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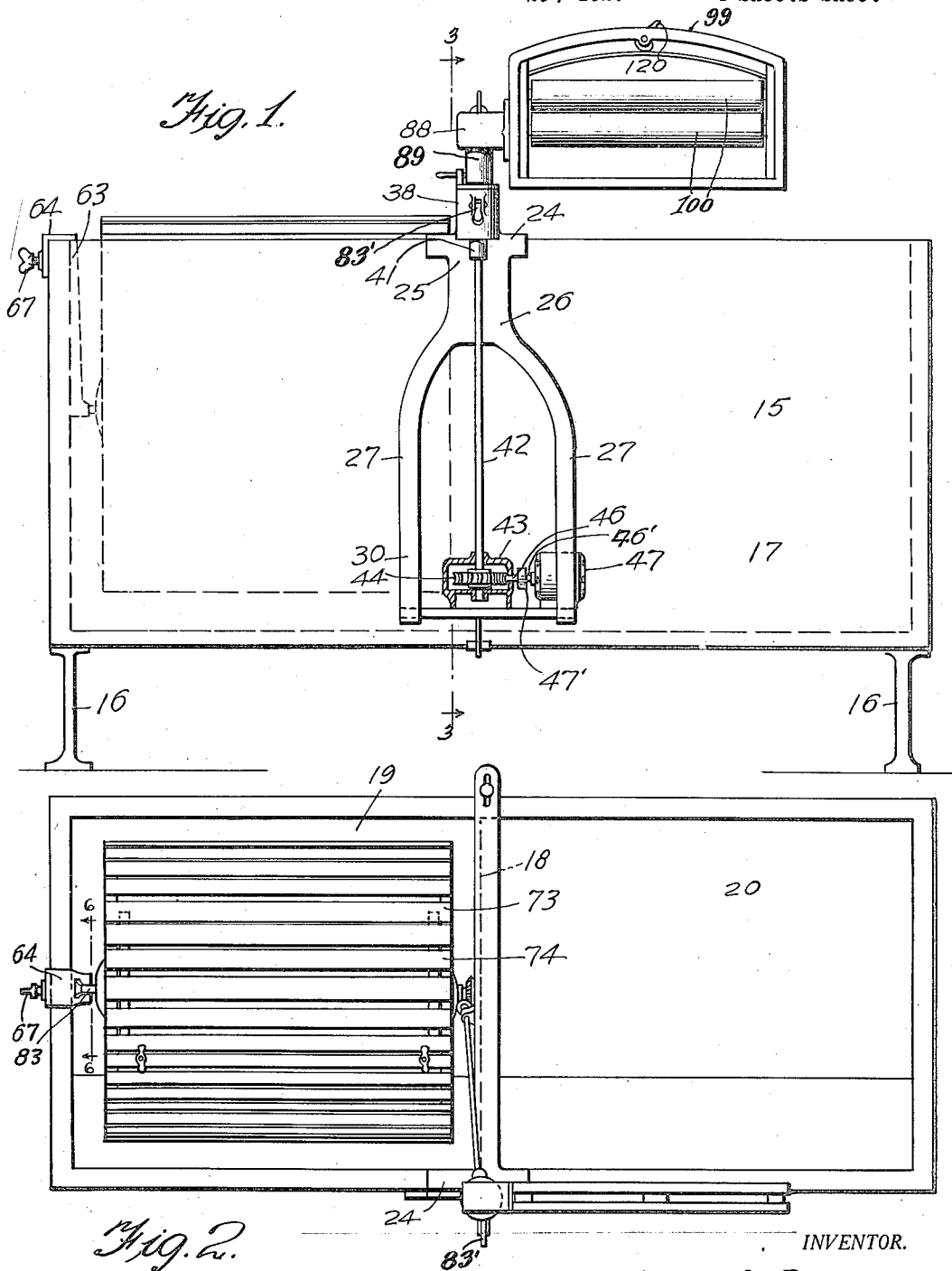
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H. O. BARTLETT

LAUNDRY APPARATUS

Filed March 29, 1920

4 Sheets-Sheet 1



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Sept. 18, 1923.

