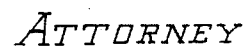


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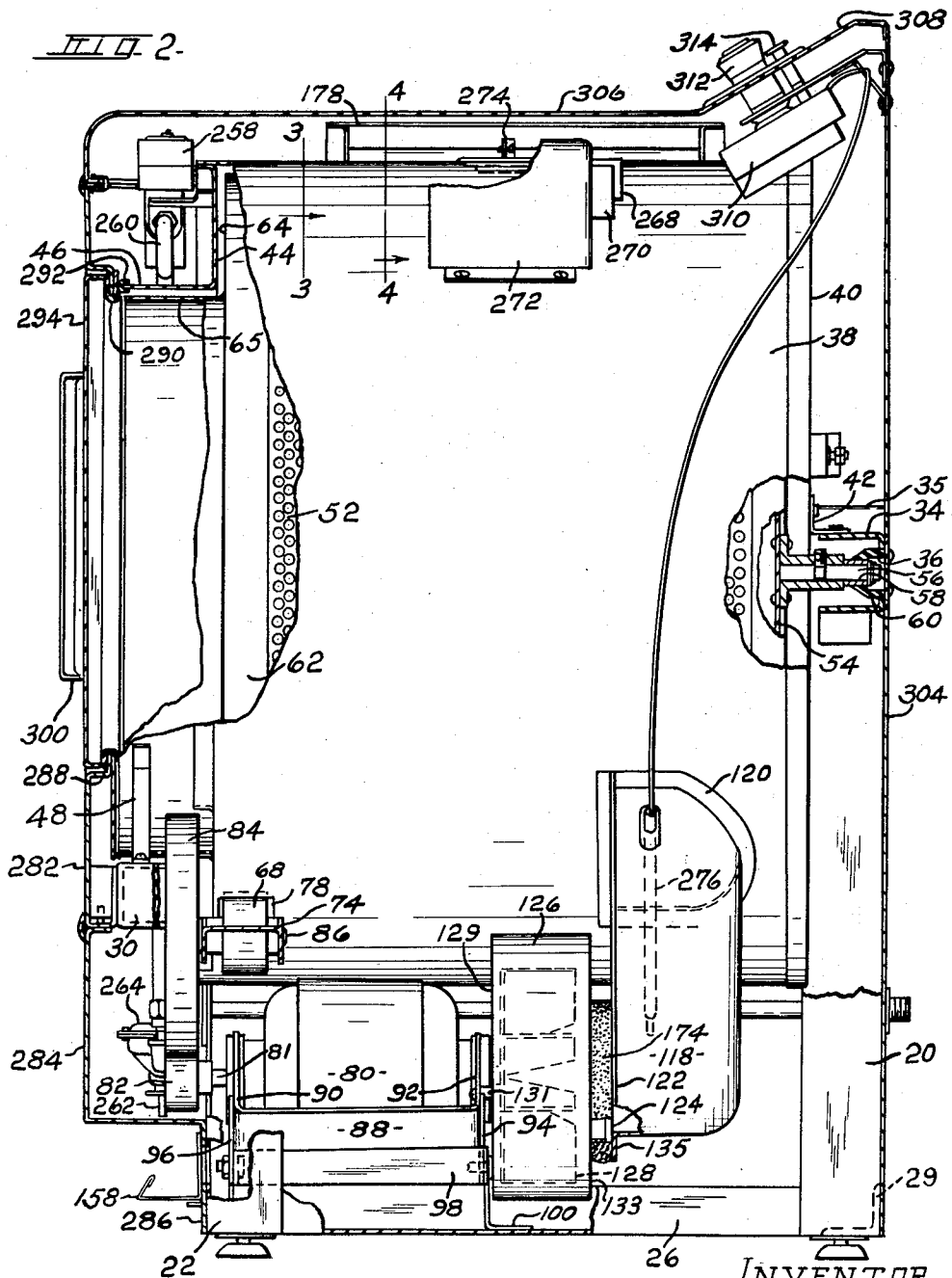
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2,867,430

