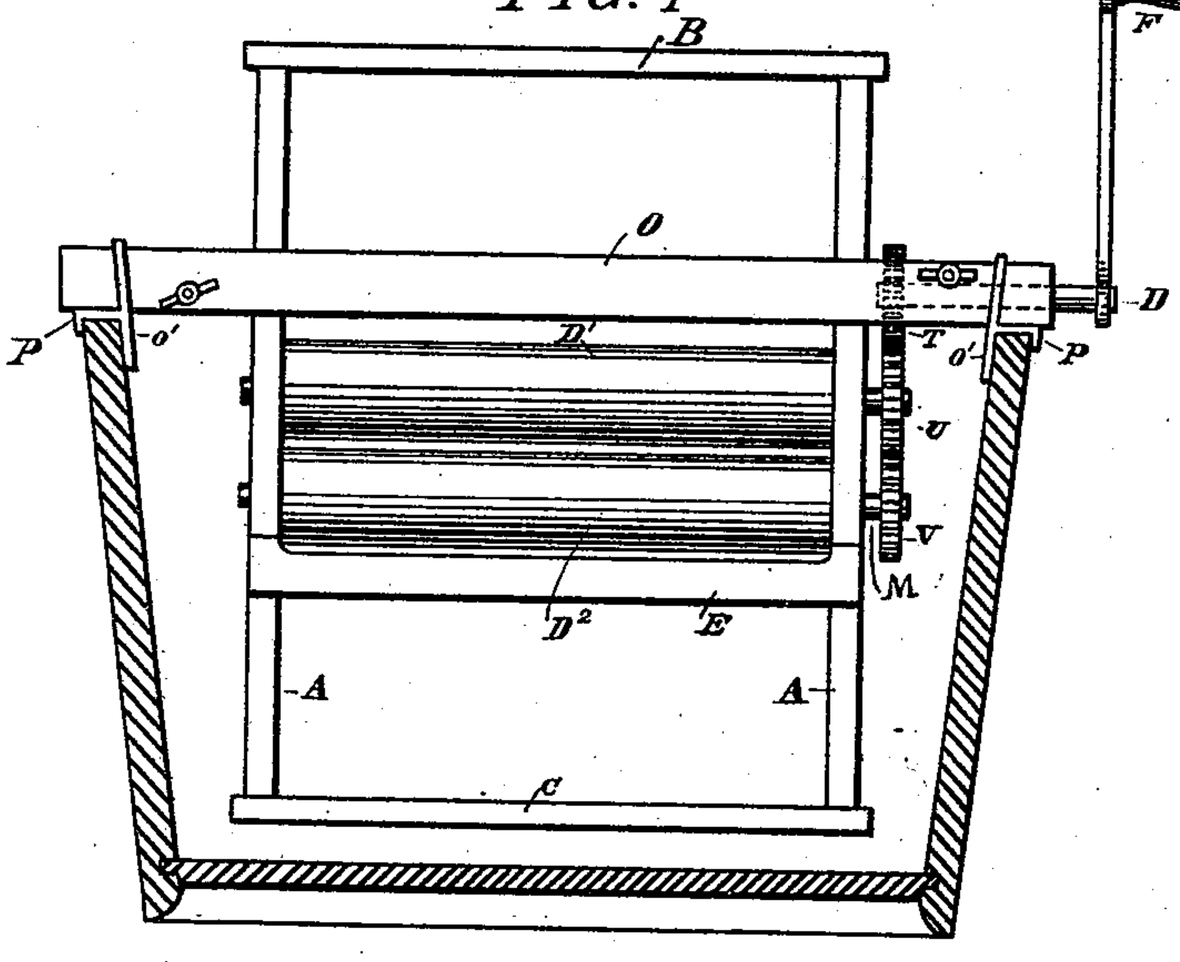
(No Model.)

H. M. HAMILTON.

WASHING MACHINE.

No. 563,484. Patented July 7, 1896.

