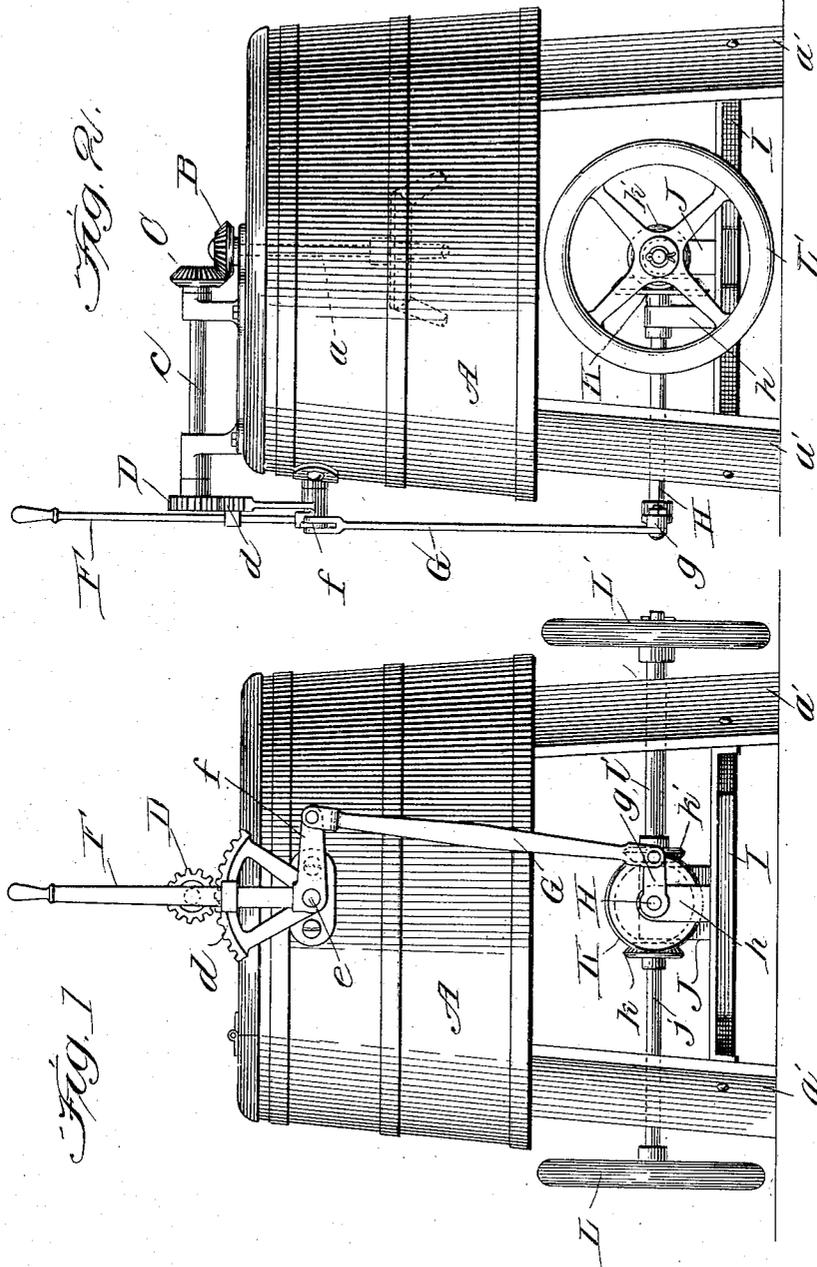


A. F. VICTOR.
 MECHANICAL MOVEMENT.
 APPLICATION FILED MAR. 11, 1909.

976,953.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.



Witnesses:

Harry S. Gaither
 E. Lundy

Inventor:

