

Jan. 8, 1957

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2,776,826

CLOTHES DRIER

Filed April 27, 1953

3 Sheets-Sheet 1

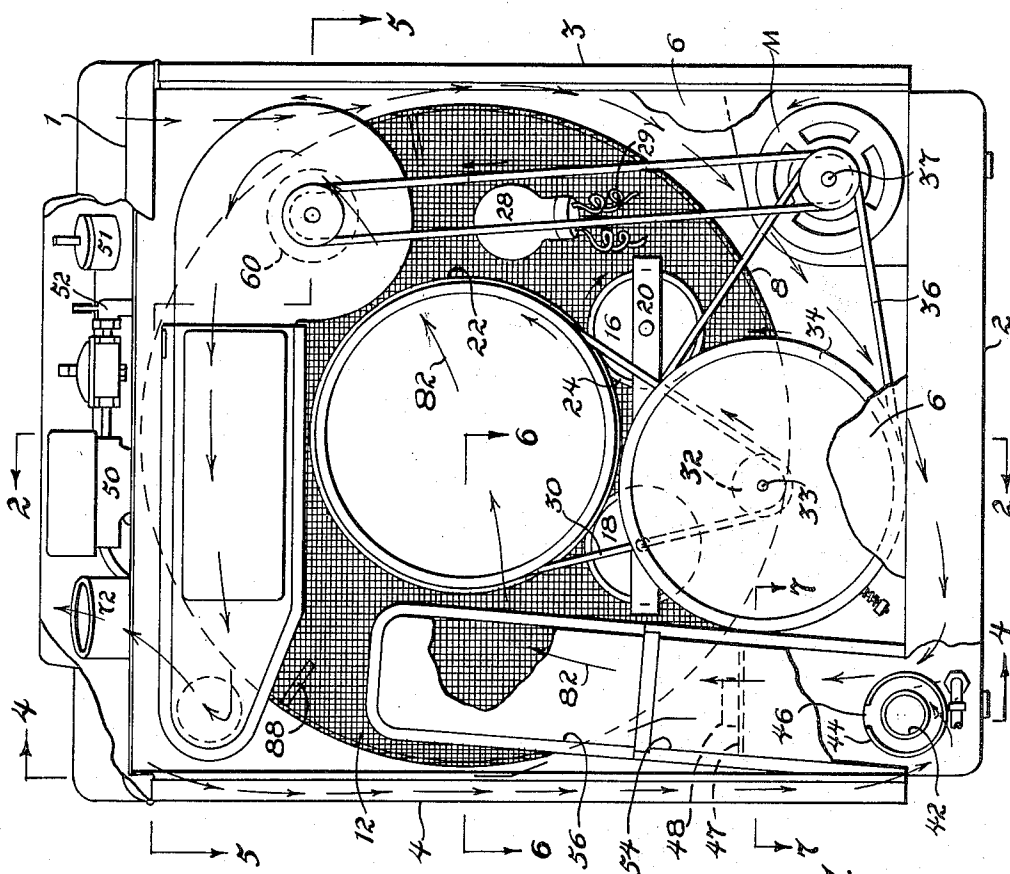


Fig. 1.

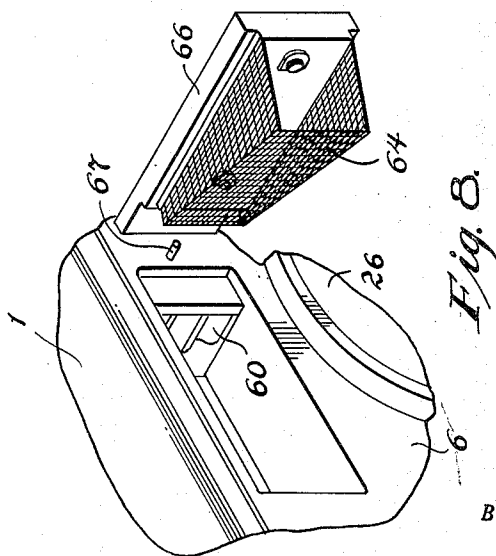


Fig. 8.

