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E. G. ELLIS & P. E. AVETT.

WASHING MACHINE.

APPLICATION FILED MAR. 15, 1906.

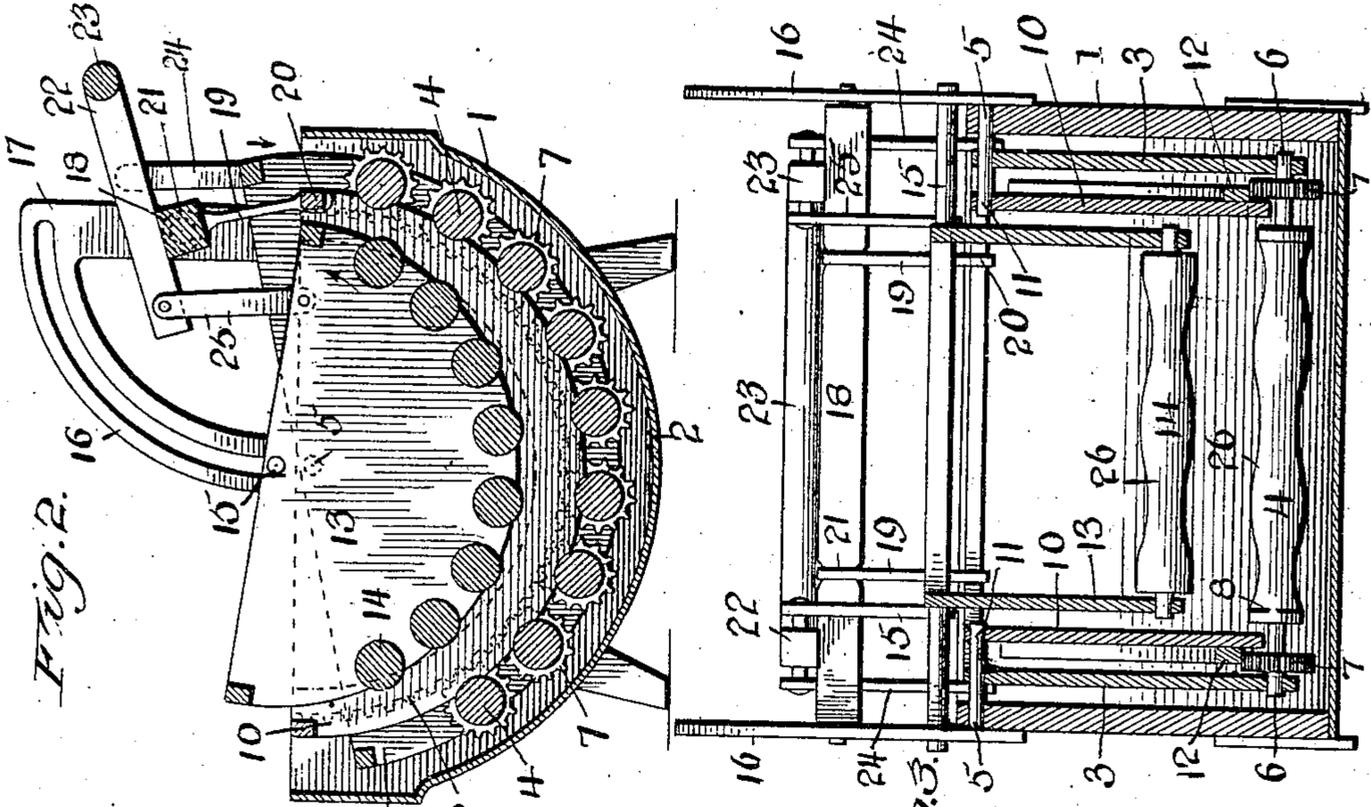


Fig. 2.

Fig. 3.

