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**J. E. KELLEY**

**2,127,121**

DRIER FOR HAIR AND SKIN

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Fig. 1.

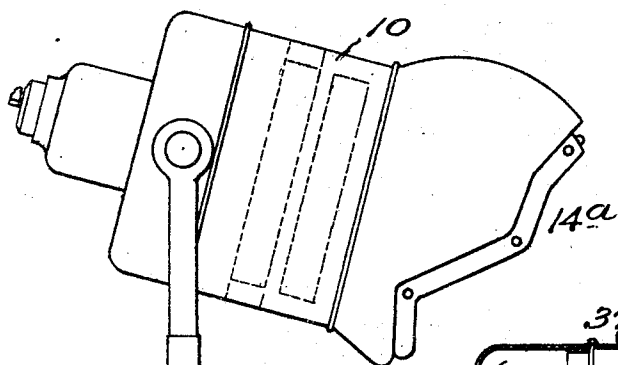


Fig. 2.

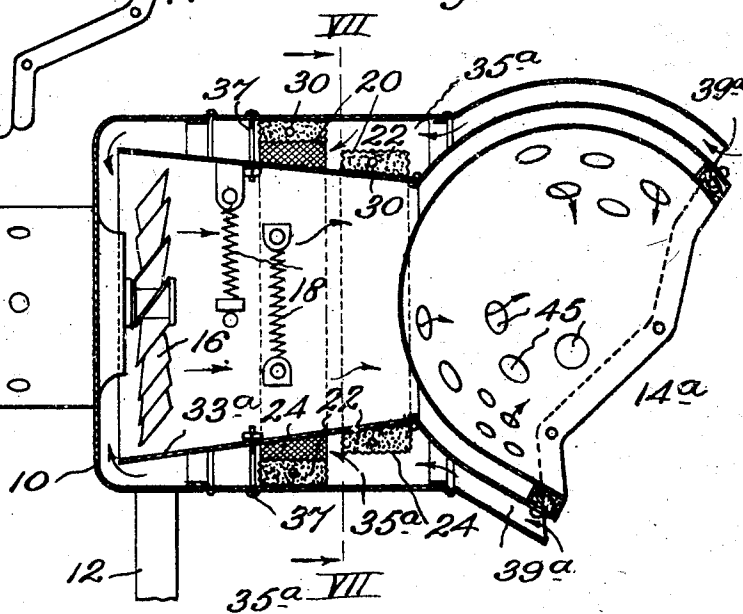


Fig. 3.

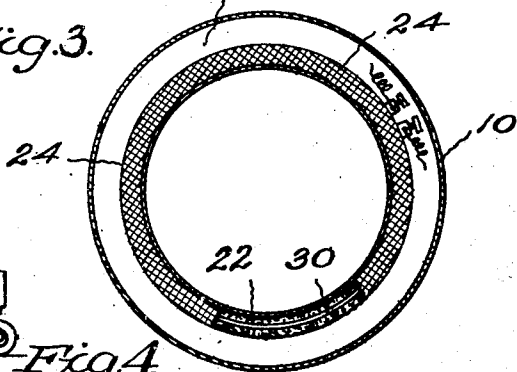
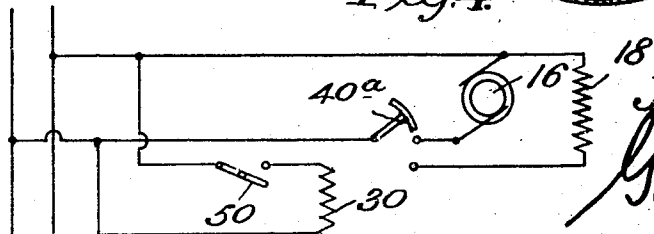


Fig. 4.



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## UNITED STATES PATENT OFFICE

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## DRIER FOR HAIR AND SKIN

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5 Claims. (Cl. 34—26)

This invention relates to driers for the hair and skin, such as used in beauty-parlours, lavatories, and the like, and provides improvements therein.