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3 Sheets-Sheet 2

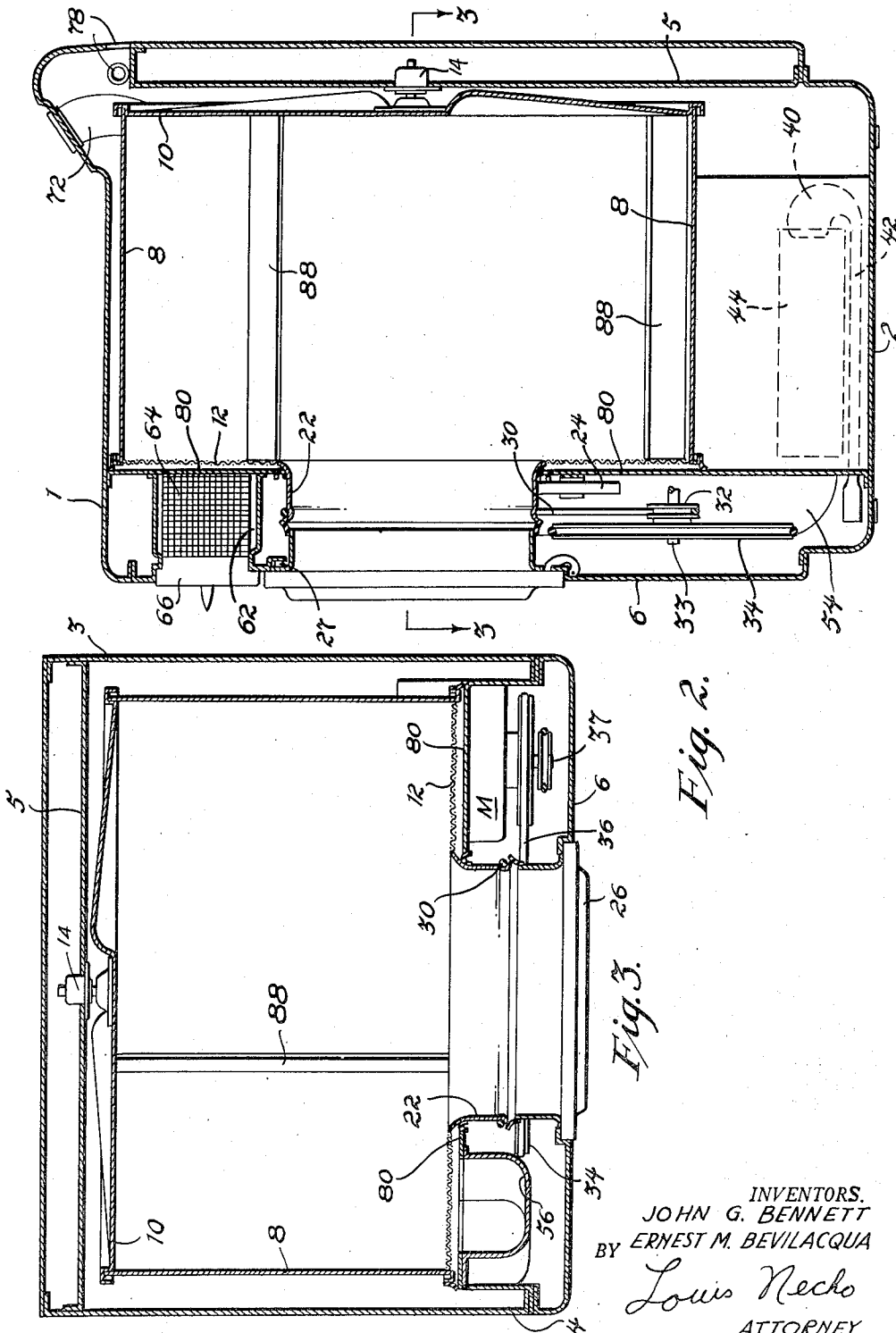


Fig. 2.

Fig. 3.