LAUNDRY DRYERS

Filed Dec. 31, 1952

7 Sheets-Sheet 2



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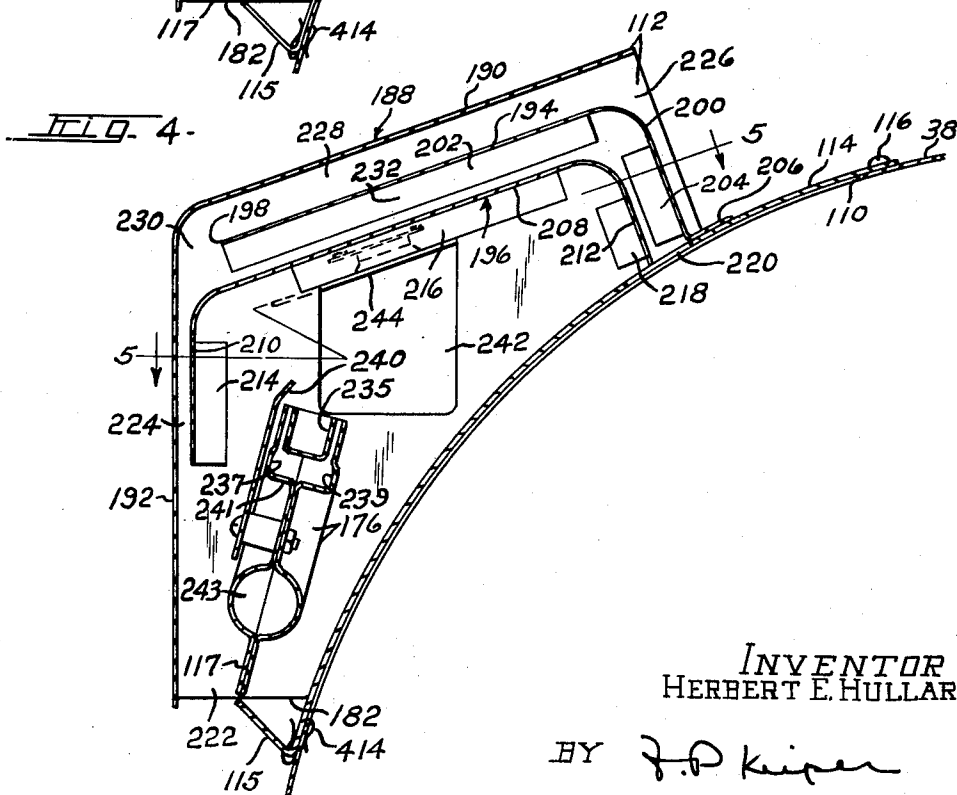
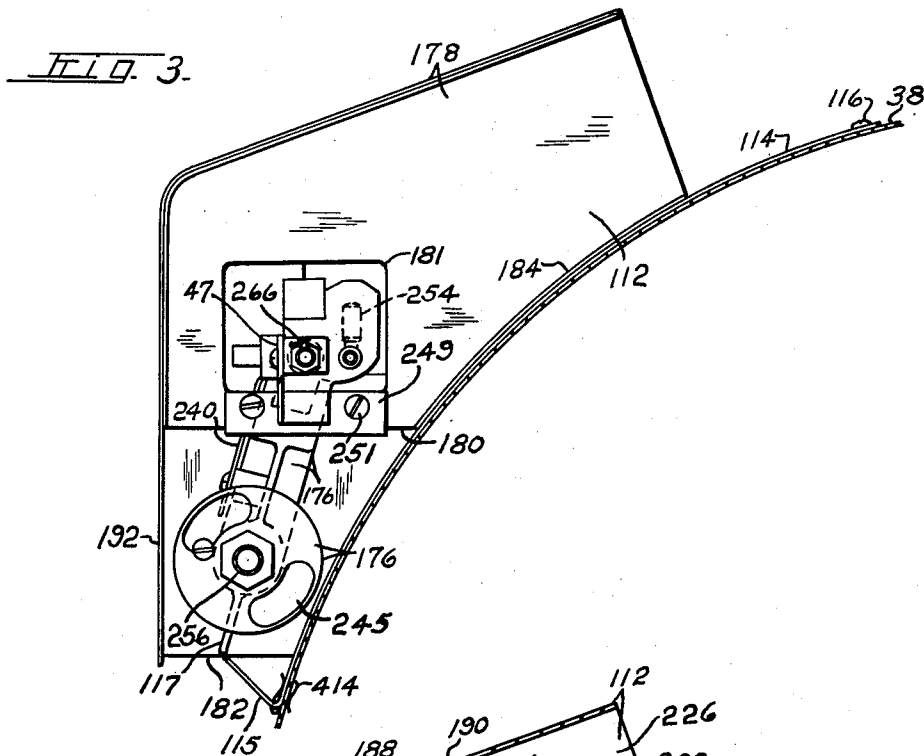
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7 Sheets-Sheet 3



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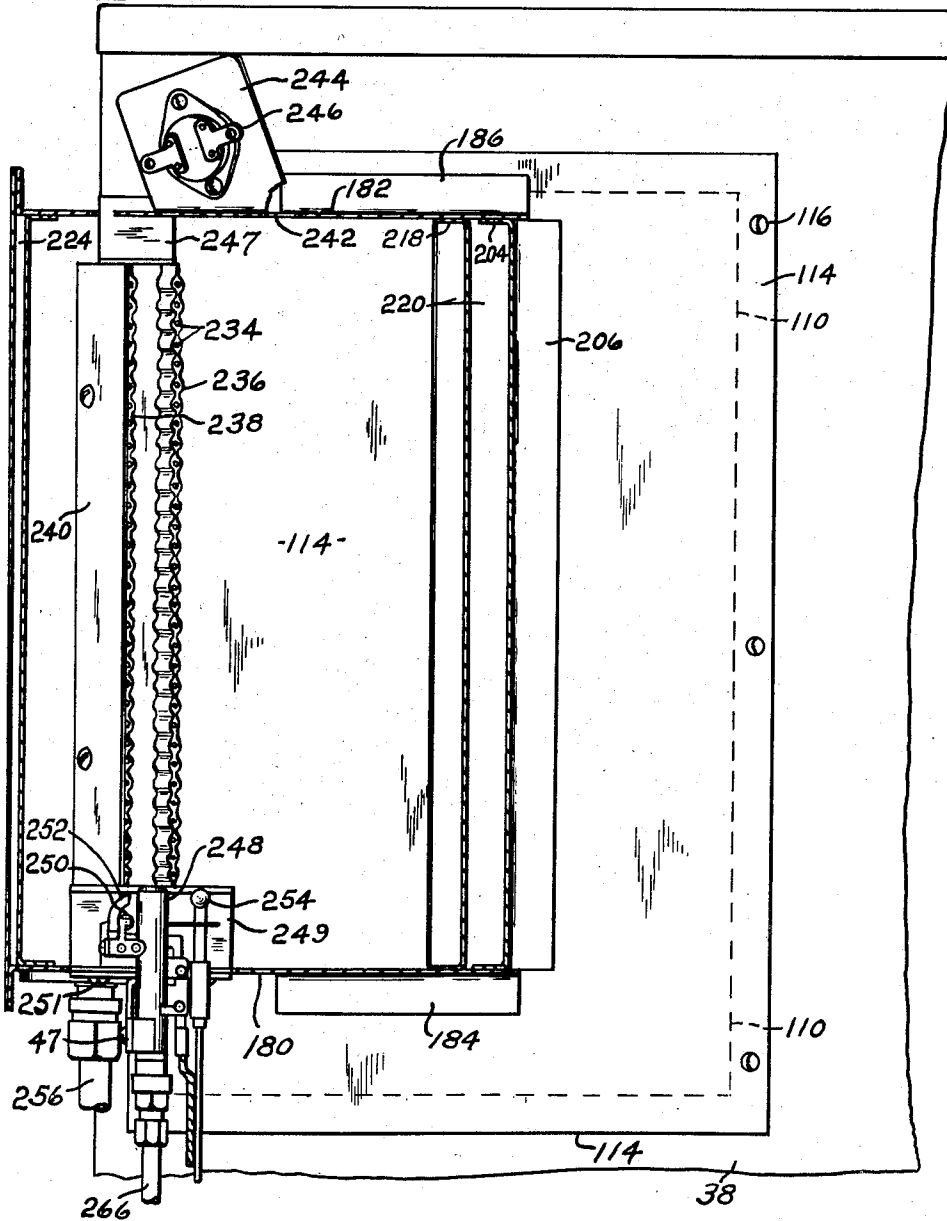
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FIG. 5.



