June 13, 1933. B. LINDBERG 1,913,764

WASHING CYLINDER AND DOOR MEANS THEREFOR

Filed Feb. 24, 1931 2 Sheets-Sheet 1

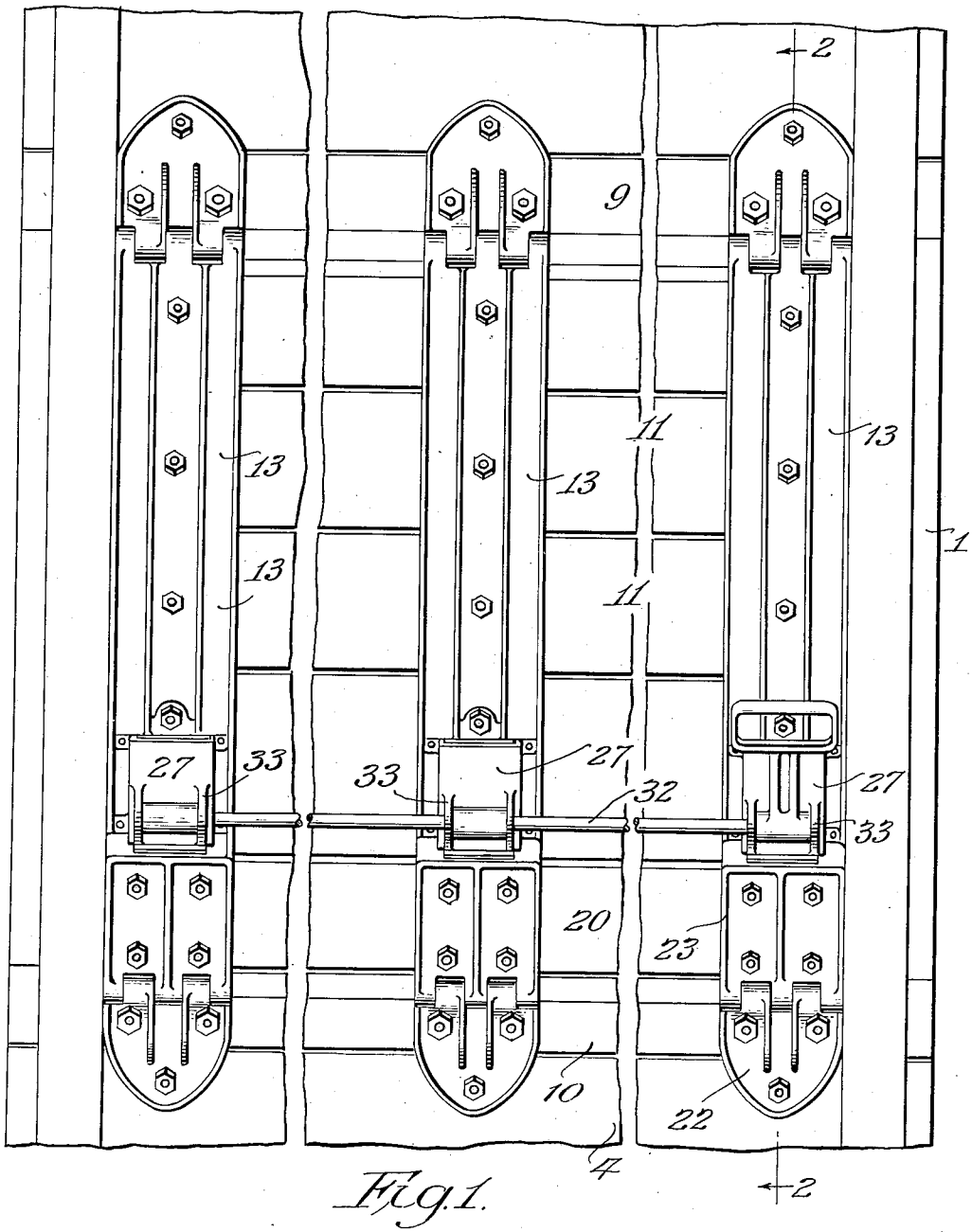


Fig. 1.

Inventor
Bernhard Lindberg,
By Wm F Freudenreich Atty.

June 13, 1933. B. LINDBERG 1,913,764

WASHING CYLINDER AND DOOR MEANS THEREFOR

Filed Feb. 24, 1931 2 Sheets-Sheet 2

Fig. 2.

