No. 819,333. PATENTED MAY 1, 1906.

H. BRAMMER.

MECHANICAL MOVEMENT.

APPLICATION FILED AUG. 3, 1905.

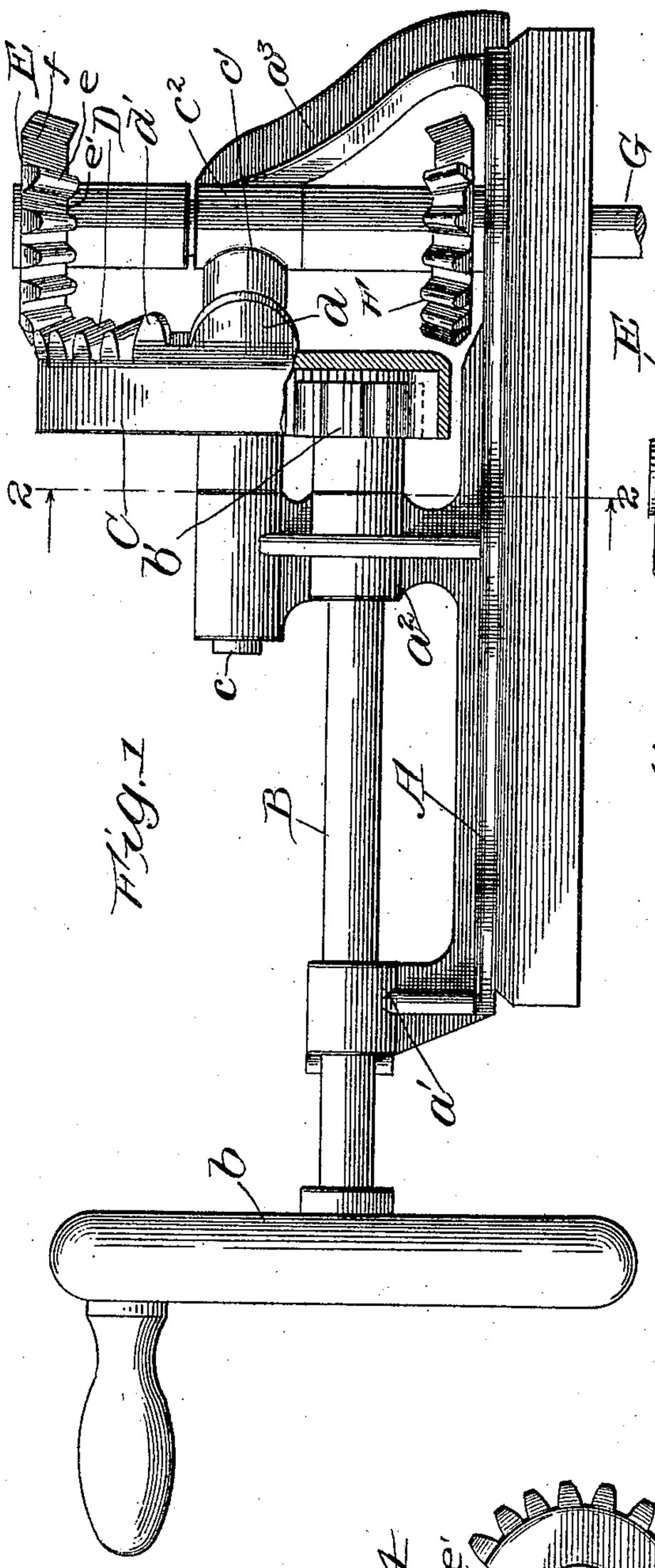

Fig. 1.

