(No Model.)

D. J. ALLEN.

WASHING MACHINE.

No. 341,306. Patented May 4, 1886.

FIG 2.

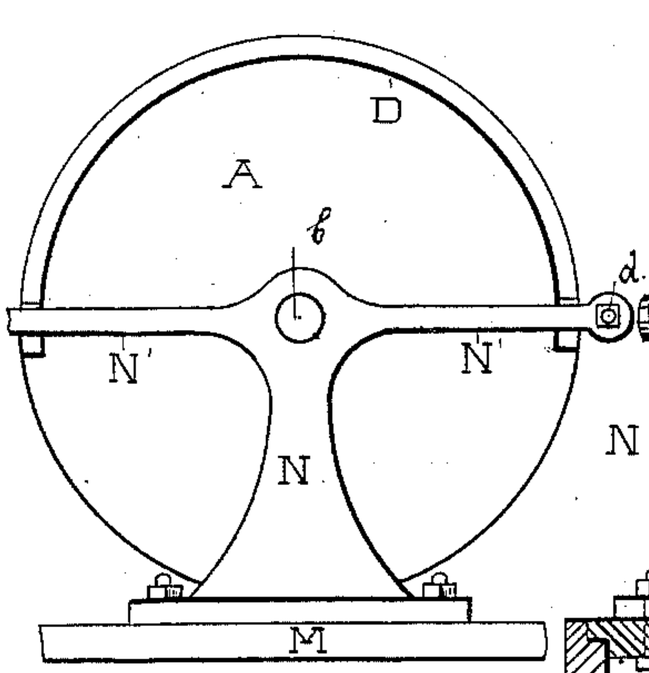


FIG 1.

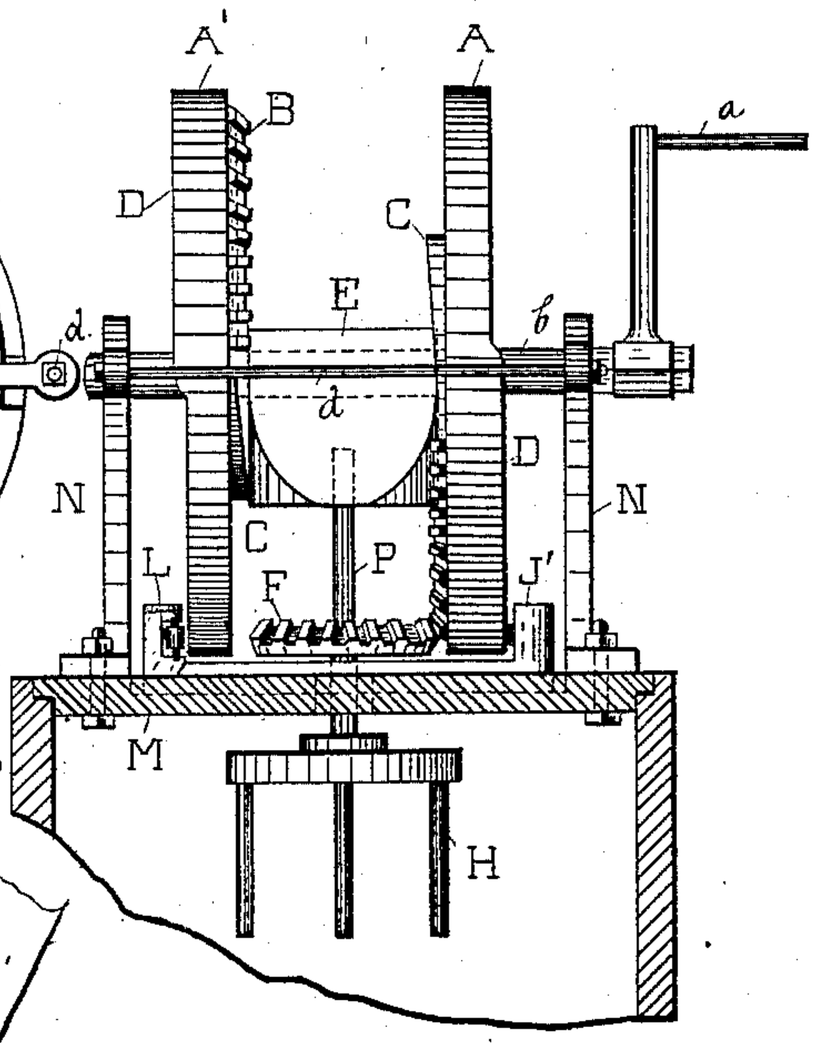


FIG 3.