FIG. 1



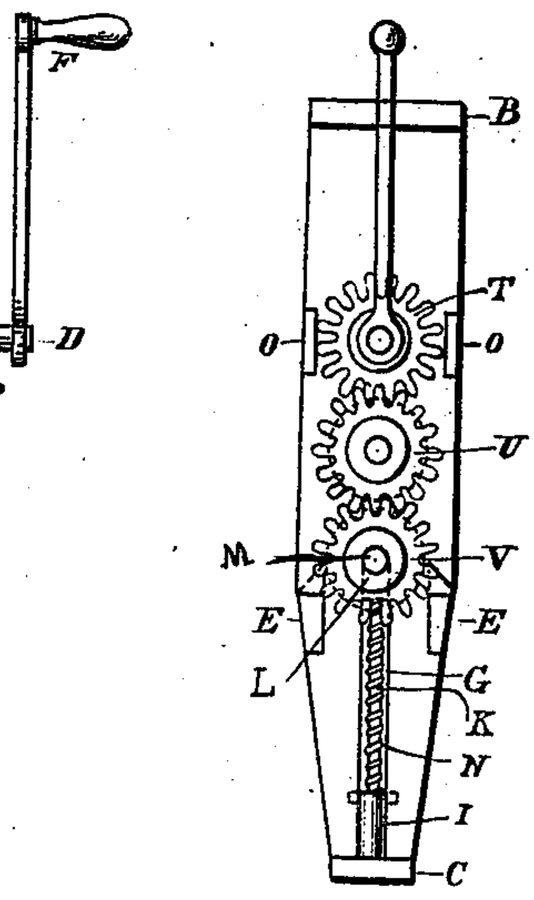


FIG. 2.

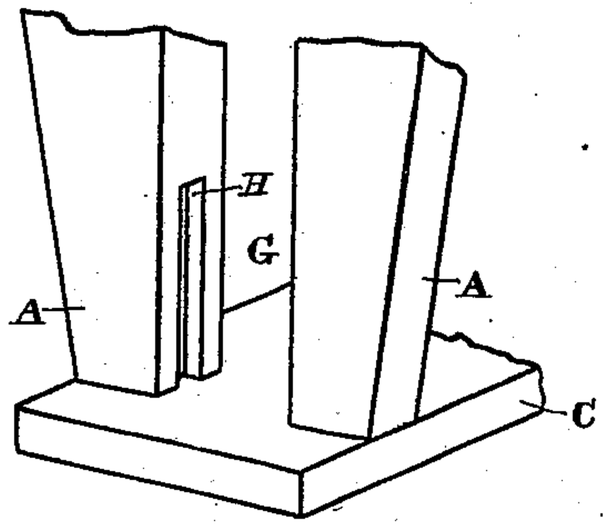


FIG. 3

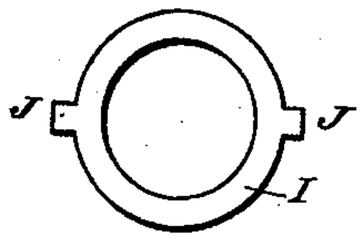


FIG. 4.

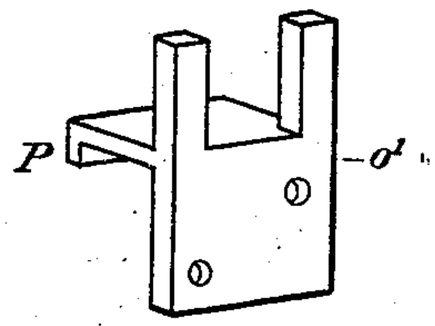


FIG. 5.