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3 Sheets-Sheet 3

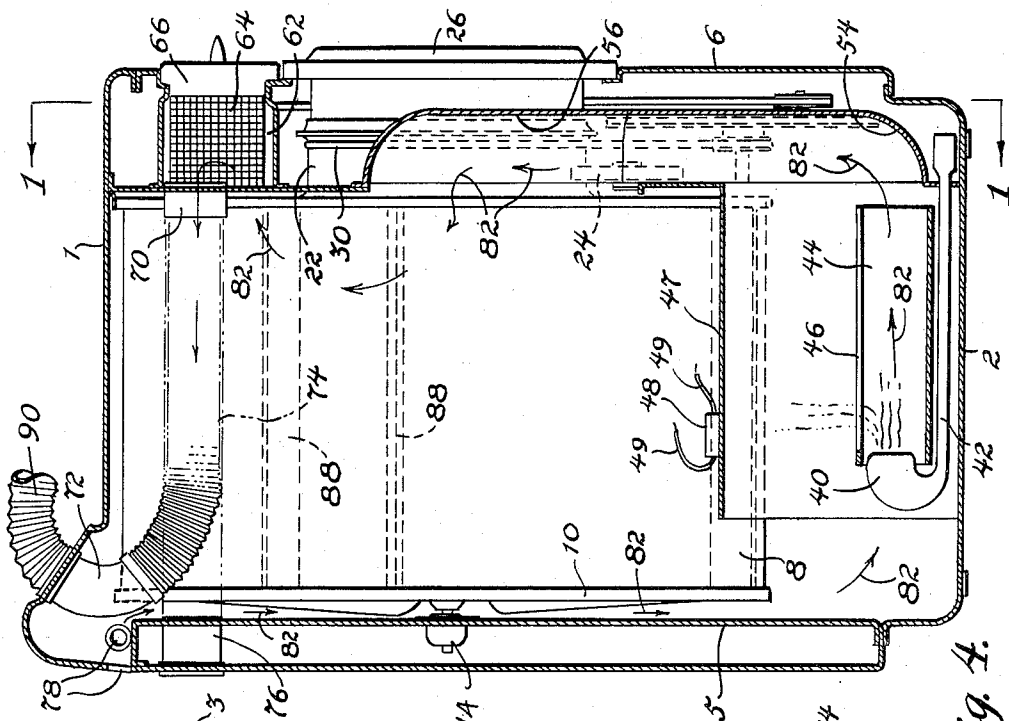


Fig. 4.

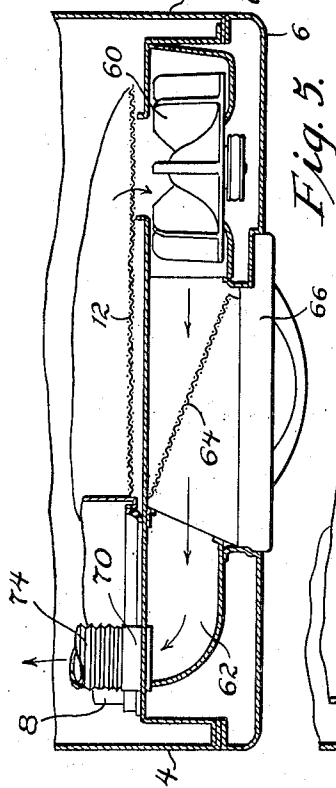


Fig. 5.

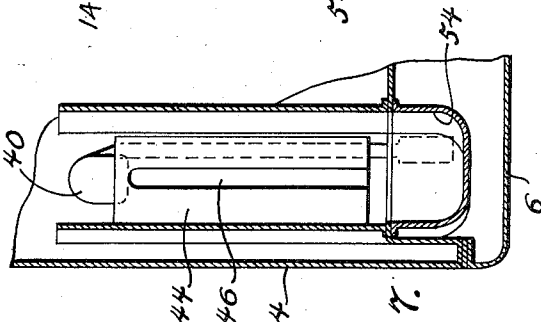


Fig. 6.

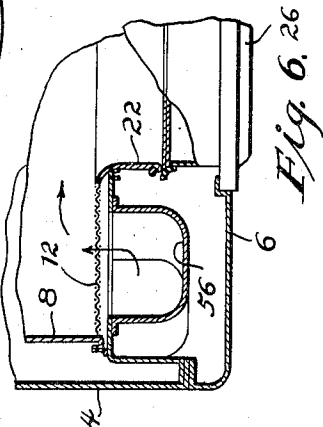


Fig. 7.

