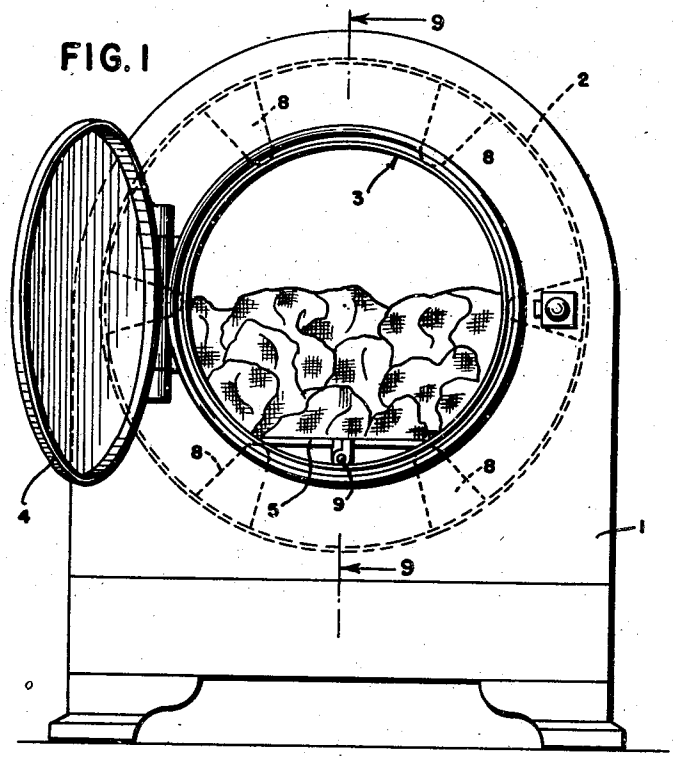
Oct. 19, 1943. L. ZIMARIK 2,332,186

UNLOADING BOARD OR TRAY FOR WASHING MACHINES

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FIG. 1



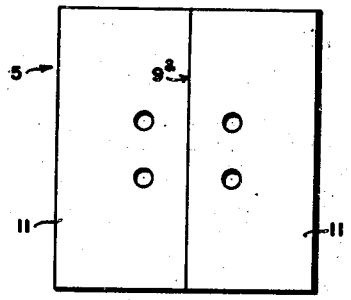


FIG. 2

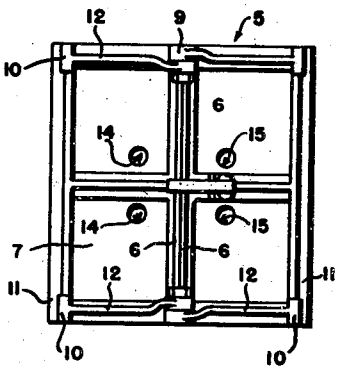


FIG. 3

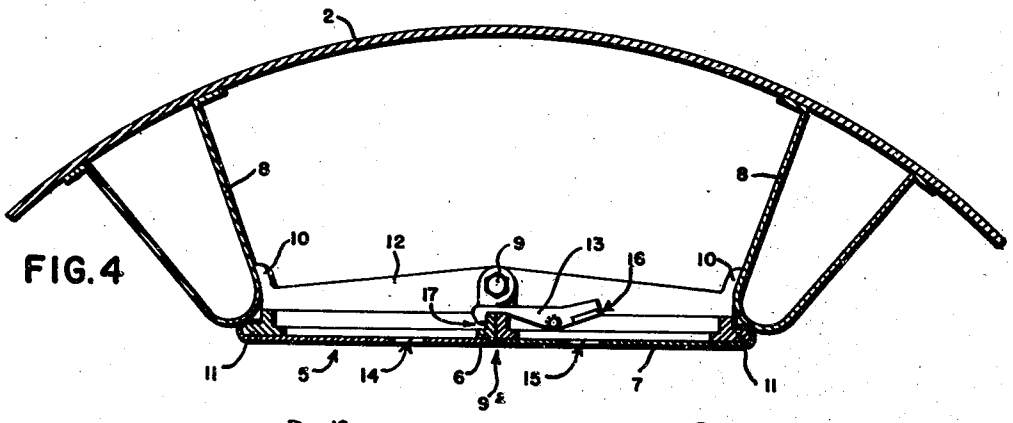


FIG. 4

