Jan. 24, 1928. 1,657,181

J. B. SANDO

DOOR CLAMPING MEANS FOR WASHING MACHINES, CYLINDERS, AND THE LIKE

Filed June 28. 1926

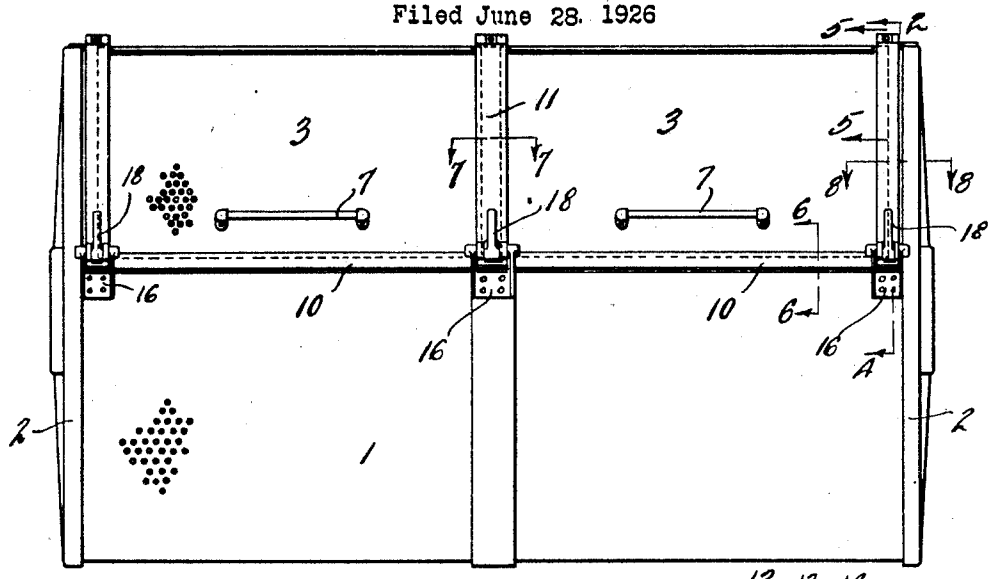


Fig.-1

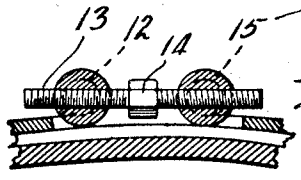


Fig.-5

Fig.-2

Fig.-8

Fig.-7

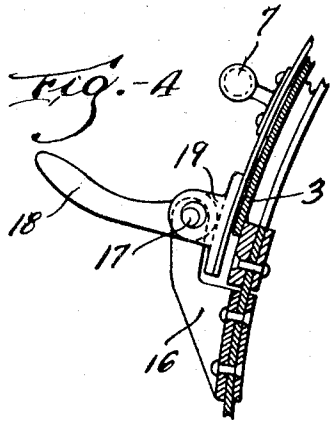


Fig.-4

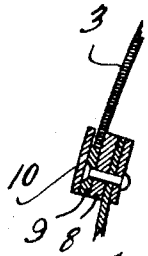


Fig.-6

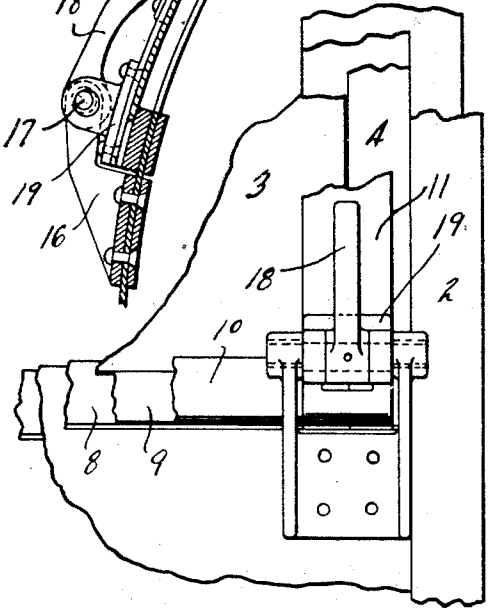


Fig.-3

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Patented Jan. 24, 1928. 1,657,181

UNITED STATES PATENT OFFICE.

