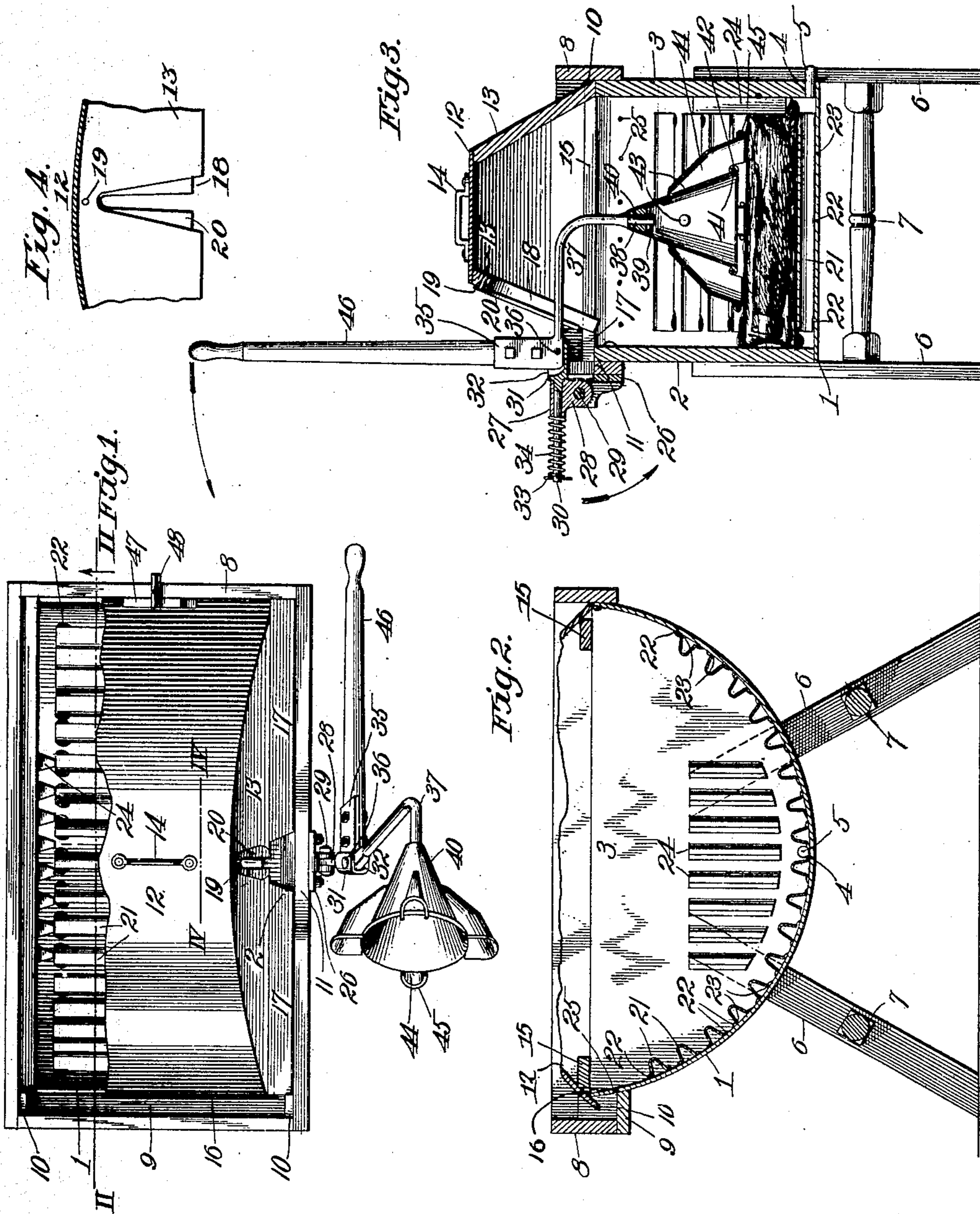


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PATENTED JULY 16, 1907.

W. A. LEE.
WASHING MACHINE.
APPLICATION FILED MAR. 23, 1905.



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UNITED STATES PATENT OFFICE.

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WASHING-MACHINE.

No. 860,389.

Specification of Letters Patent.

Patented July 16, 1907.

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To all whom it may concern:

Be it known that I, WILLIAM A. LEE, a citizen of the United States, residing at Blackwell, in the county of Kay and Territory of Oklahoma, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to washing machines of that type having internal rubbing surfaces and a device for pressing the fabrics down and rubbing them upon said internal rubbing surfaces, and for also forcing hot water and hot air through the fiber of the fabrics.