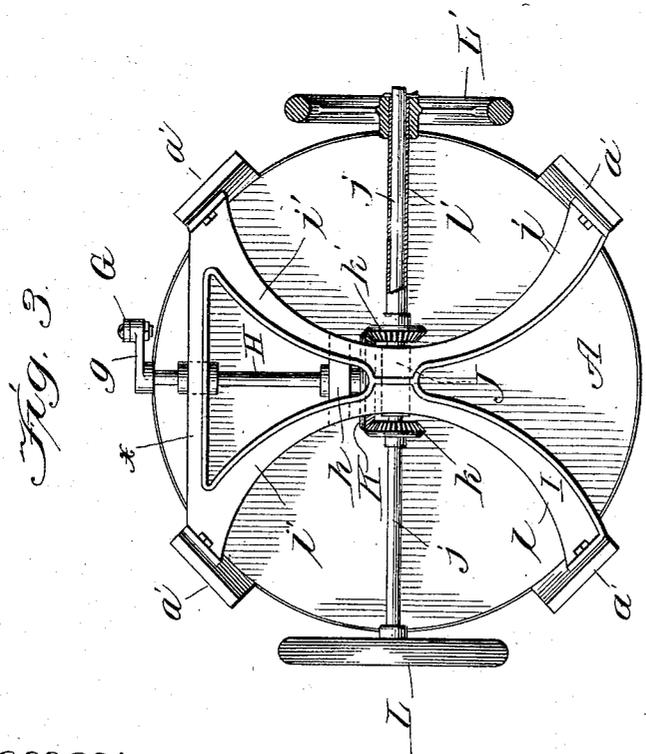
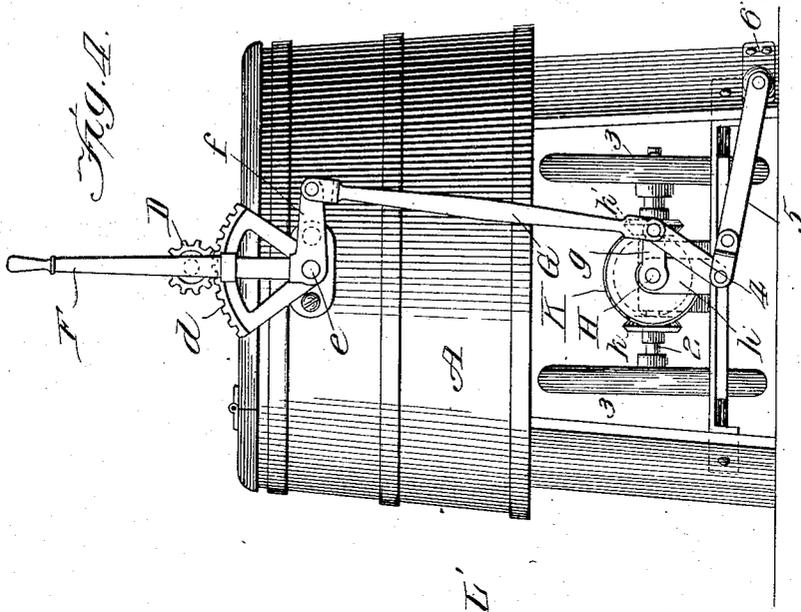
Alexander I. Victor
 by Frank D. Thumason
 Attorney

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 E. Lundy

Inventor:
 Alexander F. Victor
 by Frank Harrison
 attorney

UNITED STATES PATENT OFFICE.

ALEXANDER FERDINAND VICTOR, OF TOLEDO, OHIO.

MECHANICAL MOVEMENT.

976,953.

Specification of Letters Patent. Patented Nov. 29, 1910.

Application filed March 11, 1909. Serial No. 482,764.

To all whom it may concern:

Be it known that I, ALEXANDER F. VICTOR, a subject of the King of Sweden, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a clear, full, and exact description.

My invention relates to gearing for actuating the dasher or stirrer-shaft of washing machines, churns and similar mechanisms. Its object is to utilize the momentum of a balance or fly-wheel to assist in the reversal or rotary reciprocal movement of the said stirrer shaft, and also to provide simple and effective means whereby the equilibrium of the tub or machine is positively secured. I accomplish this in a simple and efficient manner by the novel means hereinafter fully described, and as more particularly pointed out in the claims.

In the drawings:—Figure 1 is a vertical side elevation of a washing machine, showing my improvement applied thereto. Fig. 2 is a vertical side elevation of the same looking at the machine in a plane at right-angles to that in Fig. 1. Fig. 3 is a bottom plan view of a tub showing the manner of applying my improvements thereto and illustrating in detail the supporting bracket for the speed-increasing gearing. Fig. 4 is a vertical side elevation, similar to Fig. 1 of a modified construction of my elevation.

