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N. G. TUCKER

2,608,003

WASHING MACHINE DRIER ATTACHMENT

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3 Sheets-Sheet 1

Fig. 1

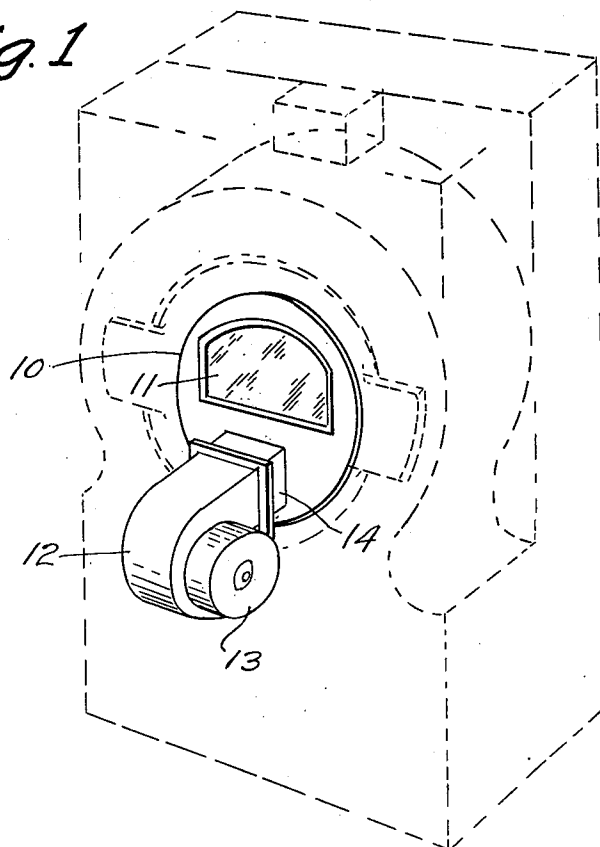
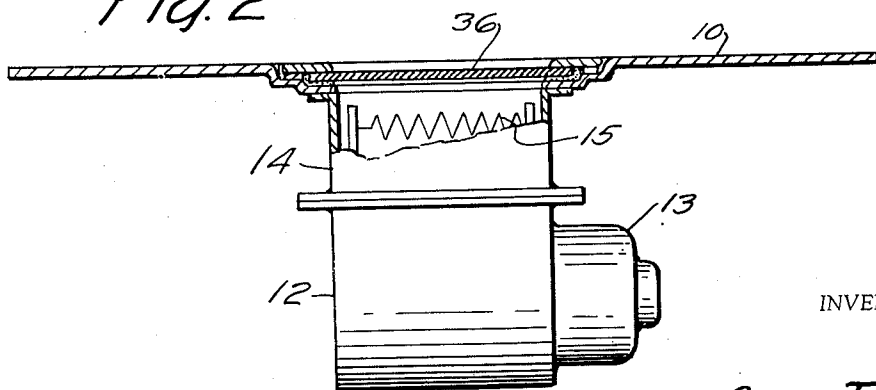