A further object is to produce a rubbing device of the type outlined, which is capable of a turning or revolving motion and is provided with external flukes for embedding in the fabric for the purpose of turning the latter over and thereby constantly presenting fresh surfaces to the rubbing surfaces.

A still further object is to provide a universal joint connection between said rubbing device and the tub and to provide said device with a handle whereby it can be given any desired motion and thereby perform its various functions efficiently and reliably.

Another object of the invention is to provide a tub with a segment shaped bottom having on its upper or concaved surface arched cross slats terminating short of the side walls of the tub or receptacle to permit the water to circulate through them and past their ends to facilitate and insure a thorough cleansing of the tub when desired.

A still further object of my invention is to provide a cover for the tub of proper construction to permit the combined rubbing, fabric-turning and hot air forcing device to perform its various functions without splashing the water out of the tub.

A still further object of the invention is to so support such device that it may be quickly and easily swung into or out of the tub.

With these and other objects in view as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which—

Figure 1, is a top plan view of a washing machine embodying my invention, said figure showing the cover broken away and the rubbing device withdrawn from the tub. Fig. 2, is a vertical longitudinal section on the line II—II of Fig. 1. Fig. 3, is a central vertical transverse section of the tub with the rubbing device in operative position therein. Fig. 4, is a vertical section of the cover taken on the line IV—IV of Fig. 1.

Referring to the drawings in detail, the semi-cylindrical tub is preferably composed of the metallic bottom 1, and front and rear walls 2 and 3, respectively, the walls being preferably of wood, and the back one

is provided with a drain hole 4, normally closed by a plug 5.

6 indicates legs for the tub, connected in pairs by cross braces or rounds 7, and 8, a rectangular frame externally embracing and projecting above the tub. Said frame is slightly longer than the tub to provide a convenient point of support for a wringer, and the prolongation has a bottom 9, in the form of a cross bar secured to and forming a part of frame 8, and bearing against the contiguous portion of the tub bottom 1; to form a soap pocket, and secured at opposite ends of said pocket and projecting slightly above the tub proper are blocks 10, for a purpose presently explained. The front bar of frame 8 is recessed as at 11, the bottom of the recess being preferably in the same plane as the upper edge of the tub walls,—the purpose of this recess hereinafter appears.

The cover of the tub is in the form of an arch and preferably consists of a metallic plate 12, and the segmental walls 13, the latter converging upwardly, by preference. Secured to the top of the cover is a suitable handle 14, and secured to the side walls adjacent to the ends of the metallic plate 12, are cross bars or braces 15, (see Figs. 2 and 3), one end of the plate 12, projecting downward at 16, below the juxtaposed cross bar, for a purpose which is hereinafter explained. At the lower end of the front wall of the cover and externally thereof is carried a pair of horizontal bars 17 terminating short of the center of the cover so as to provide an intervening space or opening, and communicating with this space or opening is an inverted-V shaped slot 18, in the front wall of the cover, this slot being necessarily wide in order to accommodate lateral or horizontal vibratory movement of a device hereinafter described, and in order to more effectually confine the contents of the tub, I pivot at 19, a shield or guard 20, to the front wall, this slotted shield or guard being adapted to yield and swing to accommodate the movement of said device.

Extending transversely of the tub but terminating short of the walls 2 and 3, thereof, are arched or inverted-V shaped slats 21, (preferably of metal) secured on the bottom at two or more points by solder, as at 22, so that the lower edges of the slats between the soldering points shall be slightly out of contact with the bottom of the tub to provide the slots 23, to permit water to pass transversely of and below the slats as well as longitudinally. The water also circulates between and around the ends of the slats and as a result the bottom of the tub can be quickly and easily cleaned at any time.

The tub is also provided with upright slats 24, which are preferably of wood and are secured rigidly to the back wall of the tub, against which the fabrics are pressed and rubbed as herein after appears. The

bottom 1, is provided with a horizontal series of perforations 25, in the plane of the bottom of the soap pocket so that water will drain from said pocket into the tub.

26 indicates a bifurcated bracket secured to the front wall of the tub and projecting above the same opposite the center of recess 11.

27 is a cylindrical sleeve provided with an ear 28 depending into the bifurcation of the bracket and pivoted therein on bolt 29 so that said sleeve can swing toward or from or transversely of the tub.