Referring to the drawings, A represents a suitable tub that is preferably provided with four equi-distant legs or other supports *a'* on which the tub body is elevated a suitable distance above the floor. The tub is preferably provided with the usual two-part top or cover the smaller segment of which is permanently secured to said tub and the remaining larger portion hinged to said smaller portion and forms a lid on which a portion of the reversing mechanism is adapted to be mounted in a supporting frame *b*. At the center of this top are suitable bearings in the frame *b* in which the agitator or stirrer shaft *a* is journaled in such manner that it has free longitudinal movement as well as having a rotary reciprocal movement therein. The upper end of this shaft *a* extends through its bearings and is provided with a horizontally disposed bevel-gear B, that meshes with a vertically disposed bevel-gear C secured on the adjacent end of a horizontal shaft *c* extending

radially from said vertical shaft or agitator across the top of the tub and projecting a slight distance beyond its bearing in the outer end of the frame *b*. At its outer end this horizontal shaft *c* is provided with a pinion D that is adapted to engage a segmental rack *d* mounted on a suitable pivotal stud projecting from a screw-plate secured conveniently to the side of the tub. The converging arms of the segmental rack merge into and form an upwardly projecting socket that is adapted to removably receive the lower end of an operating lever F. It will be seen that, by moving said lever backward and forward, a rotary reciprocal movement is given to the horizontal shaft *c*, that is transmitted through gears B and C to the stirrer or dasher shaft *a*. This arrangement of the rack and pinion also permits the lid of the tub to be readily raised or closed by the operator without necessitating the lifting of all of the operating mechanism as is so often the case.

The pivotal boss of the segmental rack is preferably provided with an arm *f* projecting laterally therefrom in a plane tangential to the circumference of the tub, and preferably in a horizontal plane. The outer end of this arm is connected by a pitman G with the end of a crank *g* on the end of a horizontally disposed continuously revolvable shaft H that is mounted below the horizontal plane of the bottom of the tub. The bearings for this shaft H preferably comprise studs *h*, *h*, arising from a suitable horizontally disposed supporting-plate or brace I. This brace is preferably provided with four segmentally curved arms *i*, *i*, and *i'*, *i'*, the outer ends of each of which is suitably connected and secured to one of the legs of the tub substantially in the manner shown in the bottom plan view (Fig. 3). The ends of arms *i'*, *i'*, are connected by the webbing of a horizontally disposed bar *w*, which, at about its center of length, is provided with a bearing stud *h* for the outer end of the shaft H. At the point where these arms merge together, preferably at the center of the bottom of the tub, is a suitable boss that is provided with two bearings at right-angles to each other. Bearing J, which is the longer of the two, preferably acts as the journal for an elongated shaft *j* that extends through the same and out beyond the vertical plane of the side of the tub. The shorter bearing acts as the journal

for the inner end of the shaft H, which, near said bearing boss, is provided with a large bevel-gear K secured fast thereon. On each side of its central bearing shaft *j* is adapted to carry a bevel pinion *k* and *k'* that is smaller than and adapted to mesh with and be driven by said gear K. Mounted on the outer ends of shaft *j* are suitable fly-wheels L, L'.

In order that the fly-wheel L' may be revolved in the opposite direction from the shaft *j*, I mount said fly-wheel L' and the bevel pinion *k'* on a longitudinally elongated sleeve *l'* that preferably entirely surrounds said shaft *j* from its central bearing to the outer end adjacent to the fly-wheel L'. By this construction the two fly-wheels are adapted to be rapidly turned or speeded in the opposite directions thus insuring the equilibrium of the tub at all times, and cause the said fly-wheels to act with a gyroscopic effect to prevent the accidental over-turning of said tub.

In Fig. 4 of the drawings I show a slightly modified construction wherein the balance-wheel shaft 2 is shortened as shown in order that the balance wheels 3, 3, will be disposed beneath the tub within the circumference of the bottom of the same.

In order to assist in the operation of the mechanism hereinbefore described it might be found desirable to operate the mechanism by foot power and to do this I connect the crank *g* by means of a link 4 with a suitable foot-treadle 5 and mount the pivoted end of the latter on a horizontal stud projecting laterally from a screw-plate 6 that is secured to an adjacent leg of the tub substantially as shown.

