

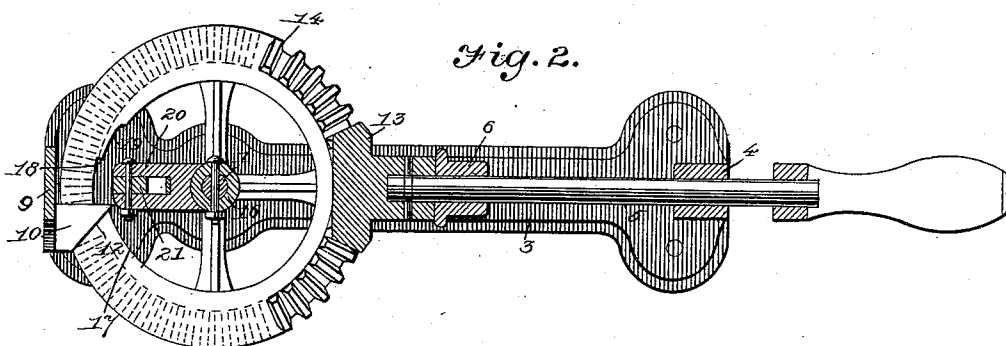
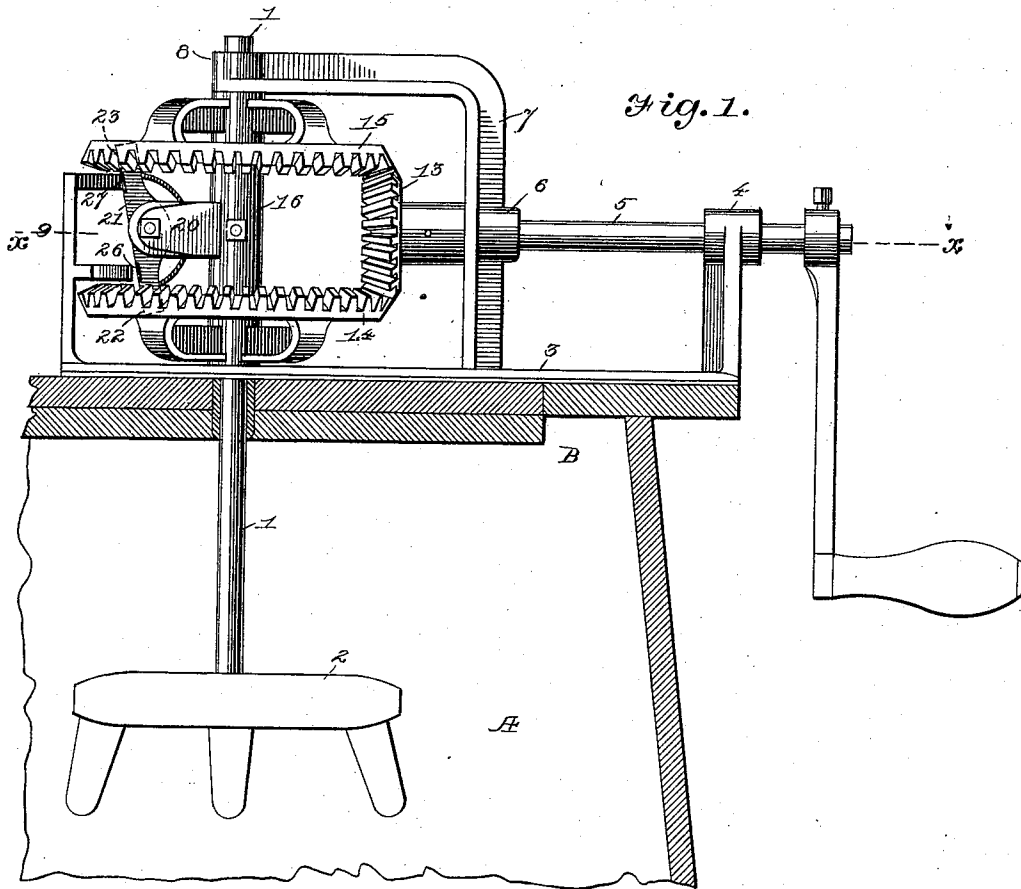
(No Model.)

