

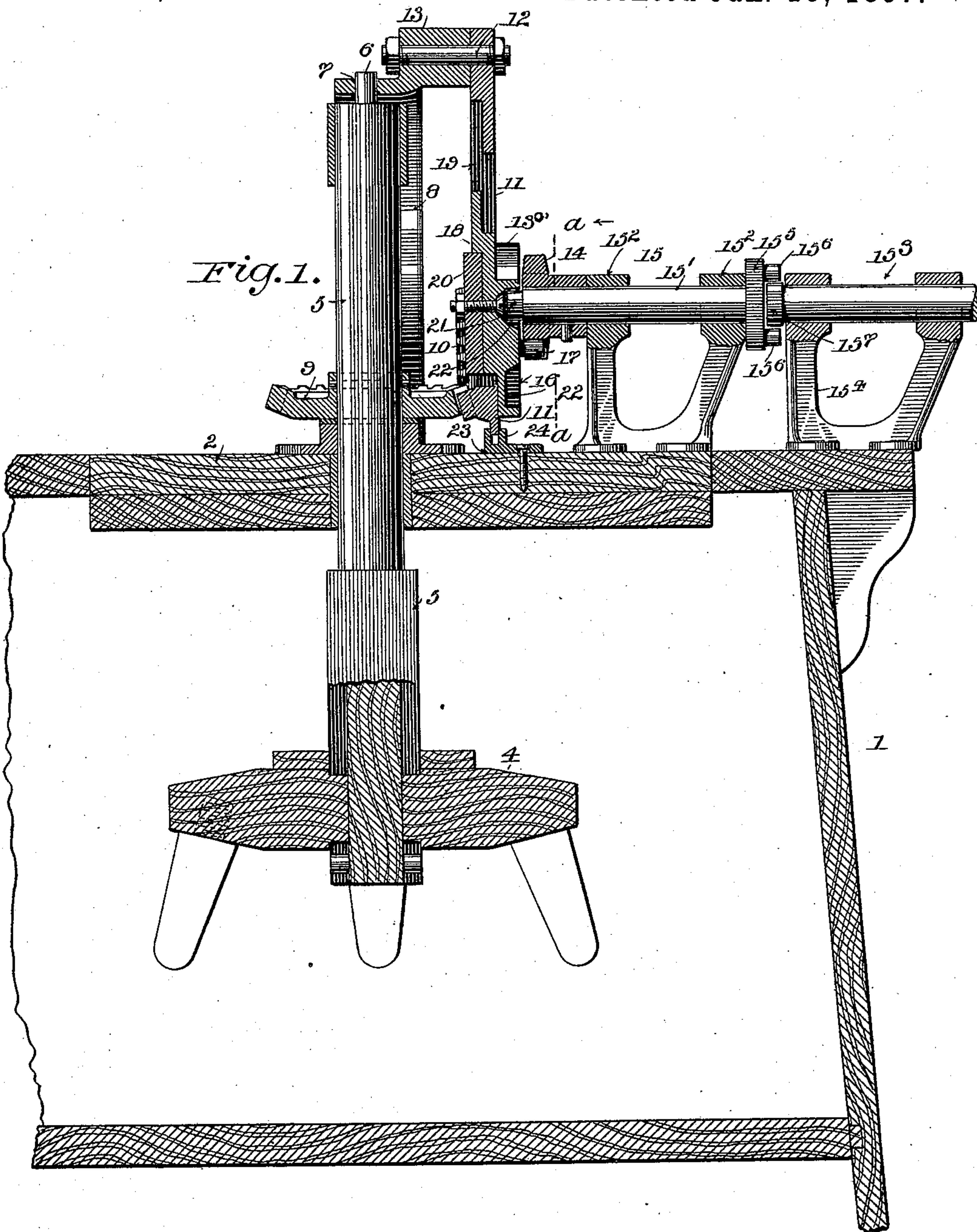
(No Model.)

3 Sheets—Sheet 1.

H. F. BRAMMER & W. H. VOSS.  
WASHING MACHINE.

No. 575,540.

Patented Jan. 19, 1897.



**WITNESSES:**

Arthur Ashley  
J. D. Emory.

**INVENTORS.**

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Philip T. Soley  
ATTORNEY.