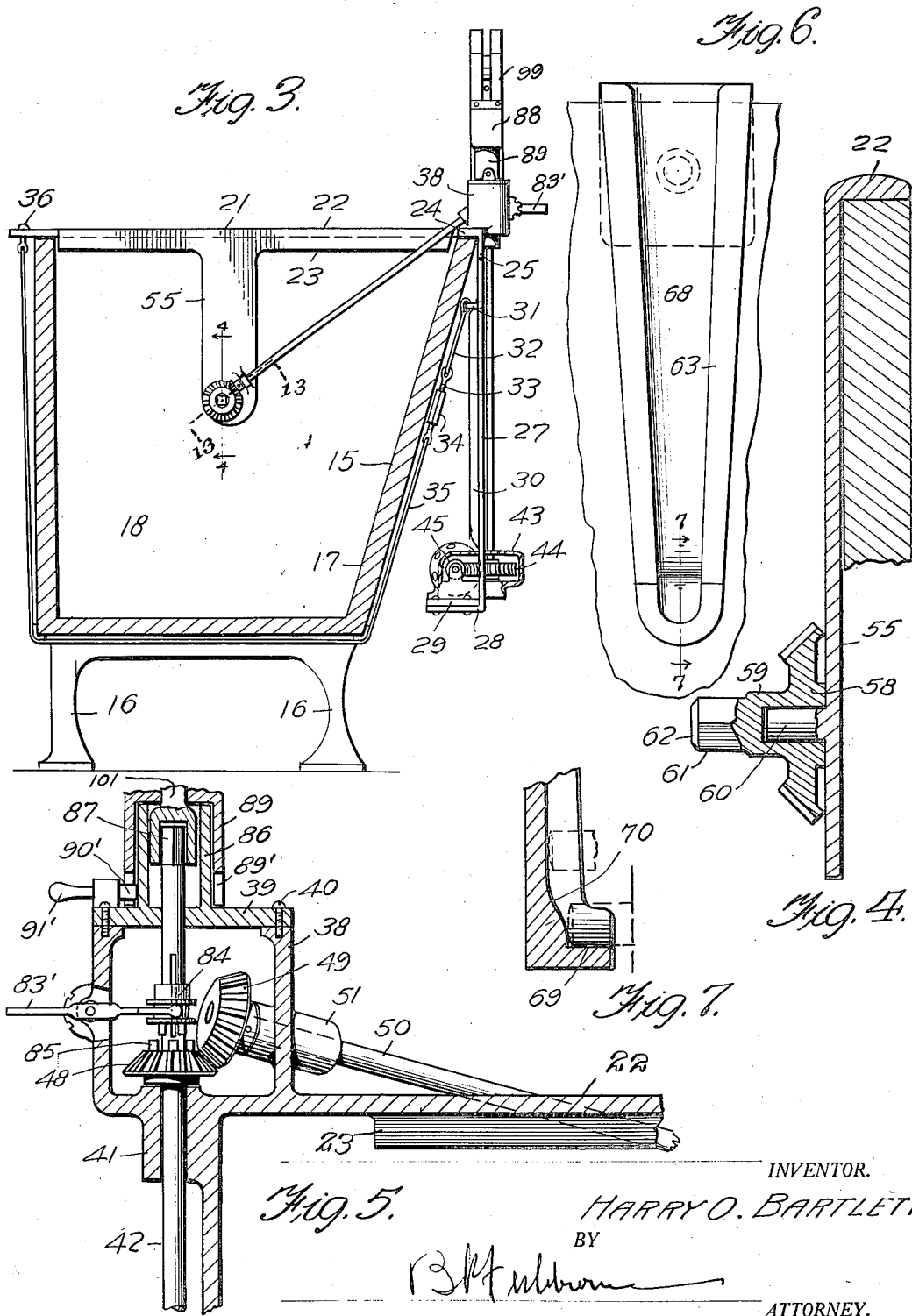
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4 Sheets-Sheet 2



