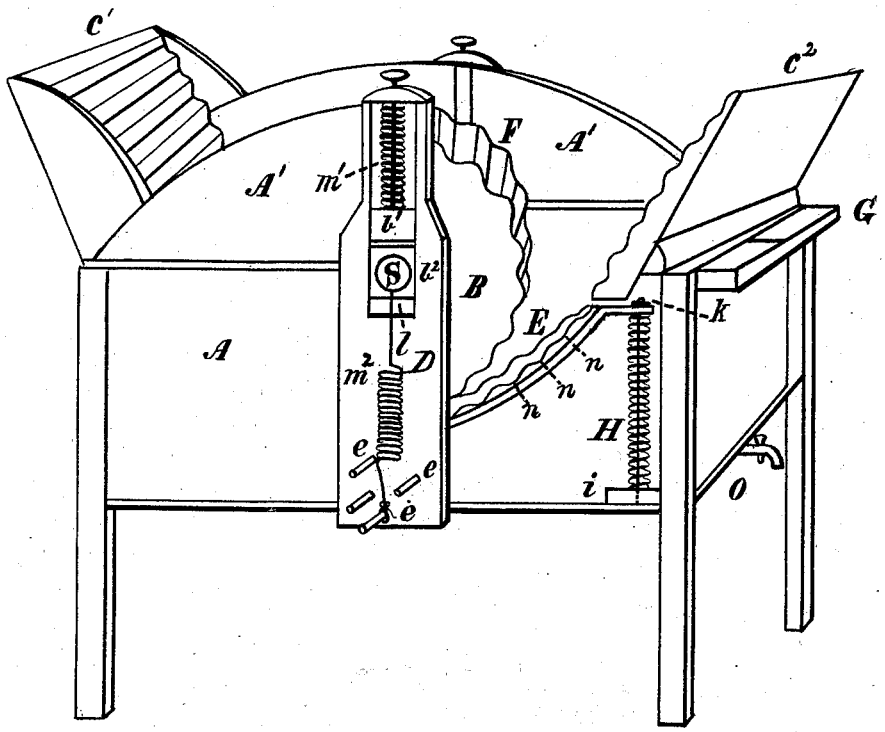
J. D. LAWLOR.

Washing-Machine.

No. 165,421. Patented July 13, 1875.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **165,421**, dated July 13, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that I, JOHN DENIS LAWLOR, of the city of Moutreal, in the county of Hochelaga, Province of Quebec and Dominion of Canada, manufacturer, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in washing-machines; and it consists in the novel combination, with a rectangular box having adjustable sides, of a corrugated cylinder arranged on a shaft journaled in slide-blocks moving within grooves in standards arranged upon each side of the box, and regulated by upper and lower springs, so as to allow the corrugated cylinder to yield when the same is adapted to be operated in connection with the inclined wash-boards at the ends, and the concave wash-board at the bottom, which is arranged and supported upon suitable springs, all as will be hereinafter more fully described, and pointed out in the claim.

In the accompanying drawing, which is to be taken as and form a part of this specification, I have represented the machine embodying my invention in perspective, leaving out one-half of a side of the tub, so as to expose the mechanism to view.

Like letters represent like parts.