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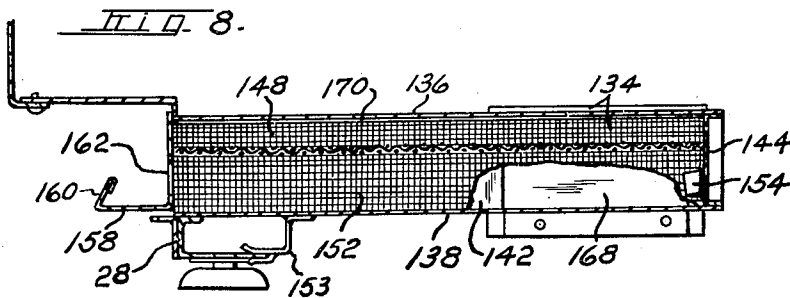
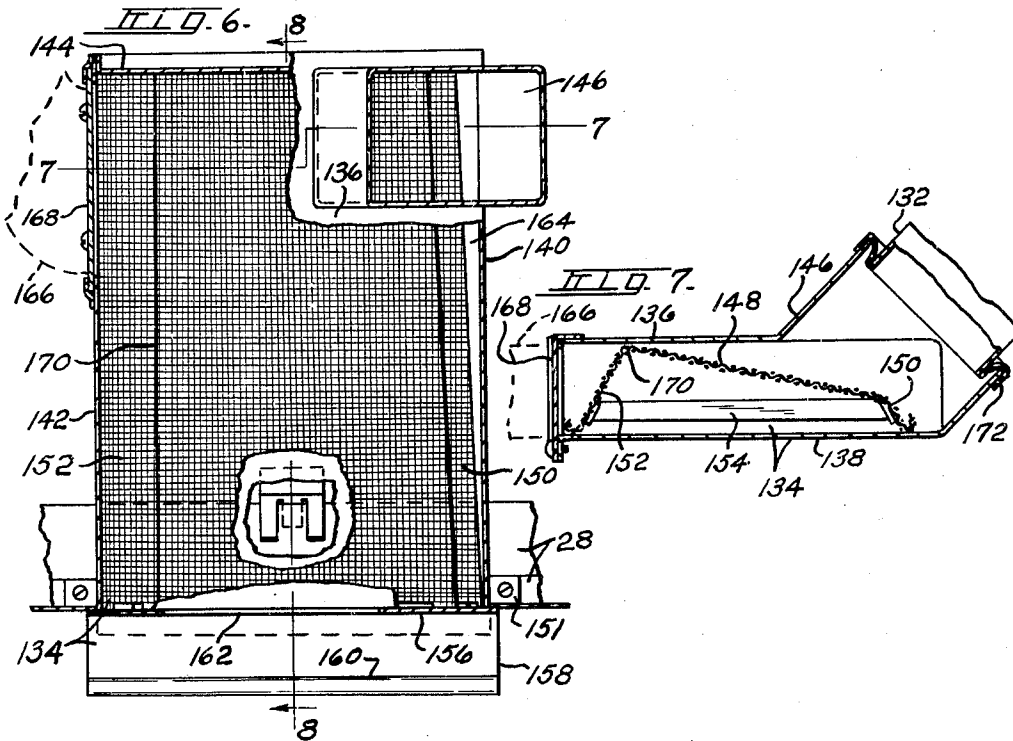
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2,867,430

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7 Sheets-Sheet 5



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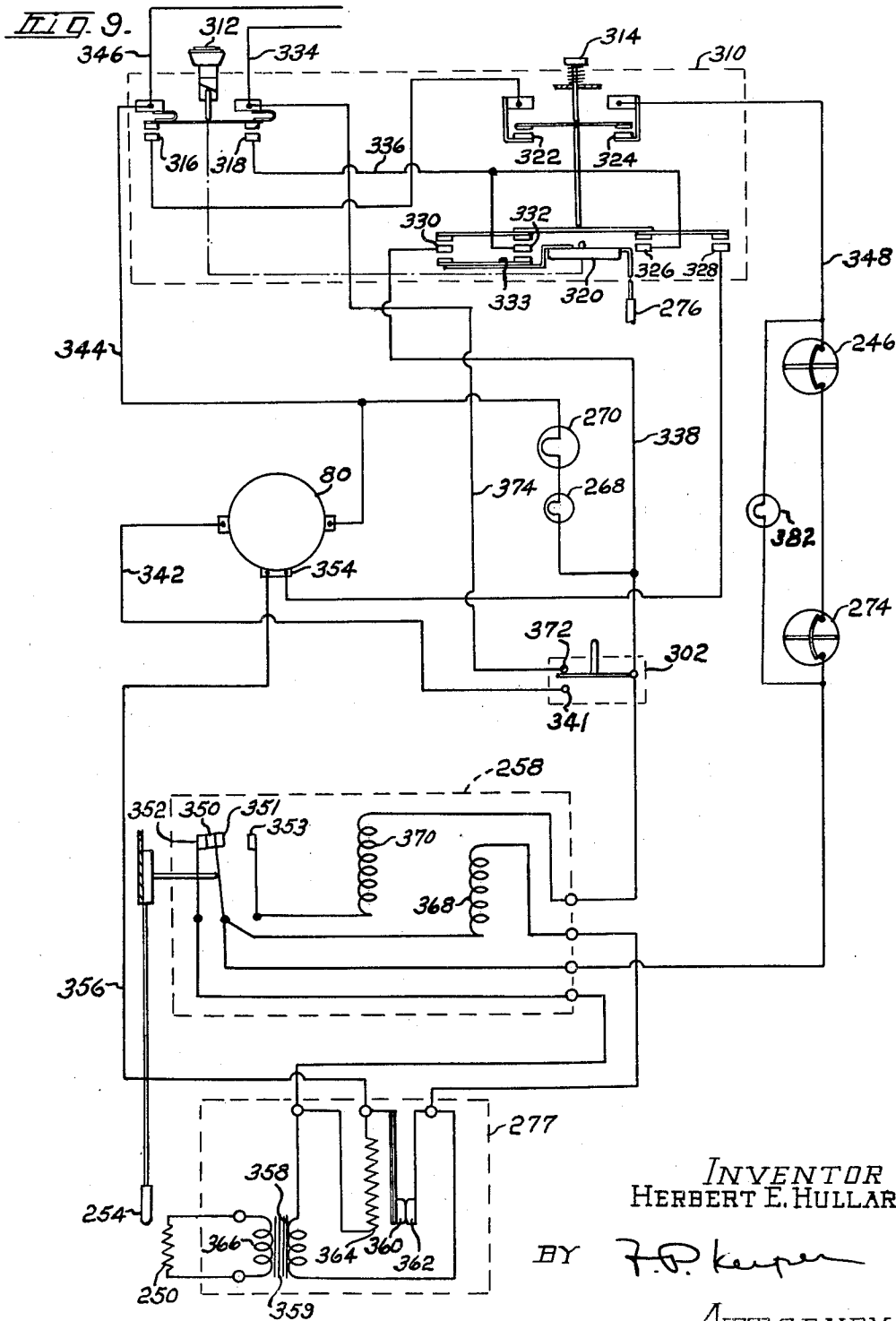
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FIG. 10.

