Feb. 6, 1951 P. E. GELDHOF 2,540,725

LINT SCREEN AND ASSEMBLY FOR CLOTHES DRIERS

Filed May 23, 1946 3 Sheets-Sheet 1

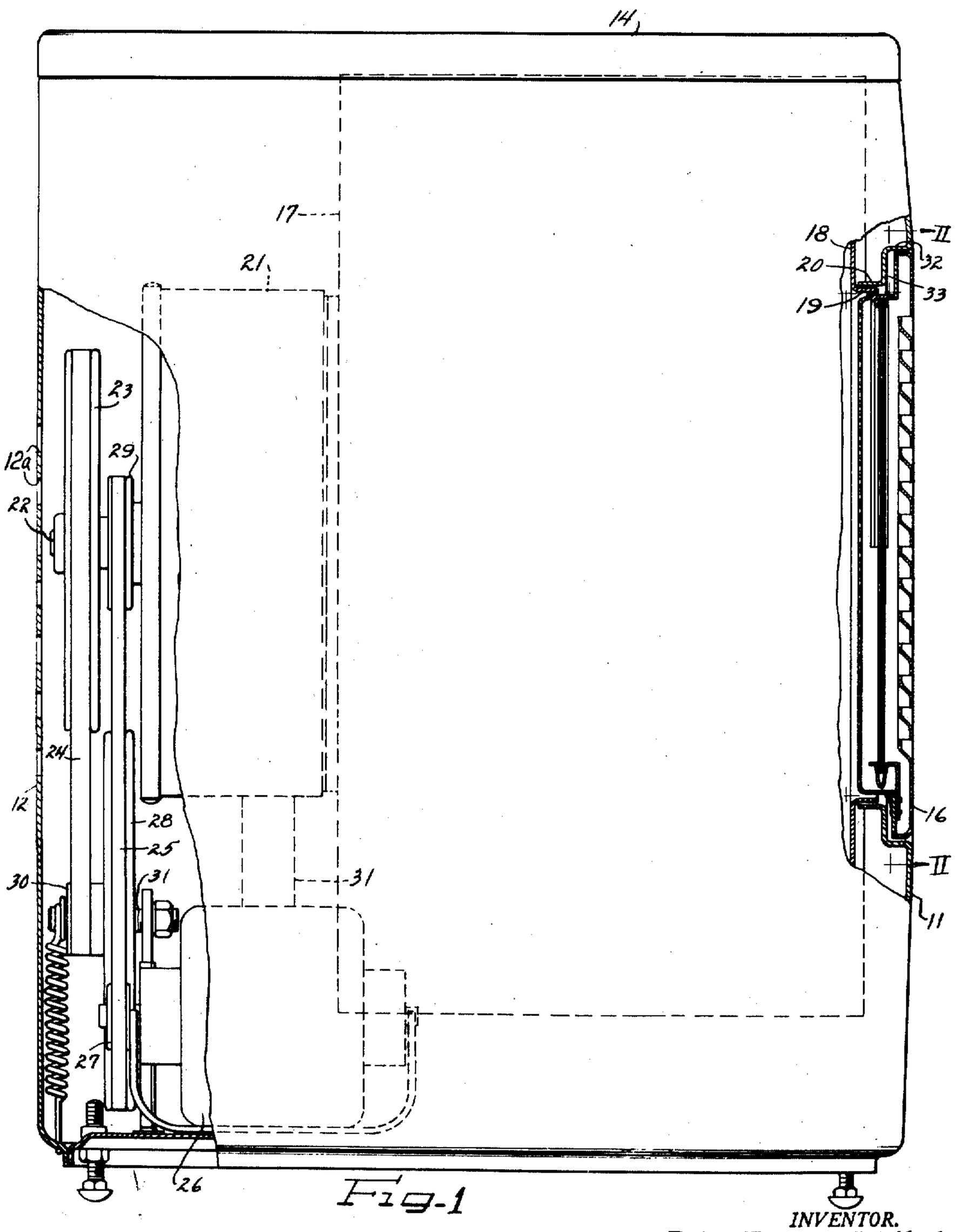

Fig-1

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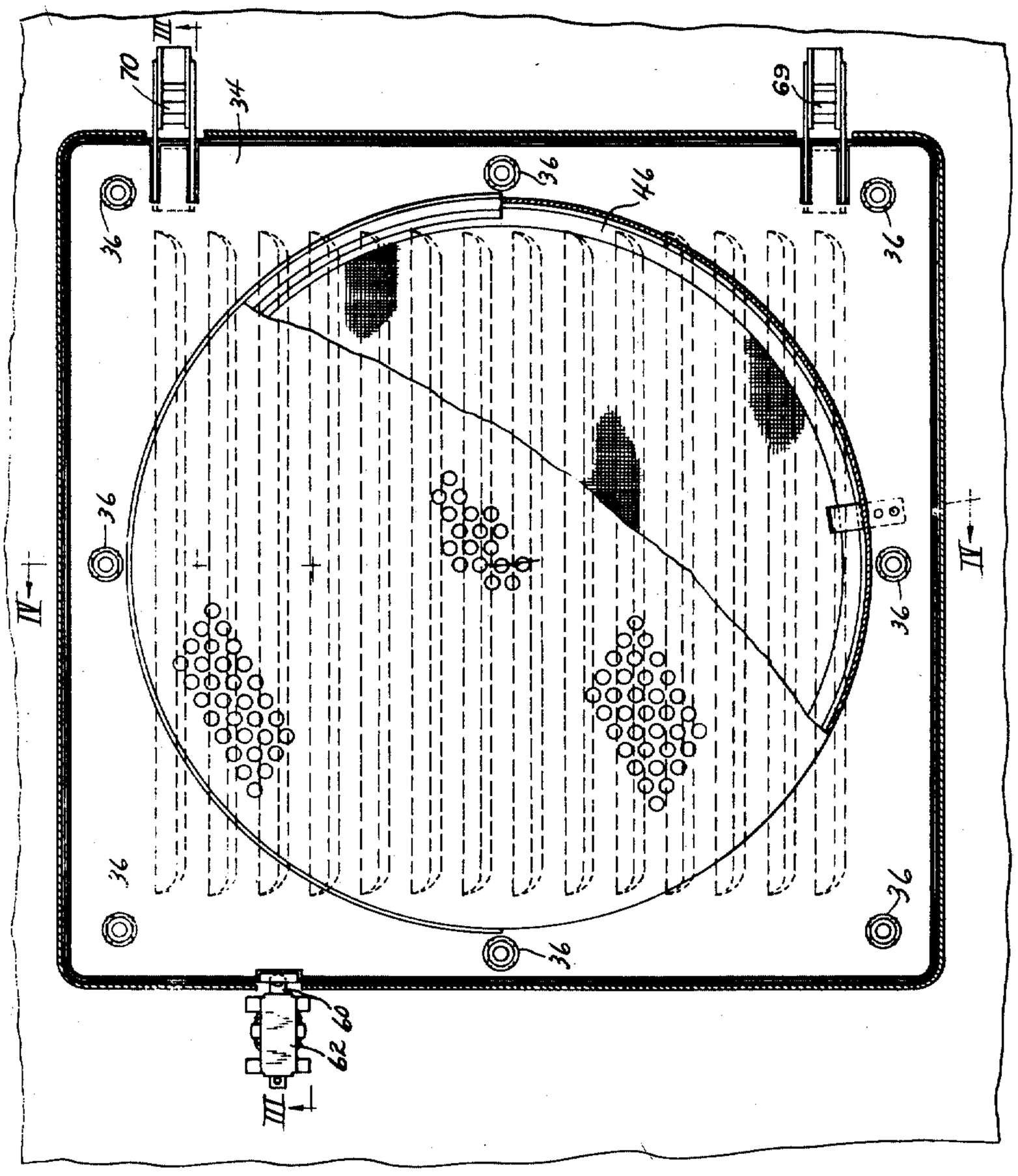

