

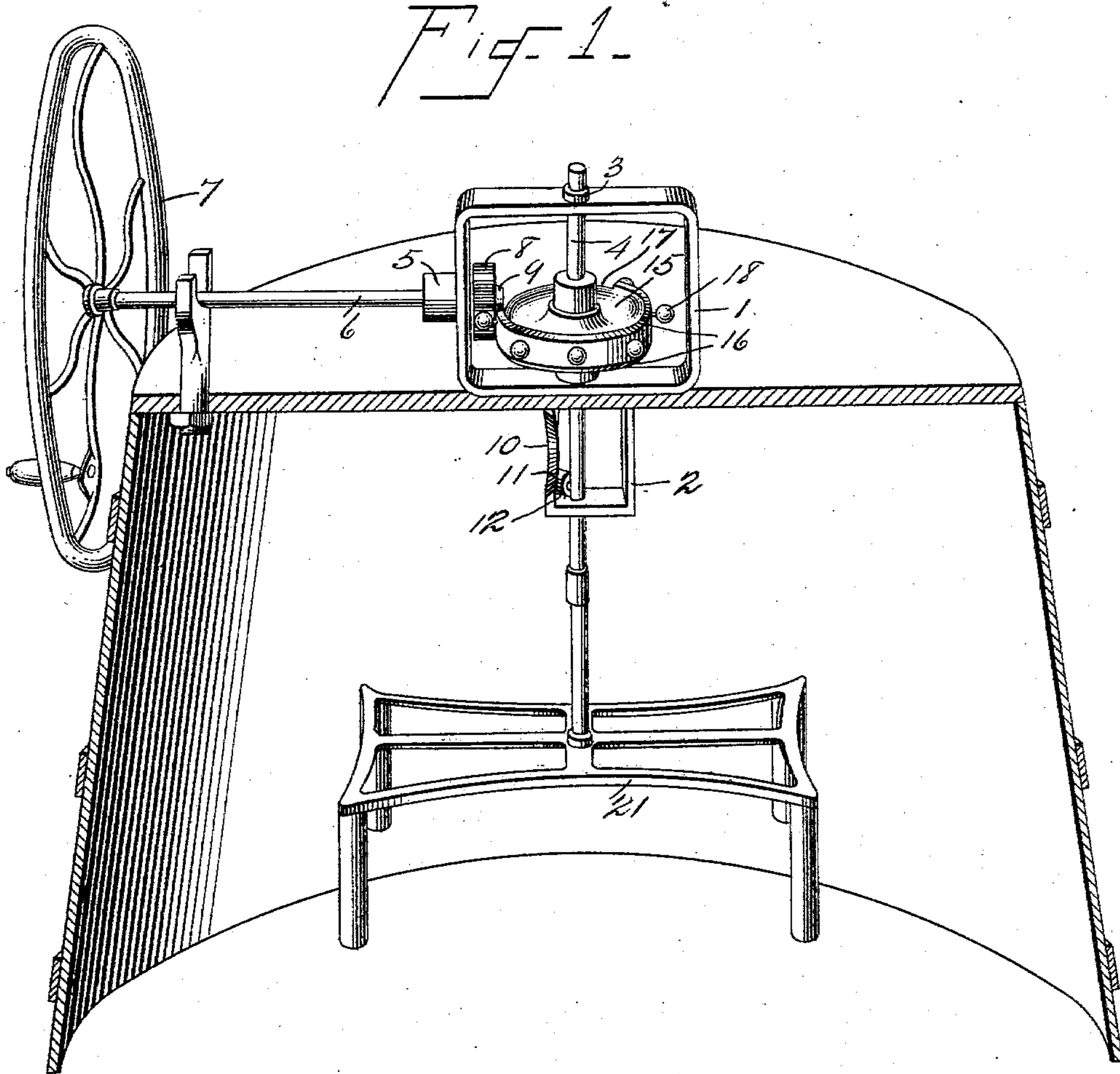
No. 740,868.

PATENTED OCT. 6, 1903.

