No. 863,370. PATENTED AUG. 13, 1907.

W. C. FAWKES.

WASHING MACHINE.

APPLICATION FILED JULY 30, 1906.

2 SHEETS—SHEET 1.

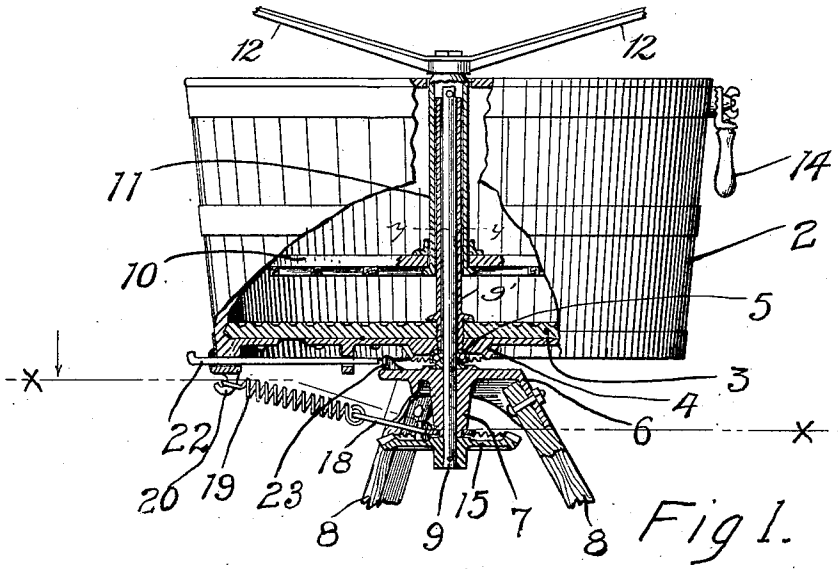


Fig 1.

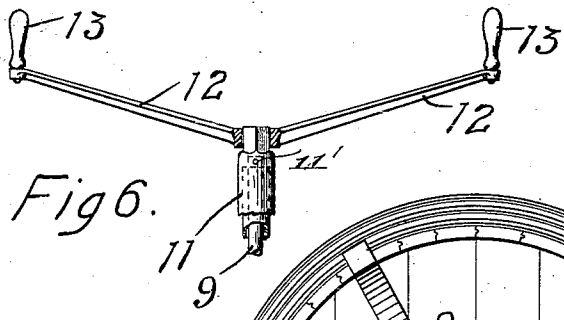
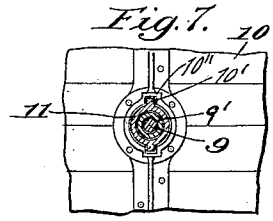


Fig 6.

Fig 7.



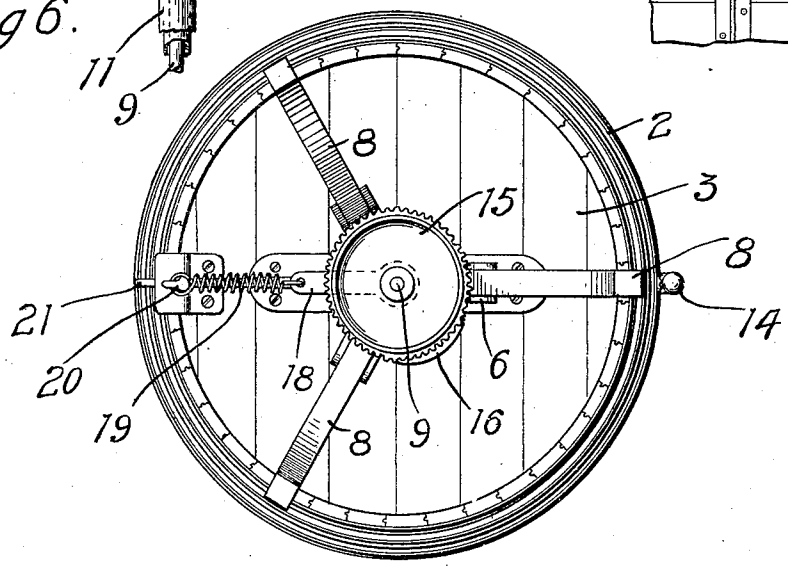


Fig 2.

