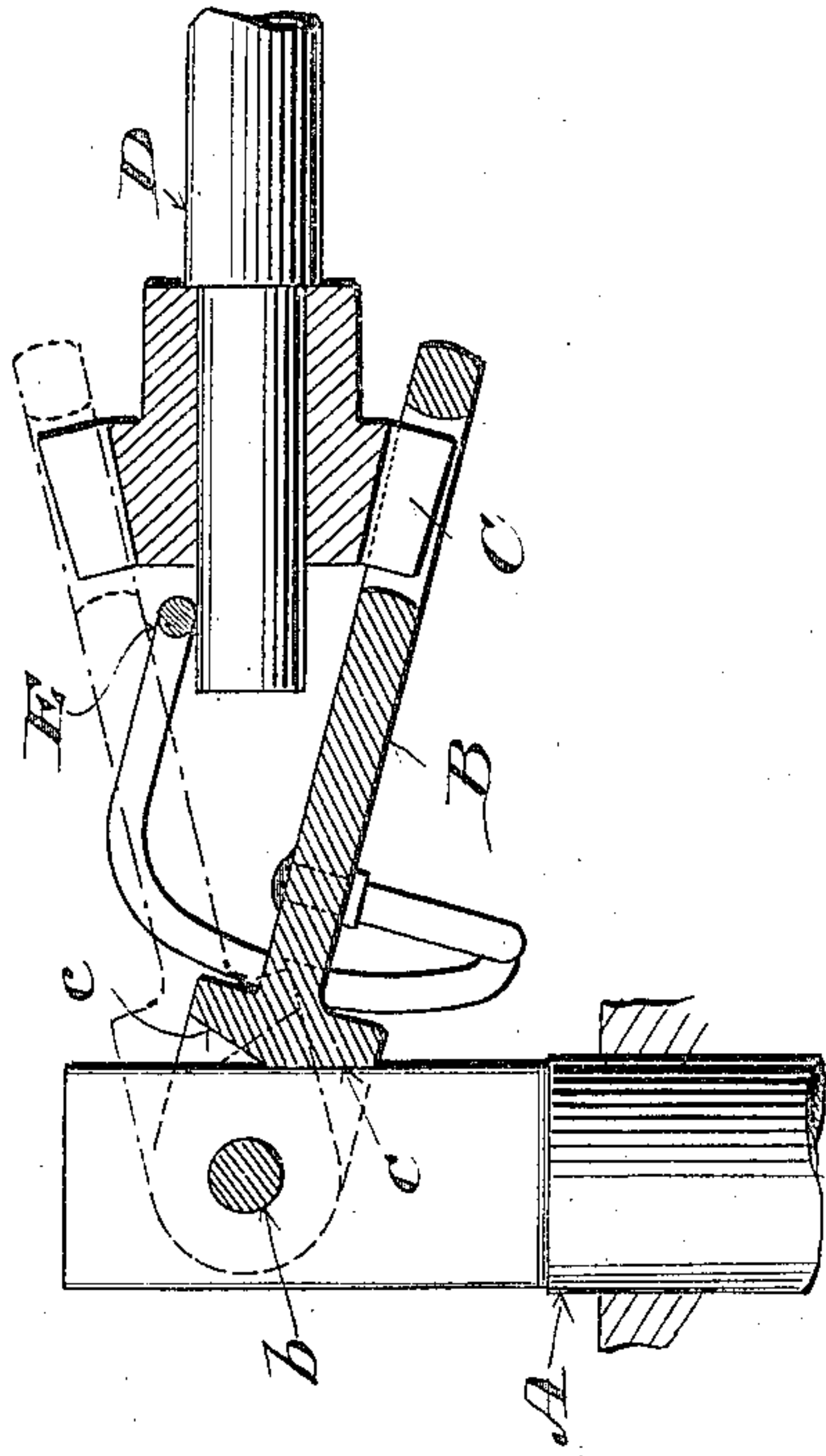


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