Fig-2

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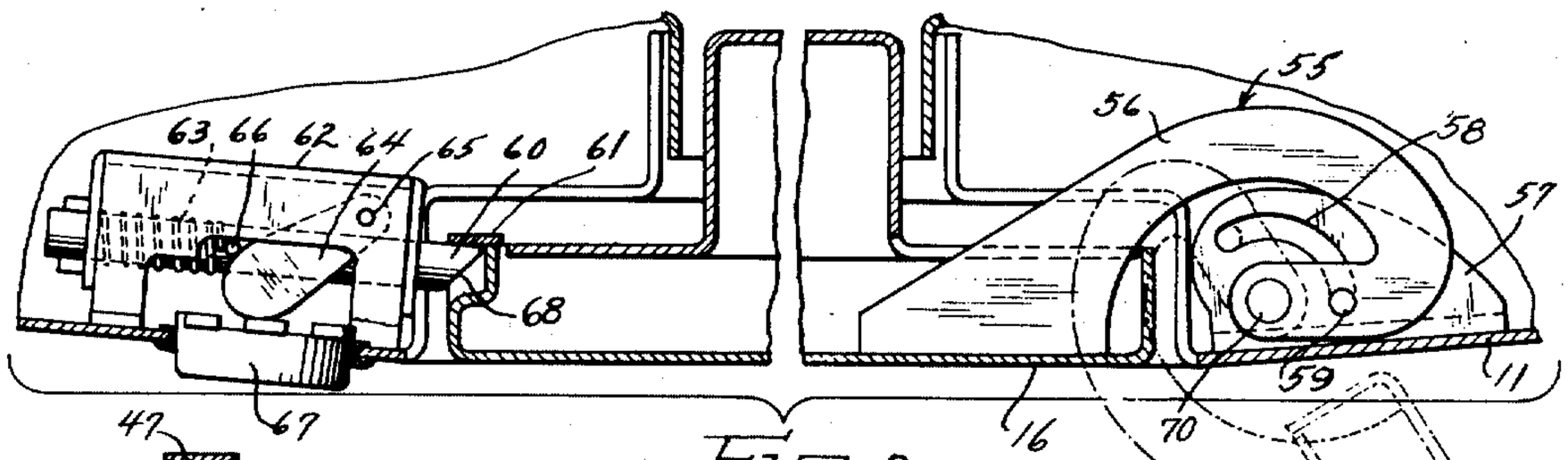


