

J. M. GROVER.
WASHING MACHINE.

Patented Nov. 17, 1896.

Fig. 1.

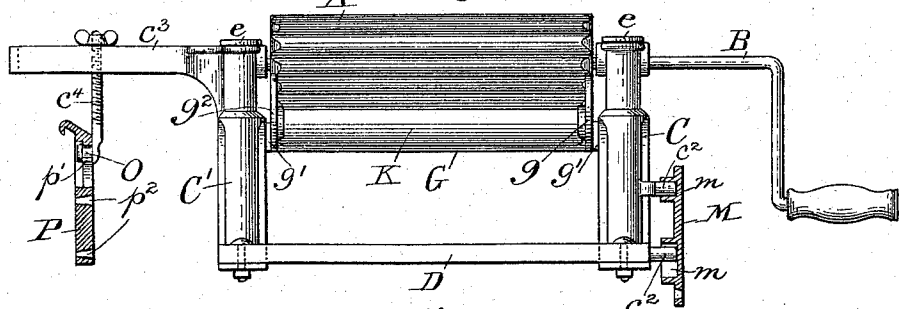


Fig. 2.

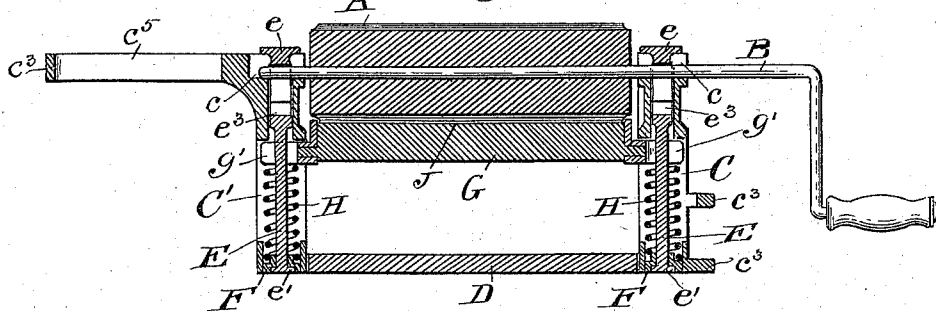


Fig. 3.

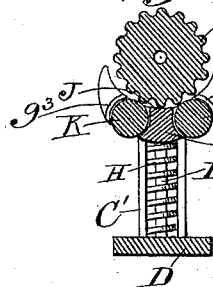


Fig. 4.

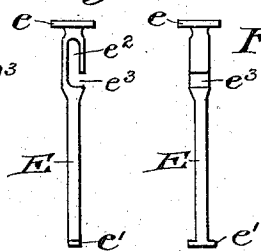


Fig. 5.



Fig. 6.



Fig. 7.

Fig. 8.



Fig. 9.

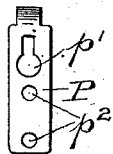
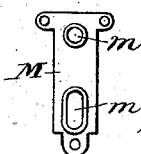


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHNSON MAITLAND GROVER, OF TORONTO, CANADA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,475, dated November 17, 1896.

Application filed November 11, 1895. Serial No. 568,622. (No model.)

To all whom it may concern:

Be it known that I, JOHNSON MAITLAND GROVER, publisher, residing at Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to washing-machines, and its objects are to produce an effectual washer which can be easily taken apart, is of simple construction and operation, is adjustable to vessels of different sizes and capable of receiving without alteration articles to be washed of varying thickness, and which is productive of a certain new and useful action in the operation of washing, whereby a thorough cleansing of the articles to be washed is accomplished.

To these ends my invention consists of a washing-machine having an upper corrugated roller carried and adapted to be turned by a crank-arm and below said upper roller a rocker having secured thereto two independently-rotatable compressing-rollers, said rocker and upper roller supported at each end of the apparatus in tubular standards fixed to a base of wood or other material, means within the tubular standards to keep the upper roller and rocker normally in contact, while permitting them to separate, and means to adjustably attach the machine to a washing vessel, all as more fully hereinafter described and particularly claimed.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view in elevation, showing brackets for attachment; Fig. 2, a central longitudinal section; Fig. 3, a transverse sectional view through roller and rocker; Figs. 4 and 5, details showing the spring-retaining and roller-supporting rod, and Figs. 6 and 7 details of locking device; Fig. 8, a rear end view of rocker-plate, and Figs. 9 and 10 details of brackets to support machine.

Referring to the drawings, A is the upper roller, supported and adapted to be turned by the crank-arm B, which is provided with a crank-handle.

The roller A may be of wood, vulcanized

rubber, or like material, and is provided on its surface with longitudinal corrugations or ridges.

The crank arm or shaft B is supported in slots *c* of tubular standards C C', which standards are fixed to the base D of the machine by screw bolts and nuts or other suitable means.