2 Sheets—Sheet 1.

H. F. BRAMMER & M. J. KREMER.
WASHING MACHINE.

No. 570,152.

Patented Oct. 27, 1896.



WITNESSES:

Arthur Ashley
L. M. Lamb

INVENTORS.

H. F. Brammer
M. J. Kremer

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ATTORNEY.

(No Model.)

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Fig. 3.

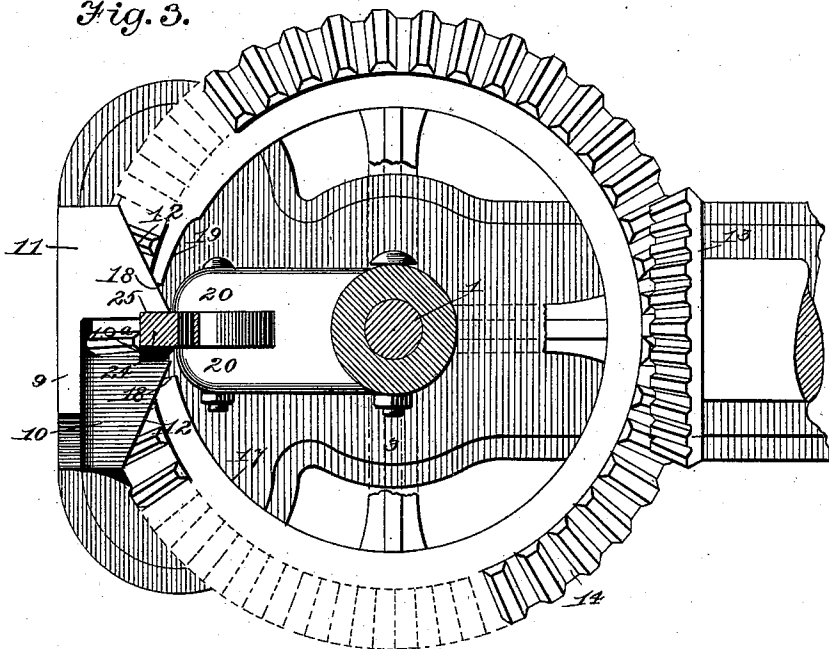
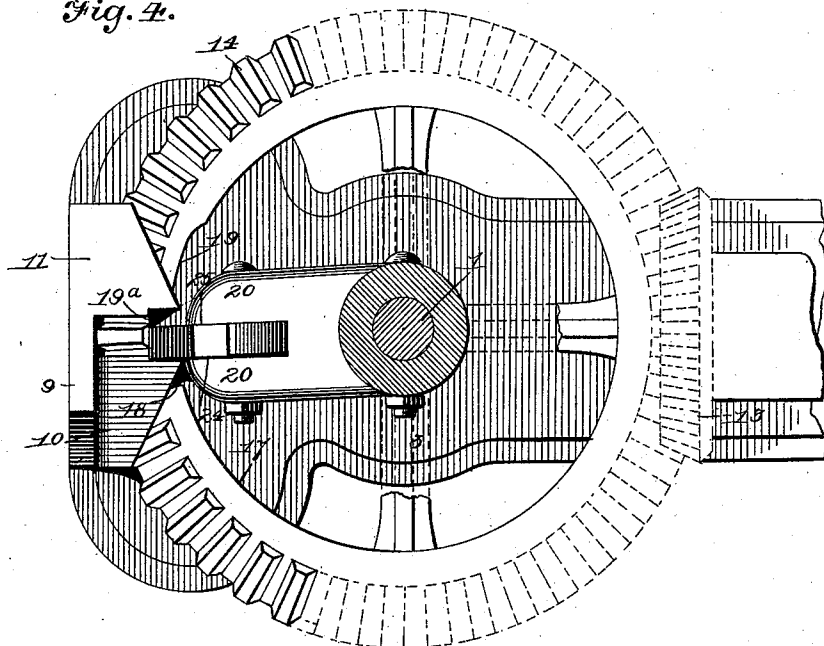


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY F. BRAMMER AND MICHEAL J. KREMER, OF DAVENPORT, IOWA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,152, dated October 27, 1896.