In this modified machine the construction of all the other operating parts are substantially the same as those described and shown in connection with the preferred form of my invention, excepting as relates to the balance-wheel shaft and treadle.

What I claim as new is:—

1. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, two balance-wheels mounted upon a common shaft, and means including speed-increasing mechanism connected to said lever below its fulcrum for revolving said balance-wheels in opposite directions.

2. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, balance wheels mounted on opposite ends of the same, and means including speed-increasing mechanism connected to said lever below its ful-

crum for revolving said balance-wheels in opposite directions.

3. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve on one end of said horizontal shaft, a balance-wheel on the outer end of said sleeve, and a balance-wheel on the opposite end of said shaft and adapted to revolve in the opposite direction to the balance-wheel on the end of said sleeve.

4. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve on one end of said horizontal shaft, a balance-wheel on the outer end of said sleeve, a balance-wheel mounted on the opposite end of said shaft, and means connected to said lever below its fulcrum for revolving said balance wheels.

5. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve on one end of said horizontal shaft, a balance-wheel on the outer end of said sleeve, a balance-wheel mounted on the opposite end of said shaft, and means connected to said lever below its fulcrum for revolving said balance wheels in opposite directions.

6. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a suitable support in which said shaft is journaled and provided with legs, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed spider-frame below said reciprocal shaft and connecting the legs of said support, a horizontally disposed shaft having its bearings in said support, balance wheels mounted on opposite ends of the same, and means connected to said lever below its fulcrum for revolving said balance-wheels in opposite directions.

7. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, balance wheels mounted on opposite ends of the same, a rotatable shaft connected at one end to said lever and means including speed-increasing mechanism at its opposite end for revolving said first-mentioned horizontal shaft.

8. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, balance wheels mounted on opposite ends of the same, a rotatable shaft connected at its outer end to said lever and a pinion on its opposite end, and speed-increasing gears on said first-mentioned horizontal shaft meshing with said pinion and adapted to revolve said balance wheels.

9. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, balance wheels mounted on the opposite ends of the same, a rotatable shaft connected at its outer end to said lever and a pinion on its opposite end, and speed-increasing gears on said first-mentioned horizontal shaft meshing with said pinion and adapted to revolve said balance-wheels in opposite directions.

10. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve loose on one end of said horizontal shaft, balance wheels mounted on said shaft and sleeve, and a rotatable shaft connected at one end to said lever and means at its opposite end for revolving said first-mentioned horizontal shaft and sleeve in opposite directions.

11. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve loose on one end of said horizontal shaft, balance-wheels mounted on said horizontal shaft and sleeve, a rotatable shaft connected at one end to said lever, and speed-increasing means interposed between the end of said last-mentioned rotatable shaft and said first-mentioned horizontal shaft and sleeve

for revolving the latter in opposite directions.

12. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve loose on one end of said horizontal shaft, balance-wheels mounted on said horizontal shaft and sleeve, small pinions mounted on the inner end of said sleeve and the adjacent portion of said first-mentioned horizontal shaft, and a large gear mounted on the end of said last-mentioned horizontal shaft and engaging said pinions.

13. Means for operating a washing machine comprising a vertically disposed rotary reciprocal shaft, a vertical lever, means connected thereto above its fulcrum for actuating said shaft, a horizontally disposed shaft below said reciprocal shaft, a sleeve loose on one end of said horizontal shaft, balance-wheels mounted on said horizontal shaft and sleeve, small pinions mounted on the inner end of said sleeve and the adjacent portion of said first-mentioned horizontal shaft, and a large gear mounted on the end of said last-mentioned horizontal shaft and adapted to engage said pinions and revolve said balance-wheels in opposite directions.

14. Means for operating a washing machine comprising a suitable support, a vertically disposed rotary reciprocal shaft journaled in the same, a horizontally disposed rotary reciprocal shaft, means operatively connecting the said shafts, a lever connected above its fulcrum to said horizontal shaft, balance-wheels below said reciprocal shafts and revoluble in opposite directions, and means including speed-increasing mechanism below the fulcrum of said lever for operatively connecting said lever and said balance-wheels.

In witness whereof I have hereunto set my hand this 20th day of February, 1909.

ALEXANDER FERDINAND VICTOR.

Witnesses:

J. LARS HOFTRUP,
F. H. CHATFIELD.