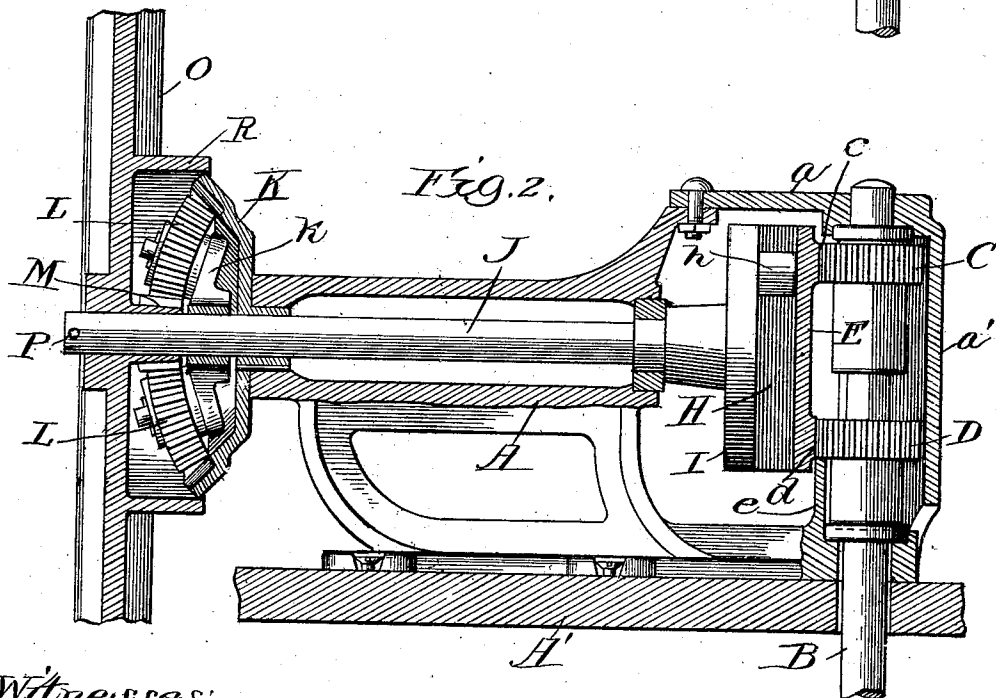
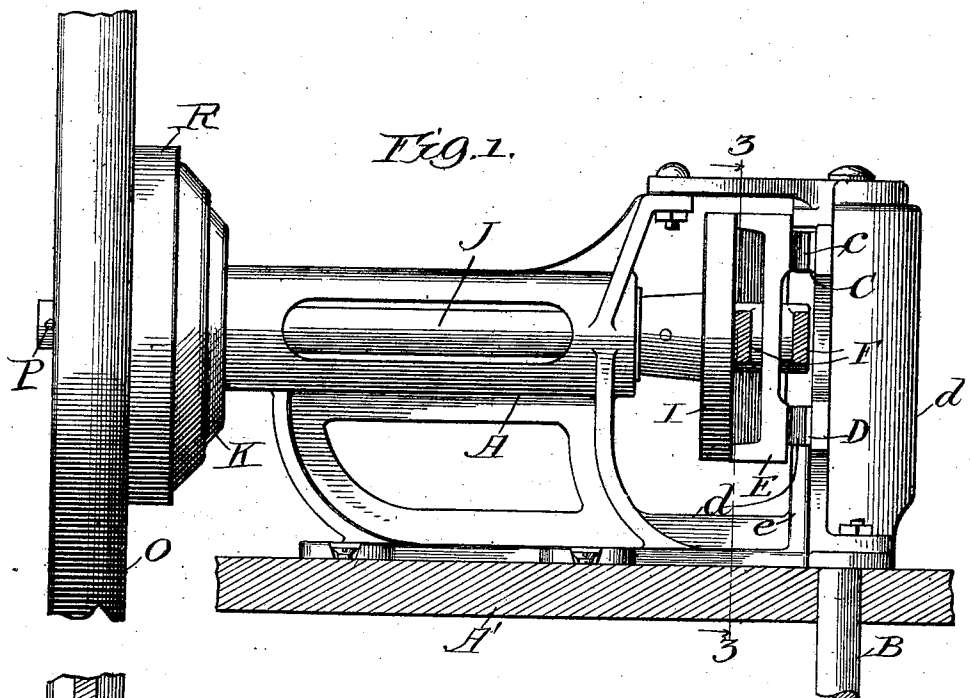


No. 861,687.

