United States Patent [19]

Helbling

[11] **3,911,934**

[45] **Oct. 14, 1975**

[54] **HAIR DRYER**

[76] Inventor: **Edward Helbling,** 726 E. 10th St., Brooklyn, N.Y. 11230

[22] Filed: **Apr. 1, 1974**

[21] Appl. No.: **457,128**

[52] **U.S. Cl.** **132/9;** 34/96

[51] **Int. Cl.²** **A45D 20/00**

[58] **Field of Search** ..... 132/9, 7, 11 R; 34/96, 34/97; 128/65

[56] **References Cited**

UNITED STATES PATENTS

692,105	1/1902	Bausen	34/96
2,827,060	3/1958	Marty	132/9
3,343,530	9/1967	Solus et al.	128/65
3,491,774	1/1970	Carbone	132/9
3,820,551	6/1974	Lanzillotta	132/11 R
R19,724	10/1935	Martin	132/9

Primary Examiner—G. E. McNeill

Attorney, Agent, or Firm—Karl F. Ross; Herbert Dubno

[57] **ABSTRACT**

A hair brush or comb with apertures between its bristles or teeth is connected by a hose to an outlet of a blower which includes a heater for the generated airflow. The heater and the blower motor can be adjusted, independently or jointly, to provide different flow rates at a desired air temperature.