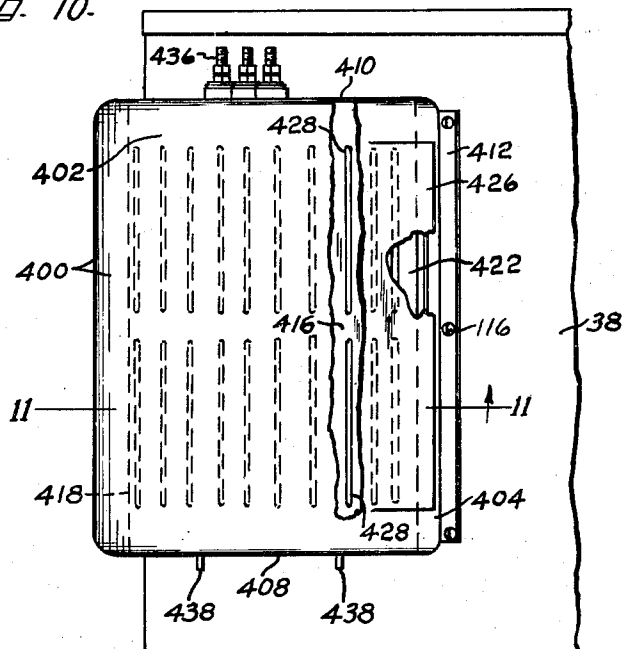
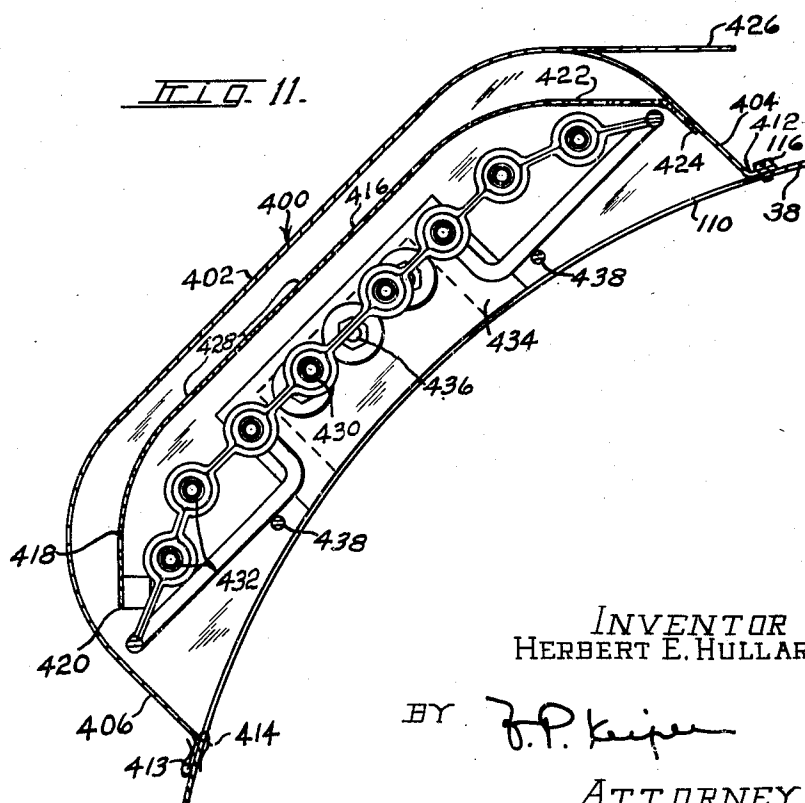


FIG. 11.



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2,867,430

LAUNDRY DRYERS

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Application December 31, 1952, Serial No. 328,928

1 Claim. (Cl. 263—33)

This invention relates to laundry dryers, and more particularly to the application of radiant energy and heated air to a dryer in an efficient manner, and controls therefor.

In dryers, whether gas or electrically heated, a considerable amount of heat is required to evaporate the moisture contained in damp laundry. The rate of heat input must be relatively high, in order to avoid a protracted drying period. Such heating has in general created a problem, since for efficiency, the heat must be caused to be concentrated upon the laundry within the drum. At the same time, the heating unit constitutes a hot spot in a closely confined cabinet, so that in many dryers, the surrounding cabinet is covered internally with heavy layers of heat insulation to prevent wastage of heat and in an attempt to keep the cabinet at a sufficiently low temperature to be safe. Dryers are located in areas where the cabinet is exposed to body contact. Where a rectangular cabinet with a flat top is provided, it is highly desirable to retain the top deck sufficiently cool so that it can be used as a work surface.

Accordingly, the present invention is directed to a dryer having an air and radiant heating unit devised to efficiently convert the heat supplied to the drier efficiently into hot air and radiant heat for drying purposes. The invention further has to do with the provision of a heating unit in which air within the cabinet is utilized as a heat insulating blanket in the heating process, whereby heat is absorbed from the heat source by the air while the air is in the course of passing to the dryer drum. Further, the invention utilizes a passage for cabinet air entering the heater, which passage blankets the heating unit so as to efficiently absorb all heat, and at the same time, provide an ever-changing blanket of cool air around the heating unit so as to substantially prevent radiation to the cabinet walls and absorb radially outwardly directed radiation in the heating of air entering the dryer.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only, and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

Figure 1 is a front elevation with parts broken away, showing the drum drive and front bearings;

Figure 2 is a side elevational view taken from within the cabinet side wall, with parts broken away;

Figure 3 is a sectional view taken on the line 3—3 of Figure 2, showing the gas-fired air heater;

Figure 4 is a sectional view taken on the line 4—4 of Figure 2, and showing the air passage labyrinth through the heater;

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Figure 5 is a sectional view taken on the broken section line 5—5 of Figure 4;

Figure 6 is a fragmentary sectional view taken substantially on the line 6—6 of Figure 1, showing the lint trap;

Figure 7 is a sectional view taken substantially on the line 7—7 of Figure 6;

Figure 8 is a sectional view taken substantially on the line 8—8 of Figure 6;

Figure 9 is a control circuit diagram;

Figure 10 is a top plan view of an electric heater modified form of the invention utilizing a similar air passage labyrinth; and

Figure 11 is a sectional view taken on the line 11—11 of Figure 10.