J. D. A. JOHNSON.
MECHANICAL MOVEMENT.
APPLICATION FILED OCT. 16, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



John D. A. Johnson,

Inventor

Witnesses

George Hilton
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By

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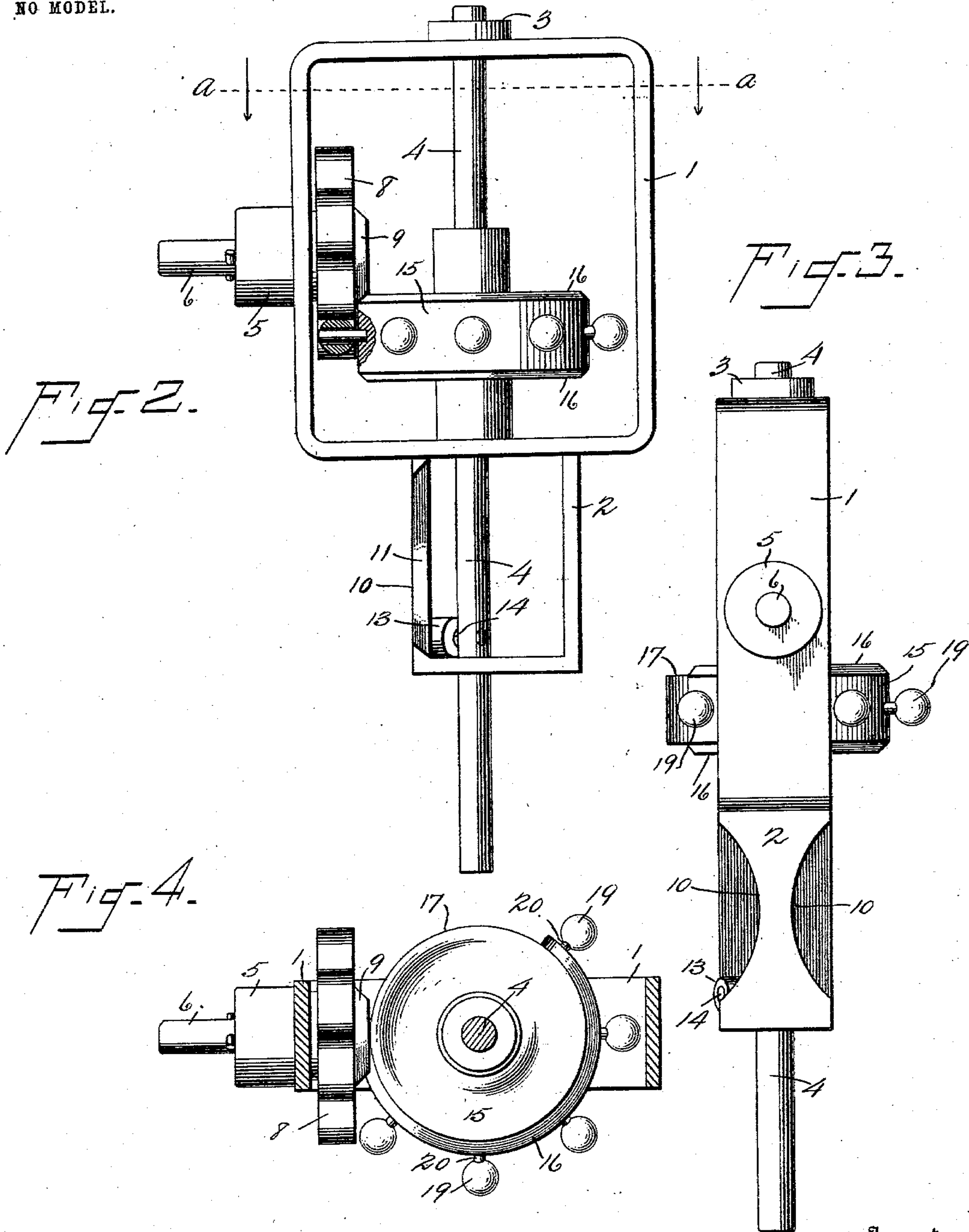
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UNITED STATES PATENT OFFICE.

JOHN D. A. JOHNSON, OF OMAHA, NEBRASKA.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 740,868, dated October 6, 1903.