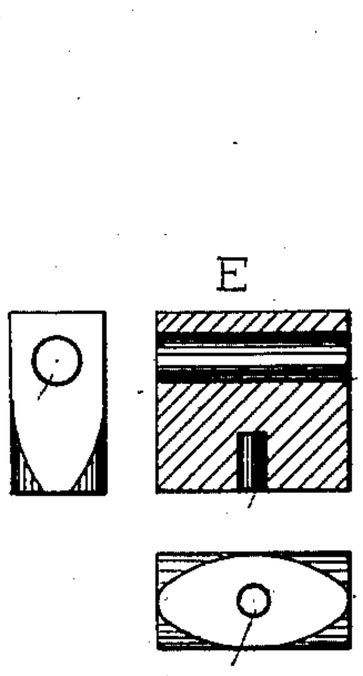


FIG 4.

FIG 5.

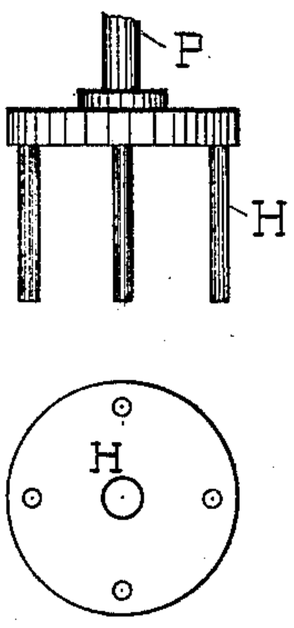


FIG 6.

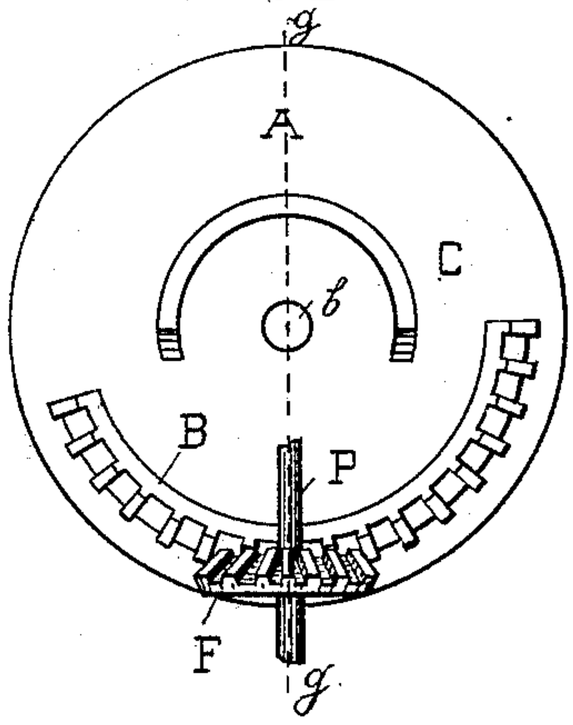
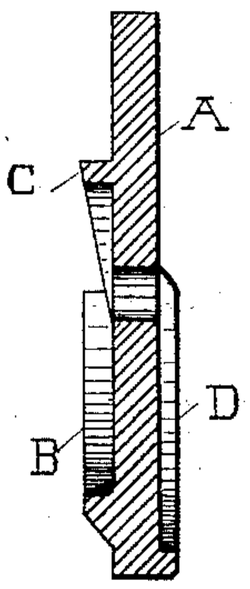


FIG 7.



WITNESSES:
Charles Weber.
M. Vandeverse

INVENTOR,
D. J. Allen
BY J. R. Higdon
ATTORNEY.

UNITED STATES PATENT OFFICE.

DANIEL J. ALLEN, OF LISBONVILLE, MISSOURI.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,306, dated May 4, 1886.

Application filed December 2, 1885. Serial No. 184,419. (No model.)

To all whom it may concern:

Be it known that I, DANIEL J. ALLEN, of Lisbonville, Ray county, Missouri, have invented certain new and useful Improvements in Washing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to certain improvements in machines that may be adapted to be used either as a washing-machine or a churn; and it may be said to consist in the devices and combination of devices hereinafter set forth, and pointed out in the claim.

