Dec. 8, 1925. 1,564,472

M. E. DALY ET AL

WASHING MACHINE

Filed March 30, 1921 2 Sheets-Sheet 1

Fig. 1

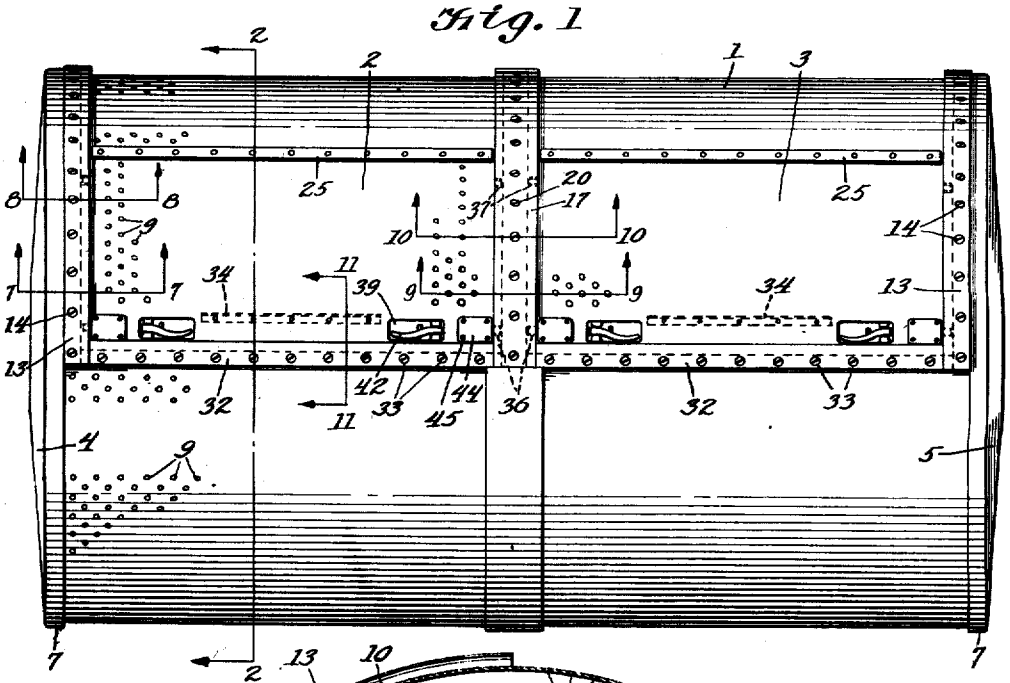


Fig. 2

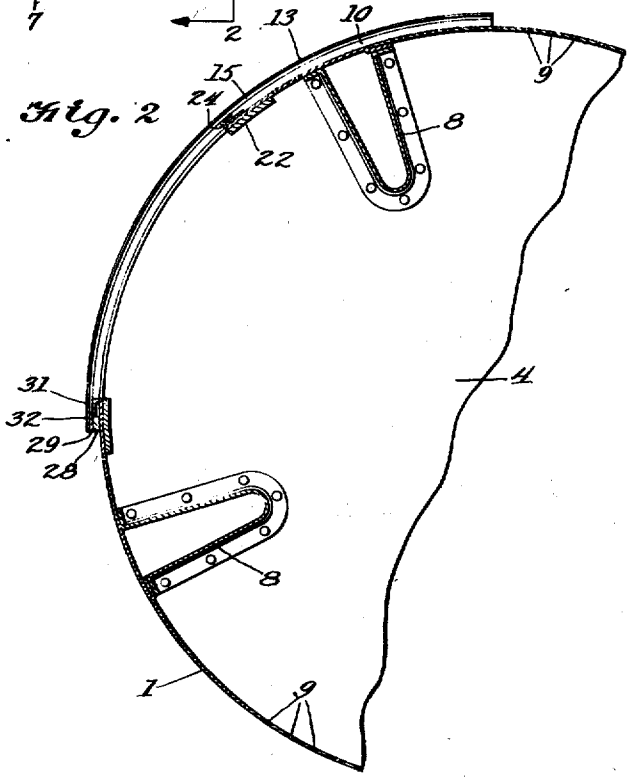
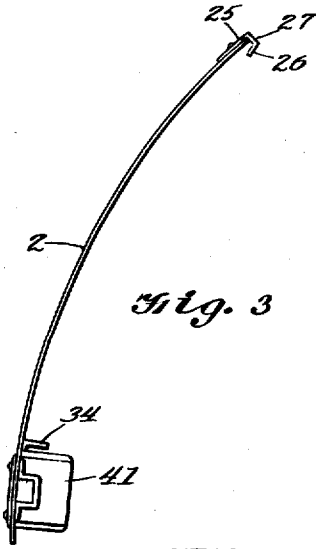


