

J. DIETZ.
MECHANICAL MOVEMENT.
APPLICATION FILED AUG. 10, 1905.

2 SHEETS—SHEET 1.

FIG. 1.

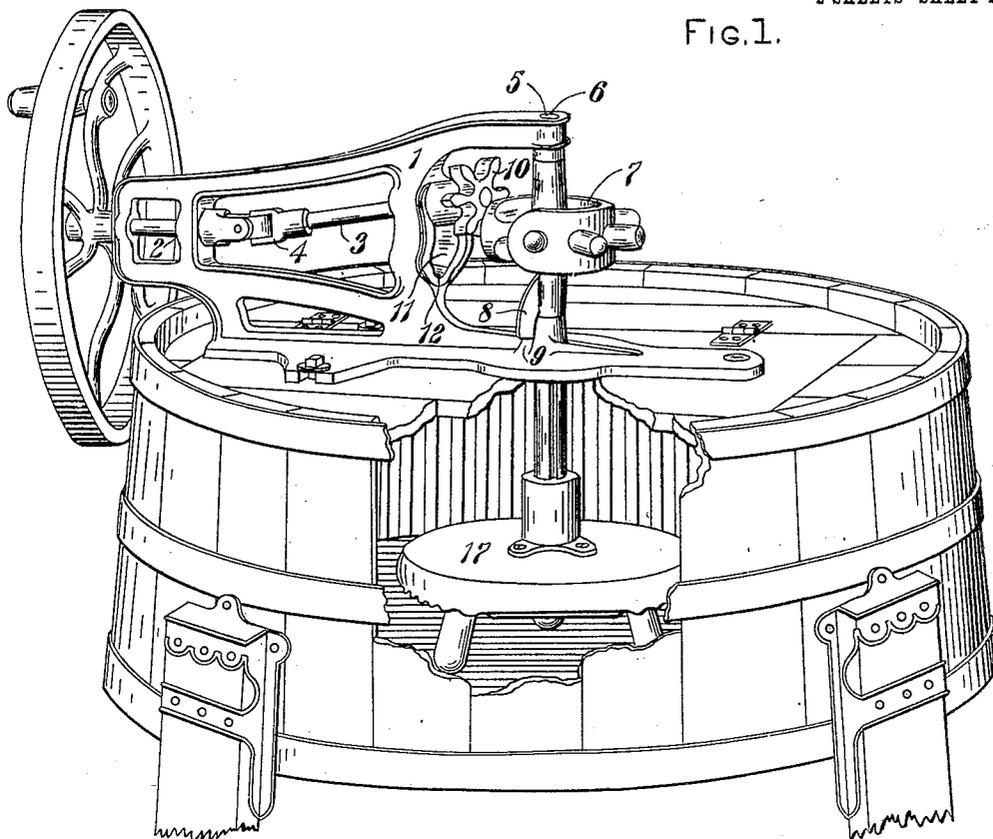


FIG. 2.

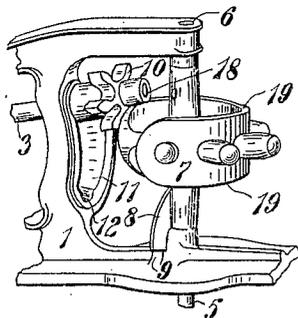


FIG. 3.

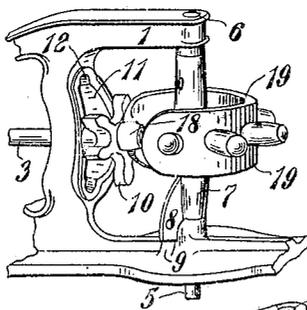


FIG. 4.