Application filed October 16, 1902. Serial No. 127,559. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. A. JOHNSON, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Mechanical Movements; and I do 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 is an improved mechanical movement especially adapted for use in washing-machines for imparting oscillatory and reciprocatory motion to an agitator thereof; and it consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

The object of my invention is to provide a cheap, simple, and efficient mechanical movement by means of which reciprocatory and oscillatory motion can be imparted to the agitator of a washing-machine from a shaft which is continuously revoluble in one direction.

In the accompanying drawings, Figure 1 is a sectional perspective view of a washing-machine provided with a mechanical movement embodying my improvements. Fig. 2 is a detail side elevation of my improved mechanical movement. Fig. 3 is an end elevation of the same, and Fig. 4 is a sectional view taken on a plane indicated by the line *a a* of Fig. 2.

In the embodiment of my invention here shown there is provided a frame 1, which has a lower extension 2. This frame is provided with bearings 3 for a shaft 4, which is adapted to move longitudinally and to also oscillate in the said bearings. In one side of the frame is a bearing 5, in which is journaled a drive-shaft 6. The latter is here shown as provided with a fly-wheel 7. At the inner end of the shaft 6 is a spur-gear 8. The said gear, which is the driving-gear, is provided on its inner side with a truncated conical projection 9.

The lower extension 2 of the frame 1 has one of its sides cut on reëntrant curves 10 on opposite sides and beveled inwardly on converging lines to form cams 11. The shaft 4 is provided with a laterally-projecting tappet 12. As here shown and preferably, this tap-

pet comprises a roller 13, which is revoluble on a pin 14. The said tappet is so disposed as to alternately engage the cams on opposite sides of the frame extension 2 and coacts with the ends of the said frame extension to form stops to limit the longitudinal movement of the shaft 4.

Fixed to the shaft 4, and hence partaking of the movements thereof, is an interrupted gear 15. The same may be of an appropriate construction. It is here shown as having a bevel 16 on its upper and lower sides, adapted to engage alternately with diametrically opposite sides of the conical projection 9 of the drive-gear 8, and has a recess 17 or cut-away portion in one side of its periphery of suitable size to enable the gear 15 to clear the said projection of the drive-gear 8. The said interrupted gear 15 is provided with peripheral spurs 18, adapted to be engaged by those of the drive-gear 8. As here shown and preferably, these spurs comprise balls or spheres 19, which are revoluble on pins 20, which project radially from the periphery of the said interrupted gear. This construction of the interrupted gear reduces friction between its spurs and those of the drive-gear, as will be understood.

When my mechanical movement is used on a washing-machine, as shown in Fig. 1, the shaft 4 is provided at its lower end with an agitator 21, to which when the machine is in operation alternating, oscillatory, and endwise movement or vertical motion is imparted.

The shaft 6 is continuously rotated in one direction, its gear 8 being in engagement with the interrupted or segment gear. The latter is partly turned in one direction until the tappet 12 engages one of the cams. The coaction of the tappet and cam, with which it is engaged, is such as to impart longitudinal movement to the shaft 4 and cause the latter to move the gear 15 with it, the notch 17 of the said gear 15 being at this instant coincident with the projection 9 of the gear 8, so that the said projection is cleared and the gear 15 caused to engage the opposite side of the gear 8, whereupon the said gear 15 and hence the shaft 4 are caused to partly revolve in the reverse direction, the tappet 12 and one of the cams coacting to reverse the longitudinal movement of the shaft 4.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a continuously-revoluble drive spur-gear, an oscillating and longitudinally-movable shaft, bearings for said shaft, an interrupted gear fast on said shaft and having peripheral spurs to engage those of the drive-gear, a tappet projecting from said shaft, of less radius than said interrupted gear, and cams coacting with the tappet to move the said shaft endwise, whereby the interrupted gear is moved across the axis of the continuously-revoluble gear and en-

gaged alternately with opposite sides thereof and thereby oscillated, substantially as described.

2. The combination of a drive-gear having a projection provided with beveled edges, a longitudinally-movable shaft, bearings therefor, an interrupted gear adapted to engage the said drive-gear and movable across the latter and thereby oscillated by said drive-gear, said interrupted gear having bevels on its opposite sides to alternately engage the beveled projection of the drive-gear, and means coacting with said drive-gear and interrupted gear to impart longitudinal movement to the interrupted gear, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN D. A. JOHNSON.

Witnesses:

C. M. FEAD,

EDWARD W. HERLAN.