WITNESSES

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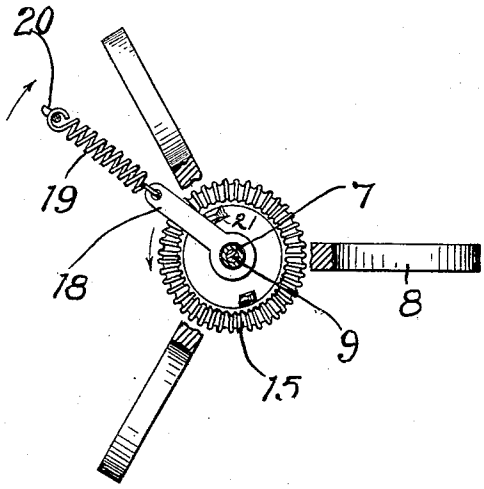

Fig 3.

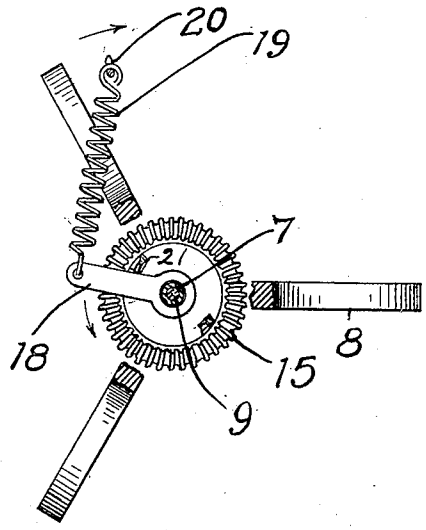

Fig 4.

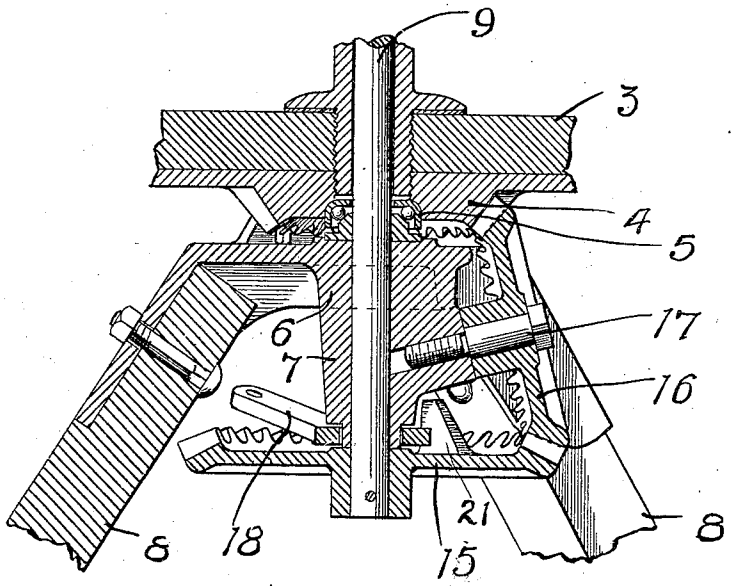

Fig 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

WILBERT C. FAWKES, OF MINNEAPOLIS, MINNESOTA.

WASHING-MACHINE.

No. 863,370. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed July 30, 1906. Serial No. 328,285.

To all whom it may concern:

Be it known that I, WILBERT C. FAWKES, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to washing machines of the rotary type and the object of the invention is to provide an improved driving connection between the tub and the rotating rubber shaft, whereby greater efficiency and ease of operation is obtained.

A further object is to provide a connection for the spring usually employed on washing machines of this type whereby it will be put under tension to check the momentum of the tub only during the last part of the stroke.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a vertical sectional view of a wash tub embodying my invention. Fig. 2 is a bottom view of the same. Fig. 3 is a sectional view on the line *x*—*x* of Fig. 1. Fig. 4 is a similar view showing the tub rotated from the position in Fig. 3. Fig. 5 is a detail sectional view of the driving gear between the tub and the rubber shaft. Fig. 6 is a detail view showing operating handles mounted on the rubber shaft so that power can be applied directly to this shaft instead of to the tub. Fig. 7 is a sectional view on line *y*—*y* of Fig. 1.