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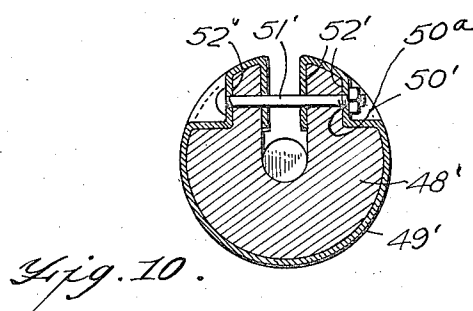
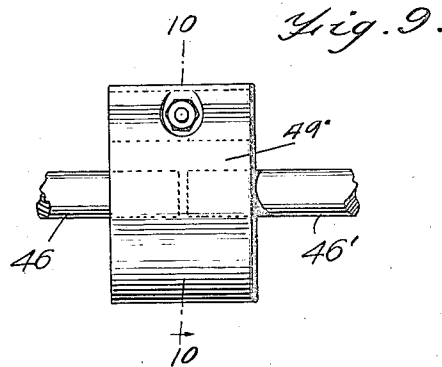
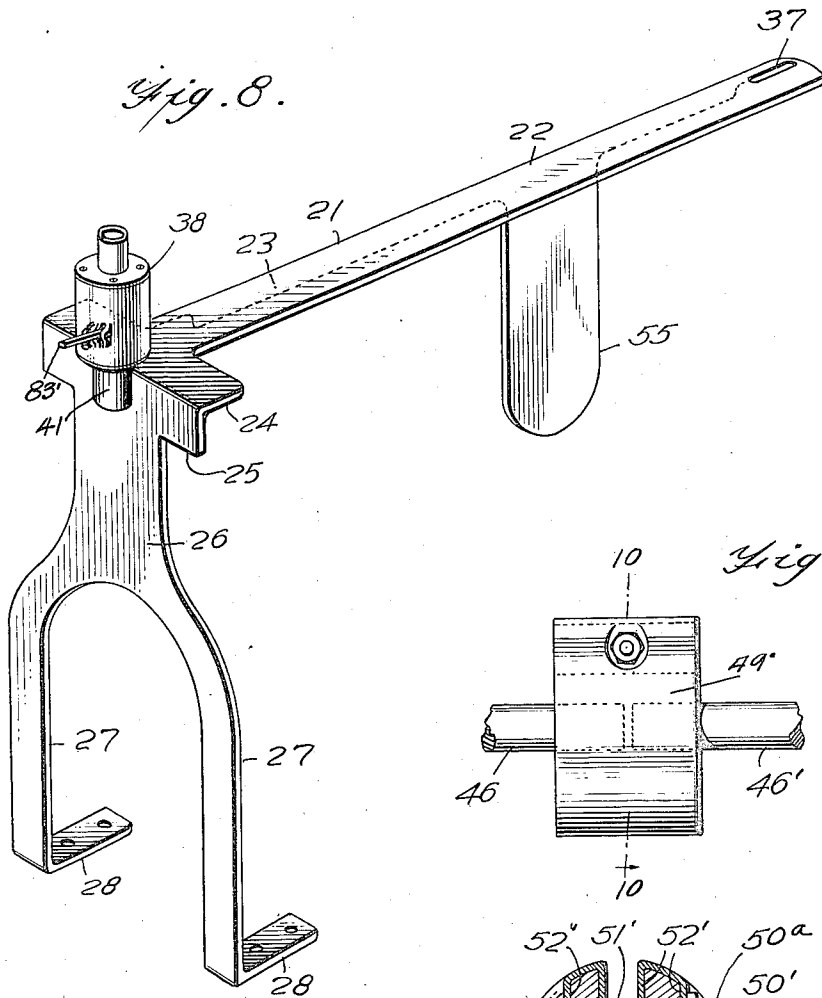
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