8 Claims, 7 Drawing Figures

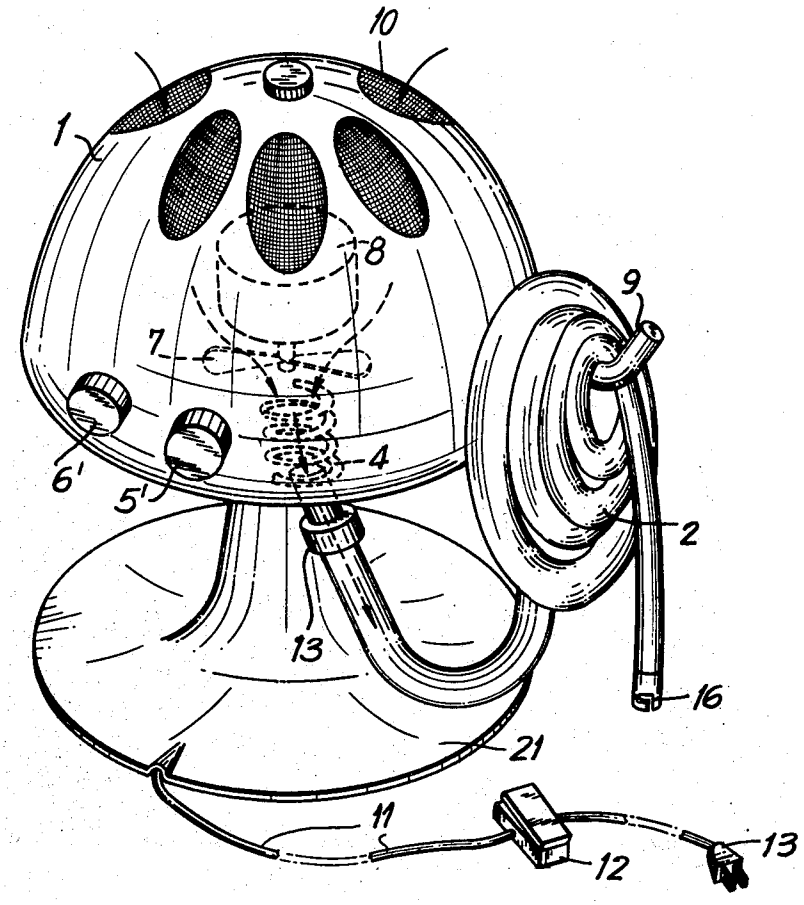


FIG. 1

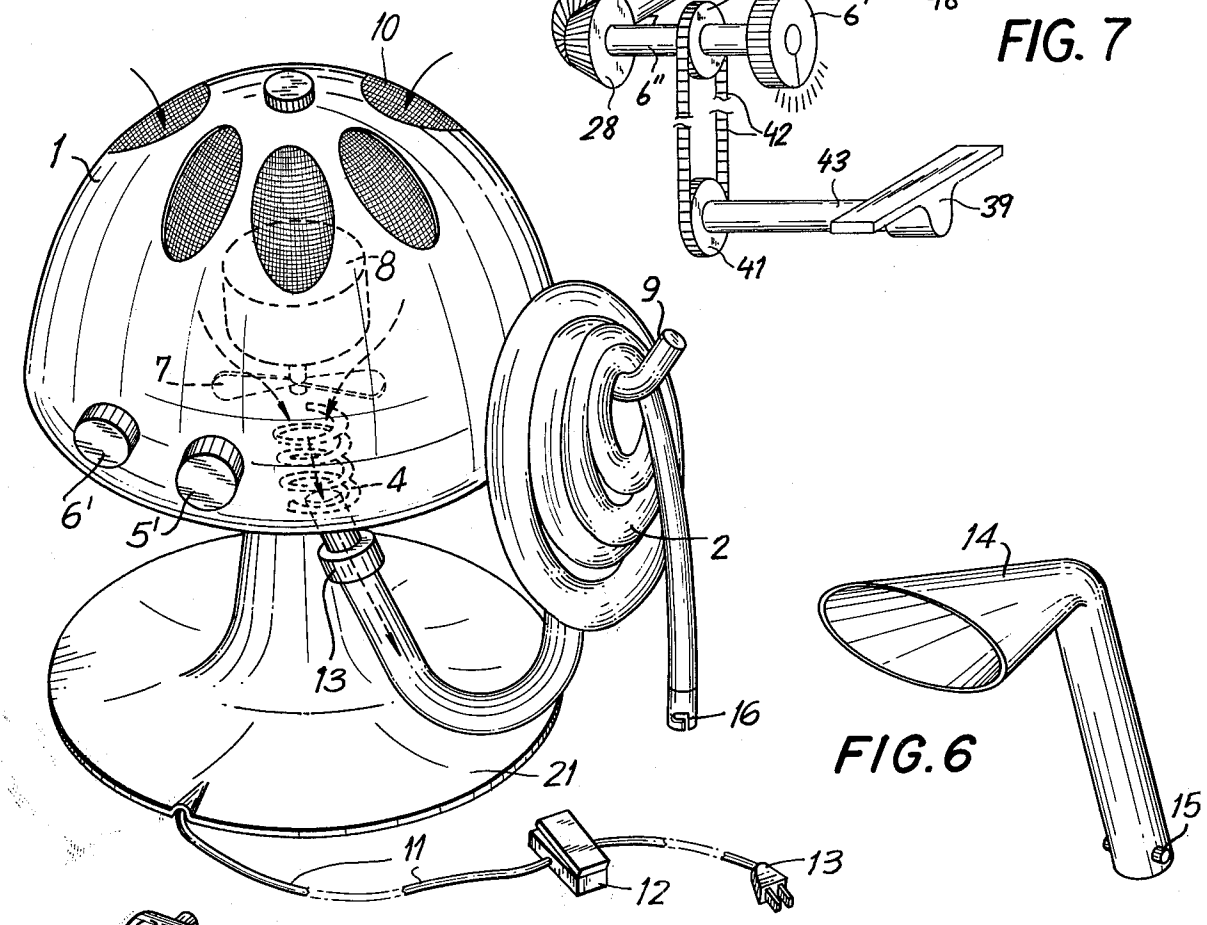