In driers of the character described, quick drying action is a primary requirement. There is a demand, especially amongst professional users of hair driers, for a drier which will act more quickly in drying hair than those now in use, and thereby save the time of customers and attendants. Moreover, the length of time required for drying the hands and skin by the use of air-driers has greatly retarded the use of these devices, despite the advantages thereof in the way of sanitation and economy.

The present invention provides a drier of the character described which reduces the time required for drying, and which thereby saves the time of customers and attendants in beauty parlours, and provides for more satisfactory use of driers and for the more extensive use thereof.

The present combination includes a fan, a heater, and desiccating means, and provides a supply of warm dry air for drying hair and skin quickly, and further provides convenient means for regenerating the desiccating means.

The present invention further effects economy in conserving and making more effective and more complete use of the heat from the heating means used for heating the air.

The invention further provides improved driers of the character described, having novel combinations and arrangements of parts, hereinafter more fully described.

An embodiment of a hair-drier is illustrated in the accompanying drawing wherein:

Fig. 1 is a side elevation of the hair drier embodiment.

Fig. 2 is a vertical longitudinal section of the construction shown in Fig. 1.

Fig. 3 is a cross section of line VII—VII of Fig. 2.

Fig. 4 is a diagram of the electrical circuit for Figs. 1 to 3.

Referring to said drawing numeral 10 designates the casing, which may be supported on a suitable pedestal, or stand 12. Numeral 14 designates appropriate means for directing air upon the part of the person to be dried, which may be in the form of a concavity or "helmet" in which the head is partially inserted for drying the hair.

Numeral 16 designates a motor driven fan for producing a flow of air to the means 14 for directing air upon the hair. Numeral 18 designates suitable heating means, as electrical resistance

heaters, for heating the air flowing to the means 14. Numeral 20 designates desiccating means for desiccating, or removing moisture from the air which flows to said directing means 14.

The desiccating means 20 is preferably mounted within the casing 10, and also preferably located on the intake side of the fan. The desiccant is conveniently a substance such as granular silica-gel, or calcium chloride, indicated at 22, and the granular desiccant is held by a foraminous container 24. The container 24 and desiccant therein are located so air set in motion by the fan passes through the foraminous material 24 and desiccant therein, or makes contact with suitable portions of the desiccant.

Referring to Figs. 1, 2 and 3, the foraminous containers 24 may be in annular form, and may also be made of different diameters so that the air stream has a sinuous flow over and under the containers, and the air is brought into contact with the desiccant 22 therein, and to a greater or less extent flows through the mass of desiccant in the foraminous annular containers.

Means 30, may be and preferably are provided for regenerating the desiccant 22 in situ. The means 30 preferably comprise an electrical resistance heating wire or wires, embedded in the desiccant.

The heating means 18 is also preferably in the form of electrical resistance heating wires, and heating means 18 is preferably located on the delivery side of the fan.

Referring to Figs. 1, 2, and 3, a tube 33<sup>a</sup> is provided within the casing, one end of the tube 33<sup>a</sup> communicating with the delivery means 14. Moreover the electrical resistance heating means 18 are preferably located within the tube 33<sup>a</sup>, and a space 35<sup>a</sup> provided within the casing 10 around the tube 33<sup>a</sup>. The tube 33<sup>a</sup> adjacent the fan, is preferably left open, and the fan itself is preferably located within the open end of tube 33<sup>a</sup>, the fan and its motor being conveniently supported by the casing 10. The annular foraminous containers 24 may be supported alternately on the tube 33<sup>a</sup> and on the casing 10. The tube 33<sup>a</sup> may be removably supported in the casing by means of bolts 37, and the air directing means 14 may be mounted on the tube 33<sup>a</sup>, so that the tube and directing means may be removed as a unit from the casing 10, when desired.