Application filed August 15, 1896. Serial No. 602,842. (No model.)

To all whom it may concern:

Be it known that we, HENRY F. BRAMMER and MICHEAL J. KREMER, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Improvement in Washing-Machines, of which the following is a specification.

This invention relates to a novel construction in mechanism for converting rotary motion into oscillatory motion; and it consists in the features of construction and combination of parts hereinafter fully described and specifically claimed.

A device of this kind is adaptable to various machines, and as a convenient illustration it is shown and described herein as applied to a washing-machine of the class employing an oscillating rubber.

In the accompanying drawings, Figure 1 is a view, partially in side elevation and in section, of the device applied to a washing-machine. Fig. 2 is a horizontal section on the line *x x* of Fig. 1, showing the mechanism detached from the washing-machine. Fig. 3 is a similar section with the parts in another position. Fig. 4 is a plan of the parts in the position shown in Fig. 3.

Referring to the drawings, A indicates the suds box or tub having a lid, and B its removable top sustaining the operating mechanism. The upright or rubber shaft 1 is connected with the operating mechanism, as hereinafter described, extends downwardly into the suds-box A, and is provided with the rubber 2, of usual construction. As will be described, the shaft 1 and rubber 2 are oscillated from a continuous rotary motion of the power-shaft of the mechanism.

Mounted upon the top B is a frame 3, having at one end a bearing 4 for the power-shaft 5, which is also supported in a bearing 6 in the upright portion of an overhanging arm 7, having an upright bearing 8 at its free end. At the other end of the frame 3 is an upright 9, having inwardly-extending upper and lower projections, whose outer side faces are beveled or inclined, as shown at 12. These projections 10 and 11 are set at the outer edges of the upright 9 to allow a space between their inner faces, as shown in Fig. 2. A bevel gear-pinion 13 is mounted upon the inner end of power-shaft 5.

The upright shaft 1 turns in the bearing 8, and in a bearing in the base of frame 3, mounted loosely upon shaft 1, above and below pinion 13 and intermeshing therewith, are two bevel gear-wheels 14 and 15, between which is a sleeve 16, fast upon said shaft. Each of the wheels 14 and 15 is provided with an inwardly-facing cam, the high part 17 being circular and ending at its opposite ends in a shoulder 18 and incline 19, forming a notch 19^a. The circular high part 17 of the cams extends almost entirely around the wheels, and when the wheels are turned in opposite directions by the pinion 13 the inclines 19 are in advance and traveling toward the inclined face of the companion projection 10 or 11.

The sleeve 16 is provided with laterally-projecting ears 20, between which is pivoted an upright detent 21, the outer faces 22 and 23 of the upper and lower-ends of which are adapted to ride the cam-faces. The side faces 24 and 25 on opposite sides of the upper and lower ends of the detent 21 are adapted to come into contact with the shoulders 18 of the cam, and the chamfered outer faces 26 and 27 of the detent 21 are adapted to ride the beveled faces of the projections 10 and 11. The detent 21 is constructed and arranged with relation to the cams of the wheels 14 and 15 and the projections 10 and 11, so that when one of the faces 22 or 23 is riding the circular part 17 of the cam of one wheel the other end of the detent is situated within the notch 19^a between the shoulder 18 and incline 19 of the other wheel, and so that when one of the chamfered faces 26 or 27 is riding the inclined projections 10 or 11 the face 22 or 23 at the other end of the detent is riding the incline 19 of the cam. In consequence, therefore, it will be seen that only when the notches 19^a of the two cams are in vertical alinement and extending between the projections can the detent be shifted to couple the shaft with one or the other of the oppositely-rotating wheels 14 and 15, and this position of the parts occurs once in every revolution of the said wheels. The projections 10 and 11 serve to move one end of the detent inwardly to throw it in the path of the adjacent shoulder 18 and to throw the other end of the detent outwardly and out of the path of its adjacent shoulder with which it was in engagement,