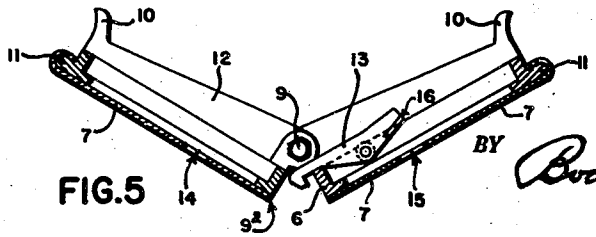


FIG. 5

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UNLOADING BOARD OR TRAY FOR WASHING MACHINES

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FIG. 6

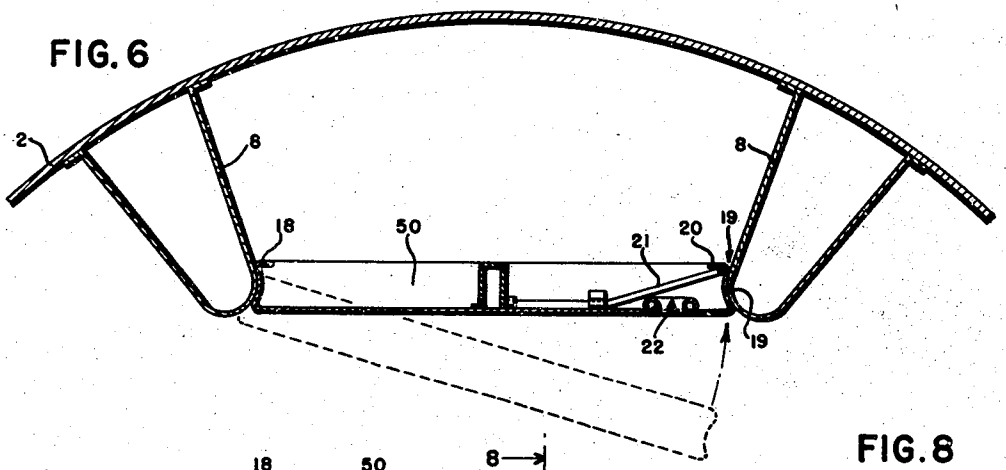


FIG. 7

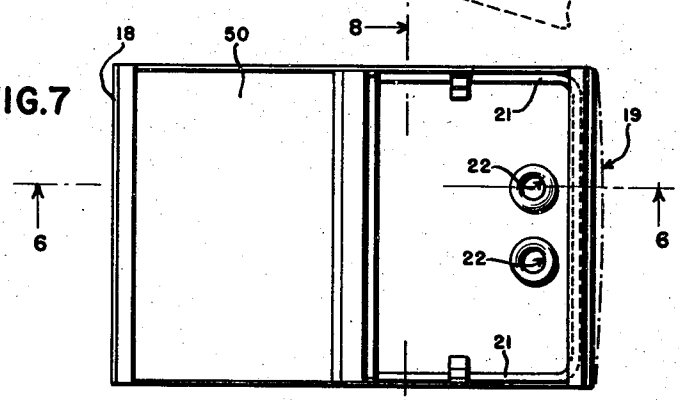
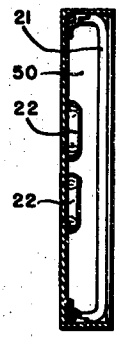