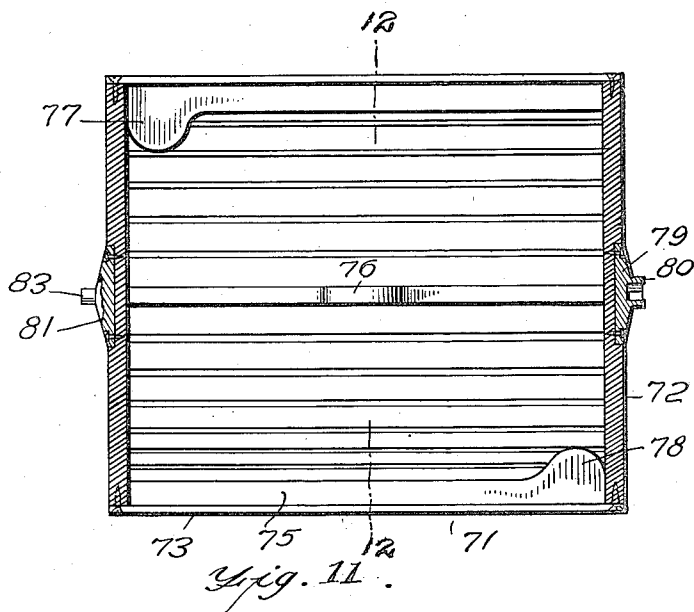


Fig. 12.

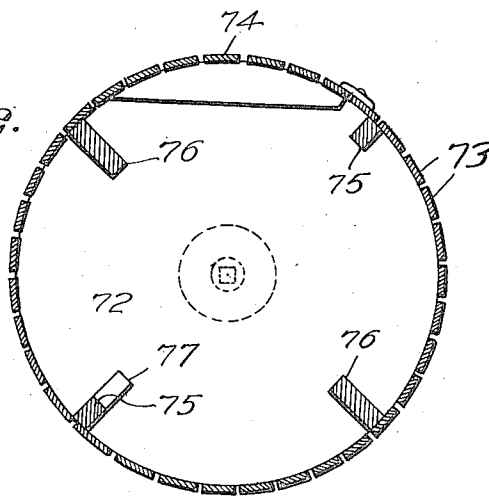


Fig. 13.

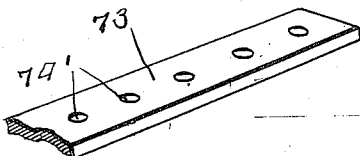
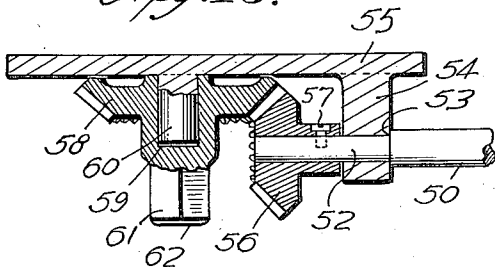


Fig. 14.

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UNITED STATES PATENT OFFICE.

HARRY O. BARTLETT, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO BOWER & BARTLETT, INC., OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF MARYLAND.

LAUNDRY APPARATUS.

Application filed March 29, 1920. Serial No. 369,499.

To all whom it may concern:

Be it known that I, HARRY O. BARTLETT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Laundry Apparatus, of which the following is a specification.

My invention relates to washing apparatus, for laundry purposes, and has particular reference to such apparatus in the nature of an attachment, to be applied upon or used in connection with the ordinary stationary laundry tub, while not necessarily restricted to this use.

An important object of the invention is to provide an attachment of the above mentioned character, which may be installed upon the ordinary stationary laundry tub, without altering the construction of the tub, or injuring the same.

A further object of the invention is to provide apparatus of the above mentioned character, which is of simple construction, strong and durable.

A further object of the invention is to provide means whereby the movable drum may be removed from the tub, without disturbing the driving means or gears.

A further object of the invention is to provide a hanger bearing having means to guide the trunnion of the drum, upon its downward movement, and to also shift the drum longitudinally, whereby the drum will be properly connected with its driving gear.

A further object of the invention is to provide means for locating and supporting a motor, and associated elements, outwardly of or beneath the forward inclined side of the laundry tub, whereby these elements occupy this space and are protected or covered, and an upstanding driving shaft is properly located and may be employed to adjustably support a wringer, in a proper position for coaction with the several compartments of the tub.