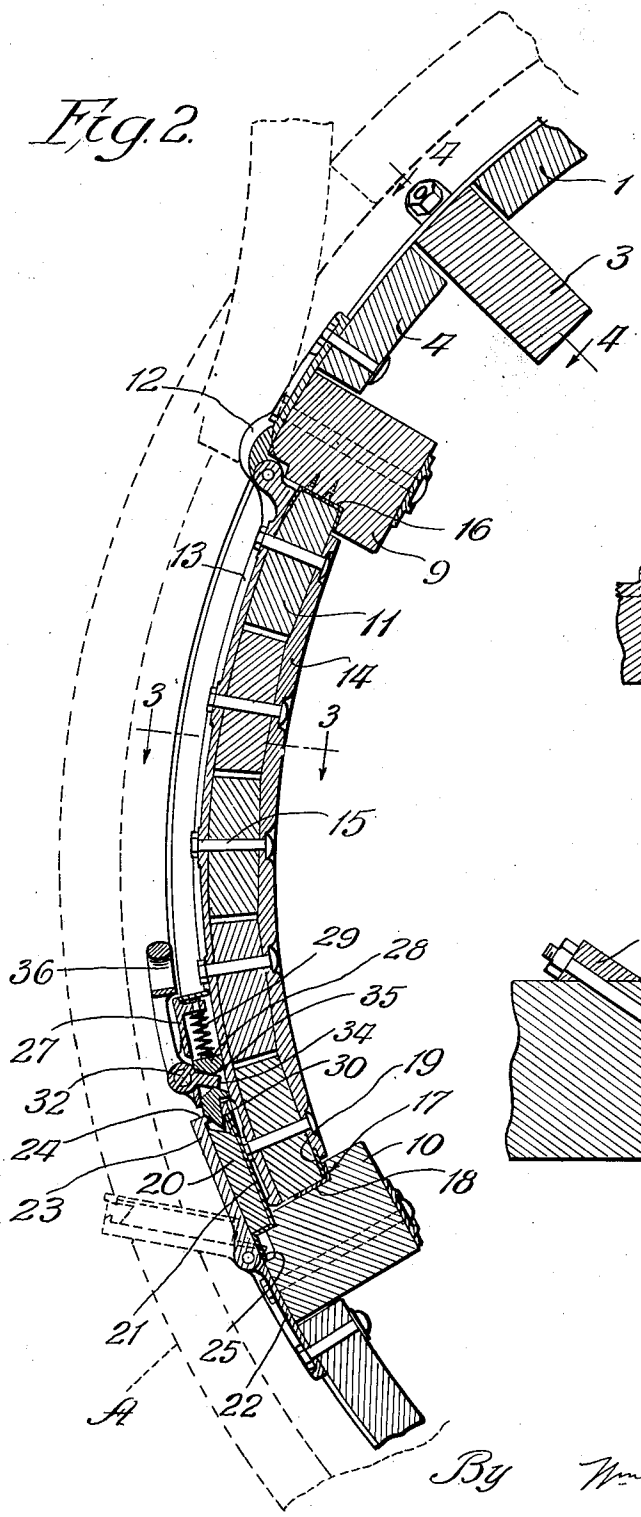


Fig. 3.

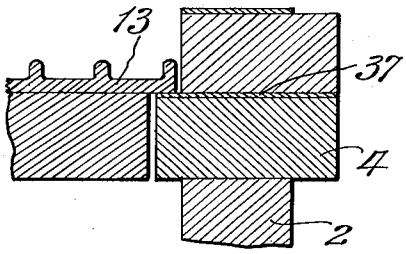
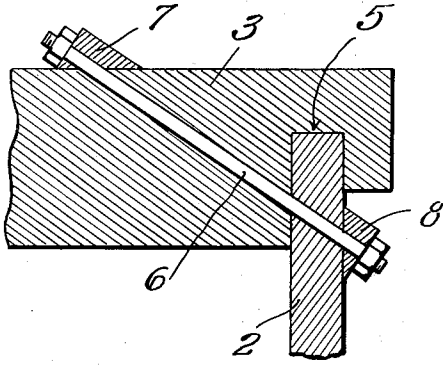


Fig. 4.



Inventor
Bernhard Lindberg,
By Wm. F. Frendenreich, Atty.

Patented June 13, 1933 1,913,764

UNITED STATES PATENT OFFICE

BERNHARD LINDBERG, OF CHICAGO, ILLINOIS

WASHING CYLINDER AND DOOR MEANS THEREFOR

Application filed February 24, 1931. Serial No. 517,716.