FIG. 8



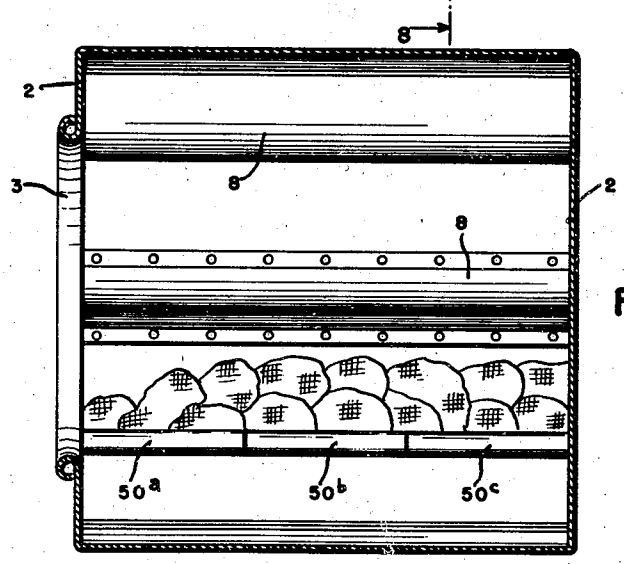


FIG. 9

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Oct. 19, 1943. L. ZIMARIK 2,332,186

UNLOADING BOARD OR TRAY FOR WASHING MACHINES

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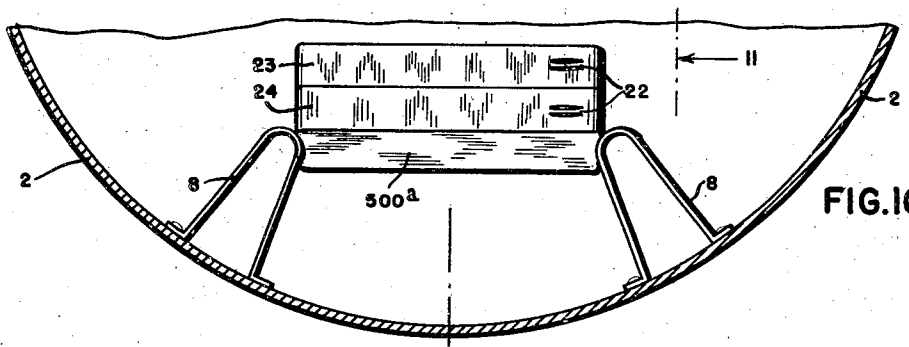


