INFLATABLE WASHING MACHINE DOOR SEAL
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3 Claims. (Cl. 68—24)

This invention relates to washer-extractors and particularly to an improved sealing means for slidable doors that provide access to the interior of the washer-extractor.

In prior known washer-extractor of the type which employ sliding shell-type doors for gaining access to the interior of the extracting drum, it has been very difficult, if not impossible, to provide sealing means about the doors thereof, with the result that during the washing and extracting cycles excessive leakage occurs due to the force with which the free water is thrown against such doors. Solid strips of sealing material have been used, but these are not satisfactory. Also, separate inflatable strips have been employed, one for each edge, but they too have proven unsatisfactory.

The principal object of this invention is to provide a seal for slidable shell-type doors for washer-extractors which will effectively seal the same.

Another object of the invention is to provide such a seal that will not inhibit the sliding of said doors in opening and closing same.

In one aspect of the invention, a washer-extractor may comprise a housing within which a perforated basket is mounted for rotation about a horizontal axis. The basket may have trunnions at each end which extend through opposed side walls of the housing and which trunnions are journaled in bearings mounted in frames at each end of the housing.

The housing may be of semicylindrical form and may include large openings in its front, providing access to the interior thereof to facilitate loading of the perforated basket with clothes to be washed. Slidable shell-type doors may be mounted between track means along each opposed vertically extending edge of each opening in such fashion that when said doors are in an open position, they lie along another cylindrical portion of the semicylindrical housing.

In still another aspect of the invention, resilient tubular means may extend continuously along, and be encased by, said track means as well as along similar enclosing means along the lower horizontal edges of said openings. The construction is such that only one side of the tubular means is exposed and such that it is adjacent the side and front edges of the slidable shell-type doors. Since the level of water within the housing is always substantially below the upper horizontal edge of the openings, no sealing means at this upper edge is required.

In still another aspect of the invention, the usual cycle timer may be provided for sequentially initiating the operation of the various components of the washer-extractor, and at predetermined times in said cycle, it may effect the supply of pressure fluid to the interior of the resilient tubular means, thereby expanding its exposed side wall until it provides a continuously extending seal engaging all three edges of the doors when in their closed position. The above, other objects and novel features of the improved sealing means for washer-extractors will become apparent from the following specification and accompanying drawings which are merely exemplary.

In the drawings:
FIG. 1 is a perspective view of a washer-extractor to which the principles of the invention have been applied;
FIG. 2 is a sectional elevational view taken substantially along line 2—2 of FIG. 1; and
FIGS. 3, 4 and 5 show sectional views of details of the invention under different operating conditions; FIG. 6 is a perspective view of a resilient tubular element used in the invention; and
FIG. 7 is a perspective view of a portion of the washer-extractor of FIG. 1, showing one of the doors partly open.

Referring to the drawing, the principles of the invention are shown as applied to a washer-extractor including a housing 10 having a semicylindrical portion 11. Housing 10 may be mounted between frames 12 and may have a perforated cylindrical basket 13 mounted therein for rotation about a horizontal axis. The basket may be provided with trunnions 14 that extend through opposed side walls of the housing 10, which trunnions are journaled in bearings (not shown) that may be attached to frames 12.

Basket 13 is adapted to be rotated at a slow washing speed and at a fast extracting speed by driving means well known in the art and which are not shown.

The front of the semicylindrical portion 11 of housing 10 may include openings 15 through which access is had to the basket or drum 13. Drum 13 itself includes a slidably shell-type door 16 covering an opening 17 therein through which clothes to be washed are inserted into the interior of drum 13.

Track means 18 may extend about the top semicylindrical portion 11 of housing 10 substantially 180° from a point at the lower edge of openings 15. The track means may be located along each vertically extending edge of openings 15. A shell-type door door means 19 of substantially a 90-degree extent may cover each opening 15, and its side edges may ride within track means 18. The 90-degree door means 19 may be connected to another curved shell-type element 20 of greater mass than the door means 19, and the side edges of element 20 may also ride in track means 18. The construction is such that element 20 serves as a counterweight for door means 19.

Referring to FIG. 3, track means 18 may comprise channel-shaped curvilinear members 21, welded or otherwise fixed to housing 10 so as to provide opposed channel openings on each side of openings 15. A similar channel-shaped member 22 may extend along the upper horizontal edge of openings 15, and it is joined at its ends to the corresponding ends of elements 21, thereby forming a continuous channel frame about three sides of openings 15, but not along the top horizontal edge for a reason to be explained later.

Referring to FIG. 6, a tubular element 23 may include formed leg portions 24, 25 conforming to the curve of the portion 11 of housing 10, said legs being joined by a portion 26 forming a continuous, generally U-shaped inflatable element. The free ends of legs 24, 25 are sealed. An inlet tube 27 is provided for each element 23 and it may be connected to the sealed end of one of the legs 24, 25. Element 23 is adapted to be inserted within the channel-shaped frame members 21, 22 and to be retained therein by removable strips 28, 29 that expose only one side 30 of the elements 23. Doors 19 may be provided with beaded or curled edges 31 along the three sides thereof that cooperate with the tubular elements 23.

During the washing and extracting cycles, pressure fluid may be admitted to the interior of the continuous tubular elements 23 through lines 27, causing them to inflate to the condition shown in FIGS. 4 and 5, thereby providing an effective liquid seal about the doors. Exhausting the pressure fluid within elements 23 permits free movement of the doors 19.

Since the water level within housing 10 never exceeds substantially the elevation shown in FIG. 2, and the top horizontal edge 32 of the opening 15 is substantially above such level, the positive sealing means provided by the elements 23 is not required at edge 32.

Although the various features of the improved seal for shell-type doors of washer-extractors have been shown...
and described in detail to fully disclose one embodiment of the invention, it will be evident that changes may be made in such details and certain features including using inflatable means on all four edges may be used without others without departing from the principles of the invention.

What is claimed is:

In a washer-extractor, a housing adapted to contain a body of liquid; a perforated drum mounted for rotation within said housing; opening means in said housing providing access to the interior of the perforated drum therein; slidable door means adapted to cover said opening means; continuous channel means along opposed vertically extending edges of said opening means as well as along the lower horizontal edge of said opening means, said channel means providing a continuous space within which three edges of said door means are received; continuous inflatable tubular means having three continuous edge portions received by said channel means so as to be generally normal to said door edges; means for retaining said tubular means within said channel means; and means for conveying pressure fluid to the interior of said tubular means when said door means is in closed position whereby the three edges of said door sealingly engage the corresponding portions of said continuous tubular means.

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