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DOOR-CLAMPING MEANS FOR WASHING MACHINES, CYLINDERS, AND THE LIKE.

Application filed June 28, 1926. Serial No. 119,071.

This invention relates to securing means for the doors of cylinders such as are commonly employed in various types of laundry machines, and the invention has particular application to the sliding doors of the type of perforated cylinder in such machines wherein articles to be washed, rinsed, dry cleaned, etc., are placed and the cylinder rotated or oscillated in a tub partly filled with suitable liquid for the purpose intended which, having access to the cylinder through the perforations, intermittently subjects the articles to a bath in the cylinder; although the invention is applicable as well to the rotatable cylinders of drying tumblers, or to the stationary tubs within which the perforated cylinders referred to are arranged to rotate.

The objects of the invention are to provide combined clamping and locking means for the doors, doing away with possible crevices, rough edges, etc., within the cylinder, and yet requiring very little clearance outside the cylinder; the clamping and locking means being easily operable to perform the functions intended of them; and the design and construction while being such as to insure proper functioning, being simpler and less expensive than have heretofore been employed.

Further objects and advantages of the invention will be evident from its exact nature as set forth in the following description taken in connection with the accompanying drawings in which Fig. 1 is a front view of a typical perforated washing machine cylinder showing my invention applied thereto; Fig. 2 is a detailed section along the line 2—4 of Fig. 1, showing the door closed and secured; Fig. 3 is a detail front view of the clamping mechanism with parts cut away to show construction; Fig. 4 is a detail similar to that of Fig. 2 but showing the door unsecured in closed position; Fig. 5 is a detail along the line 5—5 of Fig. 1; Fig. 6 is a typical section upon the edge of the door taken along the line 6—6 of Fig. 1; and Figs. 7 and 8 are typical sections along the line 7—7 and 8—8 respectively of Fig. 1.

Referring now to the drawings, 1 is the perforated cylinder referred to, provided with heads 2 whereby the cylinder may be mounted for rotation in a suitable casing or tub in a manner well known in the laundry machinery art. Mounted to slide upon the cylinder to close or uncover corresponding openings therein are one or more doors 3, each provided with a handle 7, whereby access may be had to the interior of the cylinder for loading and unloading articles to be treated therein. Each door, hereinafter referred to as "the door", is maintained in proper alignment by strips 4 secured upon the cylinder adjacent the door opening, of sufficient length to guide the door in all positions, and of thickness somewhat less than that of the door edges. Along the upper edge of the door is secured a member 5 of hook shaped section adapted to strengthen the door and to cooperate in closed position thereof with a similar member 6 to limit closing motion of the door and reinforce this edge in closed position. Across the lower edge of the cylinder opening are secured strips 8, 9 and 10, the inner strip 9 being of less width than the other strips whereby a groove is formed for the reception of the lower edge of the door in closed position as shown particularly in Fig. 6.

Extending along each side of the door so as to overlap the door edge and the adjacent strip 4 is a clamping band 11.

The upper end of each clamping band is adjustably secured upon the cylinder as by passing around a pin 12 which in turn is threaded to receive an adjusting rod 13. Upon the adjusting rod is fixed a nut 14, its opposite end being threaded oppositely from the end passing through the pin 12; and secured in a member 15 fast upon the cylinder, the arrangement being obviously such that the position of the upper end of the band 11 is adjustable by rotation of the nut 14. The member 15 may be a pin similar to the pin 12, as shown so that some movement of the band radially of the cylinder is allowed.