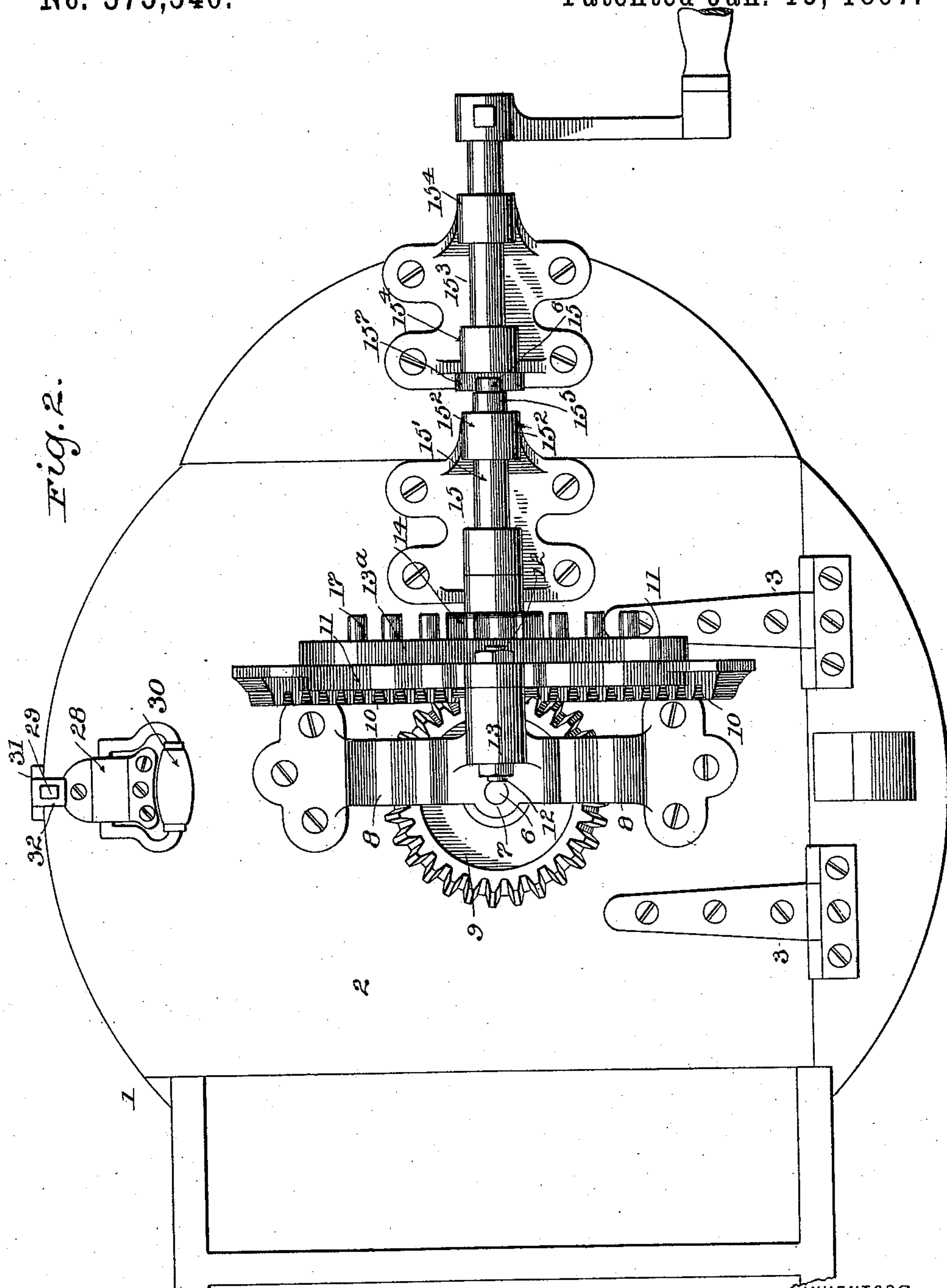
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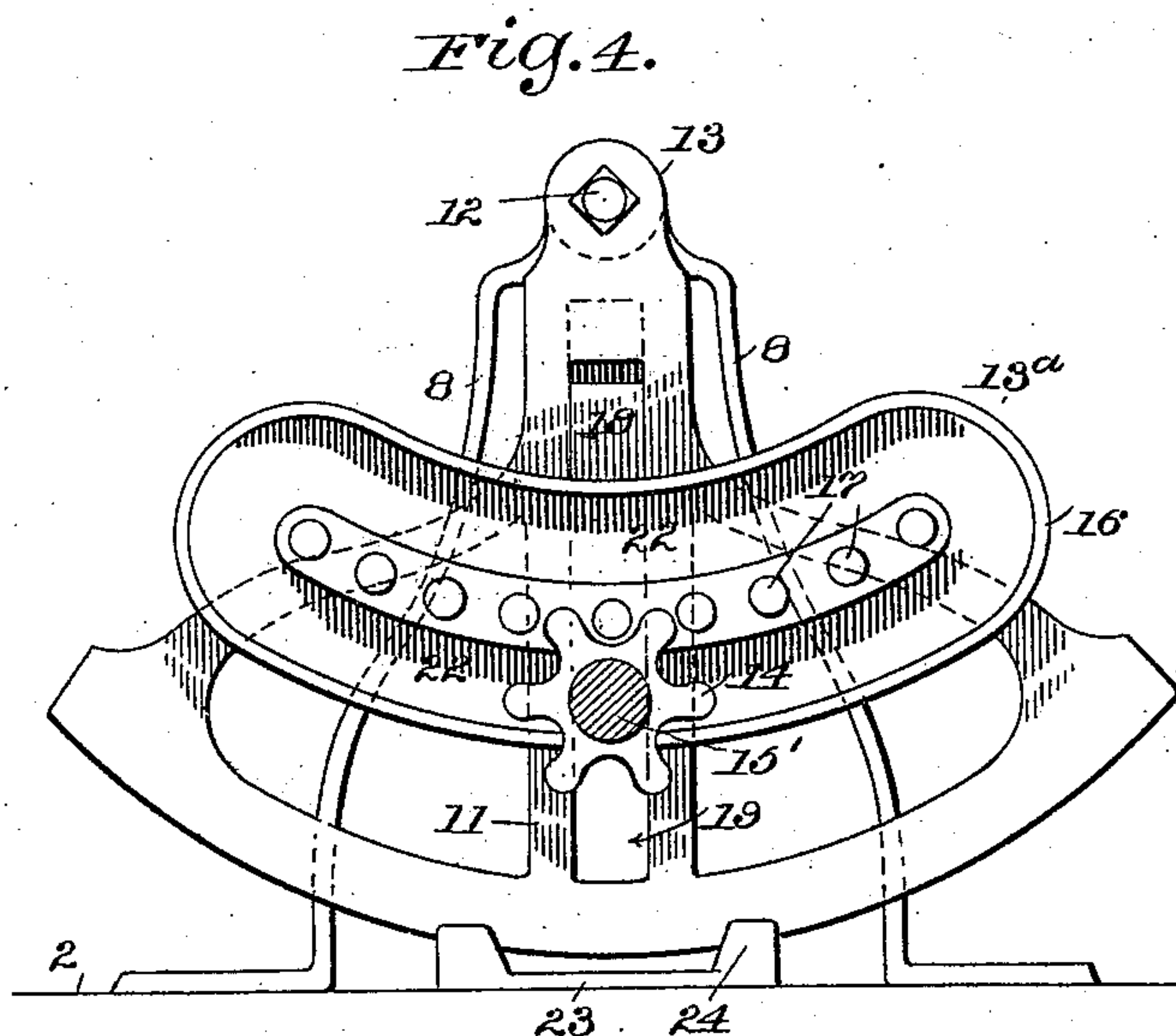