Passing through each of the tubular standards is a rod E, having a flanged top or cap *e*, which rests on the top of the standard, the other end of the rod being provided with lugs *e'*, which engage with a cross-slotted locking-washer F to lock the rod in place. Near its upper end the rod E is provided with a vertical slot *e*², in which the shaft of the upper roller A is held and turns. A horizontal opening *e*³ in this slot permits the shaft and roller to be removed from the machine when the rod is unlocked and raised.

G is a rocker having a slightly-concave upper surface J and a convex under surface and placed below and in contact with the corrugated roller and having at each end a forked arm or arms *g'*, which enter the tubular standard and loosely embrace the rod E. A strong coiled spring H supports these arms and also serves other purposes, as hereinafter described. The rocker G is provided with two independently-rotatable rollers K, one on each side of the plain surface portion J of the rocker. These rollers are in contact with the large corrugated roller and are controlled by the motion of the latter. The plain surface J, extending between the compressing-rollers K, constitutes a rubbing-board.

The coiled spring H, surrounding the rod E at its lower end, bears upon the locking-washer F and presses the same downward. This pressure pulls the rod E downward, and consequently the shaft of the upper roller held in the slot *e*². The flanged cap *e* of the rod prevents the latter from being drawn through the standard by the pressure of the spring. At its upper end the spring exerts a strong upward pressure against the forked arms of the rocker G, and thus keeps the rocker pressed closely against the corrugated roller. It will thus be seen that both at the

lower and upper ends of the spring the action of said spring tends to keep the upper roller and the rocker in close contact.

The tubular standards are identical in construction, except in respect to their means of attachment to the tub or other washing vessel. The standard C is provided near its lower end with two cylindrical projections or pins c^2 , one above the other, adapted to enter the holes m in the bracket M, (shown in Fig. 10,) which bracket is adapted to be fastened to the inner side of the vessel by screws or other suitable means. The standard C' has at its upper end a horizontal slotted arm c^3 , carrying a threaded bolt c^4 , having a thumb-nut. At its lower end this bolt has a projection O, adapted to enter the slot or keyhole p' in the bracket P, which is secured to the tub on the opposite side from that on which bracket M is placed by screws through screw-holes p^2 . The bolt c^4 can be moved along the arm c^3 in the slot c^5 therein and adjusted to vessels of any size.

In the operation of washing, after the apparatus has been secured to the interior of the washing vessel by the means above described, the clothes or other articles to be washed, after having been well soaked, are placed between the upper roller and the rocker and the former turned by the crank-handle. In revolving the corrugations of the upper roller, pressing against the material being washed, cause the lower rollers to turn, permitting the articles to pass through. By the peculiar construction of the rocker provided with the compressing-rolls and a rubbing-board and the upper roller provided with corrugations the clothes are subjected to a squeezing and wringing action, and by means of the open forked arms of the rocker, which permit the rocker-plate to rock on the springs H, a rubbing action is also obtained, by which a thorough cleansing of the articles is effected. Owing to the spring action by which the compressing power is obtained the roller and rocker will yield and separate or approach each other to accommodate articles of different thickness and buttons on the clothing will be allowed to pass through without being torn off or destroyed.

From the foregoing description of the parts of the machine it will be seen that the appa-

ratus can be easily and quickly taken apart or put together.

Having thus described my invention, what I claim is—

1. In a washing-machine, in combination with the roller-shaft, the tubular standard, slots in said standard to receive the shaft, a detachable supporting-rod within said standard, said rod having a vertical slot to receive said roller-shaft, and an opening in said slot, whereby the roller-shaft may be removed when the rod is detached, substantially as described.

2. In combination with the upper roller and the rocker, the tubular standard, open at each end, the slotted supporting-rod within said standard, said rod provided with a flanged top, a locking-washer, and means on the lower end of said rod to engage said washer, said rocker provided with supporting-arms entering the standard, and a spring confined between said arms and said washer, substantially as and for the purpose described.

3. In a washing-machine, in combination with a suitable roller, end standards for supporting said roller, each of said standards provided with a rod slotted to receive the axis of said roller, said rod provided with a flanged cap at its upper end and lugs at its lower end, and said standard provided with a cross-slotted washer to receive the lower end of the rod, substantially as and for the purpose described.

4. In a washing-machine, in combination with the standards, the projections on one of said standards, a bracket adapted to be secured to a vessel and provided with recesses to receive said projections, the other standard provided with the slotted arm, c^3 , the sliding screw-bolt, c' thereon, provided with the projection, G, and a bracket P secured to the vessel and having a slot adapted to receive said projection, whereby the machine may be secured to different-sized vessels, substantially as described.

Signed at Toronto this 4th day of October, 1894.

JOHNSON MAITLAND GROVER.

In presence of—

GEORGE HUNTER,
GEO. BENGOUGH.