PATENTED JULY 30, 1907.

A. WAHLE.
MECHANICAL MOVEMENT.
APPLICATION FILED FEB. 4, 1907.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 3.

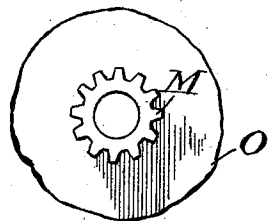
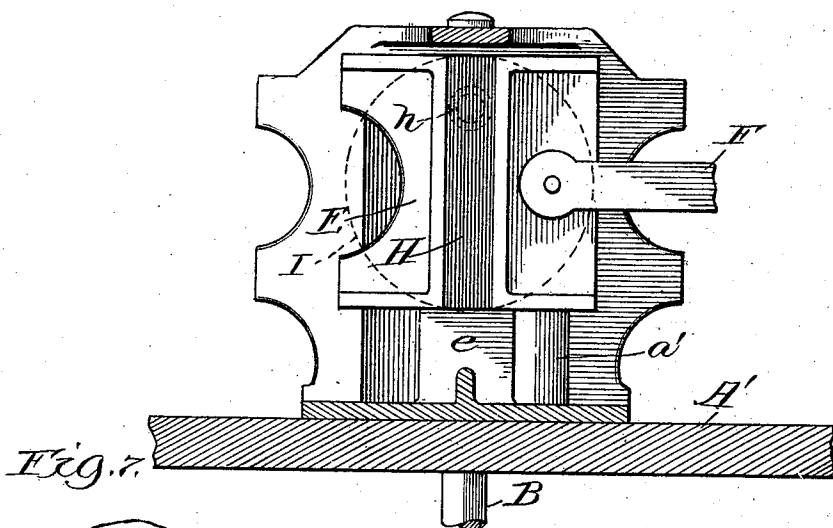
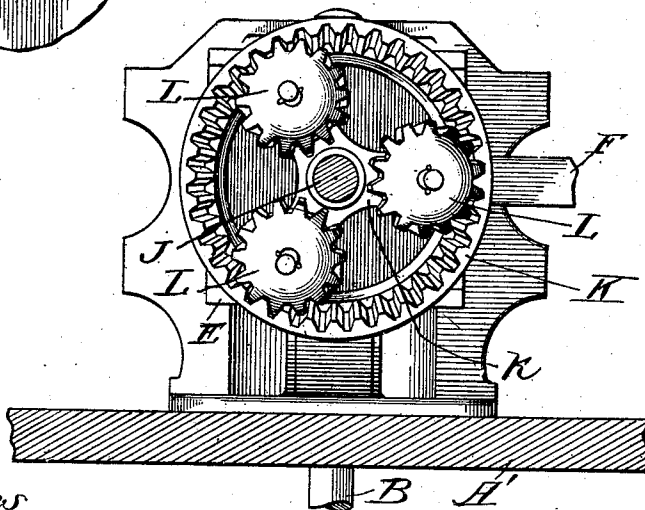


Fig. 4.



