

PATENT SPECIFICATION

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DRAWINGS ATTACHED



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(54) IMPROVED HAIRDRYER

(71) We, RONSON PRODUCTS LIMITED, a British Company of 5, London Wall Buildings, Finsbury Circus, London, E.C.2., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to electric hair-dryers and seeks to provide a hairdryer of simplified construction.

In its basic form a hairdryer comprises a casing housing an electrically driven fan which delivers a stream of air through an outlet in the casing, and an electric resistance heater for heating the air. A switch is provided so that the heater may be isolated to permit cool air only to be discharged from the hairdryer. However, this system is not entirely satisfactory because the hot air is frequently much too hot, consequently many hairdryers are provided with a variable heat control. In this type of hair-dryer temperature variation is achieved by altering the number of heater elements in circuit and this necessitates the use of a good quality switch. Moreover the number of different temperature ranges available is limited, usually to about four. Cost analysis has shown that a large proportion of the production costs involved with a hairdryer results from the provision of the variable heat feature.

In the improved hairdryer the air stream between the fan and the outlet is divided into two paths of which only one passes through the heater and a shutter positioned between the heater and the outlet is movably arranged in such manner that the air stream to the outlet may be caused to flow along either path only or along both paths in any desired proportion.

The invention will now be described with reference to the accompanying diagrammatic drawings in which:—

[Price 25p]

Figure 1 is a plan view partly in section of a hairdryer.

Figure 2 is a section taken on the line II-II in Figure 1, and

Figure 3 is a section taken on the line III-III in Figure 1.

As shown, the hairdryer of the present invention comprises an outer casing formed of two half shells 1A and 1B, which is equipped with a lead-in 2 for an electric supply cable 3. Within the casing there is a blower comprising a motor 4 directly coupled to a centrifugal impeller 5 with six straight, radially extending impeller blades 6. Around the impeller 5 there is a deflector wall 7 which directs the air drawn in through the side of the casing by the impeller towards the outlet 20. Sagittal lines 8 and 9 indicate the flow pattern of air leaving the impeller and show how the air is divided into two paths, only one of which includes a heater 10. The heater itself is housed within an open ended box like structure 10A formed from a heat resistant and electrically insulating material, so that the inner surface of the walls of the structure define the path for the heated air whilst the wall 7 and outer surface of one side 11 of the heater structure define the path for cool air.

A knob 12 is used to operate in known manner a set of switch contacts, not shown, by which the motor may be energised and the heater connected in circuit. A shutter 13 (more clearly shown in Figure 2) has an extension 16 provided with a rack which is engaged by a pinion 15 carried on the shaft of the knob 12. Rotation of the knob causes the shutter to move in slots 14 formed in the casing. The shutter itself is large enough to cover both the hot and cold paths simultaneously, but one half of it is pierced by slots 17. Thus with the shutter in a position to block the cold air path 9, the slotted half of the shutter is opposite

the hot air path 8. The shutter carries a projection 18 which is formed from the same sheet as the shutter but is bent so as to extend at right angles to the plane of the shutter. This extension co-operates with vents 19 in the casing half 1A to ensure that sufficient air may pass through the heater to atmosphere to prevent overheating when the hot air path 8 is blocked by the shutter. The shutter 13 is shown in a position in which the hot air path 8 is completely blocked so that only cold air is being delivered from the hairdryer. In this position the vents 19 are not covered by the shutter projection 18 so that although air no longer passes through the heater to the output there is sufficient air passing through the heater and out to atmosphere by way of the vents 19 to prevent the heater being damaged. Alternatively the shutter projection 18 and vents 19 may be omitted and a thermostatically controlled switch disposed within the heater structure 10A, the arrangement being such that the switch opens to break the circuit to the heater if the structure becomes over-heated.

When the control knob 12 is rotated in a clockwise direction the shutter will be caused to move so as progressively to block the cold air path 9 and simultaneously to open the hot air path 8 until finally at the end of its travel the cold air path 9 will be completely blocked and the hot air path 8 will be fully open. The control knob 12 may of course be stopped at any point between the two extreme positions so that any proportion of cold to hot air may be available at the outlet 20 so that the effective temperature is similarly variable.

The type of hairdryer illustrated is one which utilises a flexible hose which conveys the air from the hairdryer to a hood or hand-held adaptor for drying the hair, one end of the hose being plugged in to the outlet 20 which is formed in a panel 21 on which a switch 22 is mounted. The hose in this type of hairdryer acts as a mixing chamber so that the temperature of the drying air is uniform at intermediate settings of the shutter. Without the hose there may be a tendency to have an air flow which is stratified at different temperatures, and if the air flow from the outlet 20 is to be used directly, suitable baffles may be provided to mix the hot and cold streams.

WHAT WE CLAIM IS:—

1. An electric hairdryer comprising a casing housing a motor-driven fan arranged to deliver a stream of air through an outlet in the casing, and an electric heater, wherein the airstream between the fan and the outlet is divided into two paths of which only one passes through the heater and a shutter positioned between the heater and the outlet is movably arranged in such manner that the air stream to the outlet may be caused to flow along either path only or along both paths in any desired proportion.

2. An electric hairdryer as claimed in claim 1, wherein the shutter comprises an apertured plate which is slidable between extreme positions in which air flow on the respective paths is blocked and which in intermediate positions permits air flow on each path in proportions dependent on the position of the plate.

3. An electric hairdryer as claimed in claim 1 or claim 2, wherein movement of the shutter is effected by a control device which also operates a switch for the fan and heater.

4. An electric hairdryer as claimed in any preceding claim wherein in order to prevent overheating of the electric heater when the air flow through the heater to the outlet is blocked by the shutter the casing is provided with vents through which the airflow through the heater is diverted, and the shutter includes a portion which masks these vents when it is moved to permit the air flow through the heater to pass through the outlet.

5. An electric hairdryer as claimed in any preceding claim, in which the heater is arranged within an open ended enclosure formed of heat resistant material and which defines the path of the air flow through the heater.

6. An electric hairdryer having means for controlling the temperature of the air flow from its outlet substantially as herein described with reference to the accompanying drawings.

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