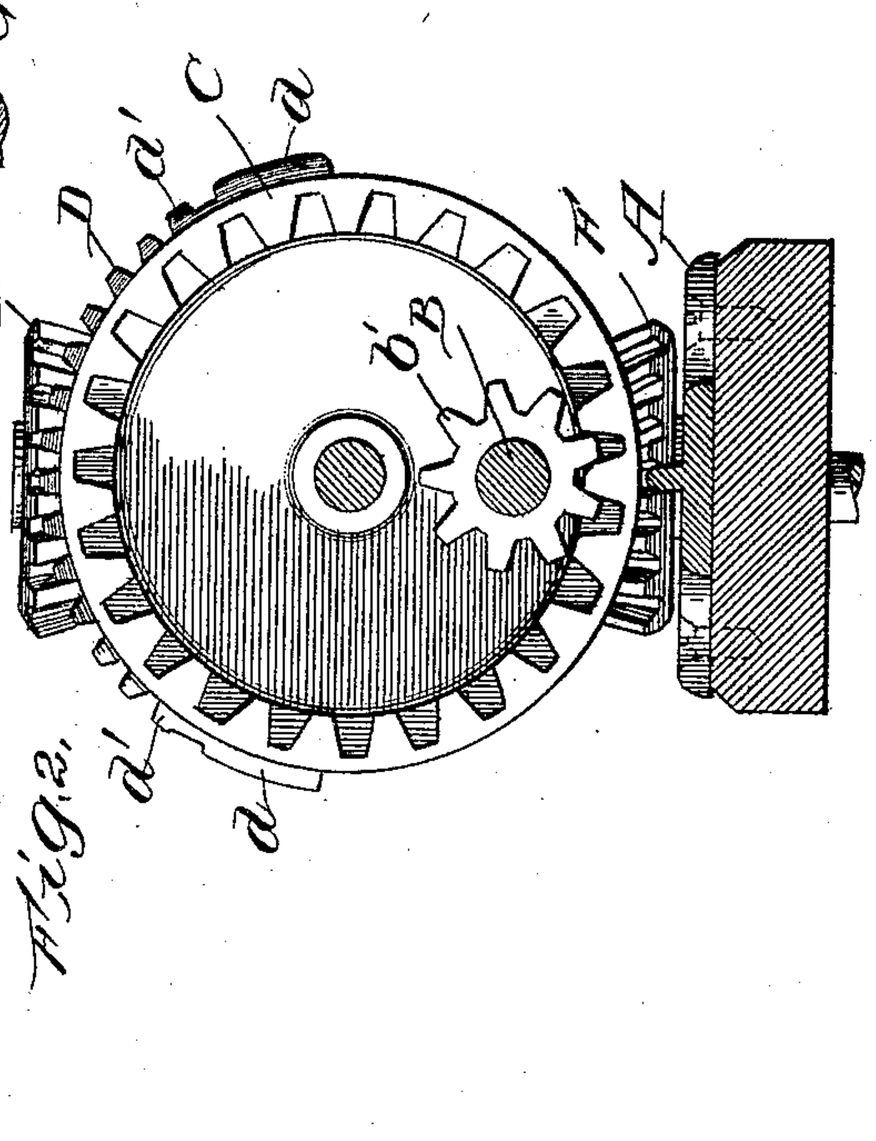

Fig. 2.

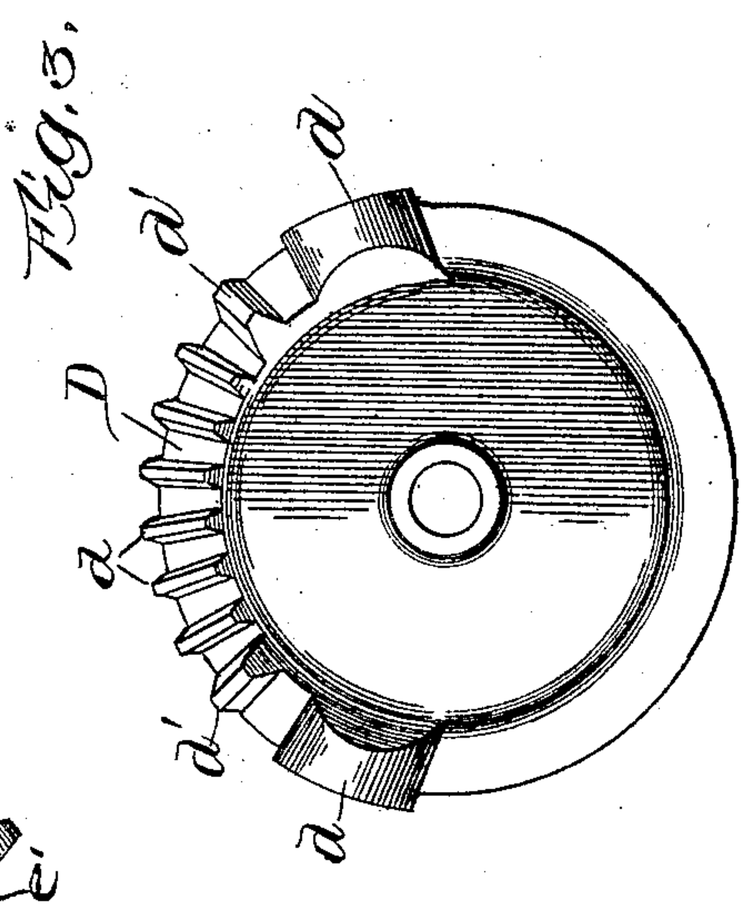

Fig. 3.

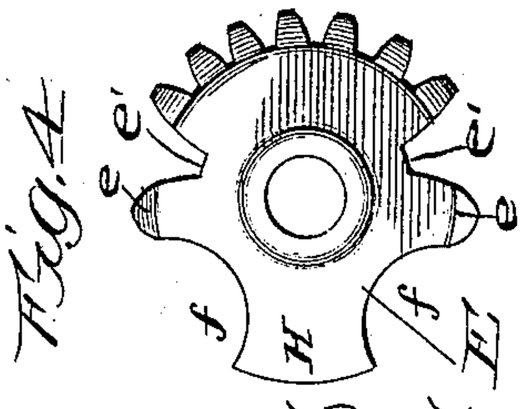

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY BRAMMER, OF ST. LOUIS, MISSOURI.

MECHANICAL MOVEMENT.

No. 819,333. Specification of Letters Patent. Patented May 1, 1906.

Application filed August 3, 1905. Serial No. 272,694.

To all whom it may concern:

Be it known that I, HENRY BRAMMER, a citizen of the United States, and a resident of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a full, clear, and exact description.