Fig. 2



INVENTOR

BY *NATHANIEL GEORGE TUCKER*
James Harrison Bowen
ATTORNEY

Aug. 26, 1952

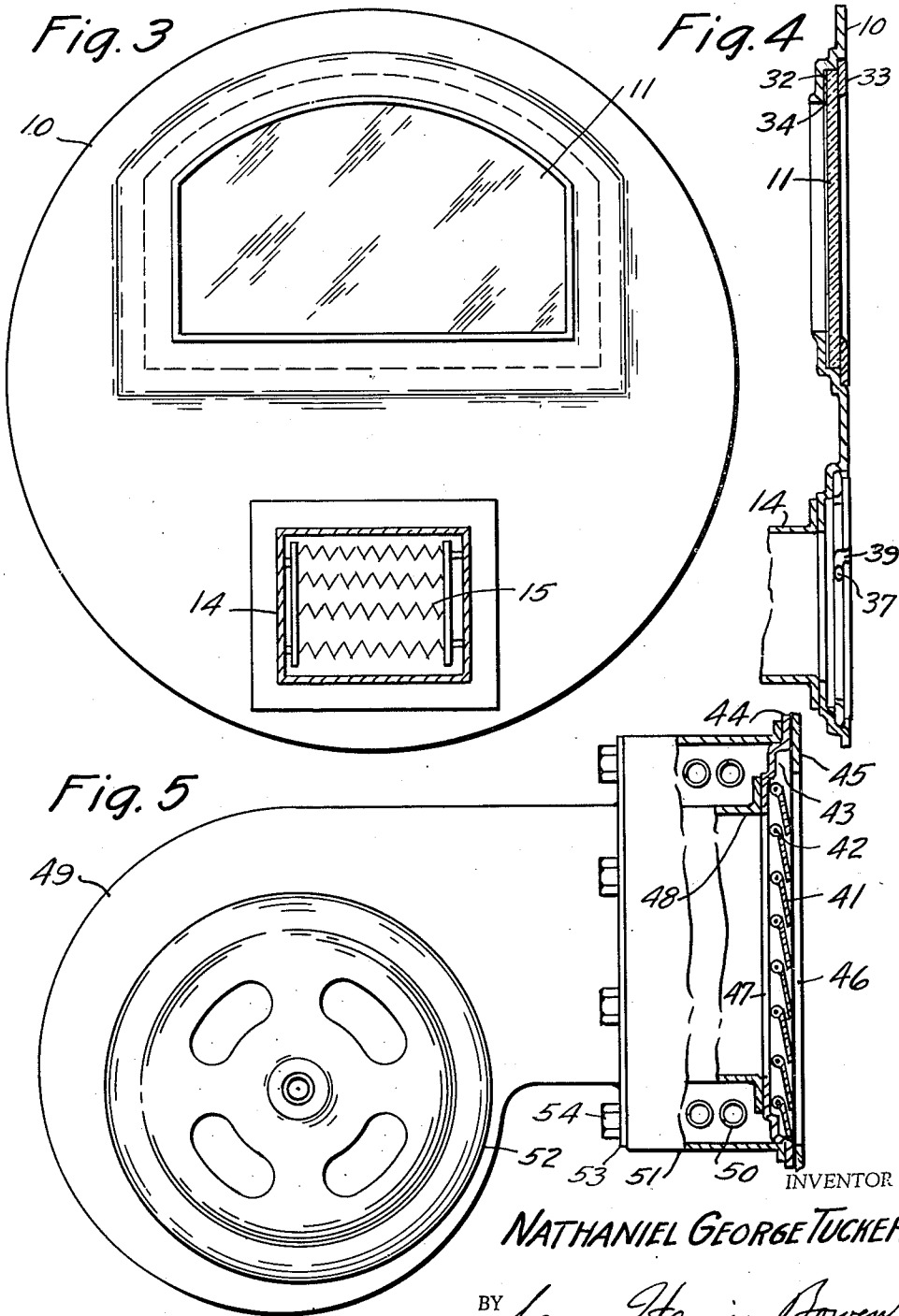
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Aug. 26, 1952

