake opening defined by the grommet 39.

In view of the detailed description included above, the operation of the present invention will readily be understood by those skilled in the art and no further discussion thereof is included herein. It will be appreciated that the flexible conduit 28, power cord 24 and cap or hood 37 can be stored in casing 11 as clearly indicated in FIG. 2 of the drawings. The conduit 28 is always connected to the outlet from fan chamber 30 so the user of the hair dryer need merely open the cover 13, plug in the power, manipulate the controls and connect the conduit 28 to cap 37.

While there has been illustrated and described a particular embodiment of the present invention, it will be understood that numerous changes and modifications may occur to those skilled in the art. It is, therefore, intended in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

A hair dryer comprising a casing including a first portion of substantial depth and a second cover portion pivotally related to said first portion, said first portion including integral means defining a false bottom spaced from the bottom of said first portion to define a fan chamber and a scroll-shaped discharge chamber for said fan chamber, said first portion including adjacent the center of said false bottom an integral raised section defining a motor chamber within said raised section and an annular storage chamber surrounding said raised section, a motor operated fan unit mounted in said first portion with the motor of said unit comprising an electric motor disposed in said motor chamber and the fan of said unit disposed in said fan chamber, a flexible conduit connected to said scroll-shaped discharge chamber

from within said annular chamber whereby said conduit may be stored in said annular chamber while connected to said discharge chamber, an electric power cord connected to said motor through said false bottom whereby said cord may be stored in said annular chamber when not in use, and control means for said unit accessible at the top of said raised section.

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WILLIAM F. O'DEA, *Primary Examiner.*

NORMAN YUDKOFF, *Examiner.*

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