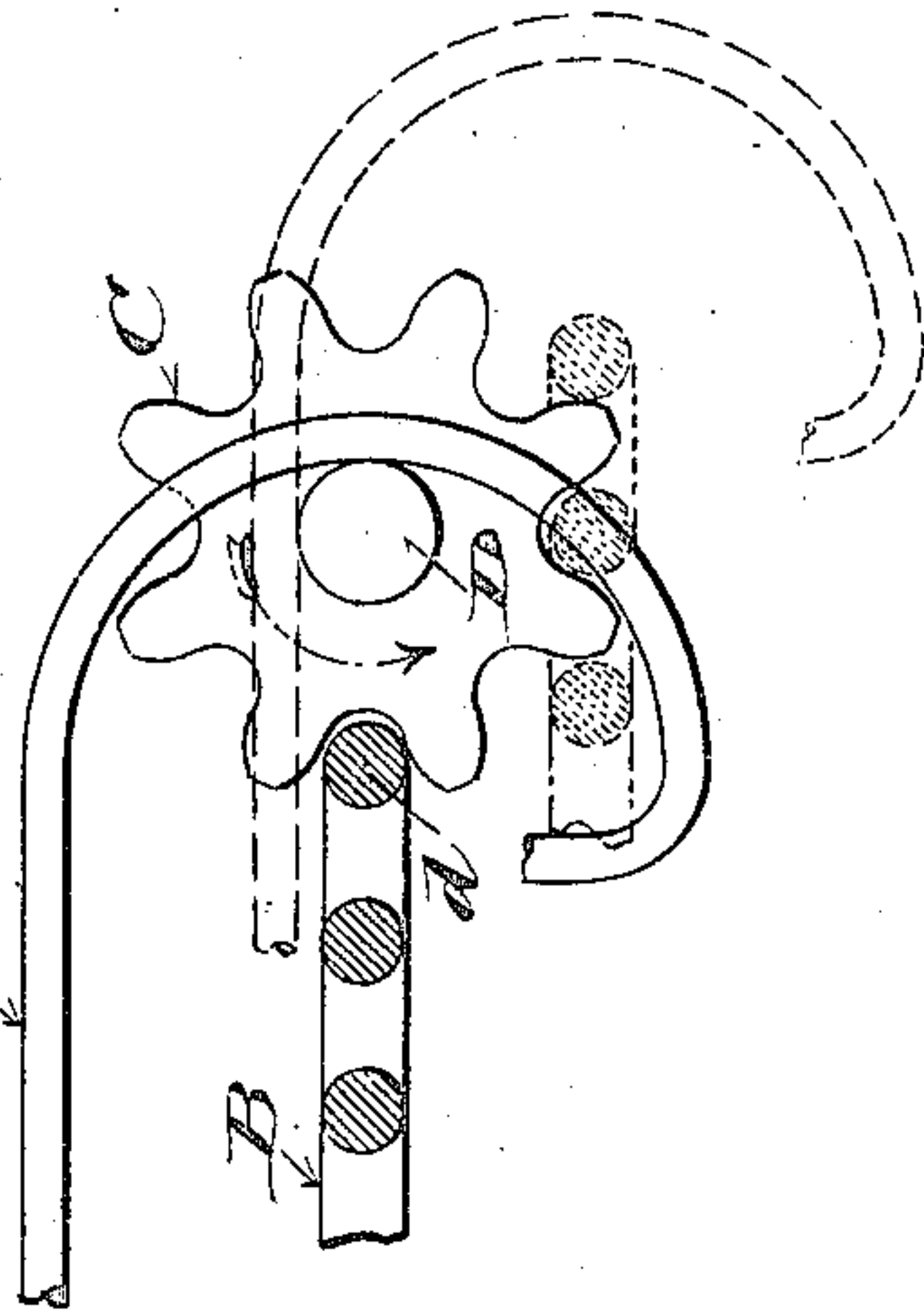
PATENTED DEC. 31, 1907.