The air intake 39<sup>a</sup> is preferably so located that the air enters the casing at a point where it must flow through the space 35<sup>a</sup> under the action of the fan 16. In flowing through the space 35<sup>a</sup> the air takes up heat from the tube 33<sup>a</sup>, thereby not

only conserving heat, but also preventing the casing, particularly in the vicinity of the heating means, from becoming heated, and thereby causing injury or discomfort to a person touching the casing.

#### Operation

On closing the switch 40<sup>a</sup>, Fig. 4, electrical current is admitted to the fan motor 16 and the electrical resistance heater 18. The fan acts to draw air in through opening 39<sup>a</sup> in the casing 10. The air is drawn over or through the desiccating means 20, and has moisture removed therefrom, thereby increasing its capacity to effect drying when brought in contact with the hair or with the skin. The desiccated air is then forced by the fan 16 over the heaters 18, the desiccated air being thereby heated, and further increasing its drying effect when brought into contact with the hair or skin. The warm desiccated air is directed onto the part to be dried by the means 14<sup>a</sup>. As heretofore described the means 14<sup>a</sup> is a concave plate having openings 45 therein. The head is placed within the cavity and warm dry air flows through the openings 45 against the hair, and effects rapid drying.

When it is desired to regenerate the desiccant, the switch 50 is closed admitting current to the electrical resistance heater 30 embedded in the desiccant. The heat from the heater 30 drives off moisture from the desiccant, and regenerates it for further use. The desiccant is thereby regenerated in situ in a simple and convenient manner, and the bother and inconvenience of removing or replacing the desiccant is avoided.

The improved means act to increase the drying action, and thereby reduces materially the time required for drying hair, and increases the utility of the device, and the satisfaction of users.

The invention may receive other embodiments than those herein specifically illustrated and described, and be used for purposes other than that specifically described.

What is claimed is:

1. A drier of the character described comprising a casing, a tube inside said casing spaced from and extending substantially the length of the casing, an opening at the inner end of said tube from the space between the casing and tube to the space within the tube, an opening at the outer end of the casing to the space between said casing and tube, a concave wall at the outer portion of said tube spaced from said tube, means closing the space between said tube and concave wall at the outer end, openings in said concave wall, and a fan, said fan propelling air through

said tube to and out of the openings in said concave wall, and drawing air through the space between said tube and casing through the opening at the outer end thereof.

2. A drier according to claim 1, further comprising means for holding a desiccant in the space between said tube and casing.

3. A drier according to claim 1, further comprising means for holding a desiccant in the space between said tube and casing, and heating means in said tube.

4. A drier of the character described comprising a casing, a tube inside said casing spaced from and extending from adjacent the front end of said casing to adjacent the rear end of said casing, an opening at the inner end of said tube from the space between the casing and tube to the space within the tube, an opening at the front end of the casing to the space between said casing and tube, a concave wall at the outer portion of said tube spaced from said tube, means closing the space between said tube and concave wall at the outer end of the tube and wall, openings in said concave wall, and a fan, said fan propelling air through said tube to and out of the openings in said concave wall, and drawing air through the space between said tube and casing through the opening at the front end of the casing and outer end of said tube.

5. Apparatus, as of the type described, for subjecting a person to the action of a stream of gaseous-like fluid, comprising: a casing construction having orifice areas, and including a plurality of nested elements including an outer casing, a hood member defining a cavity for the reception of the object to be treated, and an intermediate shell member, together defining a triple-walled construction, said casing having a portion spaced from said shell to define an air passage, and said shell being spaced from said hood member to define another air passage, both of said passages communicating with said orifice areas; and fluid-circulating means communicating with both of said passages, operating to indraw into one of said passages an inflowing stream of fluid, and to expel said fluid from said other passage in an outflowing stream; means disposed in the space subtended by said shell adjacent said hood for treating the fluid circulated by said apparatus; and said apparatus comprising means whereby said outflowing stream is expelled about said object, and in proximity to said inflowing stream, to be in part entrained in said inflowing stream, whereby part of said fluid is recirculated.

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