

T. McEACHRAN.
WASHING MACHINE.
APPLICATION FILED JUNE 6, 1908.

930,680.

Patented Aug. 10, 1909.
2 SHEETS—SHEET 1.

Fig. 1.

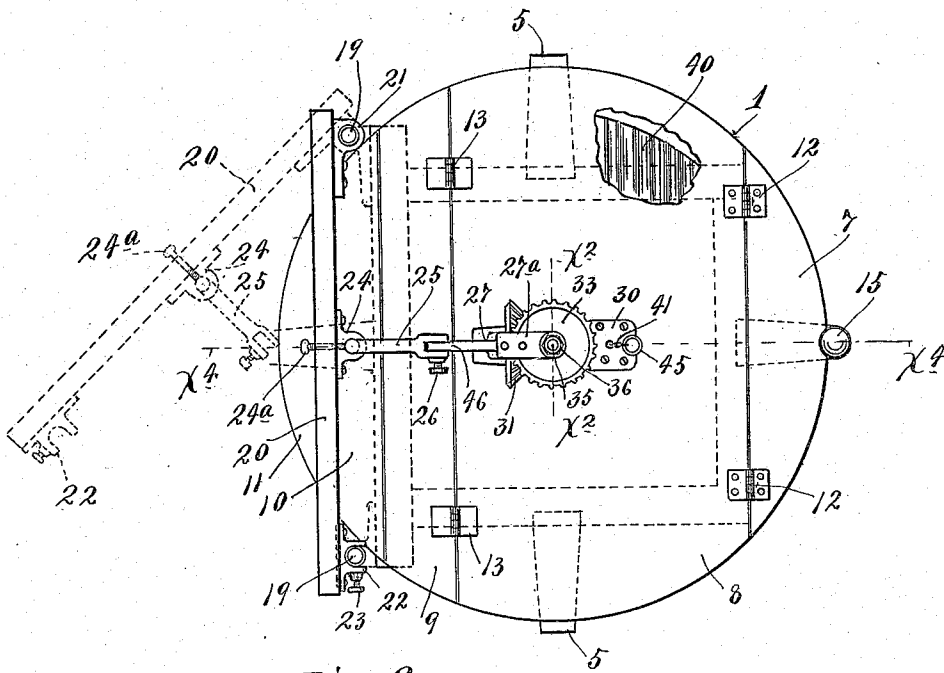


Fig. 2.

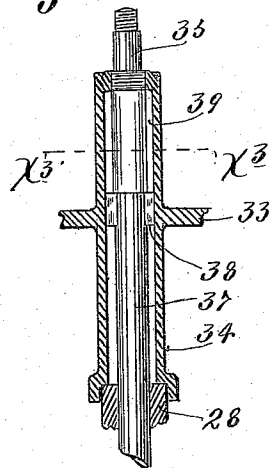
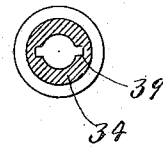


Fig. 3.



Witnesses
A. H. Opsahl.
L. L. Simpson.

Inventor.
Thomas McEachran.
By his Attorneys.
William M. McEachran.