Fig. 3



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Fig. 4

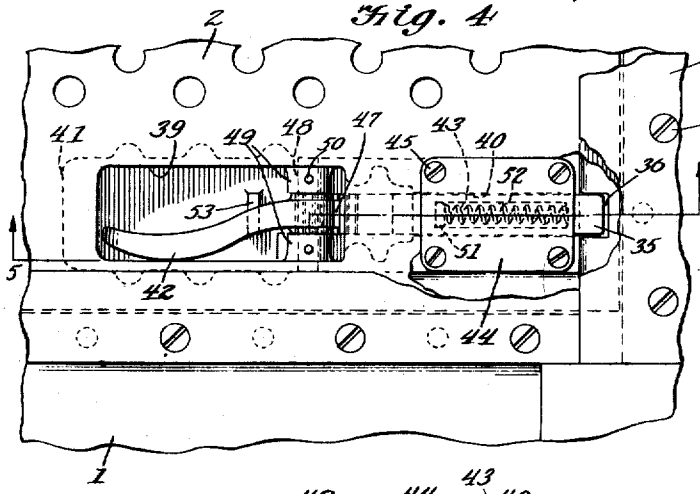


Fig. 7

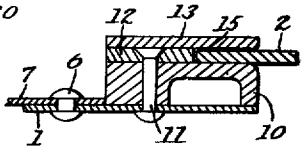


Fig. 8

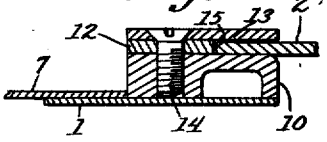
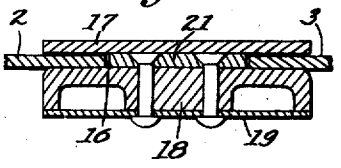


Fig. 9



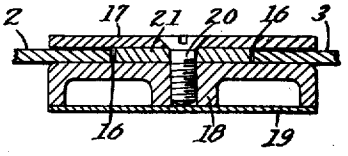


Fig. 10

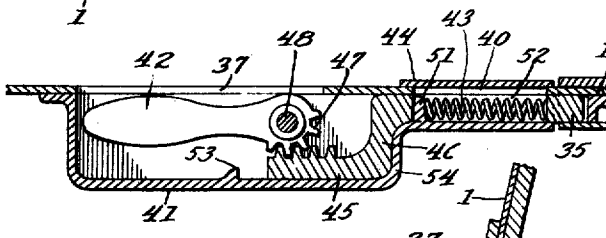


Fig. 5

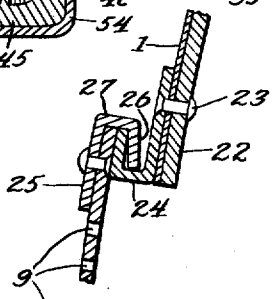
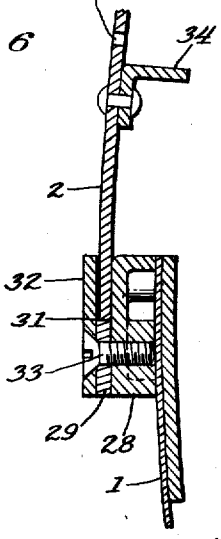


Fig. 6



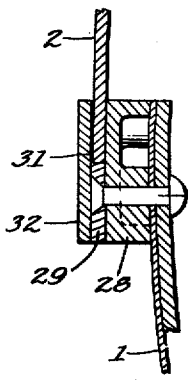


Fig. 11

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Patented Dec. 8, 1925. 1,564,472

UNITED STATES PATENT OFFICE.

MICHAEL E. DALY, OF CINCINNATI, OHIO, AND JAMES H. TAYLOR, OF RED BANK, NEW JERSEY, ASSIGNORS TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

WASHING MACHINE.

Application filed March 30, 1921. Serial No. 456,808.

To all whom it may concern:

Be it known that we, MICHAEL E. DALY and JAMES H. TAYLOR, citizens of the United States, residing at Cincinnati and Red Bank, respectively, in the counties of Hamilton and Monmouth, respectively, and States of Ohio and New Jersey, respectively, have invented certain new and useful Improvements in Washing Machines, of which the following is a specification.

This invention relates to washing machines or the like of the drum type, and more particularly to the doors thereof.

The object of the invention is to provide an improved washing machine or like drum having a sliding door or doors of simple, strong, and durable form, easy to construct and apply and which door is readily operated, is not liable to get out of order and is fairly tightly sealed around all of its edges to avoid escape, entanglement, or damage to the material being washed.

Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

The invention comprises the construction and arrangement of parts hereinafter described and claimed

In the drawings, which represent one suitable embodiment of the invention, Fig. 1 is a side elevation of a drum embodying my improvement; Fig. 2 is a partial sectional view through line 2—2, Fig. 1 with the door removed; Fig. 3 is an end elevation of the door; Fig. 4 is an enlarged plan view of the cover locking means; Fig. 5 is a section on line 5—5, Fig. 4; Fig. 6 is an enlarged sectional view on line 2—2, Fig. 1 with the door in closed position; Fig. 7 is a section on line 7—7, Fig. 1; Fig. 8 is a section on line 8—8, Fig. 1; Fig. 9 is a section on line 9—9, Fig. 1; Fig. 10 is a section on line 10—10, Fig. 1; and Fig. 11 is a section on line 11—11, Fig. 1.

The main body 1 of the drum is preferably formed from a blank of suitable metal although it may be made of sections of metal or wood if desired. Openings are provided in the drum wall for the doors 2 and 3 which are here shown as of like structure. The ends of the drum body are closed by the heads 4 and 5 which are secured by bolts or rivets 6 through the overlapping joints between the head flanges 7 and the body 1. The well known baffle members are indicated at 8 and the drum wall is perforated as are also the doors 2 and 3, as indicated at 9, for the well known purpose.

The ends of the drum body are provided with door slide members 10, here shown as being cast metal but which might be otherwise formed. These members 10 are secured along the ends of the two door openings by means of countersunk rivets 11 which extend also through the risers 12 mounted on the door slide members. The overhanging strips 13 are secured by countersunk screws 14 to the slide members 10 so as to provide slide ways 15 for the outer end edge portions of the doors. The rivets 11 and screws 14 alternate with each other and upon removal of screws 14 the doors can be entirely removed from the drum. The inner end edge portions of the doors slide in the slide ways 16 provided between the overhanging strip 17 and the slide member 18 riveted to the strip 19 of the drum body between the door openings. The overhanging strip 17 is detachably secured to the slide member 18 by means of countersunk screws 20 which extend through the riser 21. The riser 21 is secured to the member 18 by countersunk rivets which alternate with the screws 20. Thus the doors which are of substantially the same curvature as the drum body are adapted to slide to open and closed position by means of the slide ways described.

In order to prevent sagging of the doors due to the weight of the materials within the drum, we have provided interlocking engaging means between the front and rear edge portions of the doors and co-operating members extending along the edges of the door openings. The rear edge of each of the door openings is reinforced by means of the strips 22 attached by rivets 23 which secure also the channel strips 24 along the door openings. The rear edges of the doors have riveted thereto the co-operating channel strips 25, which interlock the strips 24. As here shown, the flange 26 makes an angle of more than 90° with the wall 27 to facilitate the engagement between these parts. Also, as the door moves to closed position, the inclined wall 27 draws the door down to a tight seat on the body wall of the cylinder and specifically on the upper flange of the channel strip 24, thereby avoiding rattling

of the parts and sealing the joint so that lint will not creep in and clog the joint and clothes or buttons will not work their way into an open joint and become torn or broken by the otherwise vibrating or rattling parts.

Along the front edge of the door openings there extends the slide member 28 suitably secured as by riveting at 30 to the drum body. The strut 29 secured to the member 28 by countersunk rivets 30 provides a space 31 between the overhanging strip 32, which is detachably secured by the countersunk screws 33 which alternate with rivets 30. The space 31 receives the front edge of the door snugly and forms a practically closed joint into which clothing or buttons or lint cannot penetrate. Thus the front and rear edges of the doors are maintained in closed position against sagging and the riveted angle strip 34 limits the opening movement of the door in each case by striking the rear edge of the door opening.

The locking means for each door comprises the latch member 35 for engagement in the recesses 36 and 37 in the slide member 18 according to whether the door is in open or closed position. Each door is cut out at 39 and 40 and a lock chamber 41 is attached as by riveting to the under face of the door so that the operating handle 42 can be operated through the opening 39 and the spring 43 of the lock reached by removing the plate 44 secured in position across the opening 40 by screws 45. The lock member 35 has the rack 45 provided on the offset portion 46 for operative engagement with the segmental pinion 47 on the handle 42 which is pivoted on the rod 48 mounted in the supporting bosses 49 by means of pins 50. The middle part of the lock member 35 is cut out as indicated at 52 so as to surround the abutment 51 for the spring, the other end of the spring abutting the outer end of the cut out portion 52. The tendency of the spring is to force the lock member into locked engagement. In order to release the lock, the handle is raised so as to withdraw the lock member against the tension of the spring. The handle 42 is curved in the particular manner shown for convenience in grasping and operating the same. When these handles are raised from the position shown in Fig. 5 to vertical or lock releasing position they are available for use as handles in manipulating the door for opening or closing the same. In other words, the operator in opening the door merely pulls out the two handles from the recesses in which they lie and pushes back on the door. As soon as the door starts to move back the locking bolts pass beyond their recesses in the frame and ride along the guide ways, thereby holding the handles 42 elevated until the door moves to fully opened position when the second set of locking recesses 37 is reached. At this point the door is locked open and the handles drop, advising the operator that the door will not drop down to closed position accidentally. The stops 53 and 54 limit the extent of movement of the locking member in the two directions. In the present illustration we have shown a lock at each end of each door, but of course it is possible to provide each door with but a single lock.