FIG.10

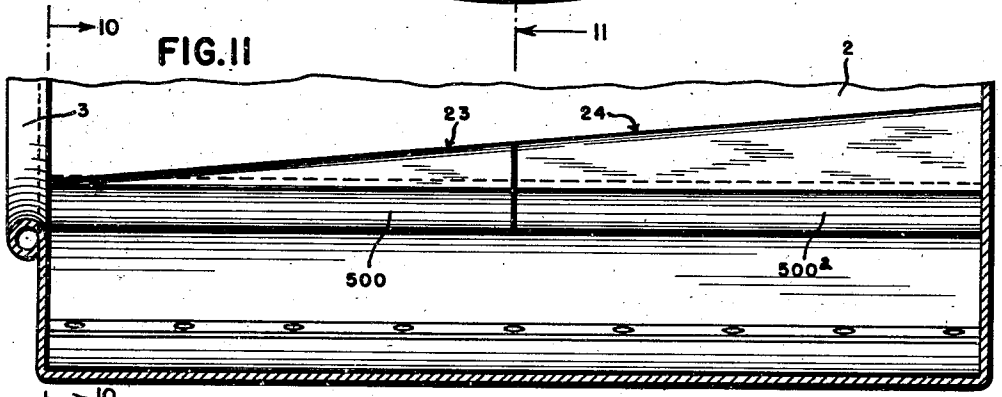


FIG.11

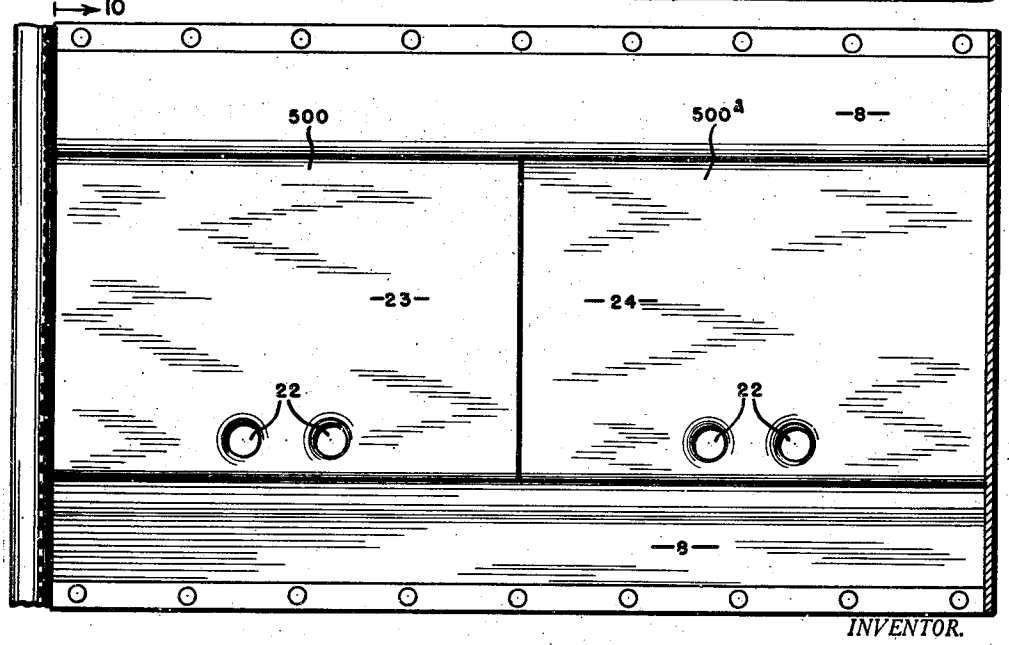


FIG.12

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UNLOADING BOARD OR TRAY FOR WASHING MACHINES

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FIG.13

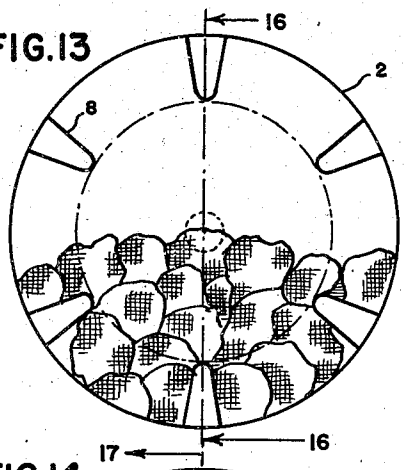


FIG.14

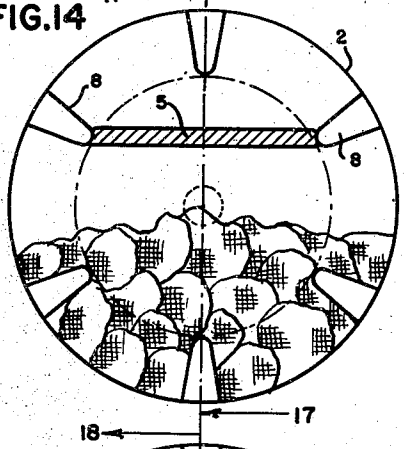


FIG.15

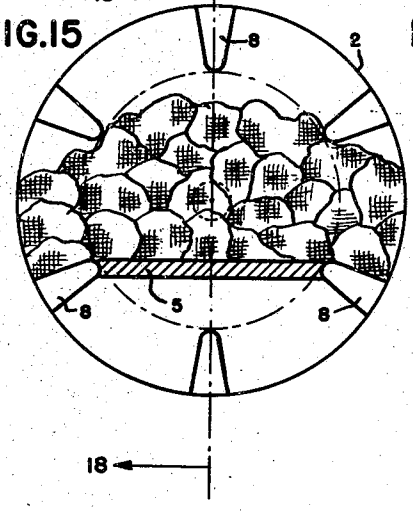


FIG.16

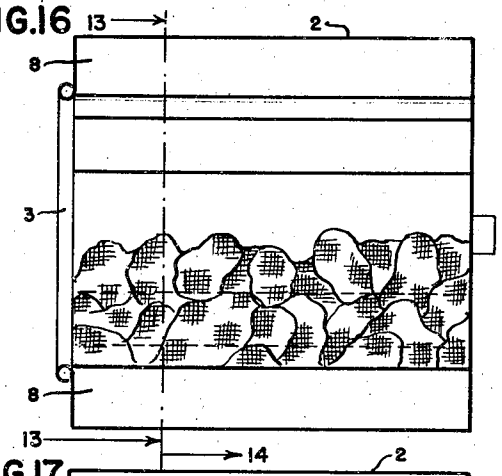


FIG.17

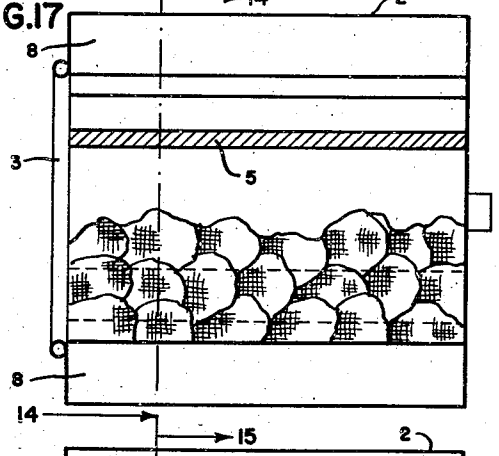
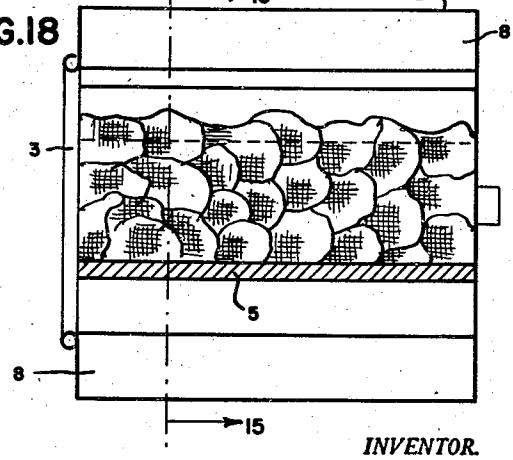


FIG.18



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Patented Oct. 19, 1943 2,332,186

UNITED STATES PATENT OFFICE

2,332,186

UNLOADING BOARD OR TRAY FOR WASHING MACHINES

Louis Zimarik, Syracuse, N. Y., assignor to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

Application August 28, 1940, Serial No. 354,575

6 Claims. (Cl. 68—210)

This invention relates to washing machines and machines having an analogous operation, embodying a container for the clothes or other articles to be washed or subjected to treatment involving a tumbling operation, rotatable about a substantially horizontal axis and having an axial door at one end; and has for its object an unloading device, tray or board which, when the washing, treating or tumbling operation is finished, is placeable in the container through the door opening at one end into a position in which it extends in the general direction of the plane of the chord of the arc of a portion of the circumferential wall of the container and from one end to the other of the container, so that during rotation of the container, after the board has been placed in the upper portion of the container, the articles fall on the board, as it approaches the lower portion of the container, whereby the articles on the board are readily removed from the container.

It further has for its object readily operable means for securing the tray or board in the container and removing the same therefrom.