FIG. 7

FIG. 6

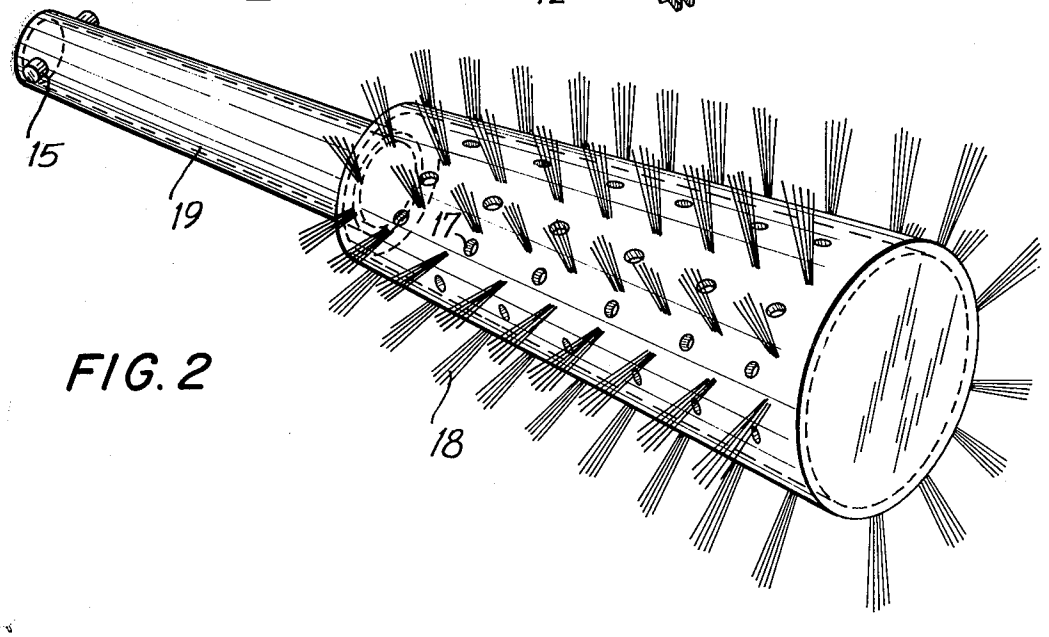


FIG. 2

FIG. 3

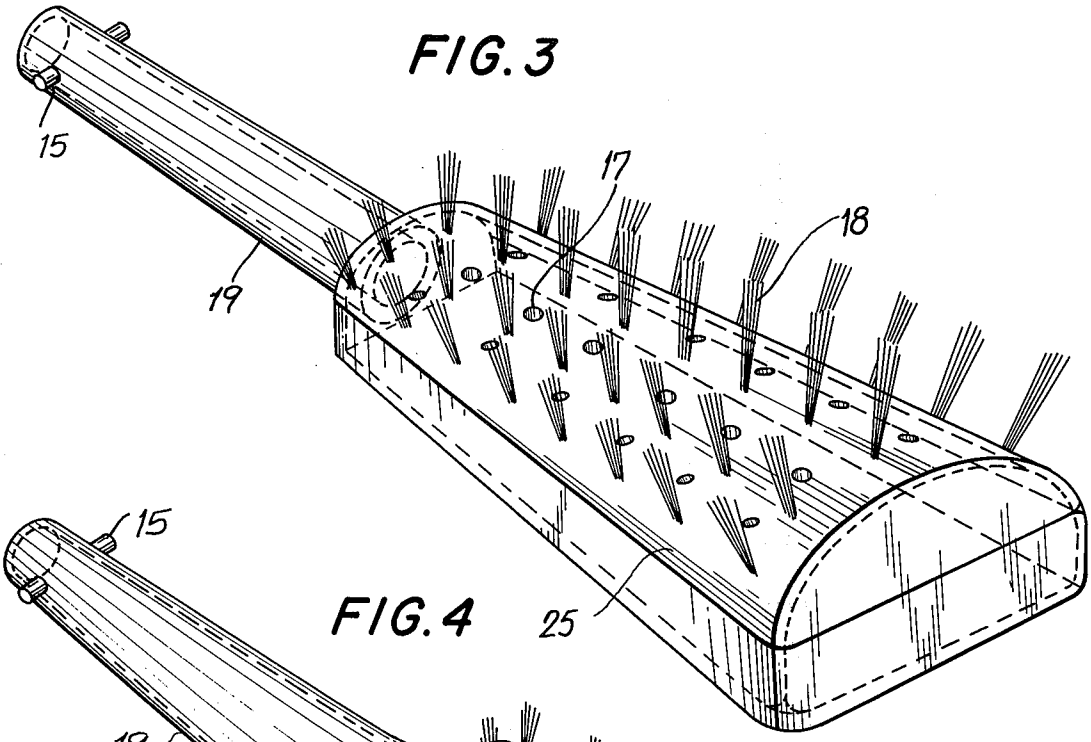