The present invention relates primarily to washing machine cylinders, including door means therefor, and has for its object to improve the construction thereof so as to make such machines more efficient, easier to operate, and reduce to a minimum the danger of injury to or loss of articles placed in the same for treatment.

One of the chief difficulties encountered in machines of this kind is in maintaining the cylinder doors sufficiently tight to prevent the work from washing out past them or being caught and torn or otherwise damaged thereby. The principal object of my invention is to produce a door for this purpose that will be a good fit initially and will remain so even after long service.

It is desirable to provide an unloading shelf to bridge the gap between the cylinder and the casing while taking out the wet laundry, and one object of my invention is to produce a novel device for this purpose.

In carrying out my invention in its most complete form I hinge the unloading shelf to the cylinder and employ it as a holder to keep the door effectively closed; the arrangement being such, when the door is opened, that the unloading shelf will automatically be swung out and be ready to function as a shelf. Viewed in one of its aspects, my invention may, therefore, be said to have for its object to produce a novel door holder which automatically becomes an unloading shelf when the door is opened.

The unloading shelf is preferably secured in its door-holding position, in which it overlies a part of the door, by catches controlled by a single handle mounted on the door, whereby the door may be unfastened and opened and the unloading shelf be swung out through the operation of a single handle. Not only do I thus obtain simplicity of operation, but the doors may be made as wide as the cylinders are long, or of any other desired width.

In wooden washing cylinder the ribs or longitudinal beams that connect together the cylinder heads frequently become loose and can only with difficulty again be tightly secured to the heads so as to give the desired rigidity to the cylinders. A further object of the present invention is to secure the ribs and the heads together in a simple and novel manner which will permit ready and easy tightening when necessary.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is an elevation of a part of a washing machine cylinder, including the door and unloading shelf and fragments of the cylinder immediately adjacent thereto; Fig. 2 is a section on line 2—2 of Fig. 1, the door being shown closed in full lines and open in dotted lines, and a fragment of the stationary casing being shown in dotted lines; Fig. 3 is a section on line 3—3 of Fig. 2, on a somewhat larger scale; and Fig. 4 is a section taken on line 4—4 of Fig. 2.

Referring to the drawings, 1 represents a cylinder that may be of any usual or suitable construction. In the arrangement shown, it is a wooden cylinder having heads 2 connected by longitudinal ribs or beams 3 and having the usual slabs or staves 4 forming the periphery. The ribs are shown as being notched on the under side, as indicated at 5, to receive the edges of the heads. The end of each rib is secured to the adjacent head by a diagonal bolt 6 extending through the same in a plane at right angles to the head; suitable washers 7 and 8 being placed underneath the nuts on the bolt. In case a joint becomes loose, the nuts are simply screwed up, again tightening the joint.

The cylinder is provided with the usual door opening bounded at the top and bottom by sills 9 and 10. This opening is adapted to be closed by a door which, in the arrangement shown, is composed of wooden staves 11 properly secured together. The door is connected to the sill 9 by any desired number of hinges. One leaf 12 of each hinge is secured to the sill and to the body of the

cylinder, whereas the other leaf 13 is a long member extending entirely across the door from top to bottom. Each of the leaves 13 may serve as a strap overlying the staves of which the body of the door is made and cooperating with an underlying strap 14 to secure the staves in the form of a door. In the arrangement shown, each hinge leaf 13 and underlying strap are connected together by means of bolts 15 passing through the same and through the intervening staves. To the sill 9, and extending throughout the length thereof, is secured a channel-shaped metal member 16, or trough, in position to receive the long edge of the upper stave when the door is closed. This stave fits snugly in the trough, so that there is no possibility of producing an opening through which the laundry may be washed out past the upper edge of the door. Furthermore, this direct interlock between the door and the sill insures against a looseness in the joint between the door and the cylinder, at the hinged end, after wear takes place in the hinge joints.

The upper side of the sill 10 is cut away to form a seat 17 upon which the free end of the door may rest when the door is closed. This seat is lined with a metal strip 18, L-shaped in cross-section, on one flange of which the door rests, while the other flange extends outwardly past the free edge of the door. The door has on the under side a metal strip 19 to engage with the flange of the member 18 on which the door rests, and thereby gives a metal-to-metal contact which will not wear sufficiently to form a crack into which laundry may enter.