Referring to Figures 1 and 2, there is shown a frame and cabinet structure, the frame comprising four upright corner angle irons such as are shown at 20, 22, and 24, joined together at the base by horizontally fore and aft extending angle members as at 26 and front and rear cross members as at 28 and 29. The front corner angle irons are connected by a forwardly disposed channel member 30, the ends of which are curved to the rear as at 32 for joining to the front faces of the corner angle members 22 and 24. The rear corner angle members are joined together by a horizontally extending channel member 34. The rear channel member 34 is located at a suitable height to support the bearing 36, while the forward channel member 30 is located somewhat below the level of the cabinet door. The corner angle irons extend upwardly to a height slightly above the channel member 34, and are connected by side channels 33 and 35.

A substantially imperforate drum 38 having a back wall 40 is supported at the rear upon the channel member 34 through angle members such as 42. The drum is provided with a front annular member 44 having a cylindrical forwardly extending flange 46 coaxial with the drum. The drum is supported at the forward end by means of inclined braces 48 and 50, such braces extending from the channel member 30 to the cylindrical flange 46. Within the drum 40 is a perforate laundry-containing cylinder 52, the cylinder having an imperforate rear wall 54 to which is secured a trunnion 56, the latter being journaled in a bearing sleeve 58 supported by a resilient mount 60 of rubber-like material. The mount is affixed to the channel member 34. The wall of the cylinder is perforated and has a relatively wide outside rim 62 at its forward end and an imperforate annular front wall 64 provided with a cylindrical flange 65 telescopically disposed in slightly spaced relation within the flange 46 of the drum 38. Within the cylinder 52 are a plurality of fore and aft extending tumbling ribs or baffles such as indicated at 66. The forward end of the cylinder 52, and particularly the rim 62, is supported upon a pair of rollers 68 and 70, the roller 70 being rotatably mounted in a fixed bracket 72 extending from the corner member 24, while the roller 68 is rotatably mounted in a pivoted bracket arm 74, such bracket arm being pivotally mounted as at 76 upon the angle corner member 22. The drum 38 is provided with small rectangular apertures such as 78, through which each of the rollers 68 and 70 project to engage the rim 62.

In order to support and drive the cylinder 52 by rolling action of the rim 62 on the rollers 68 and 70, the roller 68 is a drive roller and is driven from a motor 80 through friction gearing comprising a smaller roller 82 mounted on the forward end of the motor shaft 81 and a large cylindrically faced wheel 84 drivably fixed to the roller shaft 86, which shaft is keyed to the cylinder-sup-

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porting roller 68 journaled in the bracket arm 74. The motor is mounted in a U-bracket 88 having motor support end arms 90 and 92, which may be of the type shown in Scheele Patent No. 2,598,836. Such bracket is provided with ears 94 and 96 extending to and pivotally mounted upon the bent ends of a U-member 98. The U-member is secured to the angle member 22 at one end and supported upon a bracket 100 extending upwardly from the angle member 26. The height of the motor is adjustable by a link 102 pivoted at its lower end upon a bracket 104 mounted on the frame member 28, the upper end of such link having a diagonal slot 106 with suitable threaded fastening means 108 for securing the link to the motor bracket arm 90.

It will thus be seen that the height of the roller 68 may be raised or lowered by adjusting the position of the link 102, so that the rollers 68 and 70 will support the cylinder with its cylindrical flange 65 in coaxial relation to the cylindrical flange 46 of the surrounding drum. The rear bearing 36, through the resilient mount 60, provides slight universal movement in supporting the rear of the cylinder, so that the weight of the forward end of the cylinder rests upon the rollers 68 and 70, and particularly with sufficient weight on the roller 68 to assure a satisfactory drive, roller 68 being located lower than roller 70, so as to carry a greater proportion of the weight. Rotation is in the direction of arrow A or counterclockwise, as viewed in Figure 1.

The drum 38 is provided on the upper side thereof to one side of center with an enlarged rectangular air inlet aperture 110 over which there is positioned a heater unit generally indicated as at 112 (see Figures 3 and 4, for example), which heater unit may be provided with a curved saddle-like plate 114 adapted to be secured to the drum along its upper edge by screw fastening means 116, such saddle plate being of arcuate form and being adapted to cover the enlarged rectangular aperture 110. Air is admitted to the drum through the aperture 110 after being suitably heated by a gas burner which will be hereinafter described in more detail. The drum structure, however, is adapted to receive an electrical heater, as an alternative, which heater will be also hereinafter described in more detail in connection with Figures 10 and 11. It should be understood that the two forms of heaters are so constructed as to be interchangeable insofar as the drum is concerned.

Air withdrawn from the drum 38 through a lower duct 118 located slightly to the rear and diagonally opposite the inlet. Such duct is rigidly secured to the drum by a flange 120 and extends downwardly to a point substantially in alignment with the shaft of the motor 80. The duct has a front flat face 122 having a circular aperture 124 in substantial alignment with the shaft 81 of the motor 80. Between the duct 118 and the rear of the motor, there is positioned a centrifugal blower 126 having the usual impeller 128 therein. The blower has an involute housing wall 130 discharging into an outlet duct 132 directed downwardly at approximately a 45° angle toward the lower central region beneath the drum of the dryer.