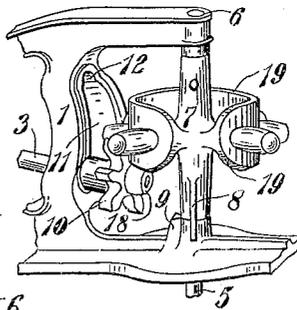
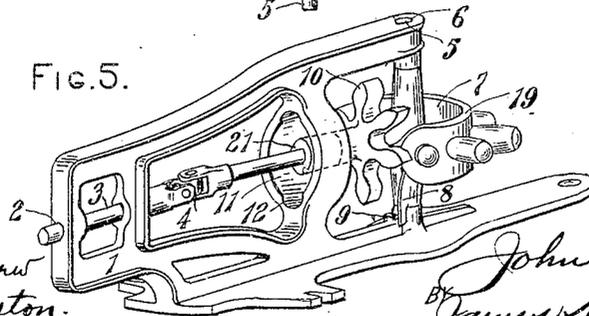


FIG. 5.



WITNESSES:
 Charles L. Perdue
 Essie Livingston.

INVENTOR
John Dietz
 BY *James V. Reusey*
 ATTORNEY.

J. DIETZ.
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2 SHEETS—SHEET 2.

FIG. 6.

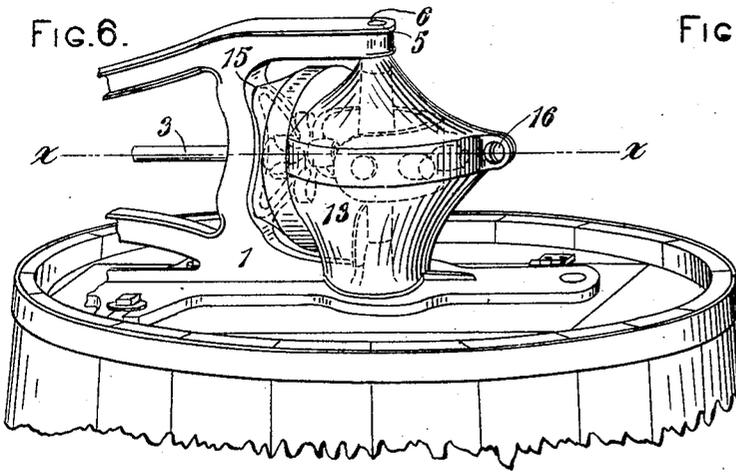


FIG. 9.

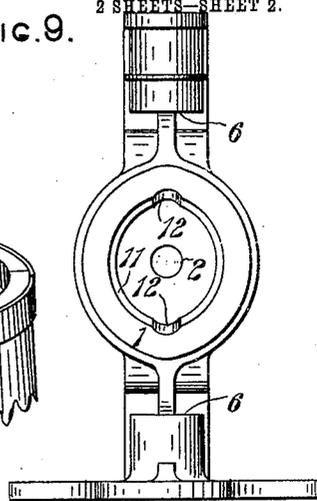


FIG. 7.

