

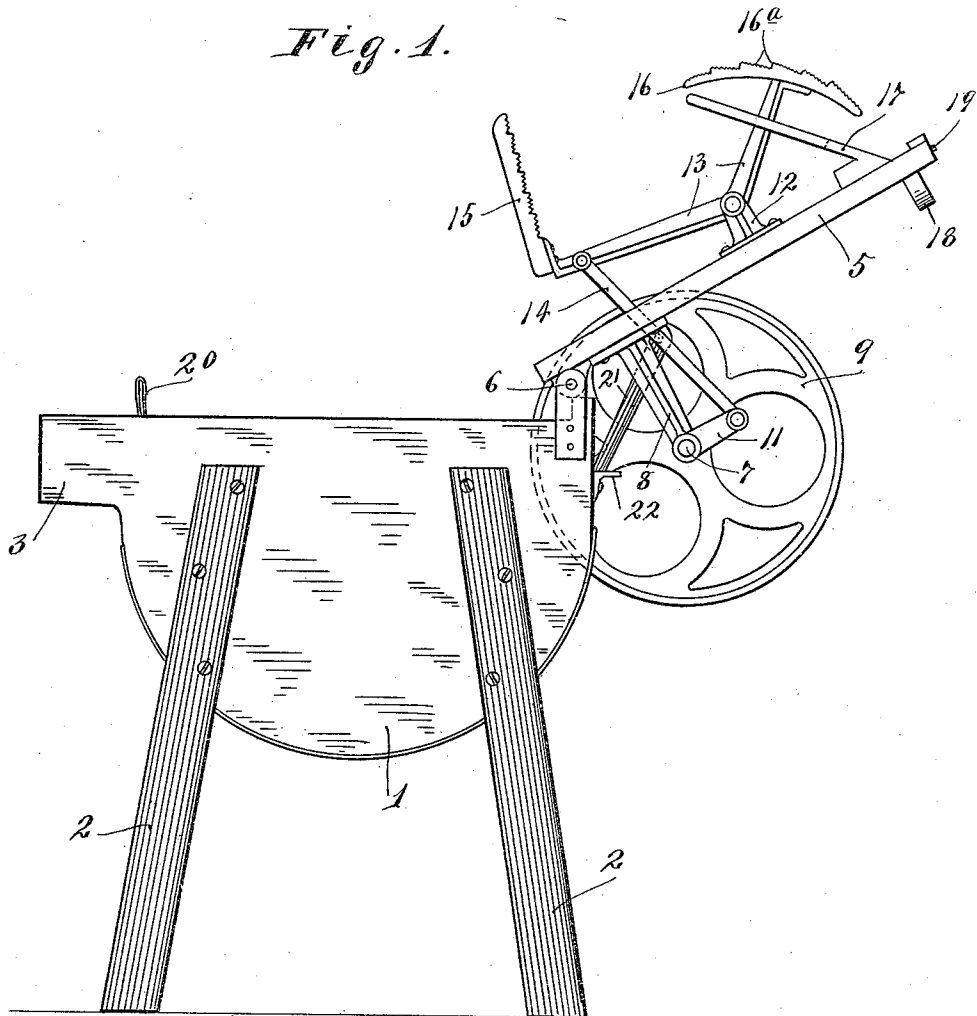
F. W. KRANZ.
WASHING MACHINE.
APPLICATION FILED JUNE 3, 1908.

952,818.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
A. H. Opsahl.
W. H. Souba.

Inventor
Frederick W. Kranz
By his Attorneys
William M. Muehler

F. W. KRANZ.
 WASHING MACHINE.
 APPLICATION FILED JUNE 3, 1908.

952,818.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 2.

