

March 4, 1952

C. S. O'NEIL
LAUNDRY DRIER

2,587,645

Filed May 9, 1946

2 SHEETS—SHEET 1

Fig. 2.

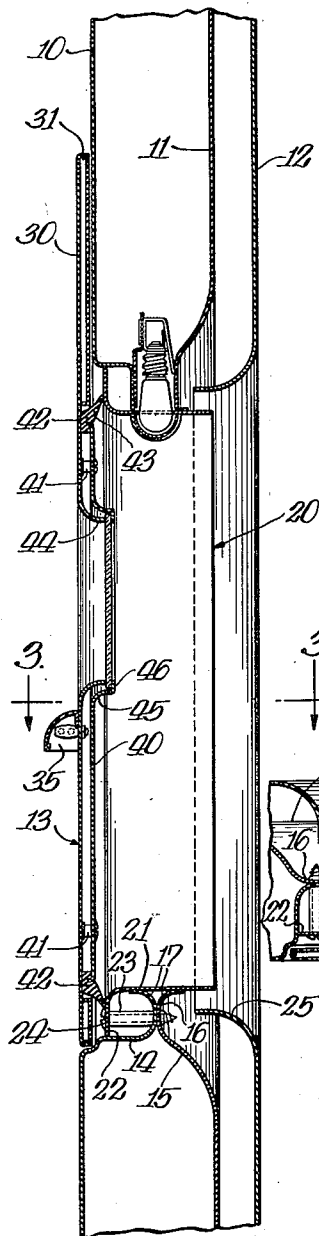


Fig. 1.

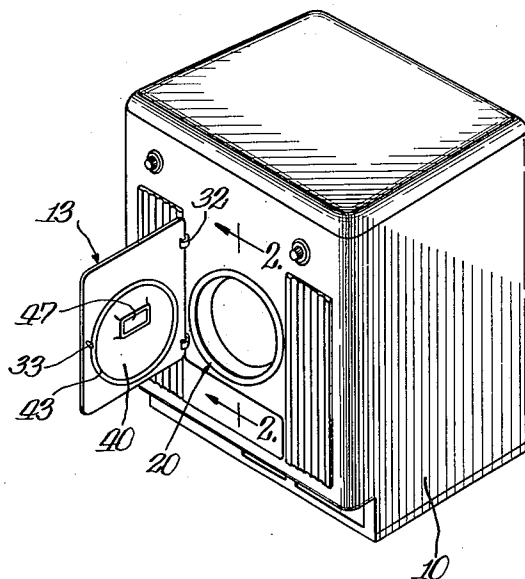
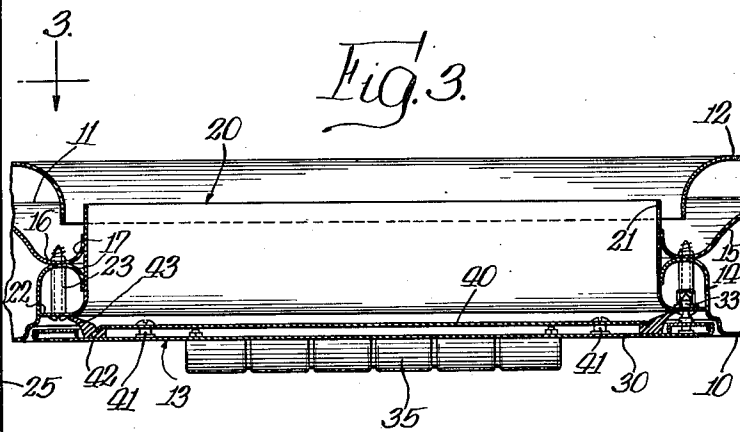


Fig. 3.