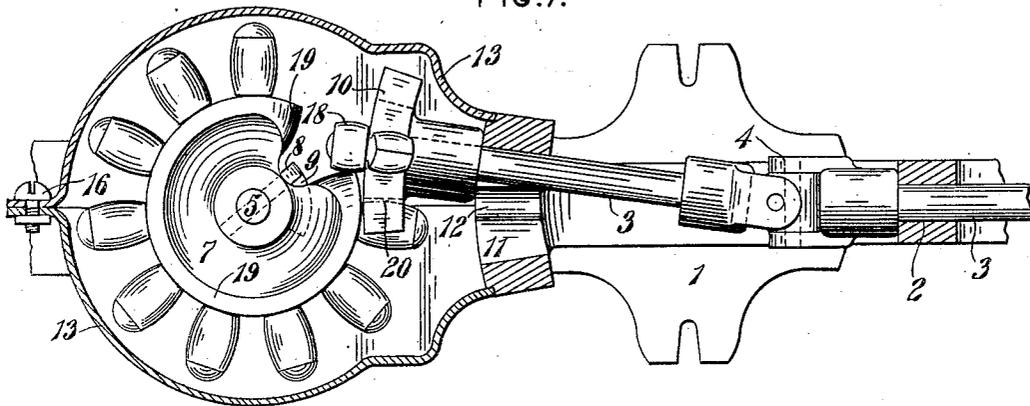
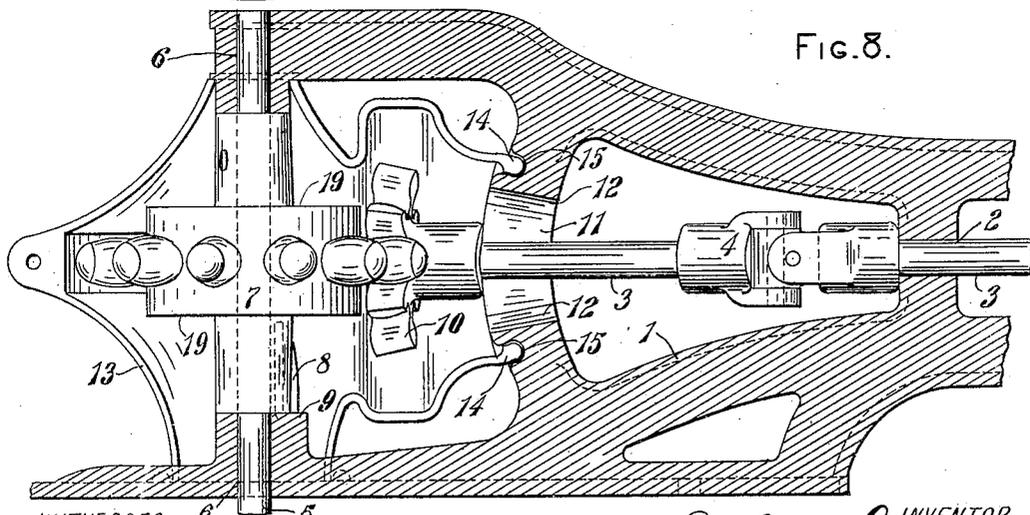


FIG. 8.



WITNESSES:
Clarence L. Perdue
Essie Livingston.

INVENTOR
John Dietz
BY *James H. Ramsey*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN DIETZ, OF CINCINNATI, OHIO, ASSIGNOR TO CONRAD DIETZ, OF CINCINNATI, OHIO.

MECHANICAL MOVEMENT.

No. 805,006.

Specification of Letters Patent.

Patented Nov. 21, 1905.

Application filed August 10, 1905. Serial No. 273,543.

To all whom it may concern:

Be it known that I, JOHN DIETZ, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

My invention relates to means for converting continuous rotary motion into alternating rotary motion, and is especially adapted for use in operating washing-machines, churns, ice-cream freezers, and any other machine in which such a motion is desired.

The object of my invention is to simplify the construction and to produce more direct transmission of power, thereby eliminating friction and wear.

My invention consists in an ovoidal guideway for a driving-shaft, said driving-shaft being preferably provided with a universal joint and having a pinion mounted thereon adapted to mesh with a gear-wheel on a driven shaft, and in means to limit the gear-wheel to partial alternating revolutions.

My invention also consists in the parts and in the combination and arrangement of parts, as will be hereinafter more fully set forth and claimed.

In the drawings, Figure 1 is a perspective view of a washing-machine embodying my invention, part of the tub thereof being broken away to show the interior. Fig. 2 is a perspective view showing a modification of part of my invention, the pinion being in a position corresponding to that shown in Fig. 1—*i. e.*, the upper position. Fig. 3 is a similar view showing the pinion about midway of its downward movement, and Fig. 4 similarly illustrates my invention when the pinion is working in its lower position. Fig. 5 is a perspective view of another modification. Fig. 6 illustrates how my invention is provided with a shield or guard. Fig. 7 is a horizontal section on a line corresponding to *xx* of Fig. 6, the movable parts being shown in elevation; and Fig. 8 is likewise a vertical section. Fig. 9 is an end elevation of the frame, the movable parts being removed.