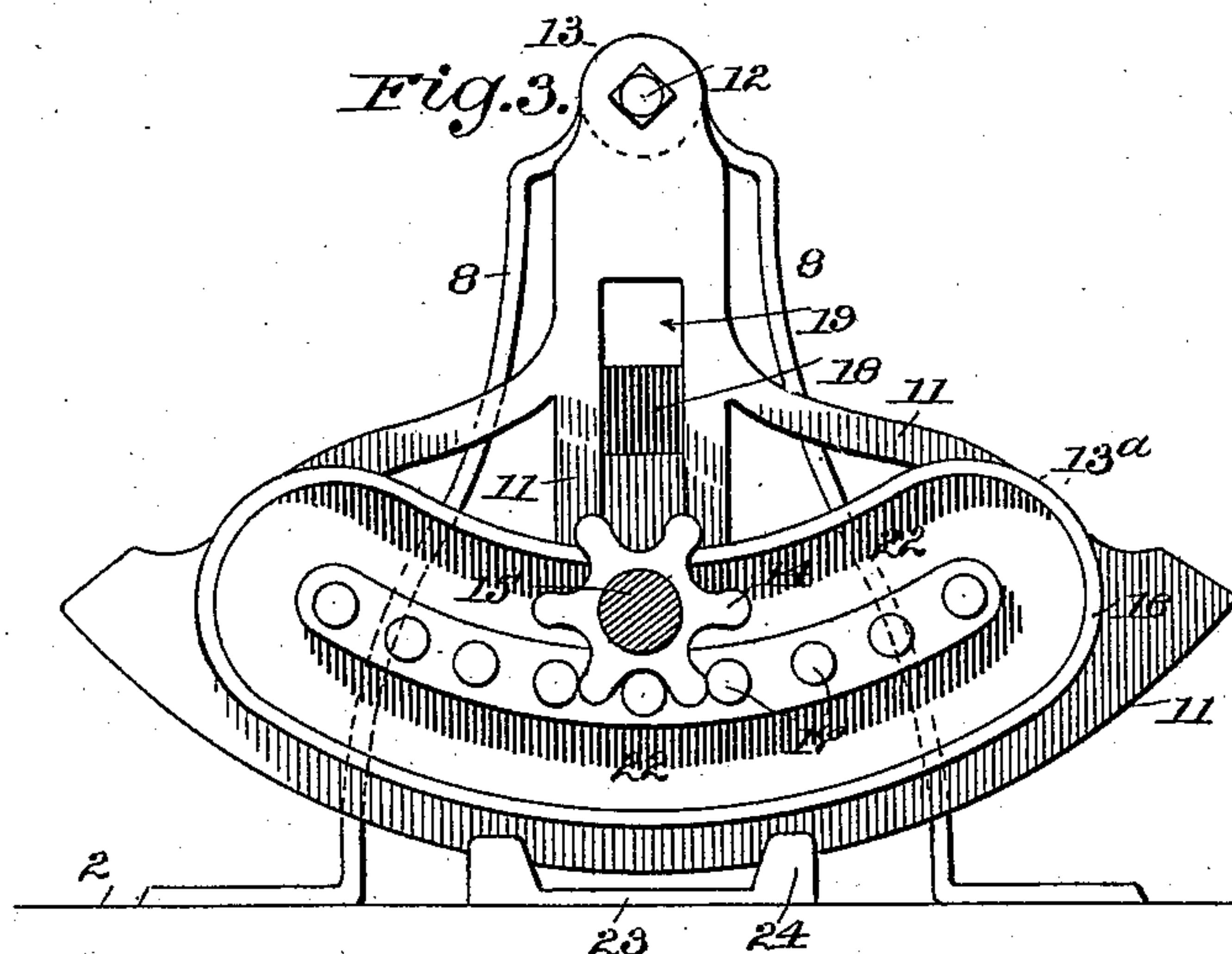
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# UNITED STATES PATENT OFFICE.