Fig. 3

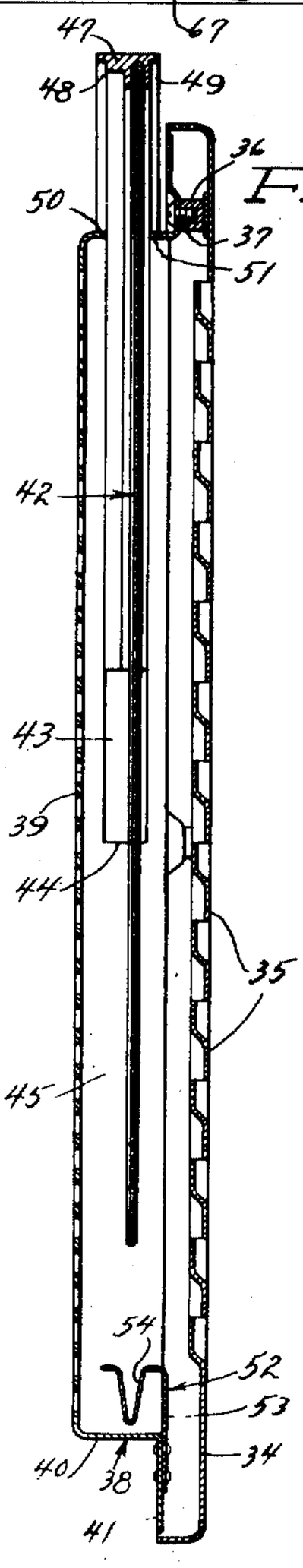
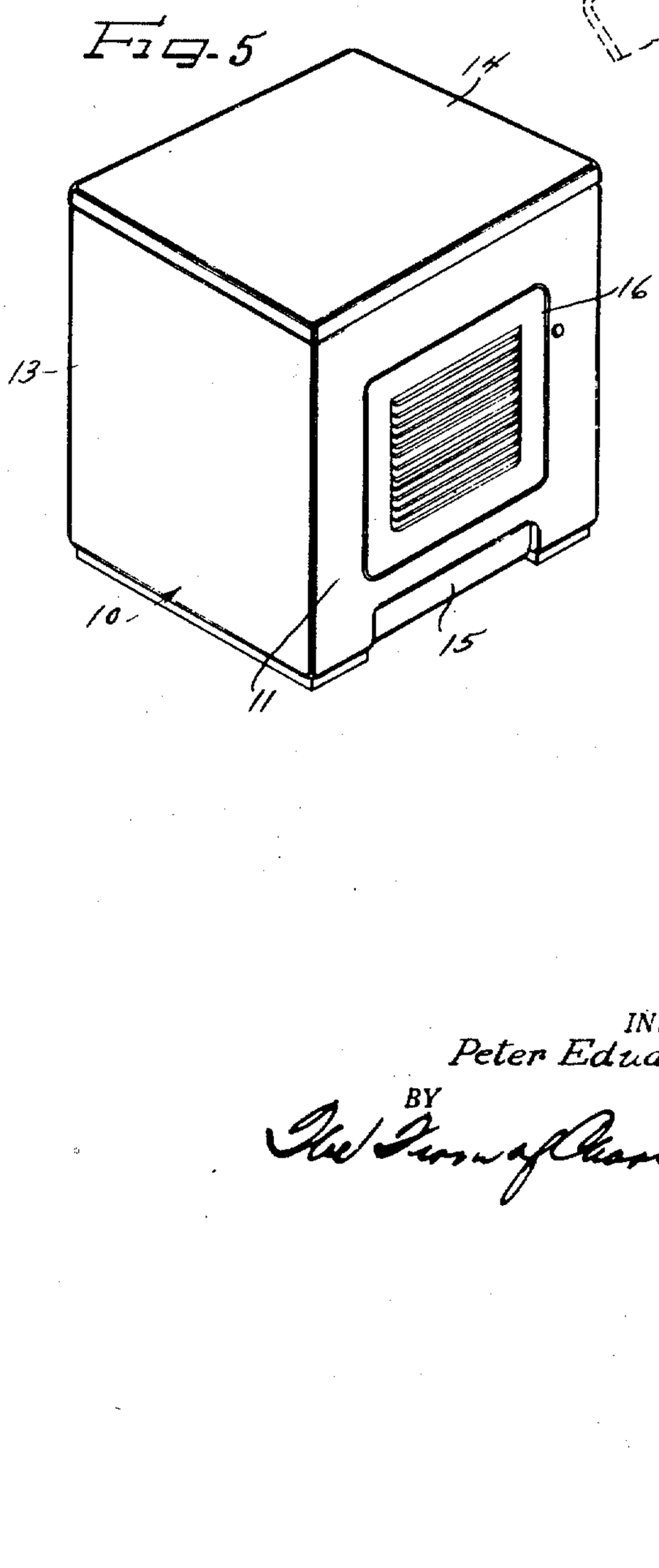


Fig. 4

Fig. 5



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LINT SCREEN AND ASSEMBLY FOR CLOTHES DRIERS

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7 Claims. (Cl. 34—82)

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This invention relates to a lint screen and assembly for clothes driers, and more particularly to a novel door structure and lint catcher for clothes driers of the so-called "household appliance" type.

One type of clothes drier which has been developed for the household appliance field includes a drum mounted for rotation about a horizontal axis within a generally rectangular housing. Air is taken into the housing, heated, and circulated through the rotating drum from one end to the other and then out through the closed door in the front of the housing. The closed door is suitably provided with louvers to permit the passage of air through the door and in addition a screen is interposed in the path of the air movement to catch lint or other foreign material thrown off from the clothes or other articles being dried as they tumble about within the rotating drum.

One of the principal features and objects of the present invention is to provide a novel drier construction including means for separating solid particles from the air which is circulated over the clothes before the air is permitted to pass out into the room.