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1

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CLOTHES DRIER

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Application April 27, 1953, Serial No. 351,282

1 Claim. (Cl. 263—33)

Our invention relates to an improved clothes dryer of the type which includes means for tumbling the clothes and means for supplying heated air for drying the clothes.

The object of the invention is to produce an improved dryer of the type set forth.

In the accompanying drawings:

Fig. 1 is a front elevational view of a dryer embodying the invention, certain parts being omitted and certain parts being broken away to show details of construction.

Fig. 2 is a view, partly in section and partly in side elevation, looking in the direction of line 2—2 on Fig. 1.

Fig. 3 is a view, partly in horizontal section and partly in top plan, looking in the direction of line 3—3 on Fig. 1.

Fig. 4 is a horizontal section on line 4—4 on Fig. 3.

Figs. 5, 6 and 7 are sectional views looking in the direction of lines 5—5; 6—6; and 7—7 on Fig. 1 respectively.

Fig. 8 is a fragmentary perspective view of the lint screen forming part of the dryer.

The dryer illustrated is housed in a casing formed of top wall 1, a bottom wall 2, side walls 3 and 4, a rear wall 5, and a front wall 6. These walls are preferably made of sheet metal and are suitably secured together in any desired manner. The front wall, or at least a portion thereof, is made easily removable to afford access to the operating parts of the dryer. Inside this enclosure is a drum for receiving the clothes to be dried. This drum is formed of a cylindrical wall 8, a rear end wall 10 and a front wall 12. The walls 8 and 10 are preferably imperforate and the front wall 12 is foraminous as best shown in Figs. 1 and 2. The drum is rotatably supported on a bearing 14 carried by the rear wall 5 of the casing and by idle rolls 16 and 18 carried by bracket 20 which in turn is carried by a part of the supporting frame of the casing. The rolls 16 and 18 engage the reduced neck 22 of the drum and are preferably provided with rubber tires 24. The neck 22 of the drum may also be provided with a rubber covering or tire for engagement with tires 24. The neck 22 of the drum projects forwardly and provides an access opening for the drum. This opening is closed by a suitably hinged door 26. The door is preferably transparent and, since its construction and mounting form no part of the present invention, they are not shown nor described in detail. It is sufficient to point out that the opening and closing of the door is utilized to actuate a switch 27 to turn a light 28 on or off. For example, if the machine is not running and if the door is opened, the light is turned on and if the door is closed the light will be turned off the same as it is in modern refrigerators. However, when the machine is running the light referred to will be energized even if the door is closed. Since this merely involves suitable wiring, it is not shown. According to our invention, the light 28 is provided with a wire extension 29 and is removably mounted in place so that it may serve as a service light also. In other words, if something is dropped, or if the service man wants to see what is wrong, or if he wants to

2

make some repairs, the light is removed from its conventional supporting clip, not shown, and is moved about as desired.

The drum is rotated by means of a belt 30 which engages the neck of the drum and a relatively small pulley 32 on shaft 33 which carries a large pulley 34. The pulley 34 is driven by belt 36 which is driven by a small pulley, not shown, carried by the shaft 37 of a motor M. By this arrangement, the drum is rotated at the desired speed such as 40 R. P. M.

Heat is supplied by means of a gas burner 40 which is supplied with gas and primary air through a conventional mixing tube 42. The burner is housed in an elongated casing 44 the top wall of which is provided with an elongated slit 46. The burner and its casing are enclosed in a combustion chamber formed of an elongated, oval, open-ended casing 47 in the top wall of which is located a thermostat 48. The thermostat is connected by wires 49 to electrical controls which regulate the operation of the burner. The control includes a solenoid or the like 50 for opening and closing the gas main valve 52, and the timer or relay 51 for controlling a glow coil, not shown, which serves to ignite a pilot burner, not shown, which ignites the main burner. These controls are available on the market and therefore neither their structure nor their wiring is shown or described. It is enough for the purpose of this invention to say that, when the thermostat 48 is subjected to heat of a predetermined value, the control 50 shuts the gas valve 52 and extinguishes the main burner. The pilot burner remains lit so as to reignite the main burner as the thermostat cycles. Conversely, if with the main switch in its "on" position, the temperature of thermostat 48 falls to a predetermined value, control 50 opens the gas valve and the pilot burner ignites the main burner. When the main switch is opened the entire machine is de-energized and the pilot burner is also extinguished.