HENRY F. BRAMMER AND WILLIAM H. VOSS, OF DAVENPORT, IOWA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,540, dated January 19, 1897.

Application filed February 12, 1896. Serial No. 579,014. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY F. BRAMMER and WILLIAM H. VOSS, 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 washing-machines, and has reference more particularly to machines embodying a circular oscillating rubber carried by a shaft which is rotated alternately in opposite directions; and the invention consists of an improved gearing or driving mechanism for the rubber by which the continued rotation of a crank or driving shaft in one direction will cause the rubber to be oscillated or rotated alternately in opposite directions.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical central section through our improved washing-machine. Fig. 2 is a top plan view of the same. Fig. 3 is a sectional elevation of the driving-gear, the section being taken on the line *a a* of Fig. 1 and the parts being represented as viewed in the direction of the arrow in said figure. Fig. 4 is a similar view with the parts geared in another position.

1 represents a suds-box or tub having a lid 2 hinged to the top of the tub at 3 and sustaining the operating mechanism, as more fully described hereinafter, the arrangement being such that the lid and the mechanism thereon may be turned upward to permit access to the interior of the box.

4 represents a rubber consisting of a head 40 mounted to slide vertically on a vertical shaft 5, the said head being provided, as usual, with a series of depending arms. The lower portion of this shaft is squared, so as to cause the rubber to turn with it, and it is extended upward through an opening in the center of the lid, and has on its upper end a spindle 6, which is mounted loosely to revolve in a hole in a bearing 7, sustained at the upper ends of two standards 8, secured at their lower ends to the lid. Adjacent to the lid the shaft has 50 keyed to it a pinion 9 in position to be engaged and driven alternately in opposite directions

by a segment-rack 10, formed on the inner side of a segmental frame 11, which is sustained at its upper end on a horizontal axis consisting of a bolt 12, mounted in a boss or bearing 13, projecting from the side of the bearing 7, before alluded to. This bolt passes through an opening in the end of the frame 11 and gives support thereto.

The frame is adapted to be oscillated or rocked back and forth, as more fully described hereinafter, and by the engagement of its rack with the pinion it will rotate the rubber-shaft alternately in opposite directions and impart to the rubber an oscillating movement.

In order to effect the rocking of the frame, we provide a reversing mechanism consisting of a movable rack 13<sup>a</sup>, mounted in guides on the segmental frame to be moved relatively thereto and in position to be engaged by a driving-pinion 14, which is mounted on the inner end of a horizontal shaft 15, which may be driven by a crank or in any other suitable manner.