A represents the rectangular tub, into which the water and suds are introduced; A′, the upper sides of the same, which may be detached, if necessary; B, the cylinder or roller with corrugated surface, as represented by F; S, the driving-shaft, by which a reciprocal or revolving motion is imparted to the roller B by means of a hand-pulley, or any suitable arrangement of an arm or arms affixed thereto. D represents one of the standards, which are affixed to the sides of the rectangular tub, and in which are two sliding blocks, b^1 and b^2, which run in grooves in the standard, as shown at *l*. In the block b^1 the spring-rod m^1 is fixed, which depresses both blocks, in the lower one of which is journaled the shaft S, on which the roller B is fixed, thereby causing it to exert a greater pressure than its own weight would insure, and consequently squeezing the suds and water from the clothes or articles between the roller and the yielding concave wash-board E, the suds and water passing off through the induction-perforations *n* into the tub beneath the yielding concave wash-board E. The spring m^2 is provided for the same purpose as the spring-rod m^1. Its upper end is fastened around the shaft S, between the hand-pulley or arm and the side of the tub, and the lower end, which is provided with a loop, may be attached to any of the four pins *e*, provided for the purpose, and arranged at different distances from the driving-shaft S, so as to regulate the pressure of the roller B. When desired—as if, for instance, in washing anything which requires more than ordinary pressure—the loops are slipped over the lowest pins on the standard, thus increasing the tension of the spring m^2, and consequently causing the roller to depress with greater force. E represents one end of the yielding concave wash-board, with its upper surface corrugated, it being secured in position by means of four spring-rods, H, placed vertically in each corner of the tub, and running through the corners of the wash-board, having their base in frustum-blocks *i*, the top of the rods H being secured in a cross-piece arranged at each end of the tub, just back of the lower edges of boards C^1 and C^2, the tops of the spring resting on the under side of the end of the yielding wash-board E, allowing it to yield when pressed down by the depression of the roller. The flexible wash-board may likewise be secured with a screw-bolt at each corner of it, as shown at *k*, to prevent it from being pushed off the bars H by the upward pressure of the springs beneath. A′ represents the upper part of the sides of the rectangular tub A, which may be made detachable. C^1 C^2 represent side pieces with corrugated surfaces, which may be arranged in either a vertical or inclined position, their lower edges being placed directly against the ends of the yielding wash-board E, as shown at *k*, where the screw-bolt prevents the wash-board E from coming loose from the spring-rods H, thus forming a continuous corrugated surface from the upper edge of board C^1 to that of C^2. G represents a receptacle at one end of the tub, for holding soap, &c.; and O, a tap for drawing off the suds and water when desired.

The mode of operating my invention is as follows: The water and suds are first introduced into the tub A, after which the clothes or articles which are to be washed are placed on the upper surface of the flexible concave wash-board E, and a reciprocal or rotary motion is imparted to the roller B by the means hereinbefore mentioned, thereby causing the clothes to pass between the under surface of the same and the upper surface of the flexible wash-board E, thus occasioning the rubbing and pressure which is necessary to secure the desired result, the suds and water passing off through the induction perforations *n*. The arrangement of springs m^2 and spring-rods m^1, in connection with the roller and the spring-rods H, which support and hold the concave flexible wash-board in place, I consider one of the most important points of my improvement, from the fact that they tend to equalize the pressure, and fit the machine for doing both the lightest and heaviest kinds of work—as, for instance, if it is desired to wash any small article, the pressure is comparatively light, from the fact that the same will not have the tendency to force the roller B and flexible wash-board E apart, whereas, if a blanket or any article of similar bulk is introduced between the yielding roller B and wash-board E, the roller B is forced up, and the spring-rod m^1 becomes more compressed, and consequently the higher the roller is lifted the greater the pressure exerted by the above-mentioned spring-rod m^1. The spring m^2 also has a greater tension as the roller is lifted, and consequently adds its power to that of the spring-rod m^1 and the weight of the roller, so the yielding wash-board E will be depressed when a bulky article is between it and the roller B, which will cause the spring-rods H to exert extra pressure as they are compressed.

The advantage of this extra pressure will be fully appreciated by those who are in the habit of washing bulky articles with the ordinary washing-machines now in use, which do not provide for the same amount of additional pressure as mine does.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a washing-machine, constructed as hereinbefore described, the combination of the rectangular box A, adjustable sides A′, inclined wash-boards C^1 and C^2, concave wash-board E, cylinder B, spring-rod m^1, having a regulating-spring, m^2, and spring-rod H, the several parts being constructed, combined, and arranged to operate substantially in the manner and for the purpose set forth.

JOHN DENIS LAWLOR.

Witnesses:
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