My improvement relates to mechanical movements for converting the motion of a continuously-revolving drive-shaft into a rotary reciprocating motion such as employed in washing-machines, churns, and other contrivances in which such a motion is desirable. This I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my invention, showing a portion of the annular internal idle gear broken away. Fig. 2 is a transverse section of the same, taken on line 2 2, Fig. 1. Fig. 3 is a detail view showing the side of the idle gear from which the segmental gear projects. Fig. 4 is a plan view of one of the mutilated pinions.

Referring to the drawings, like letters of reference indicate similar parts of the device.

A represents a suitable supporting-frame that is usually screwed or otherwise suitably secured to the top cover of a washing-machine, churn, &c. Arising from one end of said supporting-frame and also about midway its length are two bearing-bosses a' and a^2. In these two bearing-bosses is journaled the continuously-revolving drive-shaft B, which is operated by means of a suitable flywheel b on its outer extremity and carries on the opposite end thereof a small pinion b'. This pinion b' meshes with an internal idle gear C, that has its axis preferably in a plane parallel to the axis of said pinion. Bearing-boss a^2 is preferably extended a slight distance above the bearing of shaft B and has a fixed shaft c suitably secured therein, upon which the idle gear C revolves. At the opposite end of the supporting-frame is another bearing-boss a^3, that arises to about the height of the extension of bearing a^2 and has its upper end preferably turned toward internal gear C and provided with a T-shaped bearing, the horizontal portion c' of which is utilized to support the adjacent end of the fixed shaft c and the vertical portion c^2 of which provides bearing for the vertical rotary reciprocal shaft G. The face of the idle gear C adjacent to shaft G is provided with a suitable segmental gear D, which terminates in enlarged semicircular teeth d d and extends around about three-fifths of the circumference of said idle gear. Between each of said terminal teeth and the normal teeth of the segmental gear are teeth d' d', which are larger than the teeth between them, to the shape of which they more nearly conform, and smaller than teeth d d. This segmental gear alternately engages the upper and then the lower of a pair of mutilated pinions E and F, respectively, mounted on the said shaft G′ one above and the other below the T-shaped bearing c^2, heretofore described. The teeth of these pinions only extend around a portion of their periphery, and the end teeth e e thereof are enlarged and are separated from the next teeth by a recess e', while on the opposite side of said tooth e is an enlarged semicircular recess f. These recesses e' and f are for the purpose of permitting positive engagement with the enlarged teeth d' and d, respectively, of the segmental gear D, carried by the idle transmission-gear. The portion of the pinions between the semicircular recesses f f is left intact to form a stop-lug H, whereby the reversal of the shaft G is accomplished.

In operation the drive-pinion b on the drive-shaft B engages and revolves the internal idle gear C continuously in one direction. The segmental gear D, carried by this idle gear, alternately engages at points diametrically opposite each other first one and then the other of the mutilated pinions on the rotary reciprocal shaft, which latter thus revolves first in one and then the other direction.

I claim—

1. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said idle gear being parallel with that of said drive-shaft; a segmental gear on the opposite face of said idle gear; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions having irregularly-shaped teeth and fast on said rotary reciprocal shaft, one of which pinions is adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion and vice versa.

2. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said

idle gear being parallel with that of said drive-shaft; a segmental gear on the opposite face of said idle gear the tooth at each end of the same being larger than the remaining teeth thereof; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions fast on said rotary reciprocal shaft, one of which pinions is adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion and vice versa.

3. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said idle gear being parallel with that of said drive-shaft; a segmental gear on the opposite face of said idle gear, the tooth at each end of the same being larger than the remaining teeth thereof and provided with semicircular engaging surfaces; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions fast on said rotary reciprocal shaft, one of which pinions is adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion and vice versa.

4. A mechanical movement comprising a continuously-revolving drive-shaft, a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said idle gear being parallel with that of said drive-shaft; a segmental gear on the opposite face of said idle gear; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions fast on said rotary reciprocal shaft, the end teeth of which are enlarged and depressed inside the periphery described by the other teeth of said pinion, and one of said pinions being adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion and vice versa.

5. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said idle gear being parallel with that of said drive-shaft; a segmental gear on the opposite face of said idle gear; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions fast on said rotary reciprocal shaft, the ends of which are provided with concave recesses and an intermediate uncut portion between said recesses; one of said pinions being adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion and vice versa.

6. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving internal idle gear actuated thereby, the axis of the shaft of said idle gear being parallel with that of said drive-shaft, the tooth at each end of the same being larger than the remaining teeth thereof and provided with semicircular engaging surfaces; a rotary reciprocal shaft, the axis of which is at right angles to the axis of said drive-shaft; and mutilated pinions fast on said rotary reciprocal shaft the ends of which are provided with concaved recesses and intermediate uncut portions, said recesses conforming to and engaged by the enlarged teeth on said segmental gear; one of said pinions being adapted to be engaged by the idle gear simultaneously with the disengagement of the opposite pinion, and vice versa.

In testimony whereof I have hereunto set my hand this 3d day of March, A. D. 1905.

HENRY BRAMMER.

Witnesses:

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E. K. LUNDY.