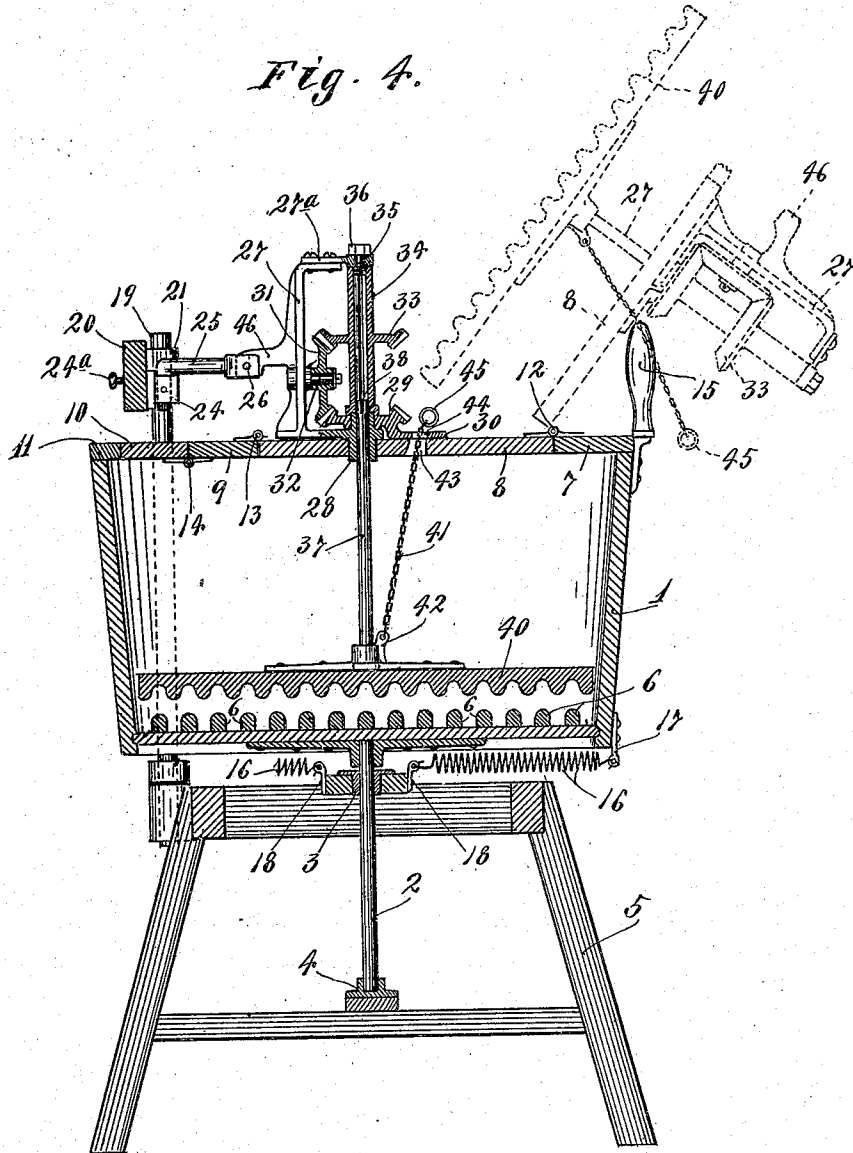
T. McEACHRAN.
WASHING MACHINE.
APPLICATION FILED JUNE 6, 1908.

930,680.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 2.

Fig. 4.



Witnesses.
A. H. Opsahl.
L. L. Simpson.

Inventor.
Thomas McEachran.
By his Attorneys
Williamson & Richards.

UNITED STATES PATENT OFFICE.

THOMAS McEACHRAN, OF MINNEAPOLIS, MINNESOTA.

WASHING-MACHINE.

No. 930,680.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed June 6, 1908. Serial No. 437,108.

To all whom it may concern:

Be it known that I, THOMAS McEACHRAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple and efficient washing machine; and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view, with some parts broken away, showing the improved machine. Fig. 2 is a detail in section taken approximately on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a section taken on the line $x^3 x^3$ of Fig. 2; and Fig. 4 is a vertical section taken through the machine on the line $x^4 x^4$ of Fig. 1.

The tub 1 has a depending spindle 2 concentrically secured to its bottom and mounted in suitable bearings 3 and 4 of a supporting frame 5. Preferably the tub 1 is provided with a corrugated bottom afforded by transversely extended parallel cleats 6. As shown, the tub cover is made up of sections 7, 8, 9, 10 and 11. The sections 7 and 11 are rigidly secured to the said tub; the sections 7 and 8 are connected by hinges 12; the sections 8 and 9 are connected by hinges 13; and the sections 9 and 10 are connected by hinges 14. The hinges 12 permit the main cover section 8 to be turned into an open position, as indicated by dotted lines in Fig. 4, and the hinges 13 and 14 permit the sections 9 and 10 to be folded together and turned upward so as to afford access to the interior of the tub without opening up the main section 8. At a suitable point eccentric to its spindle 2 and preferably to the upper portion of the tub is secured a hand-piece 15, by means of which the tub may be oscillated back and forth.