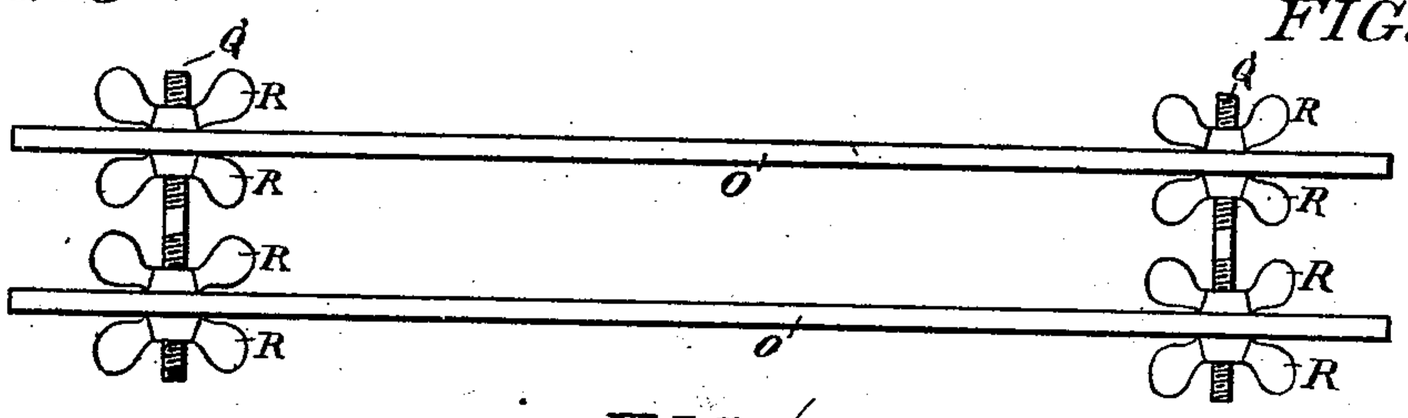


FIG. 6.

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HENRY M. HAMILTON, OF MILLSTONE, NEW JERSEY.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,484, dated July 7, 1896.

Application filed August 16, 1893. Serial No. 483,308. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. HAMILTON, a citizen of the United States, residing at Millstone, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Washing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a cheap, simple, and effective washing-machine, so arranged as to be readily attachable to and removable from any tub or box and be easily operated by the user. I accomplish this by constructing a frame containing an upper and a lower roller, the upper having fixed journals, the lower movable journals constantly pressed upward by spiral springs in slotted ways in the lower parts of the end pieces of the machine-frame, such frame being fastened to a tub or box by means of a pair of clamping-bars, which are attached to opposite sides of the frame and clamp against fastening-plates attached to the sides of a tub or box, all of which will now be set forth in detail.

In the accompanying drawings similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a front view of my improved washing-machine. Fig. 2 is an end view of the same. Fig. 3 is an enlarged perspective view of the lower portions of the end pieces, showing the manner of constructing the same to receive thimbles with the longitudinal flanges thereon. Fig. 4 is an end view of the flanged thimbles for holding the lower ends of the spring-incased standards. Fig. 5 is a perspective view of the fastening-plate. Fig. 6 shows the clamping-bars with the bolts and nuts for increasing the pressure of said clamping-bars.

In carrying out my invention a frame is first constructed which is composed of two vertically-disposed end pieces A, which are held together in their proper relations by means of the top piece B and the bottom piece C. In the upper part of the frame a shaft D, without a roller thereon and with the cog-wheel T, is journaled through holes in the end pieces A. This shaft at one end projects out a suitable distance, to which a crank F is attached. Below this shaft is another shaft, having thereon the roller D′, which shaft of roller D′ is journaled at fixed points within holes in the end pieces and has thereon the cog-wheel U, engaging with the one on shaft D. Below the roller D′ and in contact therewith is the movable roller D″, having on its shaft the cog-wheel V, engaging with the cog-wheel on the shaft of the fixed roller D′, which movable roller D″ is made to press against the lower side of the fixed roller D′ by the coiled spring N and standard K. (Shown in Fig. 2.)

Figs. 3 and 4 show the peculiar construction of the bottom of the end pieces A and the manner of attaching the spring and standard.

The slotted way G has at the lower end in each face a groove H, which extends up a short distance, and in the slot is placed the thimble. (Shown in Fig. 4.) This thimble I has on opposite sides longitudinal flanges J, which flanges are adapted to enter the grooves H, and when driven into position and the bottom cross-piece C is secured in place and attached to the end pieces A are held firmly.

The standard K, which supports the shaft of the lower roller D″, passes down into the thimble I, while its upper end has a head L concaved, in which the journal M of the shaft of the lower roller D″ rests.

A coiled spring N is placed around the standard K, the lower end of which rests on the upper end of the thimble I, while its upper end presses upward against the concaved head L of the standard K. When a downward pressure is exerted on the roller D″, the standard K passes down into the thimble I, and the spring N keeps the roller D″ constantly pressed toward the fixed roller D′. These rollers are made of wood or other material. Bars E on each side of the lower roller are fastened at their ends to the end pieces A of the frame. These bars have their upper edges sharply beveled, which beveled edges are placed on a level with the center of the

roller D″, with the sharp edge close to it, so as to force the clothing as it emerges from the rollers over such bar, thus preventing it from getting under the roller.