There is hinged to the lower sill 10 adjacent to the door opening, an unloading shelf 20. If this shelf is made of wood, it is preferably faced on the inner side with sheet metal, as indicated at 21. The parts are so proportioned that, after the door has been closed, the unloading shelf may be swung inwardly into engagement therewith. At this time the sheet metal facing will engage with the hinge leaves 13, giving a metal-to-metal contact between the door and the shelf. One leaf 22 of each of the hinges that support the shelf is fastened to the sill 10, whereas the other leaf 23 extends across the top of the shelf and past the free long edge in the form of a flange 24 that will engage with the corresponding hinge leaf 13 on the door. The metal facing 21 is extended across the hinged edge of the shelf and then laterally in the form of a lip 25 that underlies and engages with the corresponding stationary hinge leaf 22 when the shelf is in its door-holding position. With this arrangement, even though wear takes place in the joints of the unloading shelf hinges, the hinged end of the shelf cannot move outwardly when the shelf lies against the door, because the lips 25 abut against the inner faces of the stationary hinge leaves 22 and prevent such outward movement.

When the shelf is locked in its door-holding position, the door is securely held against its seat in the sill 10, by reason of the fact that the hinged side of the shelf engages with a solid abutment. Furthermore, since the shelf engages with the extreme end of the door near the hinge axis of the shelf, any slight looseness in the locking means for the shelf will have little effect on the door. The locking of the shelf in its door-holding position may conveniently be effected by means of catches between the free edge of the shelf and the adjacent portion of the door. There are preferably as many catches as hinges, so that the catches will be supported on solid metal parts. In the arrangement shown, there is mounted on each hinge leaf 13, close to the path of movement of the free edge of the shelf, a little casing 27 open at the lower end and containing a sliding dog or bolt 28 behind which is a compression spring 29. The bolt or dog has a wedge-shaped outer end 30 adapted to enter an opening in the flange 24 of the corresponding hinge leaf 23. The parts are so proportioned that, the door being closed, all of the dogs or bolts enter the corresponding openings in the edge of the unloading shelf when the latter is swung into position against the door. The openings in the flanges 24 are preferably narrower than the thickness of the base portions of the wedges, so that, as the wedges wear, the springs will force them farther into the openings and thus avoid the presence of lost motion.

All of the catches are released through the operation of a single rock shaft 32 extending across the width of the door. In the arrangement shown, each casing or housing 27 has ears 33 rising from the top thereof, and the rock shaft extends through and is journalled in these ears. The rock shaft is provided with a series of fixed radial fingers 34, one for each catch. Each finger extends into an opening 35 in the corresponding dog or bolt whereby, when the rock shaft is turned, all of the dogs or bolts will be moved simultaneously. Therefore, by providing the rock shaft with a handle at any convenient point, all of the catches may be released simultaneously and, further, after the catches have been released, the door may be swung open by means of this same handle. As the door opens, it pushes the unloading shelf outwardly so as to cause it to position itself as a bridge across the gap between the cylinder and the stationary casing indicated in dotted lines at A in Fig. 2. In the arrangement shown, there is a single operating handle 36 formed with one of the fingers 34 as an integral casting. However, it will be understood that the handle may be

placed anywhere, and that there may be more than one handle, if desired.

Attention should also be called to the fact that the hinge leaves 13 at the sides of the door project beyond the ends of the staves, so as to overlap portions of the cylinder, as best shown in Fig. 3. Those portions of the cylinder with which the hinge leaves thus engage are preferably faced with metal strips 37 so as to provide metal-to-metal contact between the sides of the door and the cylinder, as well as between the long free edge of the door and the cylinder.

It will thus be seen that I have produced a simple and novel door construction in which there will always be tight joints between all of the edges of the door and the cylinder, regardless of whether the cylinder be of wood or metal; in which the door may be of any desired width; in which one or many catches may be released simultaneously; in which the door may be opened by the same handle as that which releases the catches; in which an unloading shelf serves also as a door holder; and in which the unloading shelf is automatically swung out upon the opening of the door. It will also be seen that I have produced a novel and efficient connection between the longitudinal ribs and the heads of a washing machine cylinder, whereby any looseness occurring in the joints between them may readily be taken up.

While I have illustrated and described with particularity only a single preferred form of my invention, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the definitions of my invention constituting the appended claims.

I claim:

1. In combination, a receptacle having a door opening, a door hinged to the receptacle at one side of the door opening and extending entirely across the opening to the opposite side, a long, narrow member extending along said opening and hinged to the receptacle at the latter side of the opening, said member being adapted to be swung down upon the door when the door is closed, and means to lock the said member against swinging movement away from the door.

2. In combination, a receptacle having a door opening, a door hinged to the receptacle at one side of the opening and extending entirely across the opening to the opposite side, a long, narrow member hinged at one long edge to the receptacle at the latter side of the door opening and adapted to be swung down upon the door when the latter is closed, and means at the other long edge of said member to secure the same to the door.