It further has for its object an arrangement of the tray or board whereby the surface inclines toward the axis of the door end of the container, so that upon movement about the axis of the container, the articles falling on the board are shifted toward the door.

Other objects will appear throughout the specification.

The invention is particularly designed for laundry washing machines, but is applicable to any machine including a rotary container or drum in which the articles being treated are given a tumbling operation. In so far as laundry washing machines are concerned, this unloading board or tray is for the purpose of not only facilitating the unloading of the washer but also eliminating the so-called "pulling" which results in tearing of the laundry, as the articles, when being removed, are being taken off the board or tray which forms a platform, either when the container is stationary or when rotating slowly; that is, when rotating slowly the articles do not wad or ball up. As for instance, an article, as a shirt, may be wadded or tangled with other articles in the washer with the sleeve available for pulling out the shirt. The pulling is very likely to tear the sleeve from the shirt. By means of this unloading board or tray with the articles falling down on the board, the body of the shirt, in this example, would be relatively free from entanglement with other articles, so that pulling on the shirt would not injure the shirt. However, with this board or tray, it is not necessary to do any pulling as the articles can be readily slid with little effort along the board out through the door opening onto a table, cart, conveyor or into a receptacle. Also, the clothes instead of being removed from a pocket that tends to wedge the load together, are removed from a platform where they lie loosely.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a front elevation of one form of washing machine embodying this invention.