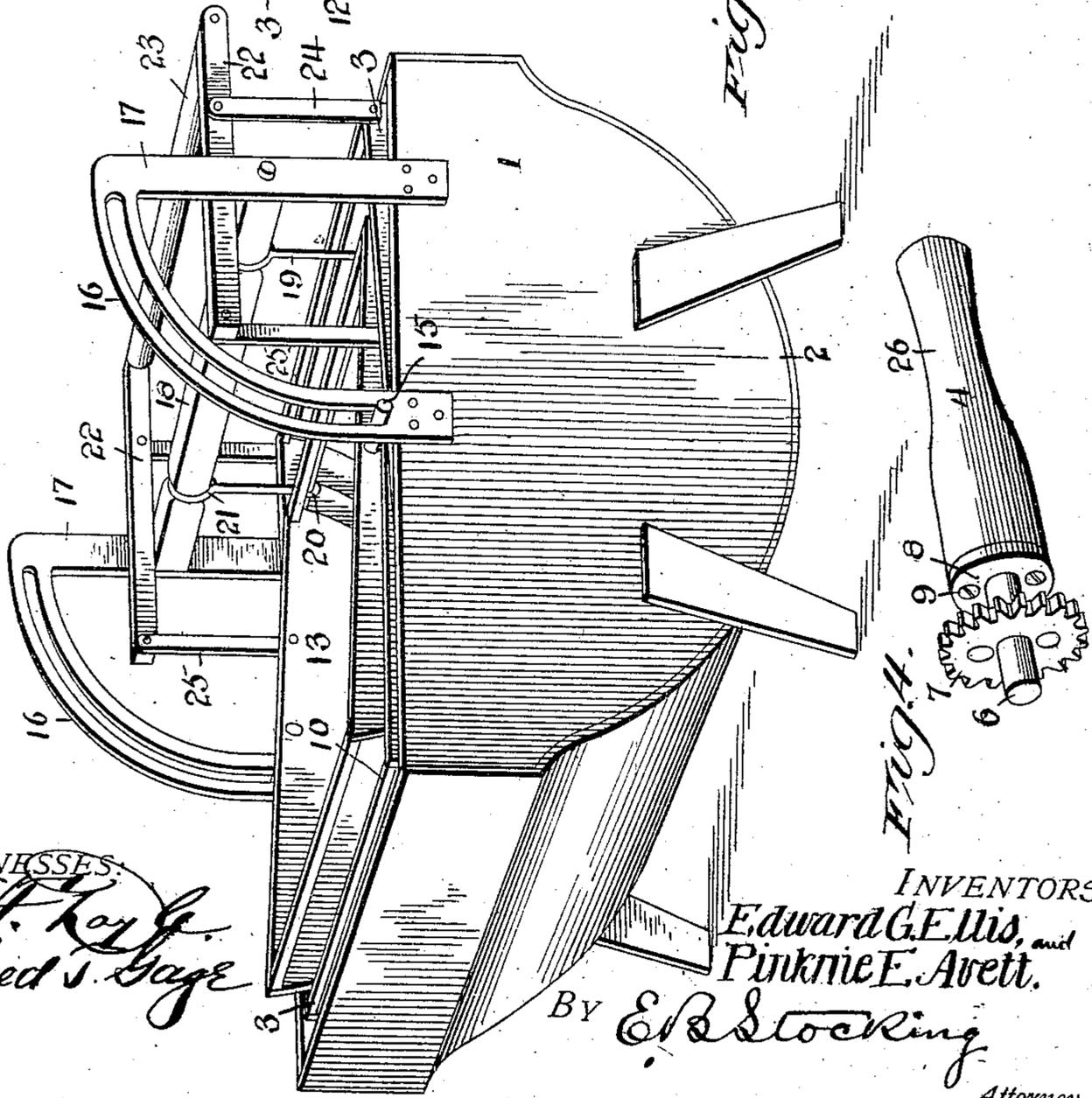


Fig. 1.

Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD G. ELLIS AND PINKNIE E. AVETT, OF ALTO PASS, ILLINOIS.

WASHING-MACHINE.

No. 848,452.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed March 15, 1906. Serial No. 306,228.

