Feb. 21, 1967 C. R. REISS ETAL 3,304,623

HAIR DRYER

Filed July 13, 1964 3 Sheets-Sheet 1

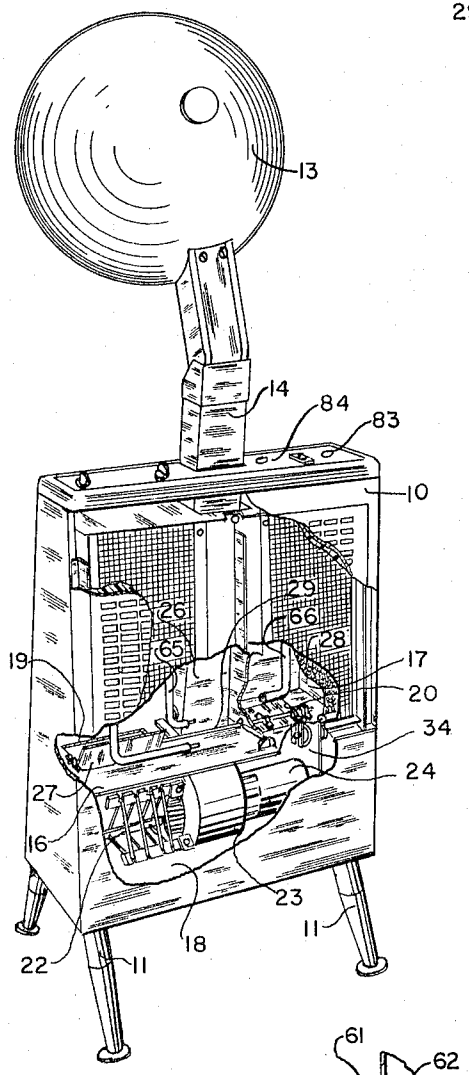


FIG. 1

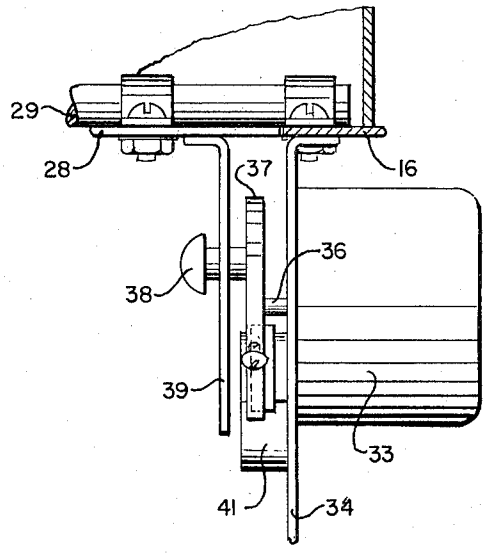


FIG. 6

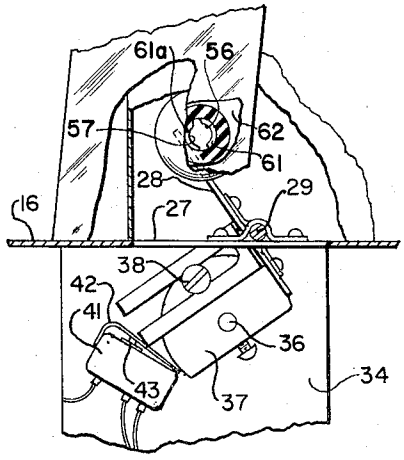


FIG. 7