The front end of combustion chamber 47 is closed by a lower flue 54 the upper open end of which leads to the open bottom end of an upper flue 56. The upper flue 56 registers with a portion of the foraminous front wall of the drum, as best shown in Figs. 1 and 4.

In order to draw heated air through the clothes being tumbled in the drum, there is provided a blower 60 the intake end of which registers with a portion of the front foraminous wall of the drum, as best shown in Figs. 2 and 5, and the discharge end of which leads into a passage 62 in which there is interposed a screen 64. The screen 64 is detachably carried by a small hinged door 66, as best shown in Fig. 6. In order to insure against lint collected on screen 64 being blown about if door 66 should be opened while the blower is running there is provided a spring loaded switch 67 which, whenever door 66 is opened, de-energizes the blower 60 or the entire machine as desired. This switch 67 is similar to those used to turn a light on in a closet or in a refrigerator when the door is opened and to turn the light off when the door is closed. Since the manner in which such switch is constructed and wired is conventional and well known, it is not shown nor described in detail. The passage 62 leads into a passage which extends from the front to the back of the casing, as best shown in Fig. 2. This passage may be formed in any desired manner but in the preferred embodiment we use a front fitting 70, a rear fitting 72 and a piece of flexible hose 74 leading from fitting 70 to fitting 72. See Figs. 2 and 5. The back wall 5 of the casing carries another fitting 76 to which the rear end of hose 74 may also be selectively connected as shown in broken lines in Fig. 4. The back wall of the casing is also provided with one or more openings or with an

3

elongated slot 78 for admitting room air into the drier casing.

In order not to diffuse the action of the blower 60, and in order to insure that it will draw air through opening 78 only so as to cool the controls so as to keep the flame of the burner in a horizontal position or away from the thermostat, I enclosed the front, perforated wall 12 with a wall 80 which coacts with rear wall 5 and side-walls 3 and 4, to enclose the drum in a substantially air tight manner. By this arrangement, the suction fan 60 will draw air through inlet opening 78, around and through casings 47 and 48, through flues 54 and 56 and through the drum, as shown by arrows 82 in Fig. 4.

In order to tumble the clothes, the interior of the drum is provided with one or more vanes 88.

In operation, the clothes are placed in the drum and the main switch is turned on to ignite the burner and to activate the fan 60 and the drum and to energize the light 28. As stated, if the fan should fail, the flame of the burner will pass upwardly through slot 46 and will impinge on the thermostat which will, in a few seconds, open the main switch and de-energize the entire machine.

This arrangement insures a more positive and a quicker reaction by the thermostat that would be the case if the thermostat were subjected to the ambient temperature only. Also, by drawing room air through the elevated inlet 78, no dust is picked up from the floor and the downwardly moving air serves to keep the controls cool and it gets preheated on its way into contact with the parts in the region of the burner.

What I claim:

A dryer including an outer casing, a rotary drum mounted in said casing and having one side thereof perforated, a suction fan having its inlet side abutting an

4

upper portion of said perforated side, a burner in a lower portion of said outer casing, an open ended tube surrounding said burner, a relatively large inner open-ended casing surrounding said tube, there being a longitudinal slot in the upper wall of said tube for directing the flame of said burner against the top of said inner casing, a duct leading from a lower portion of the perforated side of said drum to one end of said inner casing, an air intake pipe leading from near the top of the dryer to the opposite end of said inner casing, and a thermostat located on the outer side of the top wall of said inner casing in registration with said slot in said tube whereby, when said blower is operating, the flame of said burner will be sucked into a horizontal position and will not act on said thermostat which will be subjected to the temperature of ambient air only, and whereby, when said blower is not operating the flame of said burner will assume a vertical position and will impinge on the top of said casing immediately below said thermostat, and means operatively connecting said thermostat to said burner, said thermostat being calibrated so as to respond to the temperature resulting from infringement of said flame against the top of said casing to extinguish said burner.

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