Coiled springs 16, shown as attached to the anchor brackets 17 and 18, respectively on the tub and on the supporting frame 5, yieldingly hold the tub in an intermediate position and assist in returning the tub to such

intermediate position when it has been oscillated in either direction therefrom.

Rigidly secured to the supporting frame 5 and projecting above the tub in the vicinity of the ends of the cover section 10 is a pair of pedestal rods 19 to which a wringer supporting bar 20 is connected. This wringer supporting bar 20, at one end, is provided with a bearing 21 that is pivoted on one of the pedestal rods 19, but is held against vertical downward movement by a collar, shoulder or other suitable stop device, so that said bar will support the wringer,—not shown, but which may be applied thereto—even when swung into the position shown by dotted lines in Fig. 1. At its other or free end the bar 20 is provided with a bifurcated bearing 22 that is adapted to straddle the other pedestal rod 19 and is provided with a set screw 23, which when tightened, locks the said bearing 22 and the free end of the bar 20 to the said latter noted pedestal rod 19.

To the central portion of the bar 20 a bearing 24 is secured and a link 25 has a downturned outer end that is pivoted to said bearing 24 so that the said link is capable of horizontal oscillatory movement. The free inner end of the link 25 is vertically bifurcated and provided with a set screw 26.

The numeral 27 indicates a gear supporting bracket, the base flange of which rests loosely on top of the cover section 8 and is provided with a hub 28 that extends through said cover section 8 at the axis of the tub and also projects upward to afford a bearing for a bevel gear 29. This gear 29 is provided with a projecting arm 30 that is secured by screws or other suitable devices to the cover section 8, so that the said gear 29 will partake of the oscillatory movement of the tub 1, while the bracket 27 will remain stationary. The gear 29 meshes with the intermediate bevel gear 31, as shown, mounted on a stud 32 projecting from the bracket 27. This intermediate gear 32 meshes with a third bevel gear 33 which has a long vertically extended sleeve 34, the lower end of which is journaled on the projecting upper end portion of the hub 28 of the bracket 27. As a simple and efficient way of journaling the upper end of the sleeve 34 to the upper arm 27^a of the bracket 27, a trunnion 35 is screwed into the upper end of said sleeve 34 and is journaled in said arm 27^a, being, as shown, provided with a nut 36 above said arm. A plunger-like shaft 37 is journaled in the sleeve 28 of

the bracket and is free for vertical endwise sliding movements through said hub and through the long sleeve 34 of the gear 33. Furthermore, this plunger shaft 37 is shown as provided at its upper end with diametrically opposite keys 38 that work on the long key-ways 39 in said sleeve 34. By this connection the plunger shaft 37 is caused to rotate with the sleeve 34 and its gear 33.

Working within the tub and secured to the extreme lower end of the plunger shaft 37 is a corrugated rubbing board 40 of disk-like form. A lifting chain or connection 41, attached at its lower end to a lug 42 on the rubbing board 40, extends upward through a passage 43 and the cover section 8, and through a coincident perforation 44 in the anchoring flange 30 of the gear 29. The passage 40 is preferably made angular so that the chain, by lateral motion, may be interlocked therewith and cause the board 40 to be locked in an inoperative elevated position above the corrugated bottom of the tub. At its extreme upper end, the chain 41 is provided with a ring 45 which affords a convenient finger-piece for pulling upward the chain.

The bracket 27 is provided with an outwardly projecting arm 46 that normally fits in the bifurcated inner end of the link 25 and is rigidly secured thereto by the set screw 26 before described.