FIG. 4

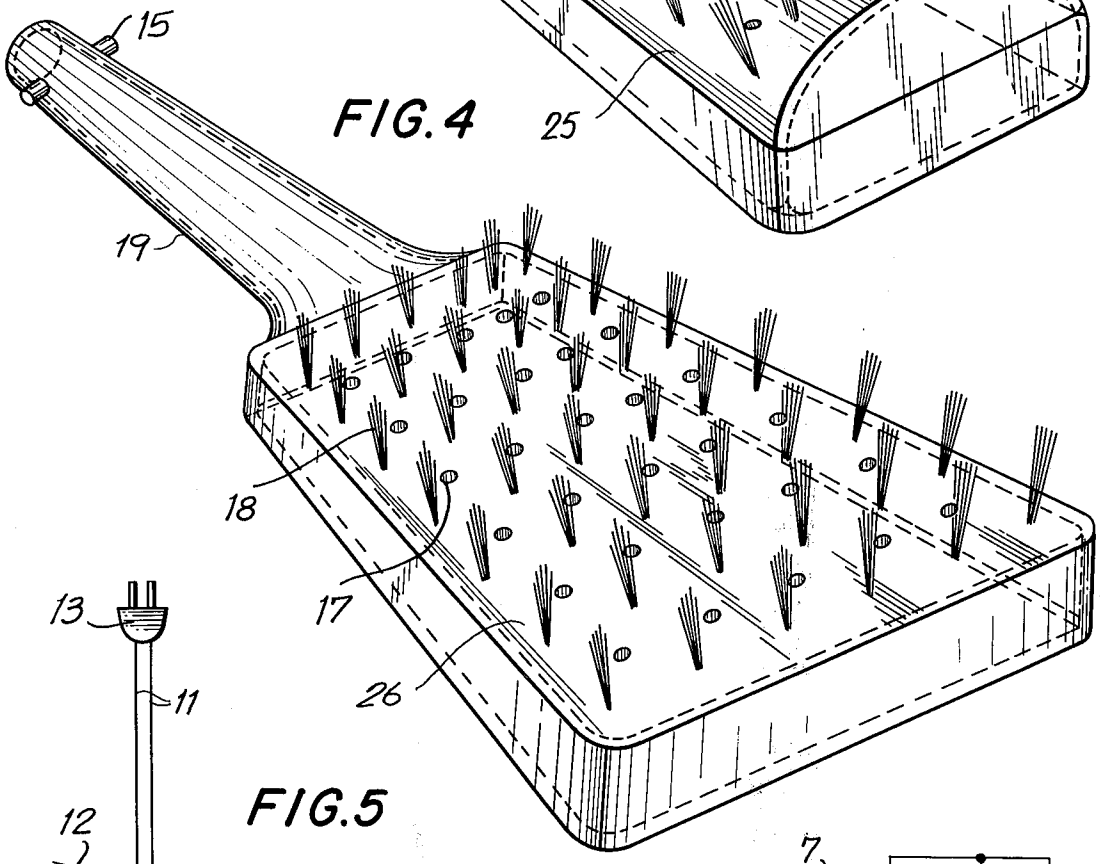
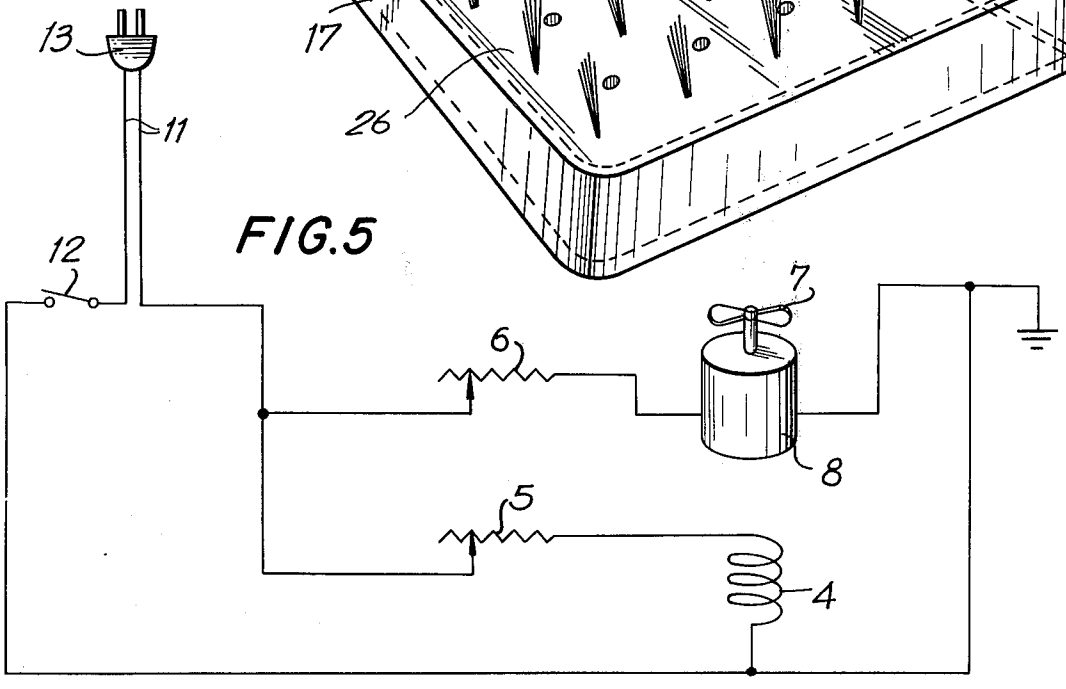