To all whom it may concern:

Be it known that we, EDWARD G. ELLIS and PINKNIE E. AVETT, citizens of the United States, residing at Alto Pass, in the county of Union, State of Illinois, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a washing-machine, and particularly to a type thereof employing cooperating oscillating rubbers.

The invention has for an object to provide an improved and novel construction and arrangement of the rubbers whereby they will be alternately oscillated in opposite directions and the driven rollers of one rubber rotated in a direction opposite to its travel by means of a segment supported in the washer-tank and above the driven rollers.

Other and further objects and advantages of the invention will be hereinafter fully set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a perspective of the invention. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a cross-section at right angles to Fig. 2, and Fig. 4 is a detail perspective of the end of one of the driven rubbers.

Like numerals of reference designate like parts throughout the several views of the drawings.

The numeral 1 indicates a tank of any desired size or configuration, but preferably provided with a curved bottom 2. Within this tank the roller-frame 3, carrying the driven rollers 4, is mounted by means of pivots 5, extending through the side plates of the frame. The rollers 4 are each pivoted in the opposite side plates by means of the journals or pintles 6, which may be of any desired construction, preferably, as shown in Fig. 4, where the pintle is provided with an integral gear 7 and at its opposite end with a securing-plate 8, adapted to be attached to each end of the rubber 4 by any desired means—for instance, screws 9, as shown. For the purpose of driving these gears and the rubber carried thereby a stationary frame 10, comprising opposite plates mounted upon the inwardly-extended end 11

of the pivot 5 and provided upon their outer face with segmental racks 12, adapted to engage the gears 7, carried by the rubber 4. The lower end of this stationary frame extends downward between the gear and end of the rubber, so as to prevent lateral movement of the parts.

The upper rubber frame 13 is provided with a series of rubbing-rollers 14, arranged in a curved path concentric to the driven rollers 4, but spaced therefrom, as shown in Figs. 2 and 3. This frame 13 is provided at its upper portion with pintles or pivots 15, disposed in slotted curved standards 16, within which they travel as the frame 13 is lifted upward to remove the rubber from the machine. The vertical posts 17 of these standards are connected together by a pivoted bar 18, from which the hangers 19 depend and are connected with one end of the stationary frame, as shown at 20, these hangers being provided with loops 21, encircling the bar 18, so that the stationary frame will be held against any oscillation, while the bar may be rocked by means of the operating-levers 22, mounted thereon for the purpose of oscillating the two rubbing-frames. These levers 22 are connected together by the handle-bar 23, which lever is provided with a depending link 24, pivotally connected thereto and also to the frame 3 of the lower rubber, while at the opposite side of the pivoted bar 18 a similar link 25 is pivotally connected with the operating-lever 22 and the upper rubber-frame 13. This connection permits an oscillation of the rubbers in opposite directions.

The rubbing-rollers 4 and 14 are each provided with an undulated or wave-like surface, so disposed that the convexed portion of one rubber is in alinement with the concaved portion of the cooperating rubber, thus producing, in connection with the driving of the lower rubbers, a squeezing and relaxing motion during the operation of the frames.

In the operation of the machine the upper rubber is lifted in its guide-standards and the clothes inserted therein with the proper amount of water, when this upper rubber is replaced upon the clothes and the operating-levers oscillated by means of the handle to produce an opposite motion of the two rubbers, as in this class of machine. It will be

observed, however, that by disposing the rack above the driving-gears upon the lower rubbers the direction of rotation is reversed and the rollers turn in a direction toward the operator when the handle 23 is pressed downward from its position shown in Fig. 2, thus gliding over the bottom of the clothes, while the top rubber runs over the same and by means of the surface configuration of these rubbers produces a squeezing and relaxing motion constantly simulating that of the hand, so as to thoroughly force the water through the mesh of the material being washed and effectually remove all dirt therefrom. The construction and arrangement of the driving-gear is such as to permit its replacement and convenient attachment to the rubbers whenever necessary either for repair or in assembling the machine, as the attaching-plate need only be secured upon the end of the rubbers, while this arrangement of the gears provides means to prevent the lateral movement of the parts relative to the fixed or stationary frame carrying the rack with which they engage. The fixed frame is held against movement with the oscillating rubbers at opposite sides thereof by means of the hangers extending over the pivot of the rock-shaft carrying the operating-lever for the rubber-frames, thereby providing a simple and efficient construction and one adapted to be economically manufactured.