Upon the cylinder opposite the lower end

of each band is a bracket 16 in which is rotatably mounted a pin 17 carrying a handle 18. An eccentric portion of the pin 17 passes through a bracket 19 secured upon the lower end of the band. The eccentricity of the pin 17 is such that movement of the handle 18 from the position of Fig. 4 to that of Fig. 2 will force the lower end of the band downward and inward, stretching the band along the side of the door; and the angularity of the eccentric is such that movement of the handle 18 will bring the eccentric slightly past center so that an upward pull upon the band acting through the bracket 19 would tend to more tightly clamp the bracket and band against the door. The strips 4 are of less thickness than the door to insure contact of the band against the door throughout its length.

Functioning of the invention will be obvious: The upper end of each clamping band is adjusted by the arrangement described so that when the parts are in the relative position indicated by Fig. 4 the door will be free for movement, but so that when the handle 18 is moved to the position of Fig. 2 the door will be securely clamped throughout its entire length by the band; and by the arrangement shown the door may be secured equally well in any position, such as open for inspection of the contents of the cylinder.

While with certain types of laundry machinery cylinders a seal upon the door is unnecessary, it is in many cases essential that the inner surfaces of the cylinder be clear of any projections which might injure delicate articles in movement within the cylinder; and it will be noted that with the employment of my invention no projection whatever extends within the cylinder.

Attention would also be called to the relatively slight extension of the parts beyond the outer surface of the cylinder.

It will be noted further that my invention embraces not only a means for tightly clamping the door but also for positively locking the same in any position clamped; and that therefore no appurtenances other than the door handle shown, are required in a cylinder equipped with my invention.

An equally important feature of my invention is the fact that the door may be thereby secured against any looseness which might allow chattering and result in damage to the cylinder contents; the sides and top of the door in the arrangement described and illustrated being firmly pressed against the cylinder, and the bottom secured against any appreciable movement.

What I claim is:

1. In a laundry machine of the class described, a cylinder provided with an opening, a door adapted for sliding movement upon said cylinder to cover and uncover said opening, and clamping and locking means for said door comprising a band extending alongside said opening and overlying the corresponding side of said door, one end of said band being secured upon said cylinder, means upon the other end of said band for tightening the same upon said door and for locking the same when tightened, said means comprising pin receiving members secured upon said band and said cylinder respectively, a pin extending through said members, that portion of said pin in one of said members being eccentric with that portion in the other member, and means for rotating said pin.

2. In a laundry machine of the class described, a cylinder provided with an opening, a door adapted for sliding movement upon said cylinder to cover and uncover said opening, clamping and locking means for said door comprising a band extending alongside said door opening and overlying a portion of said door, one end of said band being secured upon said cylinder, means upon the other end of said band for tightening the same upon said door and for locking the same when tightened, said means comprising pin receiving members secured upon said band and said cylinder respectively, a pin extending through said members, that portion of said pin in one of said members being eccentric with that portion in the other member, and a handle secured upon said pin for rotation thereof and so positioned with respect to said eccentric that movement of said handle to said cylinder moves the center of the portion of the pin in the pin receiving member on said band in the direction of closing movement of said door beyond the center of the portion in the pin receiving member of said cylinder.

3. In a laundry machine of the class described, a cylinder provided with a generally rectangular opening, a door adapted for sliding movement upon said cylinder to cover and uncover said opening, a door guiding projection upon said cylinder adjacent a side of said opening, the height of said projection being less than the thickness of said door adjacent thereto, clamping and locking means for said door comprising a band extending along said side and overlying adjacent portions of said door and said projection, one end of said band being secured upon said cylinder, and means upon the other end of said band for tightening the same upon said door and for locking the same when tightened.

4. In a laundry machine of the class described, a cylinder provided with longitudinally spaced generally rectangular openings, corresponding doors adapted for sliding movement upon said cylinder to close its corresponding openings, a door guiding projection upon said cylinder extending circum-

ferentially thereof, and lying between said openings, the height of said projection being less than the thickness of said doors adjacent thereto, and clamping and locking means for said doors comprising a band extending along said projection and overlying adjacent portions of said doors, one end of said band being secured upon said cylinder, and means upon the other end of said band for tightening the same upon said doors and for locking the same when tightened.

In testimony whereof I affix my signature.

JOSEPH B. SANDO.