In the drawing, 2 represents a tub having the usual corrugated bottom 3 and provided on its under side with a gear 4 inclosing a ball bearing 5 which supports the tub on a leg bracket or base 6. This bracket has a depending centrally arranged stud 7 and legs 8. A rubber shaft 9 is centrally mounted in the stud 7 and extends up through the gear 4 and the bottom of the tub and through a sleeve 9′ mounted on said bottom. The upper end of the shaft extends above the corresponding end of the sleeve 9′ and is secured to a sleeve 11 by a pin 11′ (see Fig. 6). The sleeve 11 has a squared upper end and is loosely mounted on the sleeve 9′ and adapted to turn thereon with the shaft 9, and a rubber 10 is carried by said sleeve 11 and has a vertical movement thereon as usual in washing machines of this kind (see Fig. 7), numeral 10′ indicating ribs on the sleeve 11 fitting within guides 10″ on the rubber. Arms 12 having handles 13 are provided and adapted to be fitted on the squared end of the sleeve 11 for convenience in rotating the shaft back and forth instead of oscillating the tub by means of the handles. By providing the arms on the rubber shaft, the user of the machine is able to rotate the tub by operating the shaft or reverse the operation and rotate the tub to operate the shaft and rubber. On the lower end of the rubber shaft 9 I provide a bevel gear 15 rigidly secured and adapted to rotate in a horizontal plane and having its teeth in engagement with a gear 16 mounted at 17 on the leg bracket and engaging the teeth of the gear 4 on the under side of the tub. When the tub is rotated in one direction this movement will be transmitted by the gears 15 and 16 to the rubber shaft to rotate it and the rubber head in the opposite direction. The gears are made of sufficient size so that the desired speed and ease of movement is obtained.

The gear 4 is smaller than the gear 15 and consequently the tub will rotate faster and farther than the rubber heads. This is desirable in a machine of this type as it renders it much easier of operation without detracting from its efficiency.

I have found by providing this system of gearing that any desired relative movement and speed of the tub and rubber head may be obtained.

For the purpose of checking the momentum or inertia of the tub when near the limit of its stroke and aiding the operator to reverse its movement, I provide a lever 18 loosely mounted on the lower end of the stud 7 concentric with the tub and having its outer end connected to one end of the spring 19 whose opposite end is attached at 20 to the bottom of the tub. Lugs 21 are provided on each side of the center of the gear 15 and adapted to engage the lever 18 when the tub is rotated and is near the limit of its stroke, for the purpose of putting the spring 19 under tension and checking the movement of the tub, and aiding the operator to reverse its motion. The lugs are arranged a sufficient distance apart to allow sufficient travel of the tub before the spring is put under tension.

A sliding bar 22 is provided on the bottom of the tub in position to engage a stop 23 on the leg bracket for the purpose of locking the tub against oscillation.

I claim as my invention:

1. The combination, with a tub, of a leg bracket having suitable legs and a central bearing for said tub, a gear centrally secured to the under side of said tub, a rubber shaft extending vertically through the bottom of said tub and through said gear and leg bracket, a rubber head mounted on said shaft, a gear secured to the lower end of said shaft below the said leg bracket and of greater diameter than the gear on said tub, a gear journaled on said leg bracket and meshing with the gear on said tub and the gear on said shaft, and operating in a plane at an angle to both said tub and shaft gears whereby when said tub is oscillated said shaft and rubber head will be moved also at a slower speed and a less distance, substantially as described, and for the purpose specified.

2. The combination, with a tub, of a supporting base or bracket having suitable legs, a gear centrally mounted on the under side of said tub, a rubber shaft extending vertically through the bottom of said tub and said bracket, a rubber head mounted on said shaft, a gear secured to the lower end of said shaft, a gear mounted on said bracket and revolving in a substantially vertical plane and meshing with the gears on said shaft and said tub, whereby the oscillation of said tub will be transmitted to said

shaft and a spring device arranged to be put under tension only when said tub is near the limit of its stroke, for the purpose specified.

3. The combination, with a tub, and a supporting leg casting or bracket having suitable legs, of a shaft extending vertically through the center of said tub, a rubber head mounted on said shaft, a gear secured to said tub concentric with said shaft, a second gear mounted on the lower end of said shaft and having upwardly extending lugs upon opposite sides of its center, a gear mounted on said leg casting and meshing with the gears on said tub and shaft whereby the movement of either said tub or shaft will be transmitted to the other, a lever loosely mounted above said shaft gear and in the path of said lugs and a spring attached at one end to said lever and at its other end to said tub, substantially as described.

4. In a washing machine, the combination, with a tub and a supporting brace or bracket having suitable legs, of a rubber shaft 9 centrally mounted in said tub, a rubber head 10, a sleeve 11 supporting said rubber head and having a squared upper end secured to said shaft 9 and inclosing the same, a gear mechanism connecting the lower end of said rubber shaft with said tub, whereby movement of either will drive the other, arms having suitable handles detachably mounted on the squared end of said sleeve and suitable handles provided on said tub.

In witness whereof, I have hereunto set my hand this 24th day of July 1906.

WILBERT C. FAWKES.

Witnesses:
RICHARD PAUL,
J. B. EVA.