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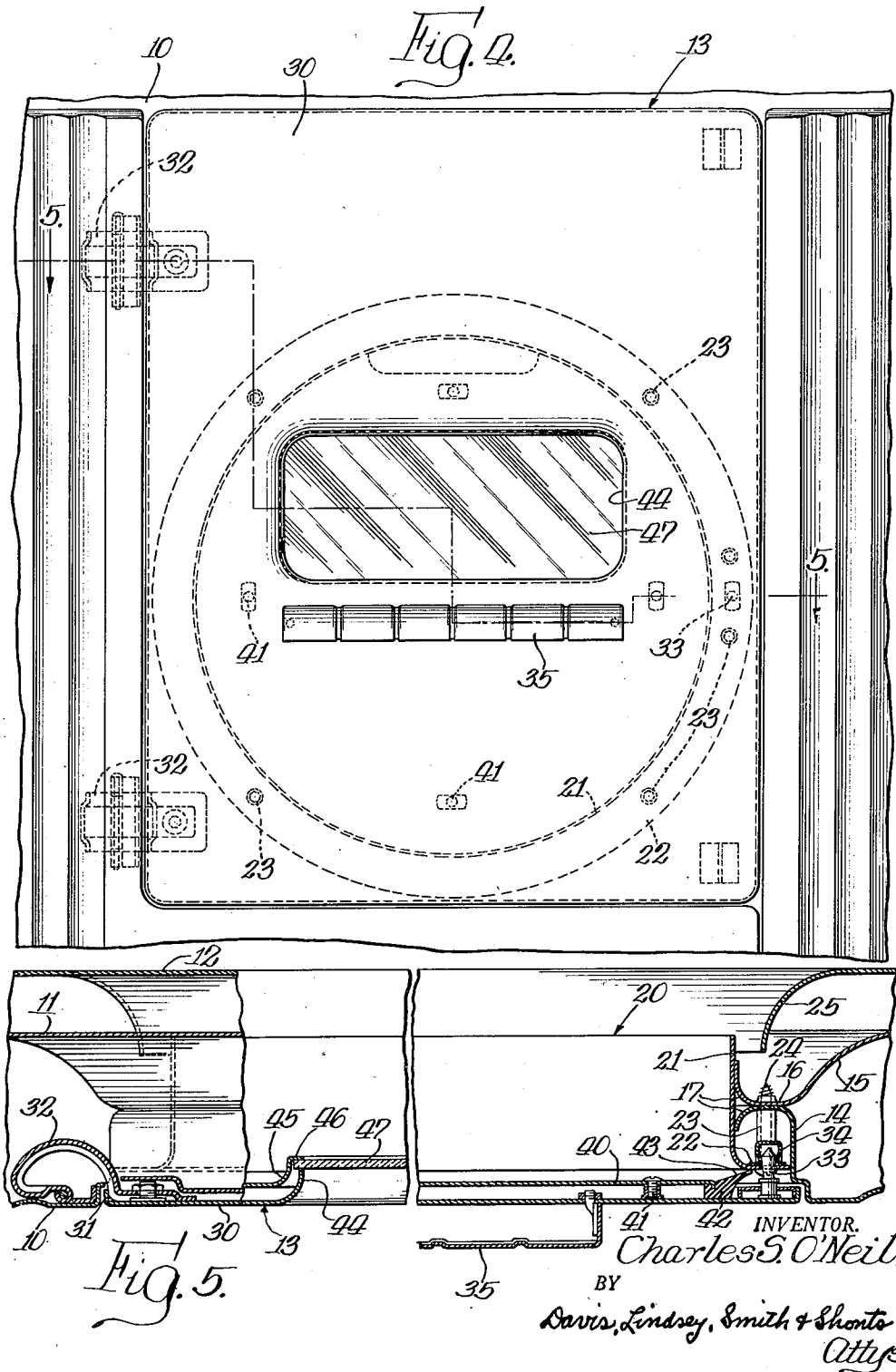
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2 SHEETS—SHEET 2



UNITED STATES PATENT OFFICE

2,587,645

LAUNDRY DRIER

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Application May 9, 1946, Serial No. 668,488

1 Claim. (Cl. 220—46)

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The invention relates generally to laundry dryers of the type comprising a casing structure and a rotatably driven drum in which the laundry is tumbled in the presence of heat to evaporate the moisture in the laundry.