3. The combination with a washing machine cylinder having a door opening, of a door extending entirely across the opening and hinged to the cylinder at one side of the opening, an unloading shelf hinged to the cylinder at the opposite side of the door opening and adapted to be swung down upon the door into a door-holding position when the door is closed, and means to secure the unloading shelf in its door-holding position.

4. The combination with a washing machine cylinder having a door opening, of a door extending entirely across the opening and hinged to the cylinder at one side of the opening, an unloading shelf hinged to the cylinder at the opposite side of the door opening and adapted to be swung down upon the door into a door-holding position when the door is closed, and catch devices between the side of the unloading shelf opposite the hinged side and the door to secure the shelf and the door together.

5. The combination with a cylinder having a door opening bounded at opposite edges by door sills, and a door hinged to one sill and adapted to rest at its free end on the other sill when closed, of an unloading shelf hinged to the latter sill and adapted to be swung inwardly upon and into engagement with the adjacent marginal portion of the door, and means to secure the unloading shelf to the door at the long free edge of the shelf.

6. The combination with a cylinder having a door opening bounded at opposite edges by door sills, and a door hinged to one sill and adapted to rest at its free end on the other sill when closed, of an unloading shelf hinged to the latter sill close to the free end of the door when the latter is closed and adapted to be swung inwardly upon and into engagement with the adjacent marginal portion of the door, and means to secure the unloading shelf to the door at the long free edge of the shelf.

7. The combination with a washing machine cylinder having a door opening, a sill at one side of the door opening, a door hinged to said sill, of a metal trough on the sill in position to receive and fit about the edge of the door at the hinge side when the door is closed.

8. The combination with a washing machine cylinder having a door opening bounded on opposite sides by wooden sills and a wooden door hinged to one sill and adapted to rest at its free end on the other sill, of a metal trough secured to the sill to which the door is hinged and positioned and shaped to receive and fit about the adjacent edge of the door when the door is closed.

9. The combination with a washing machine cylinder having a door opening bounded on opposite sides by wooden sills and a wooden door hinged to one sill and adapted to rest at its free end on the other sill, of a metal trough secured to the sill to which the door is hinged and positioned and shaped to receive and fit about the adjacent edge of

the door when the door is closed, an angle piece of metal on the other sill forming a seat for the free end of the door, and a metal facing strip on the inner side of the door in position to engage and rest upon the said seat when the door is closed.

10. The combination with a washing machine cylinder having a door opening and a door hinged thereto at one side of the opening and resting thereon, when closed, at the opposite side of the opening, of hinge leaves extending across the top of the door from the hinged edge to the opposite free edge, an unloading shelf hinged to the cylinder near the said free edge of the door when the latter is closed, said unloading shelf being adapted to be swung inwardly to rest on said hinge leaves, and means to secure the shelf at its free edge to said hinge leaves.

11. The combination with a washing machine cylinder having a door opening and a door hinged thereto at one side of the opening and adapted to rest thereon at its free end on the opposite side of the opening, of an unloading shelf at the latter side of the door opening, hinges each of which has a leaf secured to the unloading shelf and a leaf secured to the cylinder beside said opening, whereby the shelf is adapted to be swung into a position to overlie and engage with the door when the latter is closed, and a metal piece on the shelf in position to extend under and in contact with the said hinge leaves on the cylinder when the shelf is swung inwardly.

12. In combination, a washing machine cylinder having a door opening, a door extending entirely across the opening, hinges connecting one end of the door to the cylinder at one side of the opening, the free end of the door resting on a part of the cylinder when closed, the hinge leaves on the door lying on top thereof and extending to the free end of the door, an unloading shelf hinged to the cylinder adjacent to the free end of the door when the latter is closed, the shelf being adapted to be swung inwardly upon the closed door, the hinge leaves on the shelf extending across the same into positions which will cause them to contact with the hinge leaves on the door when the door is closed and the shelf swung inwardly, and catches between the hinge leaves on the door and those on the shelf.

13. The combination with a washing machine cylinder having a door opening and a door hinged thereto and extending entirely across said opening, of an unloading shelf hinged to the cylinder on the side of the door opening opposite that at which the door is hinged and adapted to be swung inwardly upon the door when the latter is closed, catches for securing the free end of the shelf to the door, and means including a handle carried by the door and by which the door is opened to release the catches.

In testimony whereof, I sign this specification.

BERNHARD LINDBERG.