In operating this washing-machine the crank is turned one way until the batch of clothing at the time in the machine runs nearly through the rollers. Then it is reversed until such clothing goes nearly through the other way, this operation being repeated until the clothes are clean. An attaching-plate (shown in Fig. 5) is provided, which is composed of a vertically-disposed plate O′, resting against the inner or outer face of the top edge of the tub or box, and cast integrally with this plate is a rib P, horizontal or nearly horizontal thereto, which rib rests on the upper edge of the tub or box. The plate is provided with screw-holes, so that it can readily be attached to the tub or box. Such fastening-plate has portions extending above the upper edge of the tub or box and a proper width between said portions for the inner or outer side surfaces of said portions to fit in a clamping way the opposite inner or outer surfaces of the parallel clamping-bars O of the machine. Where large rollers are used and the machine is wide, the bars may clamp the outer sides of the upper portions of the fastening-plates. When the machine is narrow, the bars may rest between the inner sides of said upper portions of such fastening-plates. These clamping-bars O are made of tough lumber, about two inches wide and one-fourth of an inch thick, and project beyond the sides of the tub or box. They are screwed to the end pieces A with their lower edges on a level with the lower side of the shaft D, so that the shaft D, which may be five-eighths of an inch in diameter, will be entirely below the center of the clamping-bars O, thus permitting the bolt Q to be put through the center of such clamping-bars.

Particular attention is called to an important use of the thimble I. Since the lower end of the frame which carries the standard K is within the water and surrounded by the clothing, it is desirable to provide a means for preventing the standard, as it moves up and down, from engaging with the clothing. This is accomplished by the thimble I, because the lower end of the standard, being incased therein, will never pass down below the thimble, and hence can never reach the clothing in the tub or box.

The operating-shaft is located directly between the clamping-bars which attach the frame to the tub or box, because considerable power may at times be exerted on the crank, and with this arrangement the machine is most firmly held to its moorings by the mere clamping power of these clamping-bars, pressing against the inner or outer side surfaces of the upper portions of said fastening-plates. In practice it is found that a very slight frictional contact of said clamping-bars upon said inner or outer side surfaces of said fastening-plates serves to hold the machine firmly in position while in operation. This relative arrangement of the operating-shaft and said clamping-bars is regarded as an essential feature. To provide against the possibility of said clamping-bars losing their clamping-pressure, and for increasing such clamping-pressure at any time, a bolt Q, with threads on each end, is employed, which bolt passes through the center of the projecting ends of the clamping-bars O above the operating-shaft D, and thereby said clamping-bars may be forced together or asunder by means of the four nuts R R R R. By this clamping-bar device the machine may be readily attached to and removed from a tub or box, which is accomplished by simply pressing the ends of the clamping-bars together and down between said upper portions of said fastening-plates or asunder and down outside of said upper portions.

What I claim as new is—

1. A washing-machine having a pair of clamping-bars attached to opposite sides of the frame of the machine, extending outward beyond fastening-plates attached to the top of the tub or box a sufficient distance to be grasped outside said plates, firmly by the hand, with the operating-shaft intermediate between said clamping-bars, in combination with said fastening-plates; which fastening-plates have two upper portions extending above the rim of the tub or box a sufficient distance, and proper space between the side surfaces thereof for the side surfaces of said clamping-bars to fit, in a clamping way, the opposite side surfaces of said upper portions, substantially as described.

2. In a washing-machine provided with clamping-bars attached to opposite sides of the machine and opposite to the operating-shaft, the bolts and nuts for distending and compressing said clamping-bars and thus increasing their clamping-pressure in combination with said fastening-plates, substantially as described.

3. In a washing-machine frame having the vertical slots at their lower ends, the grooves on the inner faces of said slots for introducing the thimbles, in combination with thimbles having longitudinal flanges or ribs on their outer sides to rest in the grooves in said slots, and the lower horizontal bar for holding said thimbles in position with standards within spiral springs working in said slotted ways and thimbles, substantially as described.

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

HENRY M. HAMILTON.

Witnesses:
WM. A. PULIS,
NATHANIEL MCCONAUGHY.