

March 20, 1956

R. C. STANLEY
HAIR DRYING APPARATUS

2,738,592

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2 Sheets-Sheet 1

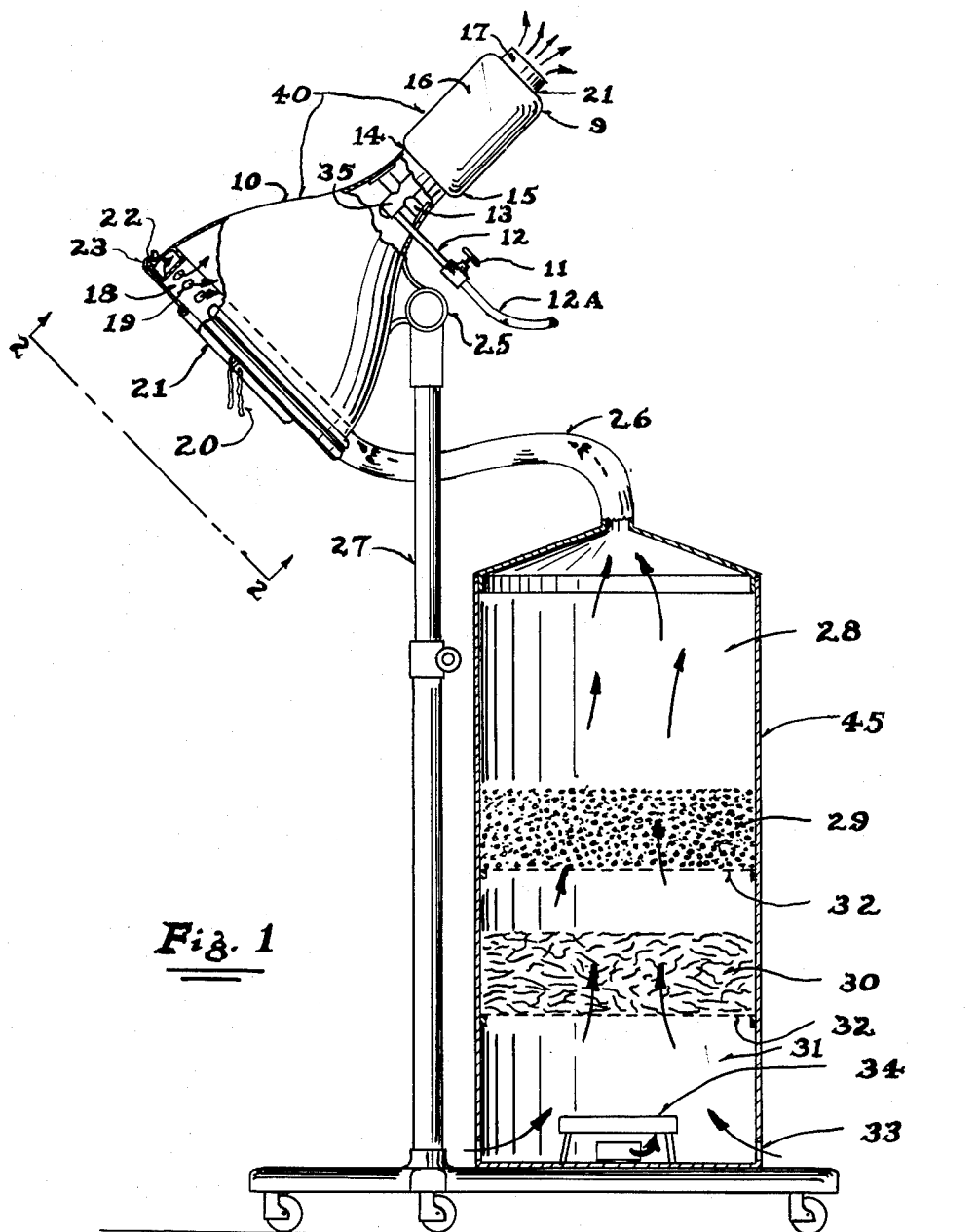


Fig. 1

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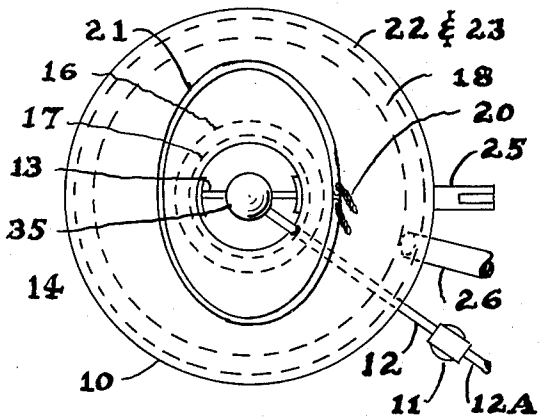