Such discharge duct connects with a lint trap 134 generally illustrated in Figures 6-8. The trap comprises a rectangular housing having top and bottom members 136 and 138, side walls 140 and 142, and a rear end wall 144. The discharge duct 132 connects with an angularly disposed lint trap inlet connection 146 extending angularly from one corner of the housing formed by the top and side walls 136 and 140. Such inlet connection is located adjacent the rear wall 144. Within the casing, there is provided a drawer-like screen assembly. The screen is formed to provide a central inclined planar portion 148, a narrow inclined planar side portion 150, and a wide inclined planar side portion 152. The screen is braced at the rear by a strut 154 connecting the sides 150 and 152. The forward edge of the screen is secured to a

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front panel 156, having a forward extending ledge 158 provided with a drawer pull 160 formed by the forward edge of the ledge 158 being bent upwardly and rearwardly as shown in Figure 8. The front panel 156 is provided with a rectangular exhaust aperture 162, such aperture being located within and below the line of attachment of the screen 148 with the front panel. The upper planar portion of the screen is constructed somewhat more narrow to the rear thereof, so as to provide a tapered distributing zone 164 to facilitate distribution along the length of the screen of air entering through the rear inclined connection 146. It will be seen that the screen intercepts air entering through the inlet connection 146 prior to its leaving the lint box through the front aperture 162. If it be desired to connect the lint box to an exhaust port or duct such as is indicated at 166, the side wall 142 may be provided with a slide plate 168 which may be removed for that purpose. In such case, the outlet duct 166 will lead from the space behind the inclined planar screen portion 152. It will be seen that the portions of the screen 152 and 148 angularly connect along a fold 170 which extends rearwardly immediately beneath the top wall 136 to prevent bypassing, so that air, in leaving the lint box through outlet duct 166, must first traverse the area of the screen portions 148 or 150 and thereafter the area of the screen portion 152. The lint box is supported at its forward end upon the transverse frame member 28 through tabs 151 and a clip member 153, and the inlet connection 146 is coupled to the discharge duct 132 by a resilient annular cuff 172.

The front wall 129 of the blower 126 is supported from the end portion 92 of the motor bracket 88 as by posts 131. The rear face 133 of the blower casing is provided with a circular flange 135 forming an inlet opening, and such flange has mounted therearound a sponge rubber ring 174 of a length to span the distance between the rear face 133 of the blower and the front wall 122 of the duct 118 to couple the aperture 124 with the blower. Thus, it will be seen that the blower inlet and outlet connections, through the ring 174 and cuff 172, are insulated against the transmission of vibration from the motor and blower to the drum and lint box.

In order to supply hot air to the drum 38, there is mounted upon the saddle plate 114 a gas burner 176 and a housing 178 therefor having suitable ducts for efficiently heating air for admission to the drum 38. The housing comprises end members or walls 180 and 182 mounted by flanges 184 and 186 upon the saddle plate 114. The end members are joined by an outer wall or shell or cover 188 having an inclined top surface portion 190 and a vertically extending portion 192. Within the housing are baffles 194 and 196, the baffle 194 extending parallel and in spaced relation with the inclined top or lateral portion 190 to a point 198 spaced from the vertical wall portion 192. Such baffle has a curved forward portion 200 extending somewhat radially to the saddle member 114. The baffle 194 extends from either end wall 180 and 182, and is suitably secured to the end walls and saddle member by flanges 202, 204 and 206. The baffle 196 is provided with a central portion 208 extending in spaced parallel relation to the baffle 194. The lower end portion continues in a downwardly extending position 210 extending in spaced parallel relation to the outer wall portion 192. The upper end extends downwardly or somewhat radially as at 212 toward the saddle member 114. The baffle 196 extends from end wall 180 to end wall 182, and is suitably secured to such end walls by flanges 214, 216 and 218. The saddle member 114 is provided with an elongated rectangular aperture 220, a portion of which aperture connects with the space between the end portions 212 and 200 of the baffles 194 and 196, as well as the space beneath the baffle 196. The burner 176 is located between the lower portion of the saddle member 114 and the outer wall 192 of the shell 188 and beneath the inner baffle 196.

It will be seen that by reason of the burner, air enter-

ing at 222 will move upwardly joining the burned gases, and enter the drum through the lower portion of the aperture 220. Air will also pass through the passage-way 224 formed by the shell outer wall 192 and the spaced parallel portion 210 of the baffle 196, into the space between the baffle 196 and the top outer wall 188. By reason of the blower drawing air out of the drum as previously indicated, air is drawn into the housing 178 through the end opening 226, such air passing downwardly through the space 228 between the baffle 194 and shell outer wall 190. Such air thereafter passes into the end space 230 adjacent the end 198 of the baffle 194, thereafter flows through the space 232 between the baffles 194 and 196 to enter the drum through the opening 220. It will thus be seen that cool air entering at 226 and passing through the space 228 tends to absorb the heat of the gas burner and forms an ever-changing insulating layer of cool air, having a highly beneficial effect in retaining the outside dryer cabinet comparatively cool. In addition, the double pass for air entering the drum formed by the space 228 and the space 232, provides a highly efficient air heater, so that economy in the consumption of gas results. The channel 224 likewise is cooled by entering air, which air joins that entering at 226.

The gas burner projects into the space between the outer housing portion 192 and the saddle plate 114, and extends substantially the entire length of the housing 178, the burner proper comprising a series of jets 234 arranged in double rows 236 and 238. The jets are formed by a U-stamping 235, and two spaced stampings 237 and 239, the latter also forming a lengthwise manifold 241 connected by a conduit 243 leading to the usual air valve 245. The burner is supported by a rear plate 247 extending into a slit in the rear wall 182, and by a bracket 249 at the forward end secured to the front wall as at 251. A baffle plate 240 is mounted upon the burner and extends the length thereof, such baffle being adapted to prevent air flow from disturbing the gas flame. The saddle plate 114 is provided with a turned-up flange 115 along its lower margin, which cooperates with the burner parts 237 and 239, and particularly the web 117, so as to prevent cold air from entering between the burner and drum. The end wall 182 has an inspection aperture 242 located above the end of the burner, the inspection opening being formed by a struck-out portion of metal 244, such portion being bent outwardly from the wall 182 and adapted to carry a thermostatic switch 246.

It will be seen that the saddle plate 114, being exposed to the radiant heat of the flame of the burner 176, will become heated and provide in itself a source of radiant heat, the inner surface of such plate being exposed to the perforate cylinder within the drum 38 by reason of the relatively large aperture 110 in the drum, which aperture is effectively covered by the arcuate saddle member 114.

