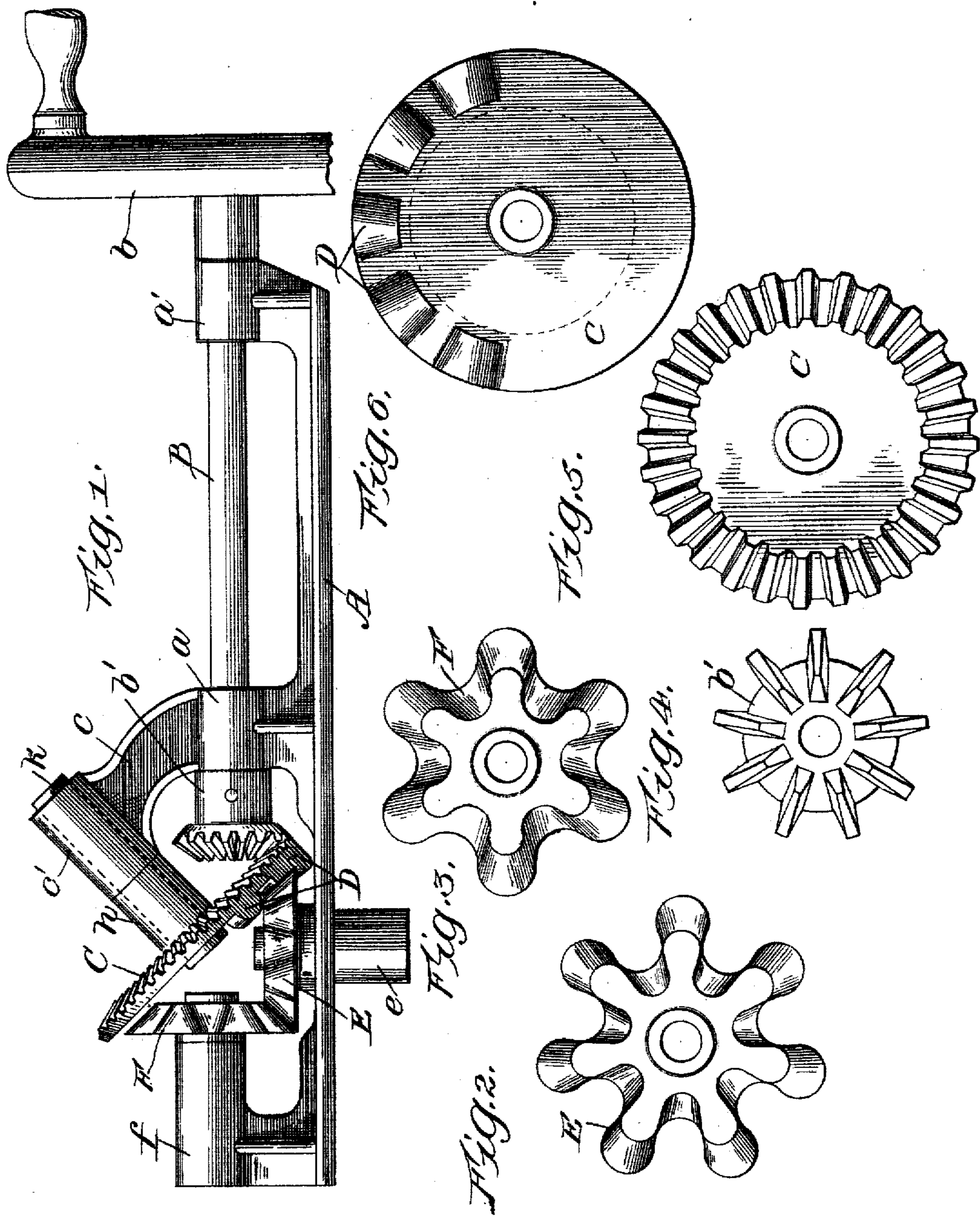


No. 814,185.

PATENTED MAR. 6, 1906.

H. BRAMMER.  
MECHANICAL MOVEMENT.  
APPLICATION FILED AUG. 3, 1905.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HENRY BRAMMER, OF ST. LOUIS, MISSOURI.

## MECHANICAL MOVEMENT.

No. 814,185.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed August 3, 1905. Serial No. 272,595.

*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 invention relates to mechanical movements in which a continuous rotary motion is converted into a rotary reciprocatory motion, such as are employed in washing-machines, churns, &c.

It is the object of my invention to make this transition from one type of movement to the other as simple as possible and to avoid to a great extent the jerk and noise generally incident at the time of the reversal.

It is also an object of this improvement to construct a movement that is easy to operate and cannot readily get out of order and one in which the driving-power as imparted to the rotary reciprocal devices is increased.

These objects I accomplish by the means hereinafter more fully explained and as particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my improved mechanical movement, showing the same applied to the top of washing-machines. Figs. 2 and 3 are detail views of the reversing and idle pinions, drawn to a scale nearly full size. Fig. 4 is a similar view showing in detail the continuously-revolving pinion. Fig. 5 is a front view, on a reduced scale, of the transmission-gear that carries the segmental gear. Fig. 6 is a rear view of the same, showing the segmental gear in detail thereon.