Figure 2 is a face view of the tray or board or a section thereof.

Figure 3 is an inverted face view of the tray or board.

Figure 4 is an enlarged fragmentary sectional view of the container and board or tray therein.

Figure 5 is a collapsed view of the tray or board shown in Figure 4.

Figure 6 is a view similar to Figure 4 illustrating a modified form of the board or tray, Figure 6 being taken on the plane of line 6—6, Figure 7.

Figure 7 is a plan view of the tray or board or a section thereof looking downwardly in Figure 6.

Figure 8 is a sectional view on line 8—8, Figure 7.

Figure 9 is a vertical sectional view through a container with the board or tray therein under the load.

Figure 10 is a fragmentary cross-sectional view on line 10—10, Figure 11 through a container showing a second modified form of the tray or board.

Figure 11 is a sectional view on line 11—11, Figure 10.

Figure 12 is a view looking downwardly in Figure 10.

Figures 13, 14 and 15 are diagrammatic views of the container showing the same in end elevation with the clothes or articles therein, Figure 13 showing the container before the unloading board or tray is placed therein; Figure 14, when the board or tray is first placed therein; and Figure 15, the position of the board or tray when the container is rotating to carry the board or tray from the upper portion of the container to the lower portion in such position that the arti-

cles fall thereon and are readily removable through the door at one end of the container.

Figures 16, 17 and 18 are diagrammatic views corresponding to Figures 13, 14 and 15, and showing the container in longitudinal section with the articles therein.

The invention is here shown as applied to a laundry washing machine embodying a clothes or article container or drum rotatable about a substantially horizontal axis having a door opening at one end through which the container is loaded and unloaded, and a door for closing the opening during the washing, treating or other tumbling operation. The container may be embodied in the shell-less type of washer, that is, a washer which has no outer casing containing the washing fluid, or the container may be perforated and mounted in an outer shell or casing having a sump for the washing fluid or other fluid or agent to which the articles in the container are to be subjected.

The invention comprises an unloading board or tray, which is placeable in and removable from the container through the door opening at one end of the container with the unloading board or tray extending in a general direction along the plane of the chord of the arc of a portion of the circumferential wall of the container, and from the door end to the other end of the container which is closed, whereby as the clothes are to be taken from the machine, the board or tray is initially placed above the load into the upper portion of the container, and upon movement of the container, the board or tray is carried to the lower portion of the container and the articles in the container fall on the board, and at a level therewith, the board or tray serving as a platform along which they can be readily slid or moved through the open door.

It further has for its object a quickly operable means for securing the board or tray in the container and removing it from the container.

1 designates the washing machine generally; 2 the container, which is usually cylindrical and mounted to rotate about a horizontal axis and having a door opening 3 at one end which is normally closed by a door 4 mounted in any suitable manner to have an opening and closing movement.

5 designates the unloading board or tray, this being of any suitable material and for convenience herein is called a board. The board is usually made of metal and comprises suitable frame bars 6 and a sheeting 7, the outer face of which constitutes a supporting surface for the articles in the container. The containers are usually formed with internal ribs 8 extending from end to end of the drum, and in most cases parallel to each other. These ribs are for facilitating the agitation of the articles during the tumbling, while the container is rotating. In laundry washing operations, the container is usually rotated a number of times in one direction, and then a number of times in the opposite direction, these alternate operations continuing throughout the entire washing or cleaning period. The board 5 is secured to any two of the spaced apart ribs and coacts therewith at the apex portions of the ribs.

For relatively small washers, the board is single. For larger washers, to facilitate the handling of the board, it is formed of two or three transverse sections arranged end to end.