The burner also includes, mounted on a bracket 251 and arm 47, the usual pilot burner 248, a hot wire starter 250, and a draft shield 252, all of which project through a window 181 in the end wall 180. The window 181 is aligned with an inspection opening 183 in the front wall 282 of the cabinet. A thermostatic bulb 254 is located adjacent the pilot burner 248. Gas is supplied to the main burner through a pipe 256 extending to a solenoid valve component 258 and a gas supply pipe 260, the latter having a stop cock 262 and pressure regulator 264. The solenoid valve 258 also includes a solenoid valve for the pilot, there being provided a separate pipe 266 leading from the valve 258 to the pilot 248.

The drum is provided with a sterilizer lamp 268 and a lamp 270 for illumination connected in series therewith, such lamps being housed in a casing 272 mounted on the upper side of the drum, the drum being provided with an aperture (not shown) substantially coextensive with and covered by the housing 272. A temperature-

sensitive thermostatic switch 274 is located in the top of the drum and a temperature-sensitive bulb 276 is located in the air duct 118 leading from the drum to the blower.

Surrounding the frame and drum is a cabinet structure having side walls 278 and 280, a front wall composed of a door frame member 282, and a kick plate 284, the latter having a re-entrant lower portion 286 forming a drawer frame for the cover panel 156 of the drawer-like screen assembly of the lint box. The door frame member 282 has a rectangular inwardly offset frame proper 288, having a circular aperture 290 adapted to join with the flange 46 through an annular resilient gasket 292. A door 294 is hinged to the door frame proper as at 296, such door having a window 298 and handle 300. The door, when closed actuates a double throw switch 302, closing one circuit and opening another as the door is closed or opened. The cabinet is further composed of a back plate 304 and a top deck 306 having a rearwardly upswept inclined control panel 308, behind which is mounted a master switch 310 manually actuated by a starting and temperature setting knob 312 and a start push button 314.

Control of the drier is effected through a circuit diagrammatically shown in Figure 9, utilizing a temperature control thermostatic switch device such as shown in Patent No. 2,564,868, issued August 21, 1951. The manual start and temperature selector knob 312 is adapted to initially close the pairs of switch contacts 316 and 318, and thereafter effect an adjustment upon the thermostatic bellows 320, which bellows are actuated by the bulb 276. By varying the pressure upon such bellows, the temperature at which the gas burner will be shut off can be varied to accommodate different types of laundry loads, as will hereinafter appear. The start push button 314, when depressed, is adapted to close and hold closed three circuits by bridging contacts 322 and 324, bridging contacts 326 and 328, and by bridging contacts 330 and 332. Thus, if the pairs of contacts 316 and 318 are closed and the push start switch is depressed to bridge the contacts operated thereby, a circuit is established from line wire 334 through lead 336 to lead 338, and through door switch 302 and contact 341 to the motor 80 through the lead 342 and the return lead 344 connected to the line wire 346. Thus, when the door is closed, the motor will start. At the same time, the line 346 is connected through bridged contacts 322 and 324 to the thermostatic switch line 348 having arranged in series therein the thermostatic switch 246 and thermostatic switch 274, such line leading to the gas valve component 258 and more particularly to the pilot light contacts 350 and 352 contained therein. The pilot igniter component 277, sometimes referred to as a warp switch, contains a circuit that is energized through contacts 350 and 352 when closed, and also by a circuit established by bridging contacts 326 and 328, a centrifugal switch 354 in the motor 80, such centrifugal switch being in the circuit 356 leading to the pilot igniter. The centrifugal motor switch is necessarily electrically insulated from the usual induction motor starting switch, since the circuit is broken when the motor is stopped. Such switch may be operated by the same centrifugally responsive means utilized for opening the induction motor starting switch when sufficient rotation speed has been attained.

It will be seen that the primary coil 358 of the pilot igniter transformer 359 will be energized by current flowing from the closed contacts 350 and 352 and current supplied through the line 356 through the centrifugal switch 354, such current passing through the contacts 360 and 362, such contacts being normally closed initially, but being opened after a brief fixed period of time by reason of the contact 360 being mounted on a bi-metallic heat-sensitive leaf heated by the resistance 364. The heat of such resistance acts to open the contacts after a predetermined period. When the primary 358

of the pilot igniter coil transformer is energized, the secondary 366 connected to the hot wire 250 renders such wire incandescent and effective to ignite the pilot.

It will also appear that the pilot valve operating solenoid 368 is connected at this time across the primary 358 of the pilot igniter transformer, so that the pilot valve supplying gas to the pilot burner 248 is opened. When the pilot burner ignites, the bulb 254 becomes heated and acts in response to temperature rise to open contacts 350 and 352 and close contacts 351 and 353, thus closing a circuit through the main gas valve solenoid 370. When the contacts 350 and 352 open, the primary 358 of the ignition transformer is deenergized, while the pilot valve solenoid continues to be energized from line 348 and through contacts 360 and 362, leading to the centrifugal switch 354 through lead 356, the pilot valve remaining open until the time period for the opening of contacts 360 and 362 has elapsed, such contacts breaking the circuit to the pilot valve.

The push start switch 314, when actuated, is locked with the contacts bridged until actuated by the bellows 320 in response to temperature rise in the outlet duct 118. When the temperature rises to the selected temperature, which is indicative of a completion of the drying of the laundry, such bellows causes the switch contacts 322 and 342, 330 and 332, and 326 and 328 to be opened, thereby breaking the circuit to the main gas valve solenoid, and cutting off the gas supply. The bellows 320, however, before opening the contacts mentioned, closes a circuit by bridging contacts 330 and 332 through the bridging bar 333, which maintains a circuit through the motor 80 as may be traced by following lead 336, bar 333, lead 338, door switch 302, lead 342, and lead 344. The motor will thereby continue to run until such time as the thermostatic bellows 320 cools sufficiently to open the contacts 330 and 332.

The door switch is provided with a door open contact 372 which is connected to the line 334 through a lead 374. When the door switch is opened, the germicidal lamp and the illuminating lamp are energized through the lead 344. This circuit is completed irrespective of whether line contacts 316 and 318 are closed or open.

The resistance 364 is adapted to open the contacts 360 and 362, after a period of four minutes or so, while if the pilot ignites immediately, as would be normal operation, the contacts 350 and 352 are opened, and the contacts 351 and 353 closed within a minute, the time taken for the bulb 254 to be heated by the pilot. Thus, contacts 360 and 362 remain closed, and both pilot and main burner remain lighted during normal operation. Such burners are set to provide the necessary steady heat to effect drying so long as the normal flow of air through the drum takes place.