Having now described our invention and set forth its merits, what we claim, and desire to secure by Letters Patent, is—

1. In a washing-machine, a tank, an oscillating frame therein provided with rotating rubbing-rollers having gears thereon, a stationary frame inserted within said oscillating frame and provided with a segmental rack disposed above said gears, and an upper rubbing-frame provided with rotatable rubbing-rollers disposed above the driven rubbing-rollers.
2. In a washing-machine, a tank, an oscillating frame therein provided with rotating rubbing-rollers having gears thereon, a stationary frame inserted within said oscillating frame and provided with a segmental rack disposed above said gears, and an upper rubbing-frame provided with rotatable rubbing-rollers disposed above the driven rubbing-rollers, and means for oscillating said roller-frames simultaneously in opposite directions.
3. In a washing-machine, a tank, an oscillating frame therein provided with rotating rubbing-rollers having gears thereon, a stationary frame inserted within said oscillating frame and provided with a segmental rack disposed above said gears, an upper rubbing-frame provided with rotatable rubbing-rollers disposed above the driven rubbing-rollers said rubbing-rollers being provided with un-

dulatory surfaces cooperating with each other, an operating-lever, and links extending from the opposite sides of the pivot of said lever to the frames of the rubbing-rollers.

4. In a washing-machine, a tank, an oscillating frame therein provided with rotating rubbing-rollers having gears thereon, a stationary frame inserted within said tank and provided with a segmental rack disposed above said gears, an upper rubbing-frame provided with rotatable rubbing-rollers disposed above the driven rubbing-rollers each series of said rubbing-rollers being provided with undulatory surfaces cooperating with each other, an operating-lever, links extending from the opposite sides of the pivot of said lever to the frames of the rubbing-rollers, and a hanger depending from said pivot for retaining the rack and frame from movement.

5. In a washing-machine, a tank, a lower rubbing-roller frame pivotally mounted in the walls of said tank and provided with means for oscillating said frame, gears carried upon the axis of each of said rubbing-rollers, a rack-frame pivotally mounted upon the axis of said rubbing-roller frame and provided with a rack meshing with the gears upon said rollers, means for retaining said rack-frame against oscillatory movement, and a cooperating frame provided with rubbing-rollers disposed within the rack-frame.

6. In a washing-machine, a tank, a lower rubbing-roller frame pivotally mounted in the walls of said tank and provided with means for oscillating said frame, gears carried upon the axis of each of said rubbing-rollers, a rack-frame pivotally mounted upon the axis of said rubbing-roller frame and provided with a rack meshing with the gears upon said rollers, means for retaining said rack-frame against oscillatory movement, a cooperating frame provided with rubbing-rollers disposed within the rack-frame, means for oscillating said cooperating frame in opposition to the frame carrying the driven rollers, and a segmental slotted standard within which the pivot of the cooperating frame is adapted to travel.

7. In a washing-machine, a tank, a standard provided at opposite sides thereof, a rock-shaft pivoted in said standards, concentrically-disposed rubbing-frames within said tank, an operating-lever carried by said rock-shaft, links extending from said lever at opposite sides of its pivot and connected to said rubbing-frames, a rack-frame disposed in said tank, and hangers pivotally mounted upon said rock-shaft and connected to said rack-frame to retain the same against oscillation.

8. In a washing-machine, an oscillating

frame, a rubbing-roller mounted therein, a
journal for said roller provided with an at-
taching-plate at one end, a gear spaced from
said plate intermediate the opposite end of
5 said journal, a fixed rack-frame mounted be-
tween said gear and plate, and a rack carried
by one face of said frame to mesh with said
gear.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

EDWARD G. ELLIS.
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Witnesses:

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