The general object of the invention is to provide a novel door construction for a dryer of the foregoing character, which provides a relatively airtight seal for the opening in the casing through which the laundry is inserted in and withdrawn from the drum, so that air currents within the casing for carrying off moisture may be readily controlled.

Another object is to provide a novel door construction for a dryer of the foregoing character, which provides for effectively closing the opening in the casing through which laundry is inserted in and withdrawn from the drum, and which may have any external characteristics desired, in order to conform to design features of the casing.

A further object is to provide a novel laundry dryer comprising inner and outer casings, and a drum for tumbling the laundry during the course of drying rotatably mounted within said casings, the latter having an opening coaxial with the drum and an opening therein for insertion and withdrawal of the laundry, the opening in said casings being provided with a frame structure facilitating the passage of the laundry there-through and cooperating with a door structure to provide an airtight seal.

Still another object is to provide a novel door construction for a dryer of the foregoing character, having a double-wall arrangement preventing overheating of the exterior surface of the door, facilitating the mounting of a flexible seal, and providing a simple means for supporting a glass window within the area of the door.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a dryer embodying the features of the invention.

Fig. 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged fragmentary front elevational view of the dryer shown in Fig. 1.

Fig. 5 is a fragmentary sectional view taken on the line 5—5 of Fig. 4.

The present invention relates to a laundry dryer of a type and capacity adapted for household use. In the form illustrated, the dryer comprises an outer casing 10 which, in the present instance, is of generally rectangular form, as is clearly apparent in Fig. 1. Within the outer casing is an inner casing 11, the walls of which

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are spaced from the outer casing 10 to provide an air space therebetween. Within the inner casing is a drum 12 mounted for rotation on a horizontal axis extending from the front to the rear of the machine. The drum 12 is adapted to receive the laundry and to tumble it during the course of drying, the inner casing 11 providing a chamber enclosing the drum 12 and adapted to be supplied with heat to facilitate the drying operation. Driving means (not shown) is mounted within the outer casing 10 for rotating the drum 12 during the course of drying and for supplying air to carry away moisture evaporated from the laundry.

The inner and outer casings as well as the drum are provided with registering openings, preferably in the front thereof, to permit the insertion and withdrawal of the laundry, and a door structure, indicated generally at 13, is provided for closing the opening. In view of the fact that an air current is utilized for carrying away the moisture from the laundry, it is desirable to so construct the door that the opening is sealed in a relatively airtight manner so that the air current within the casing structure may be readily controlled. Further, it is desirable to construct the door in such a manner that the heat from the interior of the casing structure will not be dissipated by radiation through the door. It is also convenient to provide the door with a window through which the laundry may be viewed during the tumbling action.

In the preferred construction shown in the drawings, the inner and outer casings are secured to each other around the opening. To this end, the outer casing is curved inwardly as at 14, while the inner casing is curved outwardly as at 15, to form curved abutting portions 16 around the opening. The margins of the two casings are then curved outwardly away from each other as at 17. To provide a smooth frame structure in the opening through which laundry may be readily inserted into the drum, I provide a flange member, indicated generally at 20, comprising a portion 21 extending inwardly through the opening and engaging the curved marginal portions 17 of the casings. The flange member 20 also has a portion 22 overlying the abutting portions 16 of the two casings and held in spaced relation thereto by a tubular spacer 23. The entire structure at this point is then held rigidly together by means such as a sheet metal screw 24 extending through the portion 22 of the flange member 20, the tubular spacer 23, and the abutting portions 16 of the casing. The drum 12 is provided with an outwardly turned flange 25 which is in telescoping relation with the inner edge of the flange member 20 and extends into the annular space formed by the curved portion

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15 of the inner casing. Thus, the laundry may be readily inserted into the drum without danger of falling in between the drum and the inner casing, and the telescoping relation of the flange member 20 with the flange 25 of the drum prevents the laundry from falling into such space during the tumbling action.