Witnesses
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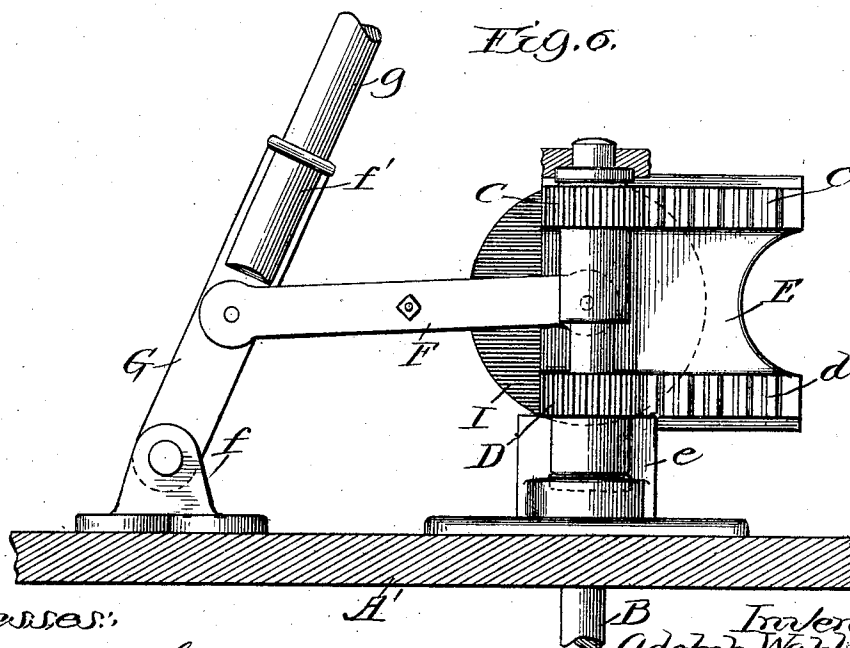
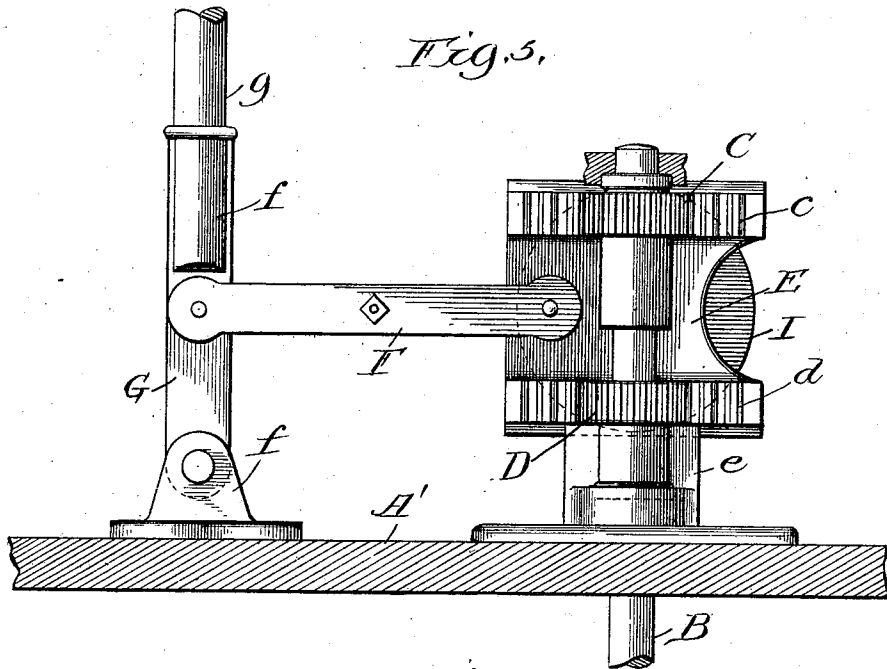
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UNITED STATES PATENT OFFICE.

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MECHANICAL MOVEMENT.

No. 861,687.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed February 4, 1907. Serial No. 355,743.

To all whom it may concern:

Be it known that I, ADOLPH WAHLE, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, 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, and particularly movements for operating washing machines, churns, etc.; and its object is to produce a rotary reciprocal motion of a stirrer or dasher-shaft by means of the back and forth movement of a lever, aided by the momentum of a fly-wheel, which is speeded up by simple means housed within the hub of said wheel. 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 part of the fly-wheel, and the lower part of the dasher or stirrer-shaft broken away. Fig. 2 is a longitudinal central section thereof. Fig. 3 is a transverse section taken on dotted line 3, 3, Fig. 1. Fig. 4 is an end elevation with the fly-wheel removed. Fig. 5 is an end elevation looking at the mechanism at a point opposite the fly-wheel, and with a portion of the casing broken away to expose the gear of the driven-shaft and its connections. Fig. 6 is a similar view showing the actuated lever and gearing in a different position. Fig. 7 is a fragmental view of a portion of the fly-wheel showing the pinion made integral therewith.

A represents a suitable frame-work for journaling and holding the operating parts of my invention in their proper assembled positions.

B represents a vertical rotary reciprocal shaft, which extends up through the support A' of said frame-work, and is journaled in bearings in the lower portion of said frame-work and also in an upper portion a of a removable addition, a', of said frame-work.