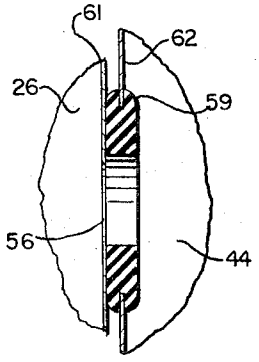


FIG. 5

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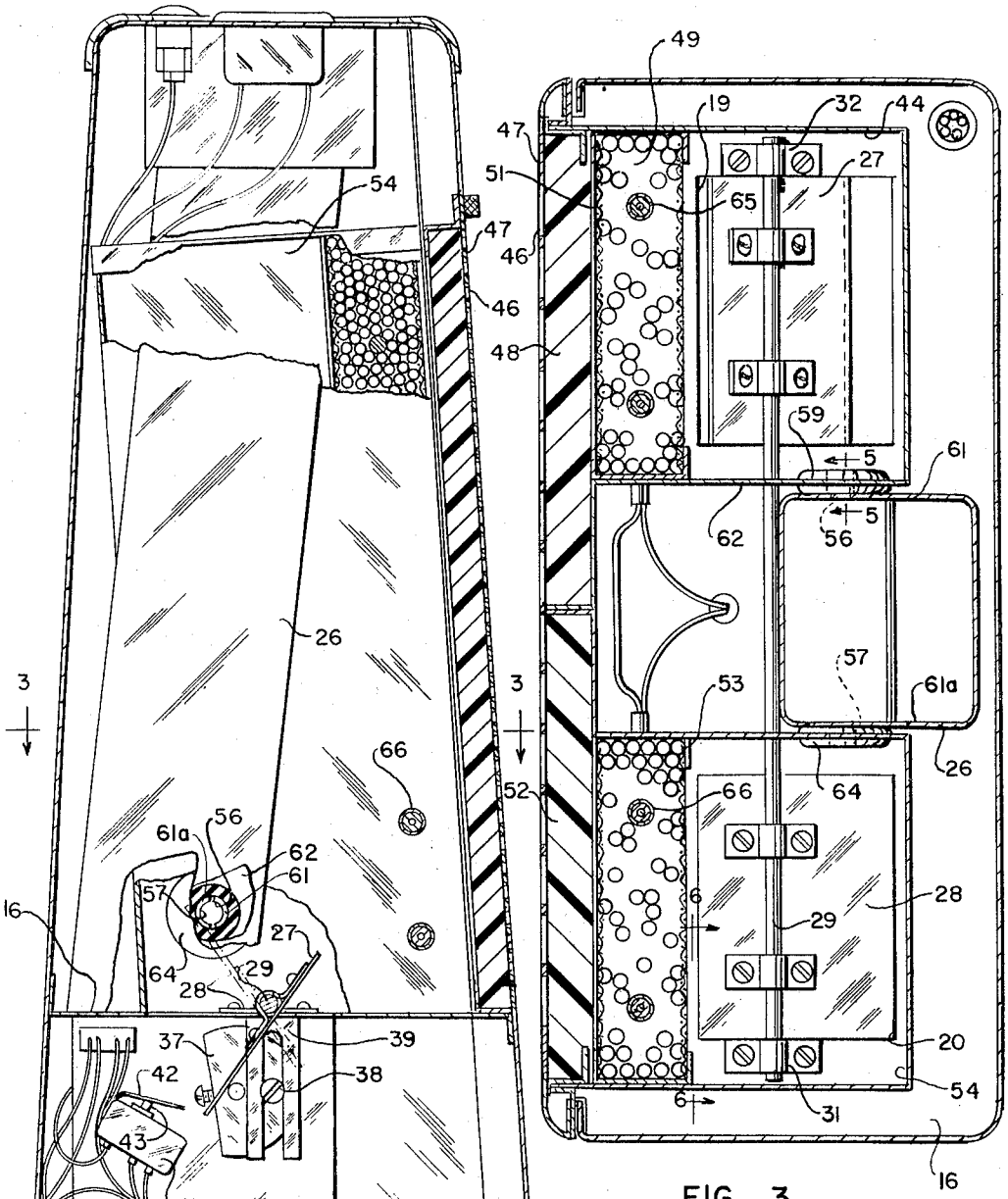


FIG. 3

FIG. 2

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Filed July 13, 1964 3 Sheets-Sheet 3