A further object of the invention is to provide a movable or rotatable drum, having interior lugs or projections disposed in a peculiar manner, to prevent the clothes or laundry from being unduly tangled or knotted.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of apparatus embodying my invention,

Figure 2 is a plan view of the same,

Figure 3 is a transverse section taken on line 3—3 of Figure 1,

Figure 4 is an enlarged detailed section taken on line 4—4 of Figure 3,

Figure 5 is a central vertical section through a gear housing, associated elements in elevation,

Figure 6 is an enlarged side elevation of a hanger bearing,

Figure 7 is a detailed section taken on line 7—7 of Figure 6,

Figure 8 is a perspective view of an attaching frame,

Figure 9 is a side elevation of a friction clutch,

Figure 10 is a transverse section taken on line 10—10 of Figure 9,

Figure 11 is a longitudinal section through a drum,

Figure 12 is a transverse section taken on line 12—12 of Figure 11,

Figure 13 is an enlarged detail section taken on line 13—13 of Figure 3, and,

Figure 14 is a perspective view of a modified form of slat for the drum.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 15 designates an ordinary stationary laundry tub, supported by legs 16. This tub has a forward inclined side 17, as is customary, for supporting the scrubbing board in an inclined position. The tub is provided with a transverse partition 18, forming chambers 19 and 20, as shown.

My apparatus or attachment embodies a supporting frame designated as a whole by the numeral 21, and embodying an upper horizontal strip 22, provided at one edge with a depending flange 23, serving to stiffen or reinforce the same, and also engaging with the partition 18, preventing displacement of the strip 22. As clearly shown in Figure 2, a transverse head 24 is formed integral with the forward end of the strip 22, and contacts with the upper edge of the side 17, and serves as a brace to prevent the sup-

porting frame from turning on its axis. This head carries a vertical or depending flange 25, preferably formed integral with the upper end of an inverted Y-shaped member 26, embodying spaced vertical arms 27. At their lower ends, as shown in Figure 3, the arms 27 are bent inwardly forming horizontal extensions 28, serving to support a platform 29, for a purpose to be described. The arms 27 are preferably reinforced by longitudinal ribs 30, whereby these arms are stiffened, to prevent vibration, and are T-shaped in cross-section.

At the upper end of the arms 27, is an inwardly bent or formed apertured ear 31, having connection with a section of a cable 32. This section of cable is connected with one screw-threaded element 33, of a turn-buckle 34, the other screw-threaded element of which is connected with a cable section 35, passed beneath the tub, as shown in Figure 3 and provided at its free end with an eye-bolt 36, arranged within an elongated slot 37 in the free end of the strip 22. The bolt is therefore adjustably connected with this strip, whereby the cable may be employed in securing the supporting frame to the tubs of slightly different widths.

The numeral 38 designates a housing or casing, preferably cast integral with the strip 22 and head 24, at the forward end of the strip, and preferably cylindrical. This housing is preferably vertically arranged, and has a cap 39, detachably secured thereto by screws 40 or the like.

A depending bearing 41 is carried by the lower end of the housing 38, and receives therein a vertical combined driving and pivot shaft 42, having its lower end journaled in a gear casing 43, rigidly secured to the platform 29, as shown. This gear casing encloses a worm wheel 44, rigidly secured to the shaft 42, and engaging a worm 45, upon a shaft 46. The shaft 46 is connected with the armature shaft 46', by a friction clutch device, embodying a block 48', preferably formed of wood, and having a radial slot to receive the ends of these shafts. The block 48' is surrounded by a metallic band 49', having depressions 50' therein, and apertures 50^a, receiving a bolt 51', passing through the ends 52'. By tightening up the nut upon the bolt the clamping engagement upon the block and shafts may be adjusted.

As clearly shown in Figure 5, the vertical shaft 42 carries a bevel gear 48, rotatable thereon, and engaging a bevel gear 49, angularly arranged, and secured to a diagonal shaft 50, journaled through a bearing 51, near its upper end. This diagonal shaft has its lower portion slightly reduced, as shown at 52, forming a shoulder 53, the reduced portion 52 being journaled in a bearing 54, preferably formed integral with

a depending arm 55, preferably integral with the strip 21, and flange 23. A bevel gear 56 is secured to the reduced portion 52, by a clamping screw or bolt 57, and this bevel gear engages a bevel gear 58, shown in section in Figure 13. The bevel gear 58 is provided with a tubular hub 59, pivotally receiving a boss or trunnion 60, formed integral with the depending arm 55. The tubular hub 59 has an extension 61, which is polygonal in cross section, the free end of which is slightly tapered, as shown at 62. The gear 56 serves to retain the gear 58 upon the trunnion 60.