The preferable construction of my improved mechanism is substantially as follows: The frame 1 has suitable bearings 2 for the driving-shaft 3, which is provided with the universal joint 4. The driven shaft 5 is also journaled in the frame 1 at 6 at an angle to

the shaft 3. Rigidly mounted upon the driven shaft is a segmental gear-wheel 7, provided with a downwardly-extending lug 8. A lug 9 is provided upon the frame 1, adapted to be engaged by the lug 8. The pinion 10, being upon the jointed driving-shaft 3, is adapted to operate either above, below, or around the teeth on the segmental gear 7. The frame 1 is provided with the ovoidal guideway 11 for receiving and guiding the shaft 3. This guideway is provided at its upper and lower extremities with the bearings 12 to receive the shaft and maintain it in proper alinement when in its upper and lower positions. The shield 13 of suitable shape is formed in two sections and held in place by the lugs 14, engaging within recesses 15 in the frame, and by the bolt 16.

I have illustrated my invention as applied to a washing-machine in which the dasher 17 is movable vertically on the driven shaft. When the driving-shaft is rotated continuously in either direction, it will cause the driven shaft to rotate alternately in opposite directions, producing a partial revolution each time before reversing.

To illustrate the operation of my invention, suppose the driving-shaft 3 to be revolved to the right from the position illustrated in Fig. 7. The pinion 10 will pass downward until the driving-shaft 3 engages within the lower bearing 12. The segmental gear 7 will now revolve to the left, the lug 8 of the gear-wheel leaving the lug 9 of the frame and the driven shaft 5 and dasher 17 will be revolved with it. This will continue until the lug 8 engages the lug 9 on its opposite side. The shaft 3 continues to revolve in the same direction; but the pinion 10, mounting the last tooth of the segmental gear 7, is carried to its upper bearing, passing from the lower to the upper side of the teeth of the segmental gear and now causing it and the driven shaft, to which it is rigidly secured, to move to the left, and so on as long as the shaft 3 is revolved. The ovoidal guideway allows the pinion to pass to one side and around the teeth of the segmental gear in such a manner that the proper relative positions of the pinion and gear are always maintained, thus eliminating destructive wear and increasing the efficiency of the power transmission, while the segmental gear is allowed to make nearly a complete revolution each time, all as clearly illustrated in Fig. 7.

Preferably a roller-bearing 18, adapted to bear upon the rim 19 of the segmental gear 7, is provided to maintain a proper clearance, as at 20, Fig. 7, between the wheel and pinion. 5 The friction between the driving-shaft 3 and the guideway 11 may be diminished by providing the roller 21 upon the driving-shaft adjacent the pinion, as shown in Fig. 5.

It will be apparent that my invention is capable of some modification without departing from the scope and spirit thereof. 10

I claim—

1. In a mechanical movement, a gear-wheel limited to partial alternating revolutions, a 15 driving-shaft, a pinion on said driving-shaft in mesh with said gear-wheel and a frame provided with an ovoidal guideway for said driving-shaft.

2. In a mechanical movement, a gear-wheel 20 limited to partial alternating revolutions, a driving-shaft, a pinion on said driving-shaft in mesh with said gear-wheel, a frame provided with an ovoidal guideway for said driving-shaft, and having bearings in said ovoidal 25 guideway for said driving-shaft, substantially as specified.

3. In a mechanical movement, a frame having an ovoidal guideway therein and a projection thereon, a gear-wheel journaled in said

frame having a projection thereon adapted to 30 engage said projection on said frame, a driving-shaft journaled in said frame and adapted to swing in said ovoidal guideway, and a pinion on said driving-shaft adapted to mesh with said gear-wheel and to be guided by said 35 ovoidal guideway.

4. In a mechanical movement, a segmental gear-wheel having a projection thereon opposite the segment thereof, a driving-shaft having a joint, a frame in which said segmental 40 gear-wheel and said driving-shaft are journaled having an ovoidal guideway therein and a projection thereon adjacent said segmental gear-wheel in a position intermediate of the journals of said segmental gear-wheel 45 and said driving-shaft and adapted to be engaged by the projection on said gear-wheel, a pinion on said driving-shaft adapted to mesh with the upper and lower sides of said segmental gear-wheel and to be guided by said 50 ovoidal guideway from one side of said segmental gear-wheel to the other when said projection on said gear-wheel engages said projection on said frame.

JOHN DIETZ.

Witnesses:

JAMES N. RAMSEY,
ESSIE LIVINGSTON.