30 is a rod fitting in the sleeve and capable of turning and sliding movement therein, and provided at its inner end with a head or enlargement 31, bearing against the inner end of the sleeve and formed with a groove 32, the opposite end of the rod being equipped with a cotter 33, or its equivalent, to receive the pressure of the helical spring 34, mounted on the rod and bearing at its opposite end against said sleeve.

35 is a plate having a limited pivotal movement within groove 32, on the pivot-bolt 36, bridging said groove, and projecting from and at right angles to said plate is an inverted-L shaped arm 37, terminating in a reduced cylindrical portion 38, equipped at its end with a cotter 39, the cotter being utilized to hold the cone-shaped device 40, on the reduced portion of said angle arm, said device being journaled on said reduced portion so that it may turn thereon. The lower end of said device is rolled as at 41, back upon the heavy stiffening wire 42, surrounding the lower end of the device and the latter at suitable points is provided with apertures 43. 44 indicates upwardly tapering tubes or flukes secured to the outer side of the pounder over said apertures or holes 43, and open at both ends so that water and air may pass through them. The lower ends of the flukes project below that of the device and are also rolled back upon themselves and upon stiffening wires, as at 45. The roll at the lower ends of the device and its flukes gives a more extended engagement with the fabrics being washed and also eliminates danger of tearing them to the minimum, and the flukes project below the device as stated so as to embed themselves in and therefore obtain a more reliable grip upon the fabrics, for the purpose of turning them over and over and thereby more effectually washing them. The turning action is accomplished by giving the device an elliptical movement. The apertures 43 of the device and the open upper ends of the flukes permit the hot air to escape from the device and flukes above the fabrics when concussion of the device occurs, so as to prevent a suctional action which would cause the fabrics to cling or hold to the lower end of the device and its flukes. The flukes because of their embedment in the fabrics also hold them reliably so that they may be effectually rubbed against the bottom slats and the back slats 24 of the tub. To manipulate the device and cause it to perform the various functions enumerated, a handle 46 is bolted to plate 35; said handle extending substantially parallel with the depending branch of the L-shaped arm 37 but in the opposite direction.

Any water which may splash over that end of the tub overhung by the extension 16 of the cover is deflected by such extension to the bottom of the soap

pocket and drains therefrom through the openings 25 back into the tub.

In the practical operation of the machine, the articles to be washed are placed in the tub with the water. The device is then disposed in the position shown in Fig. 3, the articles in the tub forming a support to prevent the device swinging forward on pivots 36 and 29. The cover is then fitted down until it rests upon the tub proper with its extension 16, depending into the soap pocket and the corresponding end of bar 17, bearing against the inner edge of one of the blocks 10, which blocks therefore prevent the cover from sliding longitudinally in that direction while the opposite end of the frame 8, prevents it sliding in the opposite direction. With the parts thus arranged the angle arm 37 extends through the slot 18 of the cover and the slotted shield or guard 20, and in order to prevent the cover from jarring or jolting upward, it is provided at one end with a cross piece 47 for engagement by a turn button 48, mounted on the corresponding end of frame 8. The handle 46 is then grasped by the operator and by swinging it longitudinally toward one end of the tub and then toward the other in the vertical plane of wall 2, the device within the tub operates concentric or parallel with the segment shaped bottom and rubs the fabrics transversely of and upon slats 21, the pivot rod 30 in such action turning in the sleeve 27. The operator by rocking the handle back and forth transversely of the tub, that is in the direction indicated by the arrow Fig. 3, and in the opposite direction, gives the device a pounding action on the fabrics and thereby drives the hot air and water through the fiber of the fabrics, the hot air as hereinbefore stated escaping through the apertures 43 and the open upper ends of the flukes to prevent the device in its upward movement, from lifting the fabrics with it through suctional action. In this pounding action pivot 29 forms the fulcrum and the sleeve 27 rocks thereon. In this motion also the downward stroke of the device is cushioned by the spring 34, said spring interposing a yielding resistance to longitudinal movement of rod 30 through the sleeve, as will be readily seen by reference to Fig. 3. It will also be understood that by swinging the handle forward or to the operator slightly, the flukes come into engagement with the slats 24, which form resisting surfaces which insure rotatable action of the device in case the fabrics being washed tend to prevent such rotatable action. Because of such rack and pinion relation the slats and said device cooperate together to turn the fabrics and insure repeated changes in the position of the goods so as to present different surfaces thereof to the action of the device and the slats of the tub. The device may also be given a combined pounding and lateral or elliptical action if desired, as the universal joint connection between said device and the tub permits the operator to give the former all of the movements that are necessary to effect a thorough cleansing of the articles.