The numeral 63 designates a hanger bearing, arranged opposite the arm 55, and embodying an L-shaped head 64, to straddle the end of the tub, and be clamped thereto by a bolt 67. This hanger bearing, as shown more clearly in Figure 6, is provided with an interior groove 68, which is tapered, and decreases in width downwardly. The end of this groove terminates in a bearing 69, and an inclined wall 70 is arranged adjacent the bearing 69, and projects inwardly.

The numeral 71 designates a drum as a whole, embodying heads 72, and a periphery 73, including a removable cover 74, held closed by any suitable means. This periphery may be formed of spaced slats. In Figure 17, slats 73', of a modified form, are shown, which are adapted to form the periphery of the drum. These slats have perforations 74'. The slats may be opened at 74', in Figure 14. Arranged within the drum are longitudinal agitator bars 75, four of which may be employed, as shown, and these bars may be diametrically arranged. Two of the diametrically arranged bars have inwardly projecting extensions or lugs 76, equidistantly spaced from their ends, while one of the remaining bars has a corresponding lug 77 at one end, and the other bar has a lug 78 arranged at the opposite end of the drum. The function of these projections or lugs is to prevent the clothes being washed, from becoming unduly tangled or knotted.

A coupling member 79 is suitably secured to one head 72, by screws or the like, and is provided with a socket 80, polygonal in cross-section, to receive the extension 61. A coupling member 81 is secured to the opposite head 72, and carries a trunnion 83, which is cylindrical, and adapted to operate within the groove 68. When the drum is lowered into the tub, the trunnion 83 may be conveniently placed within the upper wide end of the groove 68, and the extension 61 inserted within the socket 80, or its reduced end 62 inserted therein. When the drum approaches the lowermost position, the trunnion 83 contacts with the inclined wall 70, which shifts the drum longitudinally to the right, whereby the extension 61 becomes

completely inserted within the socket 80. It is thus seen that the drum is connected with the gear 58 and will be driven by the motor 47, through the medium of the interposed gearing.

As more clearly shown in Figure 5, a lever 83' is pivoted to the housing 38, and projects therebeyond, and serves to shift a clutch element 84, keyed upon the shaft 42, to move longitudinally thereof and turn therewith. This lever may be locked in adjustment by any suitable means. The clutch element is adapted to engage a coacting clutch element 85, rigidly secured to the bevel gear 48. It is thus seen that when the clutch element 84 is in the lowered position, the gear 48 will be locked to its shaft.

The shaft 42 projects upwardly beyond the cover 39, into an annular flange 86, formed integral with the cover, the upper portion of the shaft being formed polygonal in cross section, as shown at 87. The numeral 88 designates a gear casing or housing of a wringer, to be described, and this housing carries a depending annular flange 89, pivotally receiving the flange 86, as clearly shown in Figure 5. This flange 89 is provided at its lower end with slots 89', preferably four in number, arranged 90° apart, and adapted to receive a sliding bolt 90', carried by the cover 39, and shifted by a handle 91'.

The numeral 99 designates a wringer as a whole, secured to the gear casing 88. This wringer embodies a pair of rolls 100, suitably driven by the gears (not shown), in the gear casing 88, and these gears are driven by a coupling shaft 101, adapted to engage the polygonal end 87, as shown in Figure 5.

The operation of the apparatus is as follows:

The motor 47 may be set into action by the usual switch, and the shaft 42 will be driven. By shifting the clutch element 84 downwardly, the bevel gear 48 will be locked to its shaft, and the drum 71 rotated.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In apparatus of the character described, an attachment to be installed upon a laundry tub embodying, an attaching frame including a substantially horizontal member adapted to extend transversely of the tub and a depending member carried at one end thereof, said substantially horizontal member being provided near one end with an elongated slot, an adjustable binding

element secured to the depending member and passed about the tub and having one end thereof held within the elongated slot, a hanger bearing secured to the tub, a depending arm carried by the substantially horizontal member, a drum, rotatably connected to the ends of the drum with the hanger bearing and the depending arm, a gear casing carried by the substantially horizontal member near the depending member, gears arranged within the gear casing, driving connecting means between the gears and the drum, a motor connected with and supported by the depending member, and driving connecting means between the motor and gears.