Fig. 2

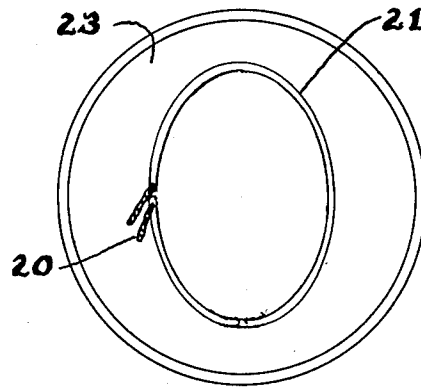


Fig. 4

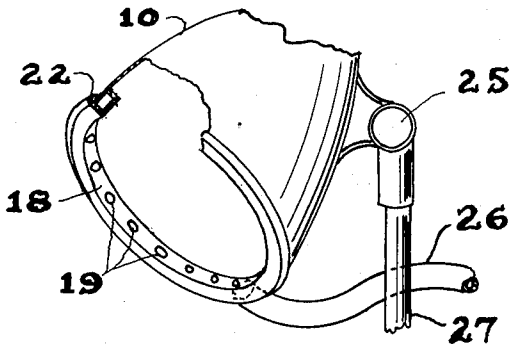


Fig. 3

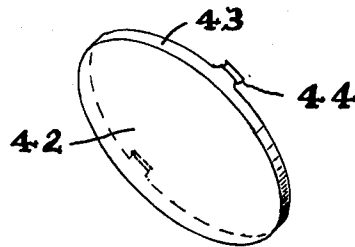


Fig. 5

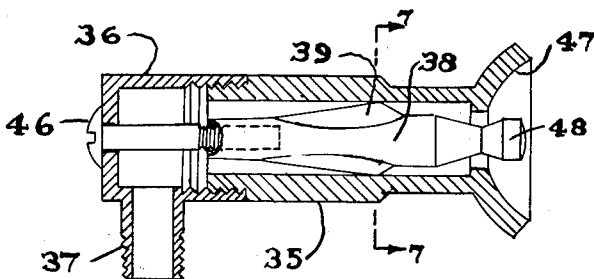


Fig. 6

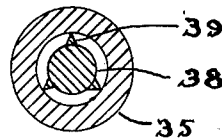


Fig. 7

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2,738,592

HAIR DRYING APPARATUS

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2 Claims. (Cl. 34—80)

This invention relates to new and useful improvements in methods and apparatus for drying hair, and is especially designed as an improvement in apparatus for drying women's hair after washing, and various other wettings.

The present invention contemplates the application of a principle not heretofore applied to the hair drying operation, i. e., the extraction of residual moisture from the hair by means of partial vacuum and warm dry air, which reduces the drying time to a fraction of the time required by the usual method of evaporation of residual moisture by circulation or recirculation of air at surrounding temperatures, or heated. The improved process and apparatus covered by this specification provides means of creating partial vacuum within a drying hood, and means of supplying warm dry air to the drying hood in a manner to achieve positive creation of the partial vacuum. The several objects of this invention are:

1. Broadly, to provide apparatus comprising a hair drying unit adjustably mounted on and supported by a portable floor stand; means of warming and drying air and delivering the conditioned air to the hood; means of creating partial vacuum within the hood; effective means of maintaining the partial vacuum within the hood about the patron's head during the hair drying operation, and means of reactivating the dehydrating agent.

2. To provide an air conditioning unit composed of a metal case containing a heating element, air filter, dehydrating agent and conditioned air chamber, through which air flows in the order named before passing through conditioned air conduit to the air duct contained within the drying hood.

3. To provide a hair dryer hood so designed and constructed as to permit the installation and operation of a vacuumizing unit, and which may be rendered adequately airtight, without discomfort to the patron, to maintain a partial vacuum within the hood about the patron's head during the drying operation, and to provide a vacuumizing unit capable of producing sufficient suction from within the airtight hood to create and maintain a partial vacuum within the hood about the patron's head during the hair drying operation, and means of actuating the vacuumizing unit by compressed air through an air nozzle. The same, or even a greater, suction may be created by other means, as steam or water at the nozzle, or a suction fan within the suction chamber, but the present construction assumes the use of compressed air as being the most desirable under ordinary conditions.