The cover constructed and bearing the relation described to the tub, retains practically the entire volume of hot water and steam rising therefrom, the slotted guard 20, swinging from side to side to accommodate the movements of the angle arm and at the same time permitting but little heat to escape or water to splash from the tub.

After the washing operation is concluded, the cover can be easily removed and the device swung to the inoperative position shown in Fig. 1, where it is entirely out of the way of the operator in removing the washed articles from the tub and replacing them with others. In disposing the device in the inoperative position described, the handle 46 is swung in the direction indicated by the arrow Fig. 3, with bolt 29 as the pivot, until the device is above the tub and the head 31 of bolt 30, is forward of the plane of the front side of the tub, the handle being then swung to a position about parallel with the front side of the tub.

After the articles are removed from the tub the water can be drained off by removing plug 5, and the tub thoroughly cleansed by pouring hot water therein and then tilting it to discharge such water through said opening 4. The plug and cover are then replaced in the proper positions until the tub is again needed.

From the above description it will be apparent that I have produced a washing machine possessing the features of advantage enumerated as desirable and which may obviously be modified in its form, proportion, detail construction, and arrangement of the parts without departing from the principle of construction involved.

Having thus described the invention what I claim as new and desire to secure by Letters-Patent, is:—

1. A washing machine comprising a semi-cylindrical tub provided internally with slats on its bottom, a fabric-engaging device within the tub, and a support upon the tub for said device whereby the latter may have longitudinal movement in a vertical arc substantially concentric with the bottom of the tub and also movement transversely thereto.

2. A washing machine comprising a semi-cylindrical tub provided internally with slats on its bottom, a fabric engaging device within the tub, a support upon the tub for said device whereby it may have longitudinal movement substantially parallel with the bottom of the tub and movement transversely thereto, and yielding means for holding the fabric-engaging device toward one side of the tub.

3. A washing machine, comprising a tub or receptacle for water and the articles to be washed, a rod suitably journaled, a device supported from said rod and adapted to be disposed within the tub and engage the fabrics therein, and means for yieldingly resisting longitudinal movement of said rod.

4. A washing machine, comprising a tub or receptacle for water and the articles to be washed, a bracket secured to the tub, a sleeve pivoted on said bracket, a rod jour-

naled in the sleeve, a plate pivoted on said rod and provided with a handle and an angle arm, and a fabric-engaging device within the tub mounted on said angle arm.

5. A washing machine, comprising a tub, a bracket secured thereto, a sleeve pivoted to the bracket for movement transversely of the tub, a rod journaled in the sleeve, a plate pivoted on the rod and provided with a handle and an angle arm, a fabric-engaging device carried by said arm, and means for yieldingly resisting longitudinal movement of said rod in one direction.

6. A washing machine, comprising a tub having transverse slats on its bottom, a bracket secured to the tub, a sleeve pivoted to the bracket for movement transversely of the tub, a rod journaled in the sleeve, a plate pivoted on the rod and provided with a handle and an angle arm, a fabric-engaging device journaled on said arm and provided with external flukes, and means for yieldingly resisting longitudinal movement of said rod in one direction.

7. A washing machine comprising a semi-cylindrical tub provided with substantially parallel upright slats on the inner side of one of its walls, a fabric-engaging device within the tub provided with external flukes, a universal joint support upon the tub for said device, and means to cause the device to move longitudinally within and substantially parallel with the bottom of the tub and with its flukes engaging said slats.

8. In a washing machine, the combination of a tub having upright slats on its rear wall, a handle having a universal joint support upon the tub, an angle arm rigid with the handle and projecting into the tub, and a fabric-engaging device journaled on said arm and provided with external flukes for engagement at times with said slats.

9. In a washing machine, the combination of a tub, a cover upon the tub and provided in its front wall with a downwardly flaring slot, a slotted guard pivoted to the cover and bridging the slot thereof, a handle pivotally supported upon the tub so as to have universal movement and provided with an angle arm extending through the slotted guard and slot and depending into the tub, and a fabric-engaging device mounted on said arm.

10. In a machine of the character described, a tub or receptacle, a sleeve pivotally supported from the tub for movement in a vertical plane toward or from the tub, a rod extending slidingly and rotatably through said sleeve, a device supported from the inner end of said rod and adapted to engage the fabrics in the tub, a handle for said device, and means to yieldingly resist inwardly sliding movement of said rod through said sleeve.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM A. LEE.

Witnesses:

C. BRISCOE,

W. D. McKNIGHT.