Fig. 3

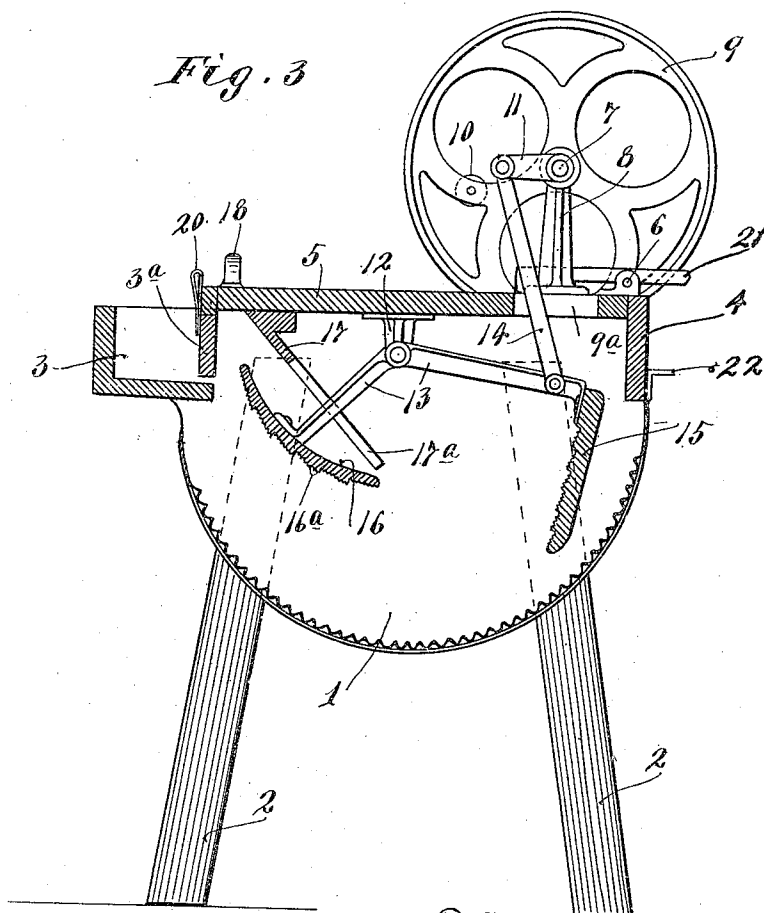
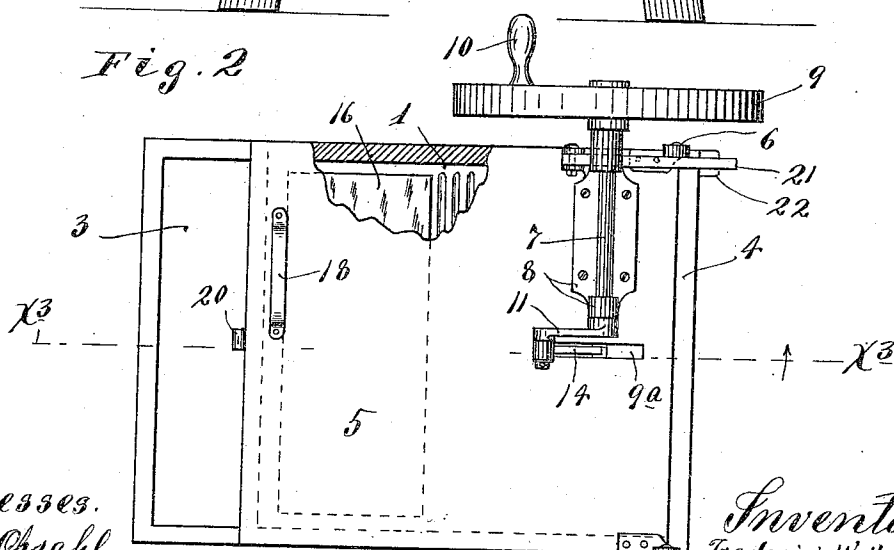


Fig. 2



Witnesses.
 A. H. Opsahl.
 W. H. Souba.

Inventor
 Frederick W. Kranz
 By his Attorneys
 Williamson & Merchant

UNITED STATES PATENT OFFICE.

FREDERICK W. KRANZ, OF MINNEAPOLIS, MINNESOTA.

WASHING-MACHINE.

952,818.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed June 3, 1908. Serial No. 436,426.

To all whom it may concern:

Be it known that I, FREDERICK W. KRANZ, 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 an improved washing machine, and is in the nature of an improvement on the machine disclosed and broadly claimed in my prior patent No. 887,481, issued of date May 12, 1908, entitled "Washing machine."

The present invention 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 view in side elevation, showing the improved washing machine with the tub cover and parts supported thereby turned into inoperative position. Fig. 2 is a plan view of the machine, with a portion of the tank and the so-called stripping board broken away; and Fig. 3 is a section taken on the line $x^3 x^3$ of Fig. 2.

The tub or washing tank 1, which is preferably constructed with an approximately semi-cylindrical corrugated bottom, is shown as supported by four legs 2 secured to the sides thereof. At one edge of its semi-cylindrical bottom, the tub 1 is provided with a laterally offset wringer-box 3; and, at its other extremity, it is provided with a transverse supporting bar 4. The inner side of the wringer-box is formed by a rigidly secured bar 3^a, the lower edge of which is spaced from the bottom of said box so as to permit water to freely run back into the tub.

The tub cover 5 is hinged to the tub bar 4 at 6. A driving shaft 7 is journaled in the upwardly extended prongs of a bearing bracket 8 that is rigidly secured to the top of the cover 5, at one side of a centrally located slot 9^a formed in said cover. At its outer end the shaft 7 is provided with a fly-

wheel 9 having a hand-piece or crank 10, by means of which said shaft may be rotated. At its other end said shaft 7 is provided with a crank 11.