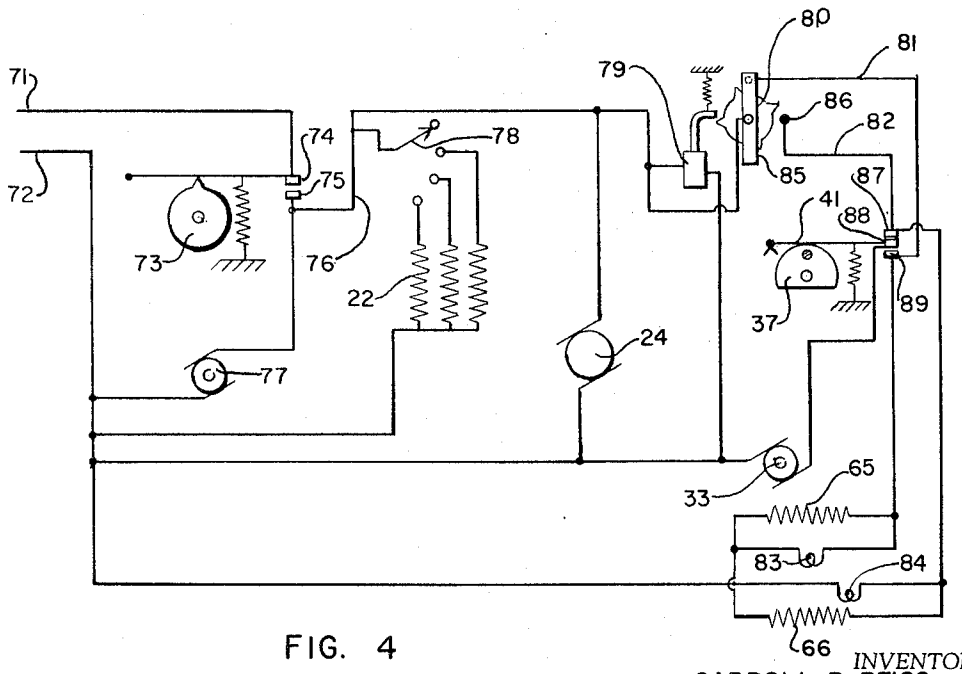


FIG. 4

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United States Patent Office 3,304,623 Patented Feb. 21, 1967

3,304,623

HAIR DRYER

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3 Claims. (Cl. 34—80)

This invention relates to a hair dryer construction. More particularly, this invention relates to a hair dryer having means for drying and for heating air which is circulated about a head of hair.

An object of this invention is to provide a hair dryer structure in which two drying or dehydrating units are provided and in which one unit is reactivated while the other unit is in use.

A further object of this invention is to provide a structure of this type in which air to be used in drying the hair is first drawn inwardly through a dehydrating unit, which may include a reactivatable dehydrating material such as silica gel or the like, is then heated and projected into a hood surrounding the head of hair to be dried and in which a portion of the heated air is by-passed outwardly through the other dehydrating unit and in which the other unit is heated as the dry air is passed therethrough to reactivate the other unit.

A further object of this invention is to provide a device of this sort in which each time the dryer is energized, the direction of passage of air through the units is reversed so that on alternate cycles, each of the units is reactivated.

The above and other objects and features of the invention will be apparent to those skilled in the art to which this invention pertains from the following detailed description and the drawing, in which:

FIG. 1 is a perspective view showing a dryer constructed in accordance with an embodiment of this invention;

FIG. 2 is a view in upright section of the dryer, parts being broken away to reveal details of construction, dampers being shown in a first position;

FIG. 3 is a view in section taken on the line 3—3 in FIG. 2;

FIG. 4 is a schematic wiring diagram thereof;

FIG. 5 is a fragmentary view in section taken on the line 5—5 in FIG. 3;

FIG. 6 is a fragmentary view in section taken on the line 6—6 in FIG. 3; and

FIG. 7 is a fragmentary view in upright section showing the dampers in a second position.