Between its bearings shaft B is provided with an upper and a lower pinion, C and D respectively, which are engaged by an upper and lower horizontal rack c and d, respectively, projecting from a transversely reciprocal vertically disposed plate E. This plate is supported by a vertical wall e arising from the base of the frame-work A, whose upper horizontal edge comes under and engages the lower edge of the rack d. This plate is reciprocated transversely by means of a link F, which is pivotally connected thereto midway between said racks near one end of said plate, and has its opposite end pivotally connected to a lever G fulcrumed at its lower end between lugs f arising from a suitable plate secured to the support A' of the frame-

work. The lower part of this lever above the point where the link F is pivotally connected thereto is provided with a socket f' for the reception of a removable handle or bar g.

The side of the plate E opposite that from which the racks c, d, project, is provided, mediate its ends, with a vertical groove or channel H, which, if the plate is thick enough, may be made by depressing the metal, but which, in order to save weight I prefer, as shown, to make by using a thin plate, and defining the sides of the channel by vertically disposed outwardly projecting parallel flanges. Channel H is engaged by a crank-pin h, projecting from the adjacent side of a disk I, which latter is secured to the adjacent extended end of a continuously-revolving horizontal shaft J, journaled in suitable bearings in opposite ends of a horizontally disposed cylindrical portion of the supporting-frame A. The bearings for the end of shaft J farthest from disk I are made by the central boss or arbor of a stationary internal gear K which is suitably secured to the supporting-frame and has its outer circumferential portion, preferably, flared outwards like the sides of a bell, and whose internal gear projects from this marginal flared portion.

Securely mounted on shaft J, within the circumference of the flared portion of the internal gear K, is a spider k, preferably consisting of a central boss and three equi-distant corresponding arms, which latter are provided with studs projecting therefrom in a direction away from the internal gear K, and have journaled thereon idle-pinions L, L. The pinions have, as shown, their axes arranged at an angle slightly oblique to the axes of shaft J, so that their outer segments can engage the cogs of the internal gear, and their inner segments engage the beveled pinion M made integral with the boss of the fly-wheel O loosely retained on the end of shaft J by means of a suitable cotter P.

If desired the fly-wheel can have an annular flange R project from its side adjacent to the internal gear, concentric with shaft J. This flange R projects such a distance and is of such diameter that it surrounds and incloses the circumferential edges of the internal gear, and prevents the possibility of accidents occurring with the gearing inclosed therein.

In operation, lever G is moved back and forth and reciprocates plate E; and the latter through the medium of racks c and d actuates the rotary reciprocal shaft B. Plate E, by virtue of the engagement of the crank-pin h with the vertical channel H on the side thereof opposite the said rack revolves shaft J, and shaft J, through the medium of the idle-pinions and the internal gear, sets the fly-wheel spinning about four times as fast. The momentum of the fly-wheel not

only assists in reciprocating plate E, but also greatly assists in starting the reverse movement of the plate and relieves the operator of considerable muscular effort, which, otherwise it would be necessary for him to exert.

What I claim as new is:

1. The combination with a rotary reciprocal shaft, of means for actuating said shaft, a continuously revolving shaft extending at an angle to and in the same vertical plane with said rotary reciprocal shaft, and likewise engaged by said means, a fly-wheel loose on said continuously revolving shaft, and gearing connecting the latter and fly-wheel.
2. The combination with a rotary reciprocal shaft, of reciprocal means for actuating said shaft, a continuously revolving shaft extending at an angle to and in the same vertical plane with said rotary reciprocal shaft, and likewise engaged by said means, a fly-wheel loose on said continuously revolving shaft, and gearing connecting the latter and fly-wheel.
3. The combination with a rotary reciprocal shaft, of a reciprocal plate operatively connected to and actuating said shaft, a lever, a link connecting said lever and plate, a continuously revolving shaft extending at an angle to and in the same vertical plane with said rotary reciprocal shaft and likewise actuated by said plate, a fly-wheel loose on said continuously revolving shaft, and gearing connecting the latter and said fly-wheel.
4. The combination with a rotary reciprocal shaft, and a pinion thereon, of a reciprocal plate having a rack engaging said pinion and having a vertical channel on the opposite side thereof, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft having a suitable device on the end contiguous to said plate which is provided with a crank-pin that engages said channel, a fly-wheel loose on said continuously revolving shaft, and gearing connecting the latter and said fly-wheel.
5. The combination with a rotary reciprocal shaft, and two pinions thereon, of a reciprocal plate having racks engaging said pinions and having a vertical channel on the opposite side thereof, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft having a suitable device on the end contiguous to said plate which is provided with a crank-pin that engages said channel, a fly-wheel loose on said continuously revolving shaft, and gearing connecting the latter and said fly-wheel.
6. The combination with a rotary reciprocal shaft, of means for actuating said shaft, a continuously revolving shaft extending at an angle to and in the same vertical plane with said rotary shaft, and a fly-wheel loosely mounted thereon and revolving faster than said shaft.
7. The combination with a rotary reciprocal shaft, of means for actuating the same, a continuously revolving shaft extending at an angle to said rotary shaft, an idle gear journaled to an arm extending from said continuously revolving shaft, a stationary internal gear engaged by said idle-gear, and a fly-wheel loosely mounted on said continuously revolving shaft and provided with an integral pinion which is engaged by said idle-gear.
8. The combination with a rotary reciprocal shaft, of means for actuating the same, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft a series of idle-gears journaled to a suitable support fast to said continuously revolving shaft, a stationary internal gear engaged by said idle-gears, and a fly-wheel loosely

mounted on said continuously revolving shaft and provided with an integral pinion which is engaged by said idle-gears.

9. The combination with a rotary reciprocal shaft, of means for actuating the same, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft, a fly-wheel loosely mounted on said continuously revolving shaft having an annular flange, and gearing for connecting said shaft and fly-wheel comprising a stationary internal gear concentric with said continuously revolving shaft, the circumference of which comes within and is inclosed by said annular flange.

10. The combination with a rotary reciprocal shaft, of reciprocal means for actuating the same, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft, a fly-wheel loosely mounted on said continuously revolving shaft having an annular flange, and gearing for connecting said shaft and fly-wheel comprising a stationary internal gear concentric with said continuously revolving shaft, the circumference of which comes within and is inclosed by said annular flange.

11. The combination with a rotary reciprocal shaft, of a reciprocal plate operatively connected to and actuating said shaft, a lever, a link connecting said lever and plate, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft, a fly-wheel loosely mounted on said continuously revolving shaft having an annular flange, and gearing for connecting said shaft and fly-wheel comprising a stationary internal gear concentric with said continuously revolving shaft, the circumference of which comes within and is inclosed by said annular flange.

12. The combination with a rotary reciprocal shaft, and a pinion thereon of a reciprocal plate having a rack engaging said pinion and having a vertical channel on the opposite side thereof, a continuously revolving shaft extending at an angle to said rotary reciprocal shaft, a suitable device on the end thereof contiguous to said plate which is provided with a crank-pin that engages said channel, a fly-wheel loosely mounted on said continuously revolving shaft, having an annular flange, gearing connecting said shaft and fly-wheel comprising a stationary internal gear concentric with said continuously revolving shaft, the circumference of which comes within and is inclosed by said annular flange.

13. The combination with a rotary reciprocal shaft, of reciprocal means for actuating the same, a continuously revolving shaft extending at an angle to said rotary shaft, an idle gear journaled to an arm extending from said continuously revolving shaft, a stationary internal gear engaged by said idle-gear, and a fly-wheel loosely mounted on said continuously revolving shaft and provided with an integral pinion which is engaged by said idle-gear.

14. The combination with a rotary reciprocal shaft, of a reciprocal plate operatively connected to and actuating said shaft, a lever, a link connecting said lever and plate, a continuously revolving shaft extending at an angle to said rotary shaft, an idle-gear journaled to an arm extending from said continuously revolving shaft, a stationary internal gear engaged by said idle-gear, and a fly-wheel loosely mounted on said continuously revolving shaft and provided with an integral pinion which is engaged by said idle-gear.

In testimony whereof I have hereunto set my hand and seal this 19th day of January, 1907.

ADOLPH WAHLE. [L. s.]

Witnesses:

EMIL W. STROHEHN,
JOHN SCHROEDER.