Referring to the drawings, A represents a suitable supporting-plate that is preferably screwed or otherwise secured to the top or cover of the washing-machine. At about its center of length of this supporting-plate there arises at right angles thereto a bearing-boss *a*, while at the right-hand end of said plate is a similar bearing-boss *a'*, the bearings in both of which are in alinement with each other. These two bearing-bosses journal the ends of a continuously-revolving drive-shaft B, to one end of which a hand or fly wheel *b* is secured, and to the opposite inner end a small pinion *b'* is rigidly secured. This pinion *b'* meshes with a larger gear C, the axis of which latter is arranged at, preferably, an angle of about forty-five degrees (45°) to the axis of the small drive-pinion *b'* and the

drive-shaft B. Gear C is journaled in suitable bearings that comprise a gooseneck lug *c*, made integral with and extending above the bearing-boss *a* of the drive-shaft and provided at its end with a suitable angular bearing-stub *c'*, that rigidly secures one end of a stationary shaft *k*, upon which the idle gear C loosely revolves. This gear C is provided with an elongated boss *h*, that projects from its upper face and has its upper end come in close contact with the lower end of the bearing-stub *c'*, thereby holding the gear in proper relation to the pinion *b'*. The gear C is prevented from slipping off the lower end of its shaft by any suitable means. The under face of gear C is provided with a segmental rack D, covering less than one-half the circumference of said gear, which meshes at points diametrically opposite each other alternately with suitable pinions E and F, which latter intermesh at points diametrically opposite, where they are alternately engaged by the rack D and preferably have their axes arranged at right angles to each other. Pinion E is secured to a rotary reciprocal shaft or to the stirrer-shaft *e* of the washing-machine, while pinion F acts as an idler or transmission pinion. This idle pinion F has its shaft journaled in bearing-boss *f*, arising from the adjacent end of the supporting-plate A, and while in the same vertical plane with the drive-shaft B is preferably in a horizontal plane slightly above said shaft.

In operation the pinion *b'* imparts its motion to the larger gear C, which revolves continuously in one direction, and the segmental rack upon its under side engages first the pinion E of the stirrer-shaft and then engages the idle pinion F. This latter pinion F being in engagement with the stirrer-shaft, pinion E acts as an intermediary and transmits the motion of the segmental gear to the stirrer-shaft in opposite direction to that in which said segmental gear turned the same when it engaged the pinion E direct. The segmental gear being of less than one-half the circumference of the gear C will be just leaving one of the pinions E or F when it will engage the other one, thus allowing but a slight period of rest or intermission before commencing the reversal movement. The teeth of the two pinions E and F and the segmental gears D being of rounded shape, as shown in the drawings, readily engage pinion E without



unnecessary noise, thus eliminating a very objectionable feature of many mechanical movements.

What I claim as new is—

- 5 1. A mechanical movement comprising a continuously-revolving drive-shaft; a continuously-revolving gear actuated thereby, the axis of which is inclined at an angle to said drive-shaft; a rotary reciprocating shaft  
10 at right angles to said drive-shaft; rotary reciprocating meshing pinions, the axes of which are at an angle to each other and one of which is fast on said rotary reciprocating shaft; and a segmental gear carried by said  
15 continuously-revolving gear that alternately engages one and then the other of said pinions.
2. A mechanical movement comprising a continuously-revolving segmental rack, two  
20 intermeshing mitered gears, alternately engaged by said rack at points diametrically opposite their points of engagement with each other, and a shaft to which one of said beveled gears is secured.
- 25 3. A mechanical movement comprising a continuously-revolving shaft, a pinion thereon, a gear actuated thereby the axis of which is inclined to that of said shaft and which has an endless series of teeth engaged  
30 by said pinion and also a segmental rack connected thereto, two intermeshing mitered gears alternately engaged by said rack at points diametrically opposite their points

of engagement with each other, and a shaft to which one of said beveled gears is secured. 35

4. A mechanical movement comprising a continuously-revolving shaft, a pinion thereon, a gear actuated thereby the axis of which is inclined to that of said shaft and has an  
40 endless series of teeth on one side engaged by said pinion and a segmental rack on the opposite side thereof, two intermeshing mitered gears alternately engaged by said rack at points diametrically opposite their point of  
45 engagement with each other, and a shaft to which one of said beveled gears is secured.

5. A mechanical movement comprising a continuously-revolving shaft, a pinion thereon, a gear actuated thereby the axis of which is inclined to that of said shaft and has an  
50 endless series of teeth on one side engaged by said pinion, and a segmental rack having substantially semicircular cogs on the opposite side thereof, two intermeshing mitered gears which correspond to the cogs of and are alter-  
55 nately engaged by said rack at points diametrically opposite their point of engagement with each other, and a shaft to which one of said beveled gears is secured.

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

HENRY BRAMMER.

Witnesses:

FRANK D. THOMASON,  
E. K. LUNDY.