In the drawings, Figure 1 represents a sectional elevation of the upper part of a washing-machine tank having the driving mechanism of my machine attached thereto. Fig. 2 is a side view of the driving mechanism from the left hand in Fig. 1. Fig. 3 represents several detail views of the vibrating cross-head used in making up the machine. Fig. 4 is a perspective view of a portion of the cover of the machine and the slide which carries the shaft of the dasher or plunger. Fig. 5 is a detail elevation and an inverted view of the dasher. Fig. 6 is a side view of the driving mechanism from the left hand in Fig. 1, the cross-head and one of the driving-wheels being removed from the driving-shaft; and Fig. 7 is a section through Fig. 6 on line *g g*.

It will be seen that the machine is of that class in which a reverse motion is imparted to the agitating device.

The letters A A′ represent a pair of driving wheels or disks having formed upon one of their respective sides a segmental row of teeth, B, and a small segmental cam-surface, C, said cam-surface being located diametrically opposite the teeth. Upon the outer side of each of the wheels A and A′, and extending about half-way around, as do the teeth B and the smaller cams C, a cam-surface, D, is formed. This latter cam-surface is located diametrically opposite the before-mentioned cam C.

A pair of standards, N, are affixed to the cover of the washing-machine tank M by any suitable means, and they are formed with laterally-projecting brace-arms N′, by means of which the standards may be connected securely together. The outer ends of said brace-arms have eyes formed in them for the reception of transverse brace-rods *d*, which extend from the arms of one standard to those of the other, and so tend to form a strong and substantial framing for the driving mechanism of the machine.

A driving-shaft, *b*, carrying a hand-crank, *a*, upon one end, is journaled in the upper portion of the standards, and the wheels A A′ are securely fixed thereon at such a distance apart as will correspond to the diameter, or a little more than the diameter, of the pinion F, located on the vertical dasher-shaft P. Said dasher-shaft P carries the dasher H upon its lower end, and it carries a vibrating cross-head, E, on its upper end; but said shaft is not rigidly fixed in such cross-head; on the contrary, it should be free to revolve in its bearing in the cross-head.

The cross-head E is loosely mounted upon the driving-shaft *b* between the driving-wheels, and by contact of its respective sides with the small cams C as the driving-wheels are revolved it is adapted to carry the upper end of the dasher-shaft first a little to one side and then to the other side, as will be explained farther on.

In the upper surface of the cover of the tank M a guiding-slot, *e′*, is formed for the reception of the pinion-carrying slide J. A tongue, *e*, is formed upon the lower side of said slide, and when the slide is in place engages said slot, and during its vibratory movement holds it in proper position upon the cover of the machine.

The dasher-shaft P passes through the pinion F, to which it is rigidly attached, and it passes downward through a hole, *f*, in the slide J, and through an oblong aperture, *f′*, in the cover of the tank M. Upon each end of the slide J vertical projections J′ are formed, and are adapted to be respectively engaged by the cam-surfaces D upon the outer faces of the driving-wheels.

It is evident, then, that when the parts are arranged and located as regards each other as I have shown and described them the dasher-shaft P will be vibrated in a vertical line when the hand-crank *a* is rotated. For instance, it will be observed that the small cams C move and guide the upper end of the dasher-shaft

independently of the slide J and the cams D, which move and guide the lower end, thereby retaining said shaft in a vertical position during every part of its operation.

Anti-friction rollers—such as L—can be located in or applied to the projections J′ of the slide J, so as to be engaged by the cams D, as may be desired.

Upon a continuous rotation of the hand-crank *a* the pinion F will first engage the teeth of one driving-wheel and then the other, and the described cams will cause it to vibrate in a vertical line; hence the motion of the said pinion, and also the dasher carried by the dasher-shaft, will be reversed intermittently, and the clothes that may be engaged by the dasher H will be most rapidly and thoroughly cleansed.

A balance-wheel can be located upon the end of the drive-shaft that is opposite the crank, if desired.

Having thus described my invention, what I claim is—

The combination of the standards N, located upon the tank, the driving-shaft *b*, journaled therein and carrying the driving-wheels A A′, which are provided with a segmental row of teeth on their inner sides, a cross-head located between said wheels, cams C on the inner sides of the wheels, for reciprocating said cross-head, dasher-shaft P, having its upper end journaled in said cross-head and carrying the pinion F and the dasher H and slide J, and cams D upon the outer sides of the drive-wheels for reciprocating said slide, substantially as described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL J. ALLEN.

Witnesses:

JOHN W. NORTON,

JAS. F. MISTER.