FIG. 5



HAIR DRYER

FIELD OF THE INVENTION

My present invention relates to a hair dryer in which a hair-grooming implement has one or more outlets for hot air to be directed onto the hair of the user. Such an implement could be a simple air nozzle or, preferably, a brush or comb with air-discharge apertures between tufts or teeth projecting from its body; the apertures could also be disposed at the tips of these projections.

BACKGROUND OF THE INVENTION

It has already been proposed to provide such implements with conduits through which steam from a hot-water receptacle can be led to the discharge openings for treatment of the hair or the scalp of a user. Such systems, however, are not very practical inasmuch as—even with continuous electric heating—the water supply must be renewed from time to time and the conduit from the water bath to the implement must be short to avoid premature precipitation of the steam, thereby making it difficult for the operator to handle the brush or comb. Furthermore, care must be taken in the application of steam to a person's head in order to prevent scalding; steam, in any event, is not a suitable drying agent for hair that has been wetted.

OBJECT OF THE INVENTION

The general object of my present invention, therefore, is to provide an improved system for drying hair, advantageously during stroking with a brush or a comb.

A more particular object is to provide means in such a system for effectively controlling the temperature to which the hair to be dried is subjected.

SUMMARY OF THE INVENTION

I realize these objects, in accordance with my present invention, by the provision of a source of hot air under pressure connected through a flexible conduit to the hollow body of the apertured implement which is to come into contact with the user's hair.