Rigidly secured to and depending from the central portion of the cover 5 is a bearing bracket 12 to which is pivoted a bellcrank 13 having relatively long and short arms. A link 14 that works through the cover slot 9^a connects the crank 11 of the shaft 7 to the long arm of the bellcrank 13. Rigidly secured to the long arm of said bellcrank is a rubbing board 15, the upper surface of which is corrugated or formed with ratchet-like ribs that run from one end to the other thereof. Rigidly secured to the free end of the short arm of the bellcrank 13 is a segmental rubbing board 16, the outer or under surface of which is corrugated. Furthermore, as preferably constructed, the under surface of said segmental rubbing board 16, considered as an entirety, is eccentric to the axis of the pivotal connection between the bellcrank 13 and bearing bracket 12; and this under surface is formed with a multiplicity of ratchet-like surfaces 16^a, each having small corrugations or ridges, and each being concentric to the axis of the above noted pivoted support, but successively more remote therefrom in a direction from the lower toward the upper edge of the said rubbing board 16.

Secured to the cover 5 and overlying the rubbing board 16 is a stripping board, so-called, indicated at 17. This board 17 normally stands at an angle of 45 degrees to a vertical, and it is provided with a slot 17^a that affords clearance for the short arm of the bellcrank 13.

At its free edge the cover 5 is shown as provided with a hand-piece 18 and with a projecting latch pin 19. This latch pin 19, when the lid is closed, is adapted to be engaged by a perforation in a spring latch 20, shown as secured to the bar 3^a.

A stop arm 21, which, as shown, is pivotally connected to a lug on the base of the bracket 8, is adapted to engage a stop projection 22 on the rear of the tub, as shown in Fig. 1, to thus limit the opening movement of the tub cover.

When the cover and the rubbing boards are turned downward, and the crank shaft 7 is rotated, simultaneous oscillatory movements in the same direction will be im-

parted to the two rubbing boards 15 and 16, but the former, being carried by the relatively long arm of the bellcrank, will be moved much closer to the bottom of the tub than will the rubbing board 16. The rubbing board 15, furthermore, when moved toward the left with respect to Fig. 3, will engage under the clothes and rotate the clothes more or less, while under movement from the left toward the right, the rubbing boards 16 engage with the upper portion of the clothes and continue the rotation thereof more or less in the same direction. Furthermore, in view of the eccentric arrangement of the segmental board 16, it will engage the clothes with increasing pressure when moved from the left toward the right, and will release itself gradually from the clothes when oscillated in a reverse direction. The so-called stripping board 17 prevents the clothes from falling back of the rubbing board 16 when the latter is oscillated from the left toward the right, directions being taken in respect to Fig. 3.

What I claim is:

1. In a washing machine, the combination with a tub having an approximately semi-cylindrical bottom, of a bellcrank mounted to oscillate within said tub and having a relatively long and a relatively short arm, and rubbing boards rigidly applied to the ends of the arms of said bellcrank, substantially as described.

2. In a washing machine, the combination with a tub having an approximately semi-cylindrical bottom and a hinged cover, of a bellcrank pivoted to said cover and working within said tub, said bellcrank having a relatively long and a relatively short arm, of a rubbing board rigidly secured to the long arm of said bellcrank and having a corrugated upper surface, a rubbing board rigidly secured to the end of the short arm of said bellcrank and having a corrugated under surface, a crank shaft journaled on said cover, and a link connecting the crank

of said shaft to one arm of said bellcrank, substantially as described.

3. In a washing machine, the combination with a tub, of an arm mounted to oscillate within the same, a rubbing board secured to the end of said arm, and a stripping board overlying said rubbing board and having a slot affording clearance for the movement of said arm, substantially as described.

4. In a washing machine, the combination with a tub having an approximately semi-cylindrical bottom and a hinged cover, of a bellcrank pivoted to said cover and working within said tub, said bellcrank having a relatively long and a relatively short arm, means for oscillating said bellcrank, rubbing boards applied to the ends of the arms of said bellcrank, and a stripping board secured to said cover, located above the rubbing board of the short arm of said bellcrank and having a slot affording clearance for the movement of said bellcrank, substantially as described.

5. In a washing machine, the combination with a tub having an approximately semi-cylindrical bottom and a hinged cover, of a bellcrank pivoted to said cover and working within said tub, said bellcrank having a relatively long and a relatively short arm, means for oscillating said bellcrank, a rubbing board rigidly secured to the long arm of said bellcrank and having a corrugated upper surface, and a segmental eccentrically extended rubbing board rigidly secured to the short arm of said bellcrank, and having on its under surface a multiplicity of corrugated surfaces located different distances from the pivotal support of said bellcrank but extending concentric thereto, substantially as described.

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

FREDERICK W. KRANZ.

Witnesses:

HARRY D. KILGORE,
MALIE HOEL.