A further object of the present invention is to provide a novel clothes drier door construction and lint catcher.

Another object of the present invention is to provide a novel lint collecting chamber for clothes driers and the like.

Still another and further object of the present invention is to provide a novel clothes drier structure with a quickly removable lint catcher.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claims. My invention in itself, however, both as to its organization and manner of construction, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of a clothes drier embodying the novel features and principles of the present invention with portions of the cabinet wall broken away and with other portions in section;

Figure 2 is an enlarged fragmentary rear view of the door structure as taken along the line II—II of Figure 1, certain portions of the rear panel of the door being broken away to show structure therebehind;

Figure 3 is an enlarged horizontal sectional

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view of the door structure as taken along line III—III of Figure 2;

Figure 4 is a sectional view through the door as taken along the line IV—IV of Figure 2 but with the lint catcher or screen in partially removed position; and

Figure 5 is an isometric view of the exterior of the clothes drier shown in the preceding figures.

The clothes drier 10 as shown in the various figures of the drawing includes a cabinet having front and rear panel portions 11 and 12 as well as side panel portions 13 and a top 14. The rear panel portion 12 contains a plurality of apertures 12a through which air is drawn into the drier. As shown in Figure 5 the front panel portion 11 includes a recessed portion 15 which in effect is a foot recess enabling a person to stand closer to the clothes drier when desired, as well as providing an ornamental appearance for the cabinet 10. A door 16 is mounted in the front wall 11 and when opened permits access to the interior of the cabinet for the purpose of inserting and removing clothes as well as to permit removal of the lint catching means presently to be described.

Mounted within the cabinet 10 is a clothes receiving drum 17. The particular physical construction of the drum 17 forms no part of the present invention but may conveniently be an imperforate drum around its cylindrical and peripheral surface but having air passageways at each end thereof. More particularly the drum 17 may include a front wall portion 18 having an outturned lip 19 which nests within an inturned flange 20 of the housing 10. A heating and blowing unit is shown generally at 21. The drum 17 is mounted on a shaft 22 and is driven by a drive wheel 23 through the belt drive 24 and the belt drive 25 from the motor 26. The belt drive 25 extends over a motor pulley 27, an idler pulley 28, and a fan pulley 29, the fan pulley 29 being arranged to drive a fan (not shown) within the heating and air circulating means 21. The idler wheel 28 is directly connected to a second idler wheel 30 mounted on the same idler shaft 31 so that when the idler wheel 28 is rotated the idler wheel 30 is also rotated to drive the drum. The assembly of the drum 17 and the heating and blowing means 21 is carried on a pedestal 31 which is located behind the motor as viewed in Figure 1 but centrally of the cabinet 10.

The opening in the cabinet 10 in which the door 16 is mounted is defined by an inturned flange which includes a flange portion 32 which extends

rearwardly, a flange portion 33 which extends generally parallel to the front face 11 of the cabinet 10 and the rearwardly extending flange portion 20 previously referred to which nests with the flange portion 19 on the drum 17. The flange portion 32 defines a rectangular opening into which the door 16 may be disposed. The inner flange portion 20, however, is circular and concentric with the axis of rotation of the drum 17.

The door 16 includes a front panel portion 34 having a louver arrangement 35 wherein a plurality of bosses 36 are welded or otherwise suitably secured to the rear face of the panel 34. As shown in Figure 2 of the drawings these bosses are eight in number although any number may of course be employed. The bosses 36 as shown in Figure 4 are tapped and arranged to receive bolts 37 for the purpose of mounting the rear panel unit 38 in spaced relation on the front panel unit 34. The rear panel unit 38 includes a circular perforated central portion 39, a circular axially extending flange 40 and an outer flange 41. The openings in the rear plate portion 39 are relatively large so that air passes freely therethrough as well as freely through the louvers 35 in the front panel portion 34.