Notably among the advantages flowing from this invention is that of preventing sagging of the front and rear edges of the door when subjected to the weight of the materials in the drum, thereby preventing the separation of the door at these points and the consequent escape, entanglement and damage of such materials.

Other advantages flowing from this invention will be apparent to those who are familiar with the art to which it relates.

Having described our invention, we claim:

1. In a washing or like machine, a cylinder adapted for operation within an outer structure and provided with an opening, a sliding door for said opening, and interengaging means between said door and cylinder including an inclined portion arranged when the door is closed to move and seat the same and prevent the formation of a gap or crevice along the edge of said opening.

2. In a washing or like machine, a cylinder adapted for operation within an outer structure and provided with an opening, a slidable door for closing said opening, and interlocking flanges on the rear edges of said door and opening, at least one of said flanges being provided with an inclined portion arranged when the door is closed to exert clamping effect upon the same and seal the joint along the rear edge of the door and opening.

3. In a washing or like machine, a cylinder adapted for operation within an outer structure and provided with an opening, a slidable door for said opening, locking means for said door, and means for actuating said locking means and manipulating said door, comprising a member movable for unlocking the door in a plane normal to the direction of movement of the door to a position extending outwardly from said cylinder and in said position being immovable relatively to the door in the direction of door movement and serving as a handle for moving the door in either direction.

4. In a washing or like machine, a cylinder adapted for operation within an outer structure and provided with an opening, a slidable door for said opening, locking

means for said door, and means for actuating said locking means and manipulating said door, comprising a member movable for unlocking the door in a plane normal to the direction of the movement of the door to a position extending outwardly from said cylinder and in said position being immovable relatively to the door in the direction of door movement and serving as a handle for moving the door in either direction, said door being provided with a recess into which said member moves when the door is locked.

5. In a washing or like machine, a cylinder adapted for operation within an outer structure and adapted to be mounted with its axis in the usual horizontal position and provided with an opening in its cylindrical wall, a door for said opening curved to conform to the cylinder and slidable around the cylinder to close or expose said opening, two locking members one at each end of said door, and pivoted actuating devices for said members mounted to swing in a radial plane parallel with the cylinder axis, said two devices swinging outwardly from the cylinder and away from each other to unlock the locking members and thereby moving to positions extending outwardly from the cylinder and in such positions being immovable relatively to the door in the direction of door movement and serving as handles for sliding the door in either direction to close or expose said opening.

In testimony whereof we hereby affix our signatures.

MICHAEL E. DALY.
JAMES H. TAYLOR.

means for said door, and means for actuating said locking means and manipulating said door, comprising a member movable for unlocking the door in a plane normal to the direction of the movement of the door to a position extending outwardly from said cylinder and in said position being immovable relatively to the door in the direction of door movement and serving as a handle for moving the door in either direction, said door being provided with a recess into which said member moves when the door is locked.

5. In a washing or like machine, a cylinder adapted for operation within an outer structure and adapted to be mounted with its axis in the usual horizontal position and provided with an opening in its cylindrical wall, a door for said opening curved to conform to the cylinder and slidable around the cylinder to close or expose said opening, two locking members one at each end of said door, and pivoted actuating devices for said members mounted to swing in a radial plane parallel with the cylinder axis, said two devices swinging outwardly from the cylinder and away from each other to unlock the locking members and thereby moving to positions extending outwardly from the cylinder and in such positions being immovable relatively to the door in the direction of door movement and serving as handles for sliding the door in either direction to close or expose said opening.

In testimony whereof we hereby affix our signatures.

MICHAEL E. DALY.
JAMES H. TAYLOR.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,564,472, granted December 8, 1925, upon the application of Michael E. Daly, of Cincinnati, Ohio, and James H. Taylor, of Red Bank, New Jersey, for an improvement in "Washing Machines," an error appears in the printed specification requiring correction as follows: Page 1, line 15, after the word "machine" strike out the words "or like" and insert the same to follow after the word "washing"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2d day of March, A. D. 1926.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.

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