2. In apparatus of the character described, an attachment to be installed upon a laundry tub embodying, an attachment frame including a substantially horizontal member adapted to extend transversely of the tub and a depending member carried at one end thereof, said substantially horizontal member being provided at one end with a longitudinal slot, said substantially horizontal member being provided between its ends with a depending arm, an adjustable binding element secured to the depending member and passed beneath the tub and having one end thereof held within the slot, a hanger bearing secured to the tub and arranged opposite the depending arm, a gear pivotally connected with the arm, a drum arranged within the tub, means for detachably connecting one end of the drum and hanger bearing, means for detachably connecting the other end of the tub and gear, gearing carried by the substantially horizontal member near the depending member, driving connecting means between the gearing and said gear, a motor connected with and supported by the depending member, and driving connecting means between the motor and the gearing.

3. In apparatus of the character described, an attachment to be installed upon a laundry tub embodying, an attaching frame including a substantially horizontal member, adapted to extend transversely of the tub and a depending member carried near one end thereof, said substantially horizontal member having a depending arm, a binding element connected with the depending member and extending beneath the tub and connected with the opposite end of the substantially horizontal member, a hanger bearing secured to the tub and arranged opposite the depending arm, a drum arranged within the tub, means detachably connecting one end of the drum and hanger bearing, means detachably connecting the opposite end of the drum and the depending arm, gearing carried by the substantially horizontal member, driving connecting means between the gearing and drum,

and a motor carried by the depending member and connected with the gearing to drive it.

4. In apparatus of the character described, an attachment to be installed upon a laundry tub embodying, an attaching frame including a substantially horizontal member extending above and across the tub and a depending member connected with the substantially horizontal member near one end thereof, said horizontal member being provided with a depending arm disposed within the tub, said arm carrying a trunnion, means for securing the attaching frame to the tub, a gear rotatable upon the trunnion, a hanger bearing carried by the tub and arranged opposite the depending arm, a drum arranged within the tub, means for detachably connecting the drum and hanger bearing, means for detachably connecting the drum and gear, a gear casing carried by the strip near one end thereof, gears in the gear casing, a diagonal shaft having its upper end extending into the gear casing and connected with one of the gears therein, a bearing carried by the depending arm and receiving the lower end of the diagonal shaft, a gear carried by such lower end and engaging the first named gear and serving to retain it upon its trunnion, a motor connected with and supported by the depending member, and an upstanding shaft driven by the motor and extending into the gear casing and connected with one gear therein.

5. In apparatus of the character described, an attaching frame embodying a substantially horizontal member adapted to extend above and across a laundry tub and provided at one end with a depending supporting member, said substantially horizontal member being provided between its ends with a depending arm, and securing means connected with portions of the frame and extending beneath and about the tub,

6. In apparatus of the character described, the combination with a laundry tub embodying an inclined side extending inwardly toward its bottom, of an attaching frame secured to the tub and embodying a substantially vertical depending supporting member arranged outwardly of and near the inclined side, forming therewith a partly inclosed space, a motor mounted upon the depending supporting member, gearing supported by the attaching frame, a substantially vertical shaft extending longitudinally of the depending supporting member and driven by the motor and connected with the gearing, a drum pivotally supported within the tub, and means connecting the drum and gearing.

7. The combination with a laundry tub having an inclined side extending inwardly toward its bottom, of an attaching frame embodying a substantially horizontal mem-

ber extending across the top of the tub and having a depending arm extending into the tub, a depending supporting member secured to one end of the horizontal member and extending downwardly upon the outer side of the inclined side of said tub, a motor carried by the depending member, gearing carried by the substantially horizontal member near the depending supporting member, a shaft connecting the motor and gearing, a drum arranged within the tub and connected with the arm, and a diagonal shaft connected with the drum and with the gearing.

8. The combination with a laundry tub, of an attaching frame secured thereto and embodying a depending arm, said arm having a trunnion and bearing, a gear having a tubular hub to pivotally receive the trunnion and provided with a polygonal extension, a diagonal shaft having its lower end journaled in said bearing, a gear carried by said lower end and engaging the first named gear to drive it and hold the same upon its trunnion, means carried by the attaching frame and connected with the upper end of the diagonal shaft to rotate the same, and a drum within the tub, having connection with the first named gear.