M. JOHN.  
MECHANICAL MOVEMENT.  
APPLICATION FILED APR. 15, 1907.

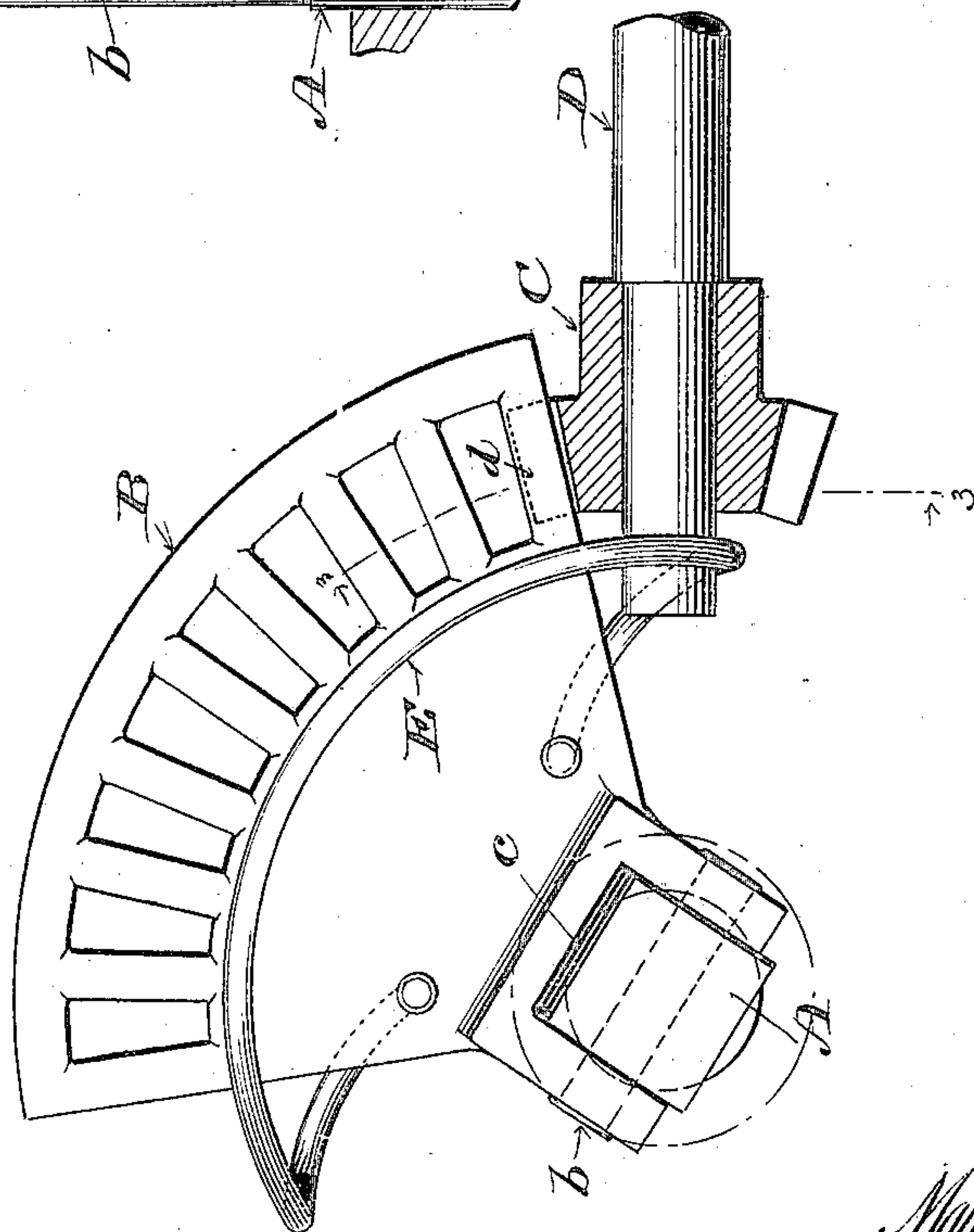
*Fig. 2.*



*Fig. 3.*



*Fig. 1.*



Witnesses:  
Fred Palm  
George Telber

Inventor:  
Mathias John.  
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# UNITED STATES PATENT OFFICE.

MATHIAS JOHN, OF MILWAUKEE, WISCONSIN.