When the clothes are to be placed within the tub or to be removed therefrom, the cover, together with the bracket 27, rubbing board 40 and other parts secured thereto, should be turned into the open or inoperative position shown by dotted lines in Fig. 4, and to permit this it is necessary first to loosen the set screw 26 and thereby disconnect the bracket 27 from the link 25. If the wringer is applied to the supporting bar 20, the set screw 23 should be loosened and the said bar 20, together with the applied wringer, turned outward approximately as shown by dotted lines in Fig. 1 so that both will be clear of the top of the tub. This, it will be seen, does not necessitate the removal of the wringer from its position on the supporting bar, and affords means by which the wringer may be very quickly moved from and restored to normal position on the tub.

When the clothes are in the tub, the rubbing board 40 should be allowed to rest on top thereof. When the tub is then oscillated by taking hold of the hand-piece 15 or otherwise, the gear 29 will be carried with or caused to partake of the oscillatory movement of the tub, and, through the intermediate gear 31, the gear 33 and its sleeve 34, the plunger shaft 37 and rubbing board 40 will consequently be caused to make oscillatory movements that correspond in time with but are always in reverse direction to the movement of the tub. This, as is evident, gives a very greatly increased relative travel of the

corrugated bottom of the tub in respect to the corrugated under surface of the rubbing board, or vice versa. As already indicated, the gear supporting bracket 27 is fixed or anchored to the bar 20, so that it does not partake either of the motion of the tub or of the rubbing board.

The improved machine, while of simple construction, may be very easily operated, is convenient, and furthermore, is generally efficient for the purposes had in view.

When the wringer is in use, the cover will, of course, be turned into the open position indicated by dotted lines in Fig. 4, and the so-called link 25 may then be turned flatwise against the bar 20 and can be secured in such position out of the way of the clothes by means of a set screw 24^a which, as shown, is passed through the perforation in the bar 20, is screwed into the bearing 24 and impinges against the down-turned end of the said link 25.

What I claim is:

1. The combination with an oscillatory tub and an oscillatory head within said tub, of a gear supporting bracket anchored above said tub, a pair of bevel gears, one connected to oscillate with said tub and the other connected to oscillate with said head, an intermediate gear mounted on said anchored gear supporting bracket and meshing with both of said gears, and a yielding device tending to hold said tub in an intermediate position, but permitting oscillations thereof, substantially as described.

2. The combination with a suitable support and a tub mounted to oscillate thereon, of a gear supporting bracket anchored above said tub and supported from said tub, a head within said tub, an upwardly extended shaft to the lower end of which said head is secured, a pair of bevel gears, one anchored to said tub and the other connected to said shaft by connections permitting vertical movements of said shaft and rubbing head or board, and an intermediate gear on said anchored bracket meshing with both of said pair of gears, substantially as described.

3. The combination with an oscillatory tub, an oscillatory head working therein and an upright shaft to the lower end of which said head is secured, of means for connecting said tub and head for reverse oscillatory movements, comprising a bevel gear connected to oscillate with said tub, another bevel gear connected to oscillate with said shaft but permitting vertical movements of said shaft and head, an intermediate gear meshing with said two gears, a supporting bracket for said intermediate gear, an anchoring support that is independent of the tub, and means for detachably connecting said gear supporting bracket to said anchoring support, substantially as described.

4. The combination with a supporting

frame and a tub mounted to oscillate there-
on, said tub having a hinged cover, of pedes-
tal rods secured to said frame and projecting
above said tub, a wringer supporting bar
5 supported by the upper ends of said pedestal
rods, a link connected to the intermediate
portion of said bar, a gear supporting bracket
pivotally connected to the hinged cover of
said tub and detachably connected to said
10 link, a pair of bevel gears mounted on said
supporting bracket, one thereof having an
arm anchored to said tub cover, and the

other having a long sleeve, an intermediate
gear on said bracket meshing with the first
two gears, and a head in said tub having a 15
plunger shaft journaled in the lower hub
portion of said bracket and connected to said
sleeve, substantially as described.

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

THOMAS McEACHRAN.

Witnesses:

F. D. MERCHANT,

HARRY D. KILGORE.