4. To provide a raised convex bead, sunken concave groove, or other suitable means, throughout the exterior periphery of the hood adjacent to its lower opening, the purpose of said means being to engage the separate closure members in such manner as to maintain the closure members securely in operating position.

5. To provide a circular closure member of elastic sheet rubber or other suitable material, fashioned with a rolled edge about its outer periphery, and an elliptic opening centered on the center of the closure member, the

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interior periphery of the closure member being fashioned throughout with a hollow rolled edge which is provided with a draw string or other suitable closing means. The purpose of the circular closure member is to fit over the lower opening of the dryer hood, the rolled edge being engaged by the raised bead or other means about the perimeter of the dryer hood, thereby closing the lower opening of the hood except for the elliptic opening which encircles the patron's head, and is closed to a snug fit just below the hair line by means of the draw string, thereby providing a relatively airtight enclosure within the dryer hood about the patron's head.

6. To provide an air duct, preferably integral with the hood, and extending throughout the inner periphery of the hood adjacent to its lower opening and fashioned with a plurality of air vents spaced equi-distant throughout its length, an opening being provided in the shell of the hood for the installation of an air conduit by means of which conditioned air is delivered to the air duct.

7. To provide a circular closure member of sheet metal or other suitable material which, when attached over the lower end of the hood, closes the hood opening adequately airtight to produce and maintain suction and air flow through the air conditioning unit, and the hair drying unit during the operation of reactivating the dehydrating agent.

8. To provide hair drying apparatus of the type stated which, despite its many desirable characteristics, is nevertheless capable of manufacture at relatively low cost; is of simple design and construction, and which is readily adaptable to multi-unit installation, as numerous units may be operated from one air conditioner and one air compressor.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combination of parts, hereinafter more fully described and pointed out in the claims.

Referring to the drawings:

Fig. 1 is an isometric projection of the assembled apparatus with portions broken away. Air compressor not shown.

Fig. 2 is a horizontal detail view taken on the line 2—2, Fig. 1.

Fig. 3 is a fractional detail view taken on the line 3—3, Fig. 1, small portions being broken away.

Fig. 4 is an elastic circular closure member.

Fig. 5 is a metal circular closure member.

Fig. 6 is a longitudinal sectional view of the air nozzle, and

Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig. 6.

Referring to the drawings in detail, like reference numerals designating like parts in all views.

Hair drying unit 40 is vertically and horizontally adjustable on, and supported by, portable floor stand 27, and is further adjustable at hinge 25. Air conditioning unit 45 is also mounted on stand 27. Air nozzle 35 is installed in hood 10 by means of brackets 13. Air lead pipe 12 and flexible air hose 12A join at valve 11; air hose 12A leads to air compressor, not shown. Flexible dry air tube 26 is connected between hood 10 and air conditioning unit 45 which contains any type heating element 34, heating chamber 31, metal mesh retainers 32, aluminum wool or other heat resistant permanent filter medium air filter 30, Tel-Tale silica gel or other highly adsorptive dehydrating agent 29 and conditioned air chamber 28. An ultra violet ray lamp or other air purifying means may be installed in air chamber 28 at the option of the user. Elastic sheet rubber, or other material, closure members 23 fit over lower end of hood 10, and is maintained in operating position by its rolled

edge being engaged by raised bead 22 or other means which encircles hood 10 throughout its perimeter. Closure member 23 is fashioned with an elliptical opening which fits over the patron's head and is closed to a snug fit just below the hair line by means of hollow rolled edge 21 and draw string 20, thereby creating a relatively airtight enclosure within the dryer hood about the patron's head and hair.

The air supply capacity of both the flexible air tube 26 and air duct 13 is much greater than the combined discharge capacity of vents 19, which has the effect of making air duct 13 an air reservoir. The discharge capacity of throat 21 is slightly greater than the intake capacity of throat 14. The discharge capacity of throat 14 is much greater than the combined inlet capacity of vents 19. By this arrangement of air supply and discharge, the air flow through air conditioning unit 45 and hair drying unit 40 is sharply constricted at vents 19. The rate of air discharge through throat 14 and suction chamber 16 being greatly in excess of air supply through vents 19 results in a "pull" from vents 19 through hood 10 to throat 14, which lowers the air pressure within hood 10 to a point below atmospheric pressure, thereby creating partial vacuum within hood 10 about the patron's head.