and to insure this shifting of the detent a spring 28 is employed, acting upon the ends of the detent and alternately exerting a pressure upon the end portions thereof to be engaged by the shoulder after the detent is shifted. In the instance illustrated a plate-spring 28 is employed having its ends seated in notches 29 in the detent and bearing against the sleeve 16 in the rear of the pivot of the detent. When the detent is vertical, the spring 28 exerts an equal pressure on both ends thereof, but when thrown to a slightly-inclined position the bearing of the spring shifts and causes a greater strain to be exerted upon the outer end of the detent to throw it to the outer limit of its movement, for instance, the lower end. (Shown in full lines in Fig. 1.)

The parts being constructed and arranged as described, the operation is as follows: If the parts are in the position shown in full lines in Figs. 1 and 2 and the pinion and wheels traveling in the direction indicated by arrows, the side face 24 of the lower end of the detent stands in the notch 19^a of wheel 15 and against shoulder 18, while the upper end of the detent stands clear of projection 10 and rides the circular face of the cam. The wheel 15 carries the detent with it and turns the rubber-shaft 1 one revolution. Near the end of this revolution and when the chamfered face 27 of the detent reaches the projection 10 the parts stand in the positions shown in Figs. 3 and 4. As the detent continues to rotate with the wheel 15 the face 27 rides the projection 10, throwing the lower end of the detent inwardly, while the incline 19 of the upper wheel allows the upper end of the detent to move outwardly, and when the detent is thus shifted a little past a vertical position the spring 28 acts upon the upper end thereof and forces it into the notch 19^a of the upper wheel 14 and in the path of its shoulder 18, while the lower end of the detent is moved out of the path of shoulder 18 of the lower wheel, as shown in dotted line in Figs. 1, 3, and 4. The shoulder 18 of the upper wheel now engages the upper end of the detent and reverses the rotation of the same and of the rubber-shaft until the detent is again shifted by the contact of its upper end with the projection 10, whereupon the parts are thrown to the position shown in Figs. 1 and 2, bringing the detent again under the

influence of wheel 15 and reversing its rotation.

We claim as our invention—

1. The combination with two oppositely-rotatable gear-wheels having shoulders, of a shaft having a detent, and stationary projections situated in the path of the end portions of said detent to alternately throw its ends into engagement with the shoulders of said gear-wheels.

2. The combination with two oppositely-rotatable gear-wheels having shoulders, of a shaft having a detent, stationary projections situated in the path of the end portions of said detent to alternately throw its ends into engagement with the shoulders of said gear-wheels, and a spring bearing against the end portions of said detent and acting alternately.

3. The combination with the oppositely-rotatable gear-wheels, each of which is provided with a cam having a circular high part, incline, notch and shoulder, of a shaft having a detent situated to engage said cam, and stationary projections situated in the path of the end portions of said detent to alternately shift the same.

4. The combination with the oppositely-rotatable gear-wheels, each of which is provided with a cam having a circular high part, incline, notch and shoulder, of a shaft having a detent situated to engage said cam, stationary projections situated in the path of the end portions of said detent to alternately shift the same, and a spring bearing against the end portions of said detent and acting alternately.

5. The combination with the oppositely-rotatable gear-wheels mounted loosely upon a rotatable shaft and provided with cams, of a laterally-extending projection fixed to said shaft between said gear-wheels, a spring-actuated detent pivoted to said projection and having its end portions situated in the path of said cams and stationary projections situated in the path of the end portions of said detent to alternately shift the same.

In testimony whereof we hereunto set our hands, this 24th day of July, 1896, in the presence of two attesting witnesses.

HENRY F. BRAMMER.
MICHEAL J. KREMER.

Witnesses:

S. C. ANDERSON,
M. A. BLAIR.