Sept. 23, 1958 M. FINE 2,853,591

ELECTRIC HAND DRYER

Filed Dec. 15, 1955 3 Sheets-Sheet 1

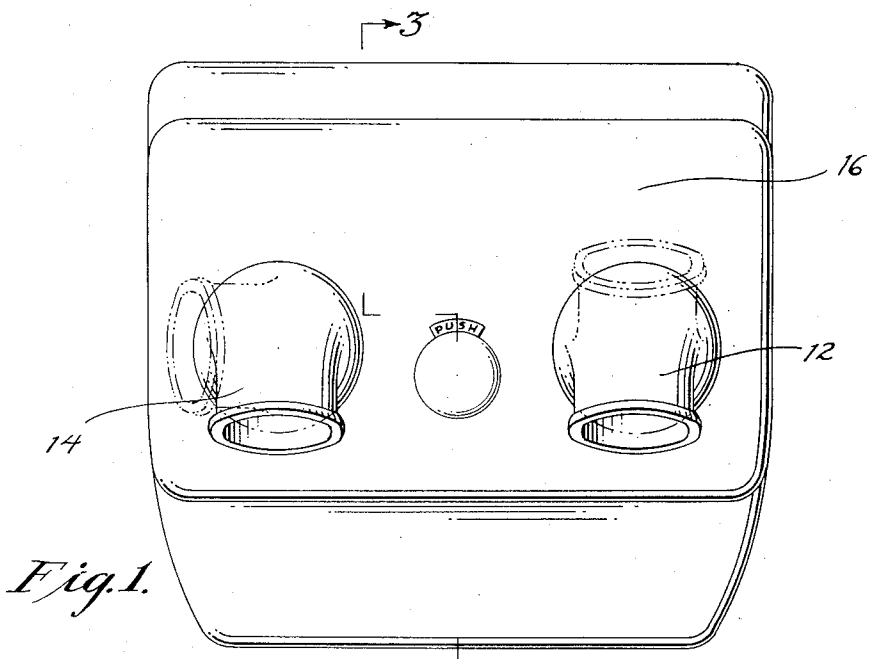


Fig. 1.

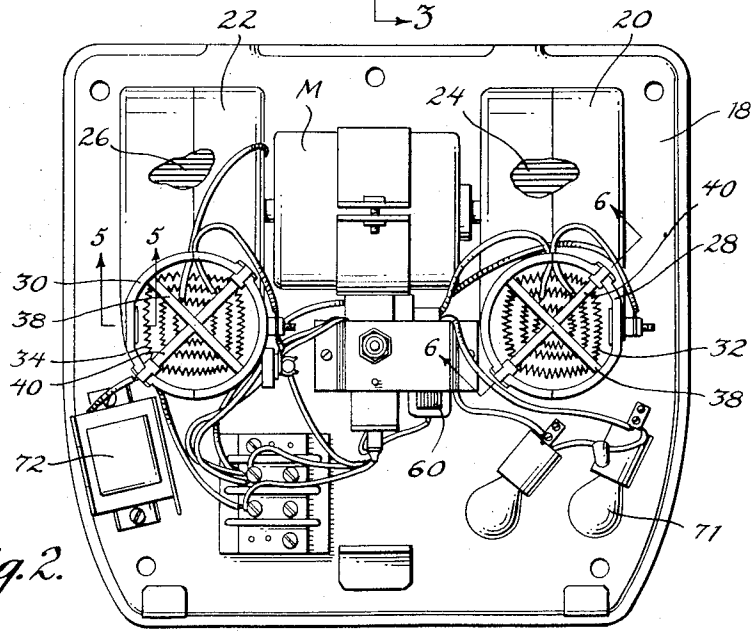


Fig. 2.