Compressed air, being turned into nozzle 35 by means of valve 11, is emitted from nozzle 35 in a cone shaped, high velocity air jet which fans out under shoulder 15 of suction chamber 16, creating a relatively high degree of vacuum within chamber 16. Air from the airtight enclosure surrounding the patron's head rushes into suction chamber 16 with great velocity to fill the vacuum created by the air jet. The resulting suction inside of dryer hood 10 sets up an air flow from air intake opening 33 in air conditioning unit 45 to and through flexible air tube 26 to air duct 13 from which it is emitted through vents 19 to fill the partial vacuum created within the hood about the patron's head by the excessive suction in chamber 16.

Vents 19 direct an even distribution of warm dry air to the patron's head, while suction through chamber 16 circulates the air through the hair. Assuming that air will enter hood 10 through vents 19 at 85 degrees F. and 6% relative humidity; this air, so conditioned, will extract moisture from the hair very rapidly without the presence of vacuum. The partial vacuum, without the presence of conditioned air, will extract moisture from the hair more rapidly than will be conditioned air alone. The combined action of the partial vacuum and conditioned air is much more rapid than that of the partial vacuum or the conditioned air separately; wherein resides the aforementioned principle not heretofore applied to the hair drying operation.

Heating element 34 is the two heat type; the low heat maintaining operating temperature within air chamber 28; the high heat being capable of raising the temperature to the point required to reactivate the dehydrating agent 29, silica gel or other highly adsorptive material. Sheet metal closure member 42 is positioned over the lower opening of hood 10 by flange 43, and maintained in operating position by spring clips 44 being engaged by raised bead 22 or other means, rendering hood 10 sufficiently airtight for the reactivating operation.

Nozzle 35 shown at Figs. 6 and 7 was designed for use in this vacuumizing unit. It is essentially the same as the familiar garden hose nozzle with T member 36 added to provide a compressed air connection. Core 38 is drilled and tapped to receive threaded screw 46 for precision adjustment of the annular orifice to obtain the

proper air jet. Fins 39 are for aligning core 38 with the barrel. Flared ends 47 and head 48 cooperate to provide an air jet of the proper size and shape. Screw threaded extension 37 provides a compressed air line connection.

The foregoing embodying the best mode contemplated by me of carrying out the invention, it is understood that certain changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

What I claim as my invention is:

1. In apparatus of the character described, a hair drying unit in combination with air conditioning unit; said hair drying unit comprising a hood fashioned with a large opening at its lower end and a smaller discharge opening at its upper end, a raised bead encircling the outer perimeter of said hood adjacent to said large end, an air duct with vents extending throughout the inner periphery of said hood adjacent to said large end, a vacuumizing unit attached to said hood at said small opening, said small opening forming a connecting passage between said hood and said vacuumizing unit suction chamber, an air nozzle provided with a compressed air supply lead pipe installed within said hood and positioned on the center line of said hood and said suction chamber adjacent to said small opening; said hood, in cooperation with a sanitary elastic closure member forms an enclosure for the patron's head and hair, said hair drying unit adjustably mounted on and supported by a portable floor stand; said air conditioning unit comprising a metal case, a heating unit, a heating chamber, an air filter, metal open mesh separators, dehydrating agent, conditioned air chamber, flexible air tube and a sheet metal closure member attachable over large opening of hood during reactivating operation.

2. In apparatus of the character described, a hair drying unit in combination with an air conditioning unit; said hair drying unit comprising a hood fashioned with a large opening at its lower end and a smaller discharge opening at its upper end, a raised bead encircling the outer perimeter of said hood adjacent to said large end, an air duct with vents extending throughout the inner periphery of said hood adjacent to said large end, a vacuumizing unit attached to said hood at said small opening, said small opening forming a connecting passage between said hood and said vacuumizing unit suction chamber, an air nozzle provided with a compressed air supply lead pipe installed within said hood and positioned on the center line of said hood and said suction chamber adjacent to said small opening; said hood, in cooperation with a sanitary elastic closure member forms an enclosure for the patron's head and hair, and means for adjustably positioning said hair drying unit over patron's head; said air conditioning unit comprising a metal case, a heating unit, a heating chamber, an air filter, metal open mesh separators, dehydrating agent, conditioned air chamber, flexible air tube and a sheet metal closure member attachable over large opening of hood during re-activating operation.

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