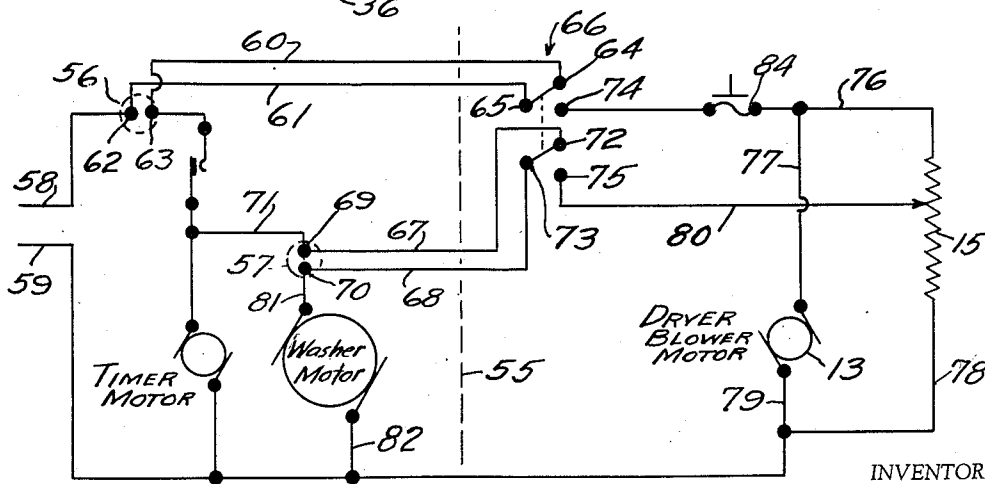
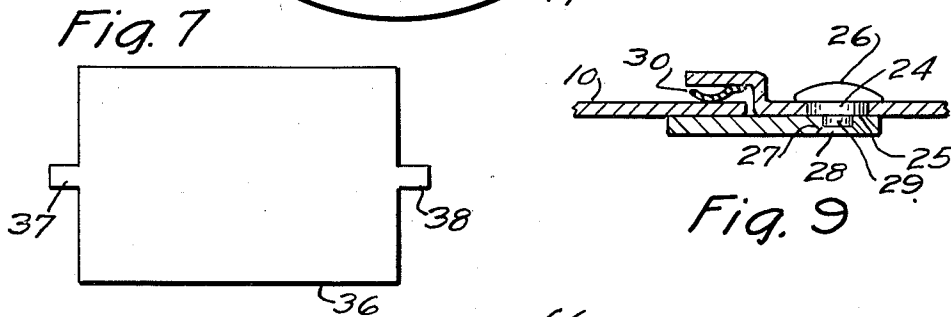
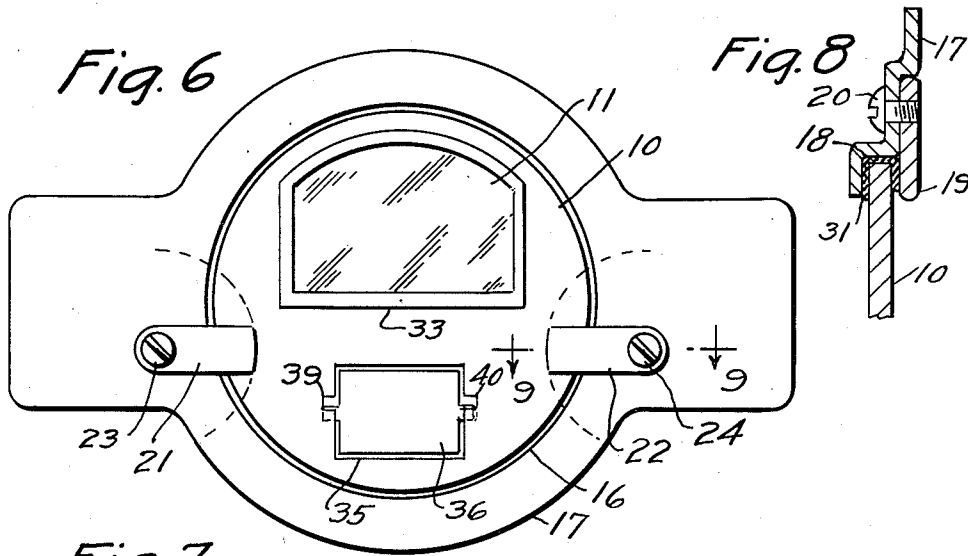
N. G. TUCKER

2,608,003

WASHING MACHINE DRIER ATTACHMENT

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3 Sheets-Sheet 3



INVENTOR

NATHANIEL GEORGE TUCKER

BY

James Harrison Bowen
ATTORNEY

UNITED STATES PATENT OFFICE

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WASHING MACHINE DRIER ATTACHMENT

Nathaniel George Tucker, Forest Hills, N. Y., assignor to Tucker & Ross Development Co., Forest Hills, N. Y.

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4 Claims. (Cl. 34—88)

1

This invention relates to washing and drying machines of the domestic type, and in particular an attachment having a fan or blower in combination with a heating unit mounted on a plate having a window therein and in which the plate is adapted to be inserted in the window opening of a conventional door of a washing machine, whereby after washing and rinsing clothes the water may be drained from the machine and heated air circulated through the clothes, while they are still in the machine, for drying.

The purpose of this invention is to provide a drying unit that is adapted to be applied to a washing machine whereby the same machine may be used for both washing and drying, thereby obviating the necessity of one family having both a washing machine and a drying machine.

Various attempts have been made to combine washing and drying machines, however, such machines incorporate the drying elements in the washing machine housing where they are subjected to moisture, and even water, and where they have been used in the door of the machine they occupy the entire door area and eliminate the usual window, which has become a necessity.

With this thought in mind this invention contemplates an improved method of incorporating air circulating means in a washing machine of the type having a conventional soap inserting opening in the top and in which said opening is in communication with the washing chamber of the machine, wherein the machine operates in the usual manner in the washing step, and in which after washing and rinsing the water is drained from the machine and heated air circulated through clothes in the machine, the air circulating means being in the form of an attachment and having a window therein so that visibility of the interior of the machine is provided continuously.

The object of this invention is, therefore, to provide means for incorporating a drying step in a conventional washing machine without changing the construction of the machine and which provides visibility to the interior of the machine.

Another object of the invention is to provide a drying attachment for washing machines that may be supplied as a separate unit that is adapted to be installed by the average layman.

A further object of the invention is to provide a drying attachment for washing machines that includes a blower and a heating unit and in which the complete attachment is of simple and economical construction.