The door structure 13, in the present instance, comprises an outer wall or plate 30, preferably of sufficient size to overlap the front wall of the outer casing 10. In the present instance, the outer plate 30 is of rectangular form and is substantially larger than the opening to be closed by the door structure. The outer plate 30 is preferably flanged as at 31 around its perimeter and is provided with concealed hinges 32 secured to the outer casing. The outer plate 30, at its opposite edge, is also preferably provided with means for holding the door closed, comprising, in the present instance, a strike 33 (see Fig. 5) engaging a friction catch 34 mounted on the flanged member 20. To open and close the door, a handle 35 may be mounted on the outer plate 30.

To prevent heat loss by radiation through the door, an inner plate 40 is provided. The inner plate preferably is coextensive in area with the opening in the casing and is secured to the outer plate 30 in spaced relation thereto as by screws and spacers 41. The screws and spacers 41 are preferably mounted inwardly from the edge of the inner plate 40 to leave the edge thereof free.

To seal the opening when the door structure is closed, a sealing member is provided. The sealing member is preferably made of rubber and comprises a body portion 42 clamped between the edge of the inner plate 40 and the adjacent inner face of the outer plate 30. The sealing member also includes a flexible lip 43 which tapers in thickness from the body portion towards its free edge. The flexible lip 43 extends outwardly from the edge of the inner plate 40 and rearwardly at an angle to the plane of the door so that, when the door is closed, the rear face of the lip portion adjacent the free edge thereof engages flatwise against the portion 22 of the flanged member 20. When the door is fully closed and held by the catch 34, the lip portion 43 of the sealing member is slightly flexed so that a relatively tight, substantially airtight seal is thereby provided.

As heretofore mentioned, the door structure also includes a window through which the laundry within the drum 12 may be viewed while being tumbled. The present structure lends itself to a simplified mounting for a pane of glass comprising such a window. To this end, the inner and outer plates 30 and 40 are provided with registering openings, in the present instance rectangular, and the outer plate is provided with an inwardly turned flange 44. The inner plate, in the preferred construction, is provided with a flange extending around the margin of its window opening and projecting inwardly as at 45 and then laterally as at 46, to provide a seat for the pane of glass, indicated at 47. The flanges on the respective members are so positioned relative to each other that the glass 47 will be clamped between the seat formed on the inner plate and the inner edge of the flange 44 on the outer plate, as clearly indicated in Figs. 4 and 5. This construction eliminates the necessity of providing a separate frame piece to hold the glass in place.

From the foregoing description, it will be ap-

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parent that I have provided a novel door construction for the dryer, which provides, when the door is closed, a relatively airtight seal by means of the flexible lip portion 45 of the sealing member so that air currents within the casing for carrying off moisture may be readily controlled without leakage occurring around the door. The sealing member is readily secured in place by the double-wall construction, which prevents excessive radiation of heat to the opening in the casing. Such double-wall construction also permits the external portion of the door structure to have any desired shape, which may differ from the shape of the opening through the casing walls. Thus, in the present instance, the opening through the casing walls is round while the external appearance of the door is rectangular to conform to design characteristics of the exterior of the machine. The double-wall arrangement also provides a simple means for mounting a glass window therein.

I claim:

A laundry dryer comprising a casing structure including a wall having a circular opening for the insertion and withdrawal of laundry, a flange member comprising a portion extending inwardly through said opening and a planar flange portion extending radially outwardly and secured to said wall and forming a closure seat, and a rectangular door for closing said opening comprising an outer plate of substantially greater area than said opening and extending over the outer face of said wall and hinged thereto, an inner plate substantially coextensive in area with said opening and secured to said outer plate and having its edge turned toward said outer plate, and a sealing member having a body portion clamped between said turned edge of the inner plate and the face of the outer plate and including a flexible lip extending normally outwardly and at an angle to the inner plate and having a flat inner surface which in operative position with the door closed engages said closure seat for effecting a substantially airtight seal.

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