In the following detailed description and the drawing, like reference characters indicate like parts.

In FIG. 1 is shown a hair dryer constructed in accordance with an embodiment of this invention which includes a case 10 mounted on legs 11. A hood 13 is mounted on a hollow column 14 which extends upwardly from the case 10. The hood 13 can be of the type usual in hair dryers for discharging dried and heated air around a head of hair to be dried. The case 10 is hollow and supports a horizontal plate 16 which divides the interior of the case into an upper section 17 and a lower section 18. Openings 19 and 20 in the plate 16 permit air to be drawn downwardly into the lower section 18. From the lower section 18, the air is drawn through heating coils 22 by a blower 23. The blower 23 is driven by a motor 24 and blows heated air upwardly through a conduit 26 which extends upwardly through the horizontal plate 16 and communicates with the interior of the column 14 and, therethrough, with the hood 13.

The openings 19 and 21 can be selectively closed by dampers 27 and 28 mounted on a shaft 29. The shaft 29 is pivotally mounted in bearings 31 and 32 (FIG. 3) carried by the horizontal plate 16. The shaft 29 can swing between the FIG. 2 position and the FIG. 7 position. In the FIG. 2 position, the damper 27 is open and the damper 28 is closed. In the FIG. 7 position, the damper 27 is closed and the damper 28 is open. The shaft 29 is swung by operation of an electric motor 33 (FIG. 6). The motor 33 is mounted on an upright plate 34 attached to the underside of the horizontal plate 16. The motor 33 drives a shaft 36 on which a cam 37 is mounted. A stud 38 mounted on the cam 37 engages a fork 39 mounted on the underside of the damper 28 to swing the damper 28 and the shaft 29.

The cam 37 also operates a switch 41. As shown in FIGS. 2 and 7, the cam is engageable with a switch operator 42, and a button 43 of the switch 41 is released when the cam is in the FIG. 2 position and is depressed when the cam in the FIG. 7 position.

When the damper 27 is in open position, as shown in FIG. 2, air can be drawn into a chamber 44 (FIG. 3) communicating therewith. The air is drawn through openings 46 in a plate 47 and through a filter 48 and through a unit of desiccant granules 49. The desiccant granules of the unit 49 are held inside a screen container 51. On the other hand, when the damper 27 is closed and the damper 28 is open, air is drawn through a filter 52, and through a unit of desiccant granules 53, and through a chamber 54.

As shown most clearly in FIG. 5, the conduit 26 is provided with openings 56 and 57 (FIGS. 2 and 3) through which a portion of the air being driven therethrough is bypassed. When the damper 27 (FIG. 2) is closed, this portion of the heated air is bypassed through the opening 56 and through grommet 59 which is in engagement with a wall 61 of the conduit 26. The grommet 59 is mounted in a wall 62 of the chamber 44, as shown in FIG. 5, so that, as air is being drawn inwardly through the unit of desiccant granules 53, this portion of the heated air is bypassed through the chamber 44 and outwardly through the unit of desiccant granules 49. On the other hand, when the damper 27 is open and the damper 28 is closed, air is drawn inwardly through the bank of granules 49, and a portion of the heated air is bypassed through the opening 57 and through a grommet 64 and the chamber 54 and therefrom outwardly through the unit of granules 53.

As shown most clearly in FIG. 1, desiccant heater elements 65 and 66 are provided in the units of granules 49 and 53, respectively, for heating the granules for reactivation thereof.

Electric circuitry of the device is shown in FIG. 4. Power for operating the device is supplied through power leads 71 and 72. Operation of the device is initiated by setting a timer cam 73, which can be manually turned, to permit engagement of switch contacts 74 and 75 to energize a lead 76 to start operation of the blower motor 24 and of a timer motor 77. The timer motor 77 drives the timer cam 73 until the cam releases the switch contacts 74 and 75 at the end of a cycle of operation. The degree of heating of the air is determined by the setting of a switch 78.