The rack 13<sup>a</sup> is preferably curved, as shown in Figs. 3 and 4, although it may be straight, and it consists of a vertical plate provided with a lateral flange 16, extending around its edge, and it is further provided with a series of transversely-extending pins 17, forming the rack, which pins are located side by side and extend in a line midway between the flanges and parallel thereto. This rack-plate is mounted on the segmental frame in such manner that it may be moved vertically to and from its horizontal axis, and this is accomplished by fixing to the rear side of the plate a guiding rib or projection 18, which is extended in an opening or slot 19 in the segmental frame, the plate being prevented from leaving the frame by a washer 20, connected to the rear side of the rib and extending beyond the walls of the slot in the frame. From this description it will be seen that the rack-plate is movable bodily back and forth with the segmental frame, and is also movable relatively to the frame in a direction at right angles to its bodily movement. As a result of this arrangement, the rack-plate, when the driving-pinion is rotated in the direction indicated by the arrow in Fig. 3, will be moved bodily and will cause the segmental frame to



turn on its horizontal axis in one direction until the end of the rack reaches the driving-pin, when, on the continued rotation of the pinion, its teeth will engage the last pin on the rack and will push the same upward, the rack-plate sliding in its guides on the frame to the position shown in Fig. 4, thereby reversing the movement of the segmental frame, and through the rack 10 reversing the movement of the rubber-shaft. When the last pin at the right of the rack reaches the driving-pin, it will be engaged by the teeth of the pinion, and the rack will be moved downward again, as shown in Fig. 3, and the movement of the parts will be again reversed. It will thus be seen that the continued rotation of the driving-pin in one direction will, through the movable rack, oscillate the segmental frame on its axis, the reverse movement being effected by the engagement of the pinion alternately with the opposite sides of the rack, which latter will be moved above and below the driving-pin when the end pins of the rack reach the same.

To cause the rack to be maintained in engagement with the driving-pin as it is moved above and below the same, the shaft on which the pinion is mounted is provided with a longitudinally-extending pin or finger 21, which extends in a continuous track 22 at the inner side of the flange on the plate, this pin preventing the plate from moving beyond the pinion and disengaging the rack therefrom, and also guiding the plate at its ends when the pinion moves the same upward or downward.

In order to cause the segmental frame to move in a truly vertical plane, so that the engagement of the rack 10 on its rear side with the pinion 9 may be maintained, we fix to the lid of the suds-box below the lower edge of the segmental frame a plate 23, having extending upward therefrom ears 24, between which the edge of the frame moves as it is rocked on its axis.

In order that the lid sustaining the operative parts described may be raised to permit access to the interior of the box, we form the horizontal driving-shaft 15 in two members, an inner one, 15', mounted in bearings 15<sup>2</sup>, bolted to the lid, and an outer member 15<sup>3</sup>,

mounted in bearings 15<sup>4</sup>, bolted to the top of the box at the side of the lid, the two members being in line, as shown in Fig 2. The adjacent ends of the shafts are interlocked, so that the rotation of the outer member will cause the rotation of the inner member, but will permit the separation and disconnection of the shafts when the lid carrying the inner member is raised. This coupling may be constructed in various ways, but we prefer to employ the form shown in the drawings, in which it will be seen that the outer end of the inner member 15' is provided with a head 15<sup>5</sup>, containing two longitudinally-extending pins 15<sup>6</sup>. The inner end of the outer member 15<sup>3</sup> is provided with a head 15<sup>7</sup>, which extends loosely between the two pins and which, when the outer member is rotated, will engage the pins and drive the inner member. The lifting or separation of the inner member is permitted under this arrangement when access is to be had to the interior of the box. It is obvious, however, that the arrangement of the heads may be reversed, the outer member being provided with the pins, between which the head on the inner member may extend.

Having thus described our invention, we claim—

In a washing-machine the combination with the rubber-shaft, of the pinion thereon, a segmental frame pivoted at its upper end on a horizontal axis, and formed with a central vertical guiding-slot, a series of teeth on the rear face of said segmental frame engaging the pinion, a vertically-movable plate provided on its rear face with a rib extending in the guiding-slot, a washer fixed to said plate at the rear side of the segmental frame with its ends extending beyond the sides of the slot, a series of pins projecting forwardly from the front face of the plate and a driving-pin engaging said pins.

In testimony whereof we hereunto set our hands, this 3d day of January, 1896, in the presence of two attesting witnesses.

HENRY F. BRAMMER.  
WILLIAM H. VOSS.

Witnesses:

C. J. RUYMANN,  
FRED. HEINZ.