A lint catching screen member 42 is arranged to be mounted in the chamber lying between the perforated rear panel 39 and the louvered front panel 34. To this end a slot 43 is provided in the flange portion 40 throughout the entire top half thereof. In other words the slot 43 extends substantially 180 degrees around the flange portion 40 and terminates at either end at 44. The screen member 42 is of a diameter slightly less than the diameter of the flange portion 40 and for that reason may be dropped through the slot 43 into the chamber or compartment 45 which lies between the rear panel 39 and the front panel 34.

The screen member 42 may be conveniently reinforced at its peripheral edge by any suitable banding 46, it being borne in mind however that the entire overall diameter of the screen member including the banding 46 is less than the diameter of the flange portion 40. This screen 42 is mounted in an arcuate member 47 which extends substantially half way around the screen member 42. The arcuate member 47 is preferably made sufficiently heavy so as to be substantially rigid and includes shoulder portions 48 and 49 which are arranged to be seated on the lips 50 and 51 defining the opposite sides of the slot 43. It will thus be apparent that the screen member which is preferably permanently and rigidly mounted in the arcuate member 47 is supported by means of the arcuate member 47.

One or more spring clips 52 may be employed if desired to snugly receive the lower edge of the screen 42 when it is dropped into place. As shown in Figure 4 of the drawing, the spring clip 52 includes a leg portion 53 and a V-shaped screen receiving flexible end 54.

The material forming the screen 42 is of sufficiently fine gauge or mesh so that lint is separated out of the air in passing therethrough. It will thus be apparent that the lint in the air will be collected on the screen 42 and may be quickly and easily removed therefrom by simply swinging the door 16 open and lifting out the arcuate member 47 with the screen 42 depending therefrom. The screen may then be brushed clean, washed or the like.

The manner in which the door 16 is supported and latched in place may be seen best from an inspection of Figures 2 and 3 of the drawings. More particularly, the door 16 is carried on a pair of hinge members 55. These hinge members 55 include an arm 56 which is welded or otherwise suitably secured to the rear face of the front panel 34 and a second hinge member 57 which is welded or otherwise suitably secured to the rear face of the front panel 11 of the cabinet 10. The members 56 and 57 are hinged together by the pin 70. The hinge member 57 includes an arcuate slot 58 which is arranged to receive a pin 59 carried on the hinge member 56, the arcuate slot 58 and its cooperating pin 59 being arranged to limit the outward movement of the door 16.

The door is latched in place by a latch bolt 60 which engages with a recessed lip portion 61 on the side edge of the door 16 opposite to the hinges 55. The latch bolt 60 is mounted in a latch frame 62 and is spring biased by means of a coil spring 63 to its normally latched position. The latch frame 62 carries a cam finger 64 which is pivotally mounted thereon as at 65. This cam finger 64 is arranged to bear against a pin 66 on the latch bolt 60 and retract the latch bolt from its latching position when it is moved in a clockwise direction, as viewed in Figure 3 of the drawing, by the push button 67.

From the foregoing description it will be apparent that when the push button 67 is depressed it forces the finger 64 against the pin 66 to move the latch bolt 60 against the action of the biasing spring 63 out of its latching position with the lip 61 on the door 16. The latch bolt 60 has a beveled front surface 68 which enables the door 16 to be snapped into latched position.

By locating the upper hinge pin 70 slightly forwardly from the lower hinge pin 69, the door 16 is biased by gravity to its open position. It will, therefore, be apparent that by simply depressing the push button 67, the door 16 will swing open. This is a great convenience for someone using the machine who approaches it with an armful of clothes.

While I have shown a particular embodiment of my invention, it will, of course, be understood that I do not wish to be limited thereto, since many modifications may be made and I, therefore, contemplate by the appended claims to cover all such modifications as fall within the true spirit and scope of my invention.

I claim as my invention:

1. In an article handling device, a housing having air inlet openings at one end, an article containing drum mounted for rotation within said housing for rotation on a horizontal axis, said drum having an open end through which articles may be placed in said drum and removed therefrom, means for rotating said drum, and a door disposed on said housing opposite said open end of said drum, said door having inner and outer panel portions spaced from each other, said panel portions each having openings therein through which air may pass, a removable filter screen disposed between said inner and outer panel portions, and means for circulating air through said drum and through said door.