According to a more particular feature of my invention, the source of hot air comprises an impeller such as a fan for generating an airflow and an air heater in cascade with the impeller. The air heater and the impeller are provided with respective controls for adjusting the heat output and the flow rate in order to provide an air stream of desired temperature and intensity. If the operator wishes to change that intensity, he may do so by adjusting the corresponding control, preferably with the aid of a floor pedal next to a customer's chair in the case of a barber shop or beauty parlor equipped with such a system. In order to maintain an optimum temperature with different flow rates, another feature of my invention provides for an optional coupling between the two controls to vary the heat output in step with the fan speed so that the preselected temperature remains substantially constant.

BRIEF DESCRIPTION OF THE DRAWING

The above and other features of my invention will now be described in detail with reference to the accompanying drawing in which:

FIG. 1 is a perspective view of an air-heating unit forming an important part of a hair dryer according to my invention;

FIGS. 2, 3 and 4 are perspective views of various hair-grooming attachments (i.e. brushes) to be used with the unit of FIG. 1;

FIG. 5 is a circuit diagram for the unit of FIG. 1;

FIG. 6 is a perspective view of another attachment, i.e., an air nozzle, to be used with the unit of FIG. 1; and

FIG. 7 is a somewhat diagrammatic representation of a coupling between heat and flow controls for the unit of FIG. 1.

SPECIFIC DESCRIPTION

In FIG. 1 I have shown a source of hot air under pressure, comprising a generally hemispherical housing 1 with air-intake apertures 10. A heating control 4 and a fan 8 with propeller blades 7 are mounted inside the housing for driving aspirated ambient air at an elevated temperature through an outlet 3 into a flexible hose 2. The hose is provided at one end with an internally threaded collar for attachment to the outlet 3 and on the other end with a bayonet coupling 16 alternately engageable with a variety of implements shown in FIGS. 2, 3, 4 and 6. Heater 4 and fan 8 are adjustable, as described below with reference to FIG. 5, by means of a pair of control knobs 5′ and 6′. Housing 1 is supported on a base 21 from which an electric cord 11, provided with a foot-operated on/off switch 12, extends to a plug 14.

I prefer to construct the housing 1 of Florentin aluminum with a baked-enamel coating which may be decoratively patterned, e.g., with a pin-stripe design. A hook 9, projecting from the housing, serves for the storage of the hose 2 in coiled-up form.

In FIG. 2 I have shown a rotary brush with a generally frustoconical body 24 on a handle 19, the body carrying tufts 18 interspersed with discharge apertures 17 for hot air introduced through the hollow handle. The latter has a bayonet coupling 15 complementary to hose coupling 16 whereby hot air from the interior of housing 1 (FIG. 1) can enter the body of the attachment and exit through the apertures 17.

In FIG. 3 I have shown a similar brush with an upwardly convex body 25. FIG. 4 shows a flat brush body 26. The three brushes of FIGS. 2–4 may be interchangeably attached to the hose 2. In lieu of these brushes, a nozzle 20 shown in FIG. 6 may be so attached with the aid of the same kind of bayonet coupling 15.

In FIG. 5 I have shown the fan 8 connected to supply line 11, in series with switch 12, via a potentiometer 6 controlled by knob 6′ of FIG. 1. In an analogous manner, coil 4 is connected across the line via a potentiometer 5 controlled by knob 5′ of FIG. 1.

With these controls 5, 5′ and 6, 6′ it is possible to select a suitable rate of heat generation and airflow within certain ranges. However, in many instances it will be desirable to maintain a temperature once selected even if the flow rate is to be changed. For this purpose the two potentiometers 5 and 6 may be mechanically interlinked as illustrated in FIG. 7.