9. In a washing machine, a tub, a substantially horizontal support arranged above one wall of the tub, means to hold the support in position upon said wall, said support having a brace arranged near one end thereof, said brace being disposed at substantially a right angle to said support and engaging the edge of a wall of the tub to prevent the support from turning upon its longitudinal axis, a depending arm carried by said support and arranged within the tub, a drum within the tub and rotatably connected with said depending arm, means to rotatably support the opposite end of the drum, a gear casing carried by the support, gears in the gear casing, driving means between the gears and the drum, and a motor to drive the gears.

10. The combination with a laundry tub having an inclined side, of an attaching frame arranged thereon embodying a horizontal top member and a depending supporting member disposed outwardly of and adjacent the inclined side of the tub, a depending arm carried by the member, a hanger bearing carried by the tub, a drum pivotally connected with the hanger bearing and arm, a gear casing carried by the member near the depending member, gears in the gear casing, a diagonal shaft projecting into the casing and connected with one gear and having its lower end connected with the drum to drive it, a motor carried by the supporting member, and a substantially vertical shaft driven by the motor and extending through the gear casing and connected with one gear therein.

11. An attachment for a laundry tub which has a transverse partition, comprising a gear casing adapted for arrangement upon the upper edge of one side of the tub and
 5 having a portion resting upon the transverse partition of said tub, said gear casing carrying a depending stop element to limit the inward movement of the gear casing with relation to the tub, gearing in the
 10 gear casing, driving means for the gearing, a washing mechanism in the tub, and driving connecting means between the gearing and washing mechanism.

12. An attachment for a laundry tub, comprising a gear casing adapted for arrangement upon the upper edge of one side of the tub and having a horizontal portion
 15 resting upon the transverse partition of the tub, means for securing the gear casing in place, gearing within the casing, washing mechanism within the tub, driving connecting means between the gearing and washing
 20 mechanism, and means to drive the gearing.

13. The combination with a laundry tub
 25 embodying a pair of compartments separated by a transverse partition, of a supporting frame to be mounted upon the tub, said frame embodying a substantially horizontal member arranged above the tub and
 30 extending transversely thereof above the partition, said substantially horizontal member projecting inwardly beyond the wall of the side of the tub for a substantial distance, means for holding said member to
 35 said partition, a depending arm carried by the substantially horizontal member and spaced a substantial distance from the side of the tub and arranged adjacent said partition, a hanger bearing secured to the opposite
 40 end of the same compartment, a rotatable drum carried by the arm and hanger bearing, a saddle secured to one end of said member and engaging the upper edge of one side of the tub, a gear casing connected with

the member and saddle, gearing in the gear casing, driving connecting means between the gearing and the rotatable drum, and a motor to drive the gearing.

14. The combination with a laundry tub embodying a pair of compartments separated by a transverse partition, of a saddle engaging the upper edge of one side of the tub adjacent said partition, a gear casing secured to the saddle, a transverse member secured to the gear casing and saddle and projecting inwardly and transversely along the partition and beyond the inner wall of the side of the tub for a substantial distance, a depending arm carried by the transverse member, a hanger bearing secured to the
 50 opposite end of the same compartment of the tub, a rotatable drum within the compartment and pivotally supported by the hanger bearing and depending arm, a depending support connected with the gear casing and
 55 arranged upon the same side of the tub with the saddle, a motor carried by the depending support, a gearing in the gear casing, driving connecting means between the gearing and the rotatable drum, and means for
 60 holding the saddle and member upon the tub.

15. In a washing machine, a tub, a frame having horizontal and vertical arms, said horizontal arm extending over the tub and
 75 engaging the side of the tub, said horizontal arm extending inwardly beyond the side of the tub for a substantial distance, a bearing secured to one end of the tub, a drum rotatable within the tub and supported by the
 80 bearing and the horizontal arm, gearing carried by the frame, driving means between the gearing and the drum, a motor mounted upon the vertical arm of the frame, driving means between the motor and gearing, and
 85 means to secure the frame upon the tub.

In testimony whereof I affix my signature.

HARRY O. BARTLETT.