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ELECTRIC HAND DRYER

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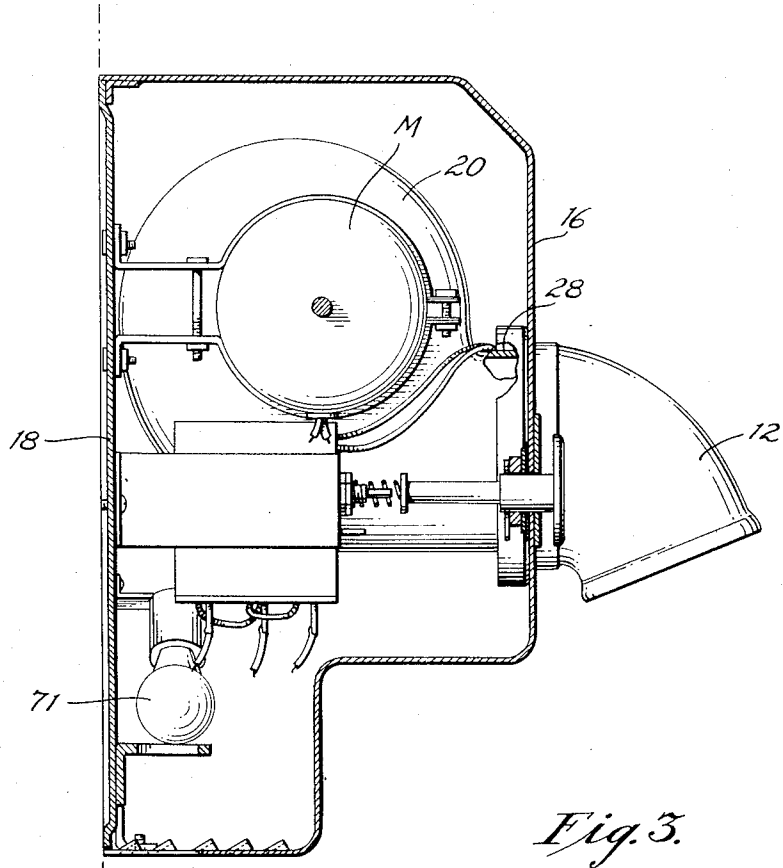


Fig. 3.

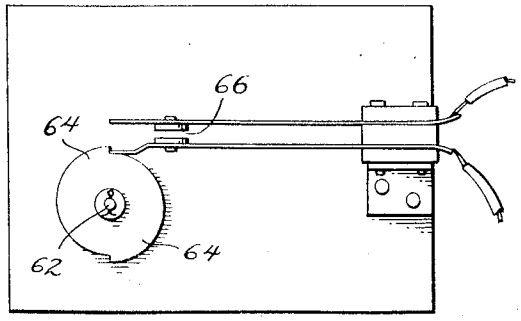


Fig. 4.

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ELECTRIC HAND DRYER

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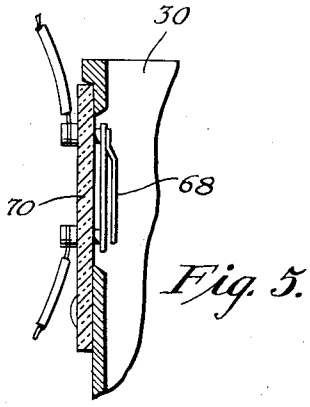
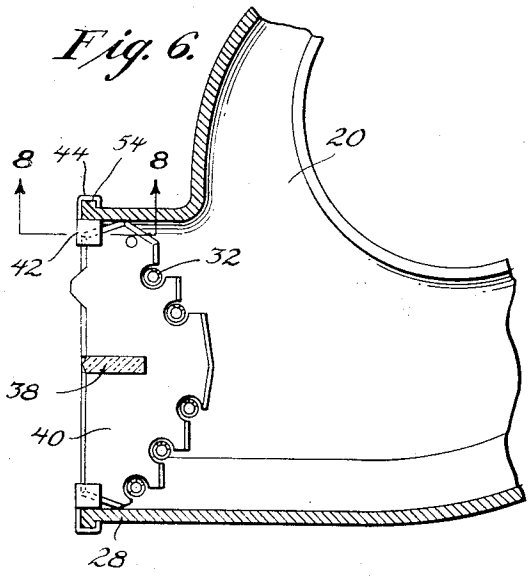


Fig. 5.