2

With these and other objects and advantages in view the invention embodies a plate adapted to be installed in the conventional opening in the door of a washing machine in place of the usual glass panel, and a blower and heating element mounted on the lower part of the plate, the upper part of the plate having a window therein and an opening in the lower part of the plate through which air is injected by the blower having closure means therein.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is a view illustrating the application of the drying unit to a washing machine, the washing machine being shown in dotted lines and having a soap inserting opening also shown in dotted lines and positioned in the top.

Figure 2 is a sectional plan through the mounting plate of the drying unit with the motor and heating unit shown thereon and with parts broken away and shown in section.

Figure 3 is a front elevational view of the mounting plate with the blower omitted and with the connection to the blower shown in section.

Figure 4 is a vertical cross section through the center of the mounting plate showing the window and connection for the blower and heater and showing a cover plate for the connection secured in position with pins in bayonet slots.

Figure 5 is a side elevational view of the blower with parts of the heater housing and mounting plate broken away, and illustrating a modification wherein the blower connection is covered with pivotally mounted baffles that swing outwardly when contacted by air from the blower.

Figure 6 is a view looking toward the inner surface of the door of a washing machine showing the mounting plate secured in the door and also showing the closure plate with the bayonet slots as shown in Figure 4.

Figure 7 is a detail showing the closure plate as shown in Figures 4 and 6.

Figure 8 is a detail showing a method of securing the mounting plate in the opening of a washing machine door.

Figure 9 is a similar detail showing a modification wherein the mounting plate is held by clips secured to the door with shoulder rivets, said section taken on line 9—9 of Figure 6.

Figure 10 is a view showing a wiring diagram illustrating a typical method of connecting the elements of the dryer attachment in the conventional circuit of a washing machine.

Referring now to the drawings wherein like

reference characters denote corresponding parts the washing machine dryer attachment of this invention includes a mounting plate 10, a glass panel 11 mounted in the plate providing a window, a blower 12 having a motor 13, and a heating unit 14 having heating elements 15 therein.

The mounting plate 10 is adapted to be installed in an opening 16 in a door 17 of a washing machine in place of the conventional glass panel that is usually provided in the opening.

The mounting plate is secured in an annular recess 18 of the door with a continuous ring 19 that may be secured to the door with screws 20 or other suitable means. The mounting plate may also be held with clips 21 and 22 which are pivotally mounted on rivets or screws 23 and 24, and as illustrated in Figure 9, the rivets may be provided with shoulders 25 which prevent binding, and heads 26 are positioned on the outside of the door with countersunk openings 27 in the clips positioned to receive heads 28 of reduced sections 29 of the rivets. Gaskets or packing washers 30 are also provided around the edge of the plate, and it will also be understood that the recess in which the edge of the mounting plate is positioned may be sealed with a rubber washer 31, as shown in Figure 8, or by other means.

The glass panel 11 is positioned in a similar recess 32 in the mounting plate 10, and this may be permanently installed with a continuous ring 33, or held by clips similar to the clips 21 and 22, and this may also be sealed with a gasket, such as a gasket 34.

The mounting plate 10 is also provided with an opening 35 through which heated air is circulated from the blower through a box-like housing positioned perpendicular to the mounting plate and into fabrics in the washing machine and during the washing step this opening is closed with a plate 36 having pins 37 and 38 extended from the ends. The pins 37 and 38 are positioned to be inserted in bayonet slots 39 and 40 in the mounting plate, and with the plate mounted in this manner it may readily be removed when it is desired to dry fabrics in the washing machine.

The closure means may also be formed as illustrated in Figure 5 wherein louvers or baffles 41, pivotally mounted by pins 42, are positioned in a recess 43 of a collar 44 on a mounting plate 45 similar to the plate 10, and having an opening 46 therein. The collar 44 is provided with an opening 47 that registers with an opening of a duct 48 that extends from a blower 49, and in this design heating elements 50 are provided in a surrounding housing 51 that extends from the collar 44 and that provides a heated chamber through which the air is circulated. The blower is provided with a motor 52 and the blower housing is provided with a flange 53 by which it is secured to the housing 51 by bolts 54.