In the form shown in Figures 1 to 5 inclusive, the board 5 or each transverse section is shown as formed of two lengthwise sections or leaves having a collapsible movement from extended position. The lengthwise sections preferably each constitute one-half of the board or of each transverse section, and are hinged together at 9. The lengthwise sections or leaves abut against each other at 9^a at their hinged edges, when in straightened or extended position, to form a stop joint. In placing the board in position, it is folded or collapsed and placed between the ribs at the upper portion of the container and over the load, while the container is stationary, and then it is extended or straightened from the position shown in Figure 5 to that shown in Figure 4, wherein it bridges the space between two of the ribs 8. The board is provided with means for coacting with the ribs for holding the board in position. This means comprises shoulders 10 at the side edges of the board coacting with the opposing sides of the ribs 8 adjacent the apex portions thereof, while flanges 11 at the edges of the board engage the end or apex edges of the ribs 8. The shoulders 10 are, in the illustrated construction, provided at the end of bars or struts 12 extending transversely of the ends of the lengthwise sections of the board, from the hinge 9. Suitable means, as a latch 13, is provided for holding the door from collapsing, the latch 13 being located on the outer side of the board, that is, the side toward the circumferential wall of the container. The sheeting 7 is provided with suitable finger holes 14 and 15 in each section for facilitating the handling of the board, one set of holes being located to give access to the handle 16 of the latch 13 for the purpose of unlatching the same, when it is desired to remove the board from the container. The latch coacts as at 17 with the frame bars 6 of the sections at the meeting edges thereof.

In the form shown in Figure 6, the board or tray 50 or each transverse section, is in one section, or not collapsible and is provided with spring-pressed or resilient means along at least one edge thereof for coacting snap-catch fashion with one of the ribs 8. In this construction, one edge of the board is formed slightly concave at 18 for coacting with one rib, and the snap-catch means is located at the other edge of the board, which is also formed concave, as at 19, for coacting with the other rib. The edge 19 is provided by a resilient flange 20 which is also normally under tension of a spring 21 suitably mounted on the inner side of the board. 22 designates the finger holes for facilitating the handling of the board.

For smaller machines, the board or tray may be a unit from end to end. For larger machines, the board or tray may be made up of a plurality of transverse sections from end to end, and as seen in Figure 9, the board or tray 50 is made up of three sections 50^a, 50^b and 50^c.

In Figures 10, 11 and 12, an unloading board comprising sections 500, 500^a is shown in which the surface thereof toward the axis of the container is inclined from the closed end toward the door end, and upon continuous rotation of the container, the clothes or articles are shifted down the inclined surface of the board toward and out of the door, falling into a convenient container. In Figures 11 and 12, the board is shown as composed of two sections arranged end to end with the surfaces 23 and 24 thereof inclined and the surface of one a continuation of the other. The board shown in Figures 10, 11 and 12 may be secured in position as shown in

Figures 4 and 5, or as shown in Figure 6, or in any suitable manner.

In the illustrated embodiment of my invention, the board is shown as supported by two adjacent ribs but may be supported by any two ribs, even though there is an intervening rib or ribs between the two supporting ribs. The board is also shown as applied to a washing machine having ribs which perform the function of conduits in conducting the water or fluid into the drum and discharging the same from the drum.

The specific form of the ribs forms no part of the invention. The ribs are merely utilized for convenience in supporting an unloading board extending in the general direction of the chord of the arc of a portion of the circumferential wall of the container, in order to provide a platform on which the articles fall when the container is rotated to carry the platform to the lower portion thereof.

In operation, when the washing, rinsing and other operations are completed, the machine is stopped, and the loading and unloading door 4 opened. The board or tray is then placed in the machine through the open door above the load, in the position shown in Figures 4, 6, 14 and 17. The drum or container 2 is then rotated and the board or tray passes into the position under the load, as seen in Figures 1, 9, 10, 15 and 18, where it is readily removable. The container may be stopped temporarily in this position, or the drum may continue to rotate slowly. When the board or tray, shown in Figures 10, 11 and 12, with the inclined upper surface is used, the articles feed automatically out of the container or drum, as the container or drum is rotated.