Knobs 5′ and 6′ are shown mounted in FIG. 7 on respective shafts 5″, 6″, shaft 5″ being telescoped in a tubular shaft 27 which is integral with a bevel gear 32 and a sleeve 33 internally provided with teeth 37. Knob 5′ carries a button 34, urged radially outwardly by a spring 36, which is rigid with a tongue 35 extending into the sleeve 33. With button 34 released, the free

end of tongue **35** enters a groove **38** between teeth **37** so as positively to couple the knob **5'** and through it the potentiometer shaft **5''** with the sleeve **33.** However, a stationary cam **48** depresses the tongue **35** in an illustrated zero position in which potentiometer **5** is open-circuited so that the heating coil **4** (FIG. **5**) is not energized. The several shafts are journaled in non-illustrated bearings within housing **1.**

Bevel gear **32** meshes with a similar gear **31** on a shaft **30** carrying the potentiometer **5** which controls the speed of fan **8.** Shaft **30** is also coupled through a pair of bevel gears **28, 29** with shaft **6''** of knob **6'.** An endless chain **42** engages a pair of sprockets **40** and **41** on shaft **6''** and on an ancillary shaft **43** which is journaled in a nonillustrated mounting on base **21** (FIG. **1**) and supports a reversible pedal **39.** Thus, the operator may control the potentiometer **6** either by hand, via knob **6',** or with the foot, via pedal **39.**

With the described coupling, the fan speed may be independently adjusted with the aid of potentiometer **6** as long as the knob **5'** is in its home or zero position in which shaft **30** is decoupled from shaft **5''** by the cam **48.** After this initial adjustment, the operator may energize the coil **4** through the potentiometer **5** by turning the knob **5'** while depressing the button **34** so as not to alter the previously selected setting of potentiometer **6.** As the heat output from coil **4** increases, the temperature of the generated airflow rises until it reaches a desired level as indicated by a nonillustrated thermometer. If the operator thereupon releases the button **34,** the two potentiometers remain coupled so that any reduction or augmentation of air speed results in a commensurate decrease or increase in heat output whereby the temperature of the air stream remains substantially constant.

In order to vary the temperature, the operator need only depress the button **34** and rotate the knob **5',** leaving unchanged the setting of knob **6'** and thus the flow rate of the air stream. Since this type of adjustment requires a conscious effort on the part of the operator, the risk of accidental temperature increases to uncomfortable levels is avoided.

A pedal as shown at **39** may, of course, also be used to control the heater potentiometer **5,** either jointly with knob **5'** or in place thereof.

I claim:

1. In a hair-grooming implement including a housing, impeller means in said housing for creating an airflow, heating means for said airflow in said housing in cascade with said impeller means, a hollow body with at least one outlet, and a conduit extending from said housing to said body for conveying a flow of hot air to said outlet, the combination therewith of first manually operable control means for said heater means, second manually operable control means for said impeller means, link means for coupling said first and second control means together, and decoupling means for selectively deactivating said link means to enable independent setting of said first and second control means, said link means being effective to translate an adjustment of one of said control means into a compensatory adjustment of the other of said control means for maintaining a substantially constant air temperature at said outlet over a range of different flow rates.

2. The combination defined in claim **1** wherein said first control means is mechanically connected with said decoupling means for automatically operating same in a home position of said first control means to deactivate said link means for enabling free selection of flow rate independently of temperature.

3. The combination defined in claim **2** wherein said heating means is unoperated in said home position of said first control means.

4. The combination defined in claim **2** wherein said decoupling means comprises a spring-biased element juxtaposed with said first control means for manual displacement during displacement of said first control means from said home position into a selected operating position, release of said element in said selected operating position making said link means effective.

5. The combination defined in claim **4** wherein said first control means comprises a knob and said second control means comprises a pedal.

6. The combination defined in claim **1** wherein said conduit is a flexible hose.

7. An implement as defined in claim **1** wherein said housing is of part-spherical configuration.

8. An implement as defined in claim **1** wherein said body has a multiplicity of hair-stroking projections, said outlet being subdivided into a multiplicity of discharge apertures interspersed with said projections.

* * * * *