The circuit to the dryer attachment blower motor 13 is preferably connected in the conventional circuit of the washing machine as shown in Figure 10 wherein the circuit on the left hand side of the dotted line 55 represents the conventional circuit, and the circuit of the blower motor and heater is connected to the conventional circuit at the points 56 and 57. Current is supplied to the washing machine through wires 58 and 59, and wires 60 and 61, connected to the wire 58 at the points 62 and 63, are connected to terminals 64 and 65 of a switch 66. Wires 67 and 68 are also connected to terminals 69 and 70 of a wire 71, and the opposite ends of the wires 67 and 68 are connected to terminals 72 and 73

of the switch 66. Arms of the switch connecting the terminals 65 and 64 and the terminals 73 and 72 are positioned to contact terminals 74 and 75 when the switch is actuated.

Upon completion of the washing and rinsing operations or steps the switch is thrown so that the arms contact the terminals 74 and 75 whereby a circuit is completed from the wire 58 through the wire 61 and wires 76 and 77 to the heating elements 15 and blower motor 13, respectively, and from the heating elements and motor through wires 78 and 79 to the wire 59. At the same time a circuit is completed by a wire 80 through the wire 68 and wires 81 and 82 through the washing machine motor 83 so that the washing machine motor will continue to operate to tumble the clothes or other fabrics therein during the drying step.

The circuit is also provided with a reset thermostat, as indicated by the numeral 84, so that after the completion of the drying step the circuit will be automatically closed whereby the dryer circuit is set for the next operation.

With the parts arranged in this manner this comparatively simple unit including the window, blower and heater mounted in or on the mounting plate are manufactured and sold independent of or in combination with a washing machine, and the unit is installed in the usual opening of a washing machine door, whereby after washing and rinsing clothes heated air may be circulated through the clothes holding element of the machine with the air escaping through an opening in the top of the machine through which soap is inserted into the machine, and the clothes may be dried without being removed from the machine.

From the foregoing description it is thought to be obvious that a washing machine drying unit constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of other changes and modifications without departing from the principles and spirit thereof, and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice, except as claimed.

Having thus fully described the invention what I claim as new and desire to secure by Letters Patent, is:

1. In a dryer attachment for use in a conventional opening of a door of a washing machine, the combination which comprises a circular mounting plate adapted to be positioned in the opening of a door of a washing machine, and said plate having an opening therethrough, a box-like housing mounted on said plate, extended perpendicularly from the plate, and surrounding said opening, and a blower having a centrally positioned inlet opening in one side thereof and a rectangular-shaped peripheral discharge positioned with said discharge communicating with said box-like housing, said blower mounted on the box-like housing and positioned whereby air from the blower passes through the box-like housing and mounting plate and into the washing machine in a path perpendicular to said mounting plate.

2. In a dryer attachment for use in a conventional opening of a door of a washing machine, the combination which comprises a circular mounting plate adapted to be positioned in the opening of a door of a washing machine, and said

5

plate having an opening therethrough, a box-like housing mounted on said plate, extended perpendicularly from the plate, and surrounding said opening, electric heating elements in said box-like housing for heating air passing through the housing, and a blower having a peripheral discharge positioned with said discharge communicating with said box-like housing, said blower mounted on the box-like housing and positioned whereby air from the blower passes through the box-like housing, over the heating elements therein and through the mounting plate into the washing machine with the air traveling in a path perpendicular to said mounting plate.

3. In a dryer attachment for use in a conventional opening of a door of a washing machine, the combination which comprises a circular mounting plate adapted to be positioned in the opening of a door of a washing machine, and said plate having upper and lower openings there- through, a glass panel sealed in said upper opening, a box-like housing mounted on said plate, extended perpendicularly from the plate, and surrounding the said lower opening of the plate, electric heating elements positioned to heat air passing through said box-like housing, and a blower having a peripheral discharge positioned with said discharge communicating with the box-like housing, said blower mounted on the box-like housing and positioned whereby air from the blower passes through the box-like housing and through the mounting plate into the washing machine in a path perpendicular to said mounting plate.

4. In a dryer attachment for use in a conventional opening of a door of a washing machine, the combination which comprises a circular mounting plate adapted to be positioned in the opening of a door of a washing machine, and said

6

plate having upper and lower openings there- through, a glass panel sealed in said upper opening of the plate, a box-like housing mounted on said plate, extended perpendicularly from the plate, and surrounding the lower opening of the plate, electric heating elements positioned to heat air passing through the box-like housing, a closure carried by the mounting plate and positioned to close said lower opening from the inside of the washing machine, means actuating said closure to open said lower opening of the mounting plate, and a blower having a discharge opening, said blower carried by the extended end of the box-like housing and positioned with the discharge thereof adapted to discharge air through the box-like housing and lower opening of the mounting plate into the washing machine with the air traveling in a path perpendicular to the mounting plate.

NATHANIEL GEORGE TUCKER.

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