Should the lint trap become clogged, choking off the flow, the temperature will rise above that set for thermostats 246 or 274, or both, causing circuit 348 to be opened at one or the other thermostat. This shuts off the main gas valve, until the circuit 348 is restored. A high resistance signal lamp 382, bridging either one or preferably both thermostats 246 and 274, will serve to indicate such a condition, and may be provided with a translucent sign illuminated by the lamp reading "Clean lint trap" or the like. It will be understood that operation continues under these circumstances, the main gas burner being intermittently on and off to maintain the approximate desired temperature, the signal flashing on and off to correspond.

If the door be opened during the drying cycle, the motor gradually stops opening centrifugal switch 354, which in turn cuts off current to pilot valve solenoid 368. In a short time, thermostat 254 cools sufficiently to open contacts 351 and 353 to open the circuit to solenoid valve 370, cutting off the main burner.

When the motor is running and the door is in closed position, it will be seen that the germicidal lamp and

illuminating lamp are connected across the motor 80, so that such lamps are energized at all times that the motor is running. When the door is opened, causing the motor to stop, the centrifugal switch 354 opens, cutting off both pilot and main burner gas supplies. It will of course be appreciated that the motor does not slow down instantly, so that if the door is opened for a brief instant not long enough to slow the motor to open the centrifugal switch contacts 354, the burners will continue. Cutting off the burners when the cylinder is stopped affords safety against overheating, since with a stopped motor, circulation is cut off, as well as tumbling.

In Figures 10 and 11, there is shown an electrical heating unit which may be applied to the drum, the same forming a unit which can be substituted for the gas burner air heater with no structural change to the drum. There is shown a shell 400 having an outer wall 402 with integral top and bottom walls 404 and 406 and end walls 408 and 410. The shell is of sufficient size to cover the aperture 110 in the drum 38. The shell is adapted to close the aperture 110 and the top wall is provided with a flange 412 adapted to seat upon the drum adjacent the aperture and be secured to the drum by screws 116. The shell 400 and the saddle member 114 are both adapted to be secured to the drum along the lower edge by an S-sectioned clip member 414 which is equally adapted to engage the flange 413 along the bottom wall edge or the lower edge of the saddle plate 114.

Within the shell 400 is a baffle plate 416 substantially uniformly spaced from the outer shell wall 402, such baffle extending from end wall to end wall and being curved at the lower end as at 418 and terminating as at 420 a short distance from the lower or bottom wall 406. The upper end of the baffle 416 is bent as at 422 and the end 424 thereof is joined to the top wall 404. A portion 426 of the shell outer or top wall 402 is cut away to provide an inlet, the same being bent into parallel relation with the portion 422 of the baffle 416. The baffle 416 is provided with a plurality of narrow slits 428 which permit some of the air entering the shell to flow radially inward with respect to the drum, while the remainder travels the length of the space between the baffle and shell, passing through the space between the bottom wall 406 and lower edge 420. Air entering through the slits 428 traverses the electrical infrared heating grid 430 supported within the shell beneath the baffle 416. Such grid comprises a plurality of heater coils 432 so disposed as to transmit radiant energy to the perforate cylinder within the drum as well as to the baffle 416, whereby the heating unit acts both to heat air passing behind the baffle as well as to provide radiant heat directed toward the cylinder in a fashion similar to the gas burner heated saddle plate of the gas burner modification. The resistance heating unit is supported at one end on an end terminal plate 434 mounted on the end wall 410, such plate having electrical terminals 436 extending there-through. The grid also carries lugs 438 at the other end, which are projected through the end wall 408 for support.

Reference has heretofore been made to Patent No. 2,565,868, as showing a temperature control thermostatic switch device similar to that diagrammatically included in Figure 9. When an electrical heating unit is employed, the circuit shown in said patent may be employed.

It will be seen that in the modifications utilizing either gas or electricity, there is provided an air insulating blanket between the source of heat and the outside cabinet. The air blanket in each case consists of a layer of constantly changing cool air entering the shell around the source of heat, which air after entrance, is gradually heated by the gas burner or electrical unit, as the case may be. The cold air, however, in entering through the blanket passageway, renders the heating unit in either case highly efficient and prevents escape of heat by radiation or otherwise to the surrounding cabinet walls, so that such cabinet remains cool and may be safely used

for work space. By such an arrangement, expensive layers of insulating material upon the inner surface of the cabinet walls may be dispensed with, because the heat is absorbed by the entering cool air and drawn into the drum to effect the evaporation of moisture therein contained in the laundry being dried.

While several modifications of the invention have been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

A laundry dryer comprising a substantially imperforate drum arranged with its axis substantially horizontal, a laundry tumbling cylinder rotatably mounted therein having a perforate peripheral wall, a substantially rectangular cabinet surrounding said drum, said drum having a large aperture in an upper side wall thereof facing an upper corner of said cabinet formed by a side wall and the top thereof, means for withdrawing air from said drum at a point remote from said aperture, an arcuate plate adapted to be attached to said drum in covering relation to said drum aperture, axially spaced end walls mounted on said plate and a cover connecting said end walls and spaced radially outward of said plate and having a vertical portion and a lateral extending portion, said cover and curved plate forming a circumferentially open ended box, a burner in the space between said plate and cover adjacent the lower end, inner and outer spaced baffles arranged within said box and extending between said ends and in substantially parallel relation to the lateral portion of said cover, said outer baffle being nearest said cover,

the outer baffle underlying substantially the lateral portion of said cover, and the inner baffle underlying said first named baffle and having a portion extending downwardly along and in spaced relation to the vertical portion of said cover to a point below the upper portion of said burner and between said burner and cover, said baffles at their upper end having portions extending substantially radially toward said drum and to said plate, said radial portions being circumferentially spaced, said plate having an aperture bounded at opposite ends substantially by said end walls, and along its upper edge by the radial portion of said outer plate, and having its lower edge below the radial portion of said inner baffle, whereby to provide an air inlet path to said drum from the upper open end of said cover downwardly between said cover and outer baffle, and upwardly between said baffle to said aperture, a second passage extending upwardly between said cover and inner baffle and joining the path between said baffles leading to said plate aperture, and a third path following underneath said inner baffle to the lower portion of said plate aperture.

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