

*N<sup>o</sup> 43,982,*

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# UNITED STATES PATENT OFFICE.

THOMAS R. FERRIS, OF MONROE, MICHIGAN.

## IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. 43,982, dated August 30, 1864.

*To all whom it may concern:*

Be it known that I, THOMAS R. FERRIS, of Monroe, in the county of Monroe and State of Michigan, have invented a new and Improved Clothes-Washing Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of my invention; Fig. 2, a side sectional view of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

This invention consists in the employment or use of a spirally fluted cylinder, an endless apron, and concave, and also in the employment or use of a supplemental pressure-roller, all arranged and combined in such a manner that clothes may be washed without injury, and at the same time subjected to a requisite degree of pressure and friction to insure the work being done thoroughly and with a very moderate expenditure of labor and time.

A represents a suds-box, which may be constructed of wood, of rectangular form, and of any suitable dimensions.

B is a cylinder, which may be constructed of hard wood and fluted spirally at its periphery, as shown clearly in Fig. 1. This cylinder is placed transversely in the suds-box A, and directly below it there is an endless apron, C, which works over rollers *a a*, the latter having their journals fitted in bars D D, one end of which is secured by pivots or pins *b* to the sides of the suds-box. Each bar D has an upright rod, E, attached to it, and these rods pass up through bearings *c*, attached to the sides of the suds-box, and have spiral springs F upon them, the lower ends of which rest upon the bearings *c* and the upper ends bearing against nuts *d* on the rods E.

G is a concave placed between the bars D D and underneath the upper part of the apron C. This concave is formed of two longitudinal parts, *e e*, resting on one or more springs, *f*, which are attached to a bar, *g*, which is also secured between the bars D D. By turning the nuts *d* on the rods E the concave may be made to press more or less against the fluted cylinder B and the clothes which pass under

the cylinder upon the apron C subjected to a greater or less pressure, as may be desired. The endless apron is moved by means of a ratchet, H, on one end of one of the rollers, *a*, and a pawl, I, which is attached to a swinging bar, J, at one side of the suds-box, said bar J being operated by means of a cam, K, on the shaft of cylinder B, so as to move or turn the ratchet, and the return movement being given the pawl by means of a spring, *h*, attached to said bar. (See Fig. 2.)

L is a supplemental pressure-roller the journals of which are fitted in bars M M, secured at their outer ends by hinges *j* to the back or outer ends of the bars D D. The bars M M have each a rod, N, passing through them, the lower ends of said rods being attached to the bars D and having spiral springs O on them above the bars M, with a nut, *k*, bearing on each spring for the purpose of regulating their pressure, and consequently that of the roller, L on the apron C. (See Fig. 2.) This supplemental roller L, is designed to hold the clothes evenly as they pass under the cylinder B, and the latter, on account of its periphery being fluted spirally, subjects the clothes passing under it to a rubbing action, the pressure being obtained by a concave, G, acted upon by the springs F, the strength of which is graduated by the nuts *d*, as previously alluded to. The apron C is designed to move slowly compared with the movement of the periphery of the cylinder B, and hence the rubbing operation is rendered very efficient, and, in case a portion of the clothes requires more rubbing than they can get under the ordinary movement of the apron, the latter may be stopped entirely by drawing the pawl I out from the ratchet H, which may be done by pulling a cord, *i*, attached to the bar J. The concave G, it will be seen, is allowed to yield or give to suit the varying thicknesses of the clothes passing under cylinder B. The box A is supplied with a requisite quantity of suds.

I do not claim the rollers *a a* and apron C, arranged as shown, for they have been previously used; but,

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

1. The spirally-fluted cylinder B, in combination with the endless apron C and concave G,

arranged to operate substantially as and for the purpose set forth.

2. Operating the endless apron C through the medium of the ratchet H and the pawl I, the latter being attached to the swinging bar J, operated by a spring, h, and a cam, K, on the shaft of cylinder B, substantially as described.

3. In combination with the cylinder B and the endless apron C, the supplemental roller L, arranged and applied substantially as and for the purpose specified.

THOS. R. FERRIS.

Witnesses:

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