As the switch contacts 74 and 75 come into engagement, a solenoid 79 is energized. The solenoid 79 operates a switch member mechanism 80 which connects the lead 76 either to a lead 81 or to a lead 82. The lead 81 energizes the desiccant heater element 65 and a signal lamp 83. The lead 82 energizes the desiccant heater element 66 and a signal lamp 84. When the switch mechanism 80 is in the position shown in FIG. 4 and the solenoid 79 is energized, a swinging arm 85 thereof swings a quarter-turn, as shown in the drawing, to engage a contact 86 which energizes the lead 82. Through contacts 87 and 88 of the switch 41, the damper motor 33 is energized to cause the cam 37 to swing sufficiently to per-

mit contact 88 to come free of contact 87 and to swing into engagement with a contact 89. The contacts 88 and 89 remain closed during the remainder of the first drying cycle. Then, when the operation of the device has ceased and the solenoid 79 has been de-energized, initiation of operation of the device by turning on of the timer cam 73 a second time causes the solenoid 79 to be energized again to swing the swinging arm 85 another quarter-turn, returning it to the FIG. 4 position at which the damper motor 33 is energized through contacts 88 and 89 to turn the cam until the contact 88 is released from the contact 89 and swings into engagement with the contact 87, and the damper motor 33 again stops. Thus, each time the timer is turned on, the damper motor swings the cam 37 together with the dampers 27 and 28 (FIGS. 3 and 7) to open one damper and close the other, and the cycle is reversed each time the timer is turned on.

In the schematic drawing, a stepping type switch has been indicated at 80, but, instead of the stepping type switch illustrated, a switch of the type shown in Patent No. 2,917,598 can be used.

The hair dryer mechanism illustrated in the drawing and described above is subject to structural modification without departing from the spirit and scope of the appended claims.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A hair dryer which comprises a pair of desiccant units, a blower, a duct connecting each of the desiccant units to the blower, a damper in each duct to close the duct associated therewith, means connecting the dampers to open alternatively, whereby when one of the dampers is open the other damper is closed and air is drawn in through the desiccant unit associated with the open damper to dry the air, means for heating the dried air leaving the desiccant unit, a conduit receiving the dried and heated air from the blower, a hood connected to the conduit to receive and discharge the dried and heated air, and means connecting the conduit to the desiccant units to bypass a portion of the dried and heated air through the desiccant unit for drying thereof, switch means for starting the blower, and means for reversing the damper positions when the switch means is actuated.

2. A hair dryer which comprises a pair of desiccant units, a blower, a duct connecting each of the desiccant units to the blower, a damper in each duct to close the duct associated therewith, means connecting the dampers to open alternately, whereby when one of the dampers is open, the other damper is closed and air is drawn in through the desiccant unit associated with the open damper to dry the air, means for heating the dried air leaving the desiccant unit, a conduit receiving the dried and heated air from the blower, a hood connected to the conduit to receive and discharge the dried and heated air, means connecting the conduit to the desiccant units to bypass a portion of the dried and heated air through the other desiccant unit, and means for heating the other desiccant unit for drying thereof.

3. A hair dryer which comprises a case, a pair of desiccant units in said case, a blower, spaced ducts connecting the desiccant units to the blower, a damper in each duct to close the duct associated therewith, means connecting the dampers to open alternately, whereby when one of the dampers is open, the other damper is closed and air is drawn through the desiccant unit associated with the open damper to dry the air, means for heating the dried air leaving the desiccant unit, a conduit mounted between the ducts and receiving the dried and heated air from the blower, a hood connected to the conduit to receive and discharge the dried and heated air, there being metering openings in opposite walls of the conduit communicating with the ducts to bypass a portion of the dried and heated air through the other desiccant unit for drying thereof.

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