## MECHANICAL MOVEMENT.

No. 875,180.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed April 15, 1907. Serial No. 368,149.

*To all whom it may concern:*

Be it known that I, MATHIAS JOHN, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby declare that the following is a full, clear, and exact description thereof.

The improvements consist in what is herein shown, described and claimed; the object of the invention being to provide simple economical means for converting continuous rotary motion into reciprocating rotary movement, the same being especially designed for operating the agitator of a washing-machine but adapted to other uses.

Figure 1 of the accompanying drawings represents a plan view of my improved mechanical movement partly in horizontal section; Fig. 2, an elevation of same partly in section, and Fig. 3, a section view of a fragment of the movement indicated by line 3—3 in Fig. 1.

Referring by letter to the drawings, A indicates a shaft and B a segmental rack-plate having a forked-end straddling said shaft to which it is connected by a pivot *b* to have rocking play. Meshing with the rack-plate is a pinion C fast on another shaft D at a right-angle to the one aforesaid and having its inner end extended beyond the pinion to be in the path of a guard-yoke E, that preferably consists of a suitably bent wire fastened at its ends in apertures of the rack-plate adjacent to the forked end of same.

The rack-plate is preferably beveled in opposite directions as shown at *c* to economize space and provide for shaft clearance, but other suitable provision may be had for rocking clearance of said plate in pivotal connection with said shaft, and while the yoke-end of the aforesaid plate is herein shown as designed for connection with a squared portion of a shaft, it may be as readily designed for connection with a round portion of such a device. The spaces between rack-teeth of the plate B are openings in said plate and said teeth are preferably rounded.

The wire guard yoke E herein shown is partly on opposite sides of the rack-plate, a portion of same being approximately concentric with said plate parallel thereto back of the rack portion thereof and other portions of said yoke are approximately semi-

circular opposite the radial edges of the aforesaid plate, to which plate the ends of the aforesaid yoke are at angles.

In practice, the drive-shaft D and pinion therewith have continuous rotary motion in one direction, said pinion being always in mesh with the rack-plate, as the result of the intermittent opposition of the yoke E to the inner end of said shaft. As a result of the operation of the drive-shaft, as aforesaid, the sides of the rack-plate B are alternately opposed to the pinion C in mesh therewith whereby the driven shaft A has reciprocating rotary movement imparted thereto, the engagement of the inner end of the drive-shaft D with the yoke E preventing disengagement of said rack-plate and pinion.

At about the time either radial edge of the rack-plate B would otherwise clear the pinion C, said plate is rocked on its pivot, as the result of the contact of the inner end of the shaft D with the yoke E, whereby continued engagement of the rack-and-pinion is insured and the automatic rock of said plate permitted. That portion of the yoke E approximately concentric with the plate B (back of the rack-portion of same) limits downward rock of said plate and the semi-circular portions of said yoke limit the rotary movement of the aforesaid plate to such an extent as would permit the same to at any time clear the pinion C by which it is engaged.

I claim:

1. The combination of a driven shaft and a drive-shaft at a right-angle to each other, a segmental rack-plate in pivotal connection with the driven shaft and having open spaces between its teeth, a pinion fast on the drive-shaft in mesh with the rack portion of the plate, and a wire fastened at its ends to said plate to constitute a guard-yoke in opposition to an end of the drive-shaft extending inward beyond the pinion, a portion of the wire being approximately concentric with the aforesaid plate parallel thereto back of the rack-portion of same and other portions of said wire approximately semi-circular opposite the radial plate-edges.

2. The combination of a driven-shaft and a drive-shaft at a right-angle to each other, a segmental rack-plate having a forked and beveled end straddling the driven shaft to which it is pivotally connected, the spaces between rack-teeth of the plate being open;

a pinion fast on the drive-shaft in mesh with the rack-portion of the plate, and a guard-yoke in connection with said plate to oppose an end of said drive-shaft extending inward  
5 beyond the pinion.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in

the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

MATH. JOHN

Witnesses:

GEORGE FELBER,  
N. E. OLIPHANT.