2. In an article handling device, a housing having air inlet openings at one end, an article containing drum mounted for rotation within said housing about a horizontal axis, said drum having an open end through which articles may be placed in said drum and removed therefrom, the other

end of said drum also having an opening therein through which air may circulate, means for rotating said drum, and a door disposed on said housing opposite said first open end of said drum, said door having inner and outer panel portions spaced from each other and secured together by a peripheral flange, said panel portions each having openings therein through which air may pass said peripheral flange including a cylindrical shoulder portion, a slot in said cylindrical shoulder portion extending approximately half way therearound, and a screen disposed in said slot between said inner and outer panel portions, said screen being removable through said slot in said shoulder portion, and means for circulating air through said drum and said door.

3. In an article handling device, a housing having air inlet openings at one end, an article containing drum mounted for rotation within said housing about a horizontal axis, said drum having an open end through which articles may be placed in said drum and removed therefrom the other end of said drum also having an opening therein through which air may circulate, means for rotating said drum, and a door mounted on said housing and disposed opposite said first open end of said drum, said door having inner and outer panel portions spaced from each other and secured together by a peripheral flange, said panel portions each having openings therein through which air may pass said peripheral flange including a cylindrical shoulder portion, a slot in said cylindrical shoulder portion extending approximately half way therearound, and a disk-shaped screen of slightly smaller diameter than the diameter of said shoulder portion disposed in said slot between said inner and outer panel portions, said screen including a flange portion extending approximately half way therearound and slightly wider in transverse cross-section than said slot in said shoulder portion, whereby said screen is supported by reason of said flange portion resting on said sohulder, and means for circulating air through said drum and through said door.

4. A combination lint catcher and clothes drier door assembly comprising a door having inner and outer panel portions, each panel portion having a plurality of openings therein, said door including a generally cylindrical connecting flange between the inner and outer panel portions, said connecting flange having a peripherally extending slot therein, a screen member between said inner and outer panel portions, said screen member having a shoulder portion extending peripherally around for approximately 180°, said shoulder portion providing a seat for said screen on said connecting flange and also providing a different portion for quickly removing said screen.

5. A combination lint catcher and clothes drier door assembly comprising a door having inner and outer panel portions, said inner panel portion having a plurality of openings therein and said outer panel portion having a plurality of louvres, said door including a generally cylindrical connecting flange between said inner and outer panel portions, said connecting flange having a peripherally extending slot in the top thereof extending substantially half way around, a screen member between said inner and outer panel portions, said screen member having a shoulder portion extending peripherally around the edge thereof for substantially 180°, said shoulder portion being arranged to be seated on said connecting flange along the opening defining edges thereof thereby to provide a seat for said screen on said connecting flange.

6. A combination lint catcher and clothes drier door assembly comprising a door having inner and outer panel portions, said inner panel portion having a plurality of openings therein and said outer panel portion having a plurality of louvres, said door including a generally cylindrical connecting flange between said inner and outer panel portions, said connecting flange having a peripherally extending slot in the top thereof extending substantially half way around, a screen member between said inner and outer panel portions, said screen member having a shoulder portion extending peripherally around the edge thereof for substantially 180°, said shoulder portion being arranged to be seated on said connecting flange along the opening defining edges thereof thereby to provide a seat for said screen on said connecting flange, and means on said door opposite said slot in said connecting flange for releasably securing the lower end of said screen.

7. A combination lint catcher and clothes drier door assembly comprising a door having inner and outer panel portions, said inner panel portion having a plurality of openings therein and said outer panel portion having a plurality of louvres, said door including a generally cylindrical connecting flange between said inner and outer panel portions, said connecting flange having a peripherally extending slot in the top thereof extending substantially half way around, a screen member between said inner and outer panel portions, said screen member having a shoulder portion extending peripherally around the edge thereof for substantially 180°, said shoulder portion being arranged to be seated on said connecting flange along the opening defining edges thereof thereby to provide a seat for said screen on said connecting flange, and a spring finger mounted on said door for releasably grasping said screen opposite to where said shoulder portion is seated on said connecting flange.

PETER EDUARD GELDHOF.

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