Fig. 6.



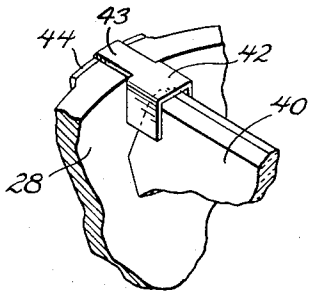


Fig. 7.

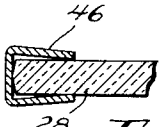


Fig. 9.

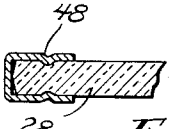
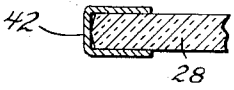


Fig. 10.

Fig. 8.



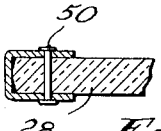


Fig. 11.

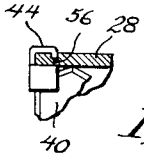


Fig. 12.

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United States Patent Office 2,853,591 Patented Sept. 23, 1958

2,853,591

ELECTRIC HAND DRYER

Milton Fine, Pleasantville, N. J., assignor to American Dryer Corporation, Philadelphia, Pa., a corporation of Pennsylvania

Application December 15, 1955, Serial No. 553,244

1 Claim. (Cl. 219—39)

Electrically operated dryers of the type commonly found in wash rooms include a nozzle, means for propelling air through said nozzle and electric heating elements located in the path of movement of the air in stream. In dryers of this type, the only part which tends to wear out is the heating element and, therefore, it is preferable that the heating element be detachably mounted in the nozzle for easy removal and replacement.

The object of this invention is to produce improved means for mounting the heating element in the nozzle of a dryer of the type set forth and more specifically the object of the invention is to produce an inexpensive clip which can be readily applied or removed with minimum skill and effort. Dryers of the type referred to are extremely competitive so that the expense of drilling and tapping holes for receiving screws for fastening a mounting bracket is sufficient to discourage the sale of a dryer as compared with a dryer in which even this relatively minor expense is not encountered.

It is, therefore, a further object of the invention to produce a friction operated fastening clip which does not involve any drilling and tapping or any other expedients.

These, and other objects, are obtained by this invention as set forth in the following specification and in the accompanying drawings in which:

Fig. 1 is a front elevational view of a dryer embodying this invention.

Fig. 2 is a front elevational view of the same with the outer casing removed.

Fig. 3 is a section on line 3—3 on Fig. 1.

Fig. 4 is an enlarged fragmentary side elevational view showing details of construction of the timing mechanism, which controls the length of cycle of the dryer.

Fig. 5 is an enlarged fragmentary section on line 5—5 on Fig. 2 showing the mounting of the thermostat.

Fig. 6 is an enlarged fragmentary section view on line 6—6 on Fig. 2 showing the preferred manner of mounting the resistor supports in the discharge nozzles of the blower housing.

Fig. 7 is an enlarged fragmentary perspective view showing details of the mounting mechanism as shown in Fig. 6.

Fig. 8 is a sectional view on line 8—8 on Fig. 6.

Figs. 9, 10, 11 and 12 are enlarged fragmentary sectional views showing modifications of the mounting means illustrated in Figs. 6, 7 and 8.