What I claim is:

1. The combination with a washing machine embodying an article container rotatable about a substantially horizontal axis and having a door opening and a door at one end, the other end being closed; of an unloading board placeable in and removable from the container through the door opening into and out of a position in which the board extends lengthwise of the container in a general direction along the chord of the arc of a portion of the circumferential wall of the container, providing a platform on which the articles fall when the board is moved by the rotation of the container from a position at the top of the container to the bottom portion thereof, the board being formed in two lengthwise sections collapsible relatively to each other from extended position, and means for holding the sections in normal or extended position, the board having means at its edges for holding the board in position in the container, said means being engageable and releasable by the extending and collapsing respectively of the board.

2. The combination with a washing machine embodying an article container rotatable about a substantially horizontal axis and having a door opening and a door at one end; of an unloading board placeable in and removable from the container through the door opening into and out of a position in which the board extends lengthwise of the container in a general direction along the chord of the arc of a portion of the circumferential wall of the container, providing a platform on which the articles fall when the board is moved by the rotation of the container from a position at the top of the container to the bottom portion thereof, the board being formed of two lengthwise sections hinged together, whereby the board is collapsible from straightened position upon folding of the sections, the board having means located at its edges for securing the same in straightened position in the container, said means being engageable and releasable by the straightening and folding, respectively, of the board.

3. The combination with a washing machine embodying an article container rotatable about a substantially horizontal axis and having a door opening and a door at one end; of an unloading board placeable in and removable from the container through the door opening into and out of a position in which the board extends lengthwise of the container in a general direction along the chord of the arc of a portion of the circumferential wall of the container, providing a platform on which the articles fall when the board is moved by the rotation of the container from a position at the top of the container to the bottom portion thereof, the board being formed of two lengthwise sections hinged together, whereby the board is collapsible from straightened position upon folding of the sections, the board having means located at its edge for securing the same in straightened position in the container, said means being engageable and releasable by the straightening and folding respectively of the board, and a latch for holding the sections in straightened position.

4. The combination with a washing machine embodying an article container rotatable about a substantially horizontal axis and having a door opening and a door at one end; of an unloading board placeable in and removable from the container through the door opening into and out of a position in which the board extends lengthwise of the container in a general direction along the chord of the arc of a portion of the circumferential wall of the container, providing a platform on which the articles fall when the board is moved by the rotation of the container from a position at the top of the container to the bottom portion thereof, the board being formed of two lengthwise sections hinged together whereby the board is collapsible from straightened position upon folding of the sections, the board having means located at its edges for securing the same in straightened position in the container, said means being engageable and releasable by the straightening and folding respectively of the board, and a latch for holding the sections in straightened position, the latch being located on the side of the board toward the circumferential wall of the container, and the board having finger openings therein for access to the latch.

5. The combination of a washing machine comprising a cylinder mounted to rotate on a substantially horizontal axis, said cylinder having an axial port of less diameter than the cylinder through which fabrics to be treated are inserted and removed; and a fabric supporting platform of approximately rectangular form, said platform being constructed to be collapsible to permit its insertion through said port and embodying means operable to hold it from collapsing, said platform being so dimensioned as to be sustained by portions of said drum in chordal relation to the drum, whereby the platform may be inserted above the fabrics, transposed to a sustaining position beneath the fabrics and above the bottom of the drum as an incident to partial rotation of the drum.

6. The combination of a washing machine comprising a cylinder mounted to rotate on a sub-

stantially horizontal axis, said cylinder having an axial port of less diameter than the cylinder through which fabrics to be treated are inserted and removed; and a clothes supporting platform of approximately rectangular form, said platform including means for folding the same out of substantially flat position to permit its insertion through said port and embodying means for holding the same from folding when in flattened position, the platform being so dimensioned as to be sustained by portions of the drum in chordal relation to the drum, whereby the platform may be folded and inserted through the port above the fabrics and then transposed to a sustaining position beneath the fabrics and above the bottom of the drum as an incident to the partial rotation of the drum.

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