In Figs. 1 and 2 there is shown a dryer embodying the invention and including two nozzles 12 and 14 which are mounted for rotation in openings provided in the front wall 16 of the outer casing. Nozzles 12 and 14 are mounted in any suitable manner, for example, as the manner shown in Clemens' Patent No. 2,634,514 of April 14, 1953. Any other well known mounting may be used which would permit rotation of each of the nozzles through 360 degrees. The dryer as a whole is mounted on a wall or other support by means of screws, not shown, which project from the support and engage holes, not shown, in a detachable back plate 18. Within the

outer casing there is mounted a pair of scrolls 20 and 22 which house blowers 24 and 26, said blowers being rotated by the shafts of a single centrally located motor M. Scrolls 20 and 22 are provided with discharge outlets 28 and 30 which register with the inner ends of rotary nozzles 12 and 14 as best shown in Fig. 2. The air moved by blowers 24 and 26 is heated by means of resistance elements 32 and 34 which may be of any desired conventional construction. The manner in which resistors 32 and 34 are mounted in their respective outlets is best shown in Figs. 6, 7 and 8 and, since the mounting of both resistors is the same, only one of them will be described. As will be seen from Figs. 2 and 6, each resistor is carried by two intersecting ceramic pieces 38 and 40 which are heat resisting and which electrically insulate the resistors from outlets 28 and 30. In order to mount ceramic plates 38 and 40 in their respective outlets, I provide a clip such as that shown in Figs. 6 to 7 or such as those shown in Figs. 9 to 12.

The clip of Fig. 6 includes a U-shaped member 42 which frictionally engages the adjacent edge of one of the ceramic pieces, a connecting section 43 which straddles the outer edge 45 of the outlet end of the nozzle, and a flange 44 which hugs the outer surface of the outlet as best shown in Figs. 6, 7 and 8. In Fig. 2, the clips of Figs. 6 to 8 are shown applied to opposite ends of one of the ceramic pieces in each outlet, but this was done for convenience of illustration and in practice the clips are applied to the ends of both of the ceramic pieces in each outlet.

In Fig. 9, the same clip as that shown in Fig. 6 is used except that the side walls of U-shaped member 42 converge as at 46 so as to grip the ceramic piece more firmly.

In Fig. 10 the ceramic piece and the side walls of the clip are indented as shown in 48, so as to affect a more positive engagement.

In Fig. 11 the side walls of the clip are bolted to the ceramic plate as at 50.

It will be noted that in Fig. 6 flange 44 is bent so as to engage lug 54 on the outersurface of the respective outlet. In Fig. 12, lug 54 is omitted and the bent end of flange 44 engages a notch 56 in the outer wall of the housing.

The cycle of the dryer is controlled by a timing mechanism which includes a motor 60, the shaft 62 of which rotates a double cam 64 which closes and opens a switch 66 which is included in the circuit motor and of the resistors.

As an additional safety factor a conventional thermostat 68, which is arranged to open when the temperature to which it is subjected reaches a determined value is also included in the circuit of the resistors in series with switch 64.

As shown in Figs. 2 and 5, thermostat 68 is carried by an insulating plate 70 which is suitably mounted in the wall of each of outlets 28 and 30. If for any reason the timing mechanism described fails, thermostat 68 will open the circuit and de-energize the coils and the motor.

The dryer is also provided with ozonating lamps 71 which are calculated to purify the air. Lamps 71 are connected through transformer 72 to the source of electric energy independently of the motor and resistor circuits.

What I claim is:

In a drying machine of the type which includes a nozzle, means for blowing air through said nozzle and a heating element for heating said air, said heating element comprising a ceramic plate and a resistance element mounted on said plate, and means for detachably securing said ceramic plate in the outer end of said nozzle, with

the edge of said plate facing outwardly and located adjacent the edge of said nozzle, said means including an inner, generally U-shaped portion frictionally engageable with the opposite sides of said ceramic plate near its edge, an arm extending across the outer edge of said nozzle and an outer portion carried by said arm and engageable with the outer surface of said nozzle frictionally and detachably to mount said ceramic plate in position in said nozzle.

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