

M. A. Richardson

Washing Machine,

No. 66,740,

Patented July 16, 1867.

Fig. 3.

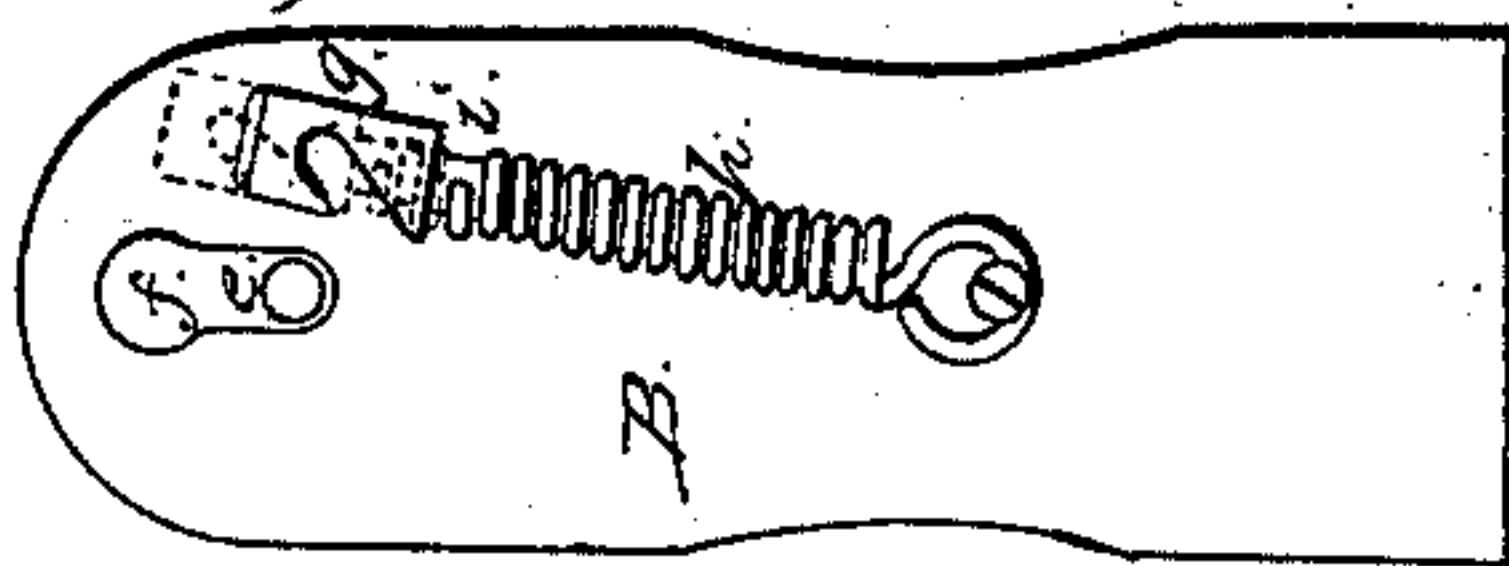


Fig. 1.

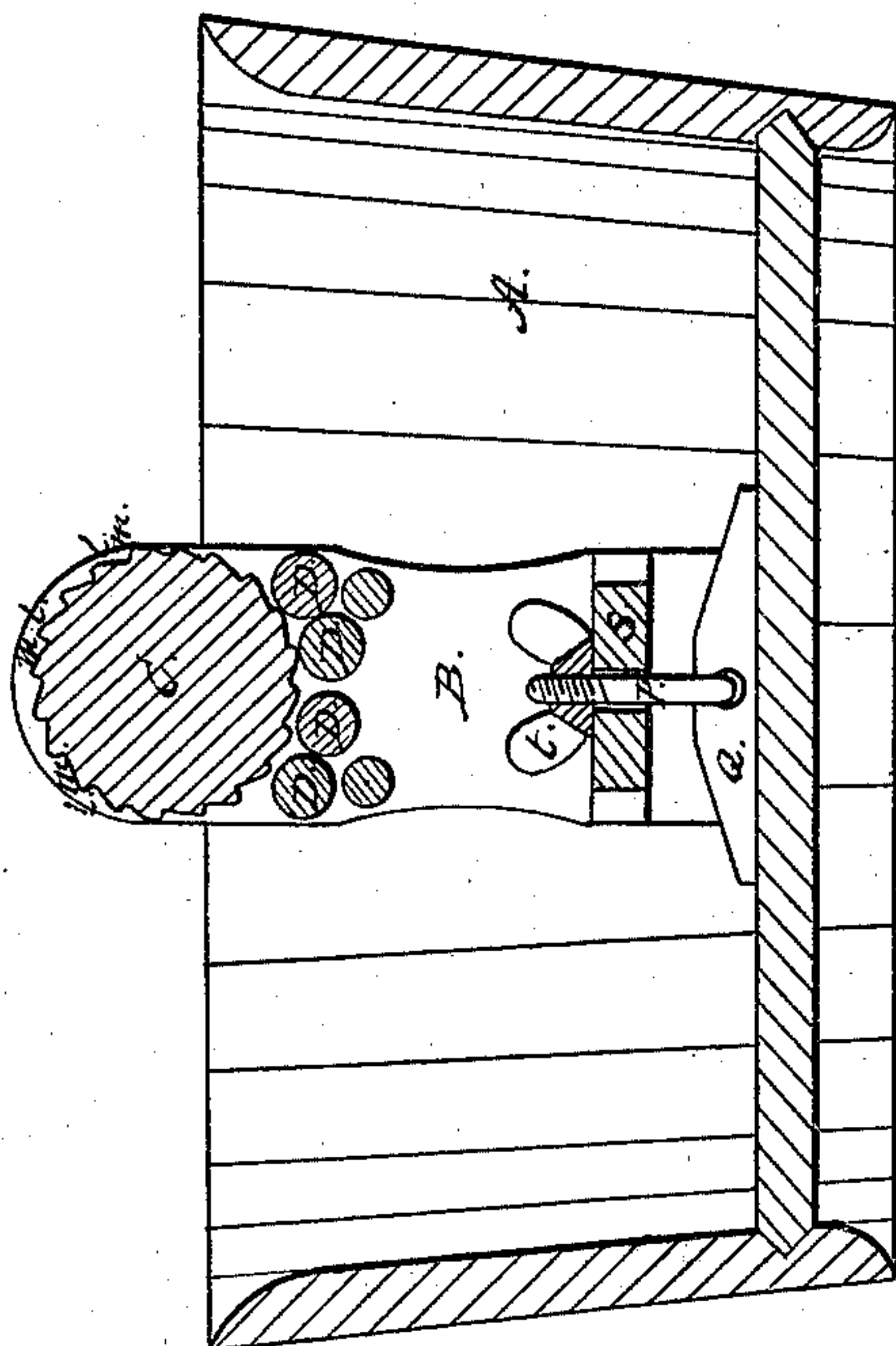


Fig. 4.

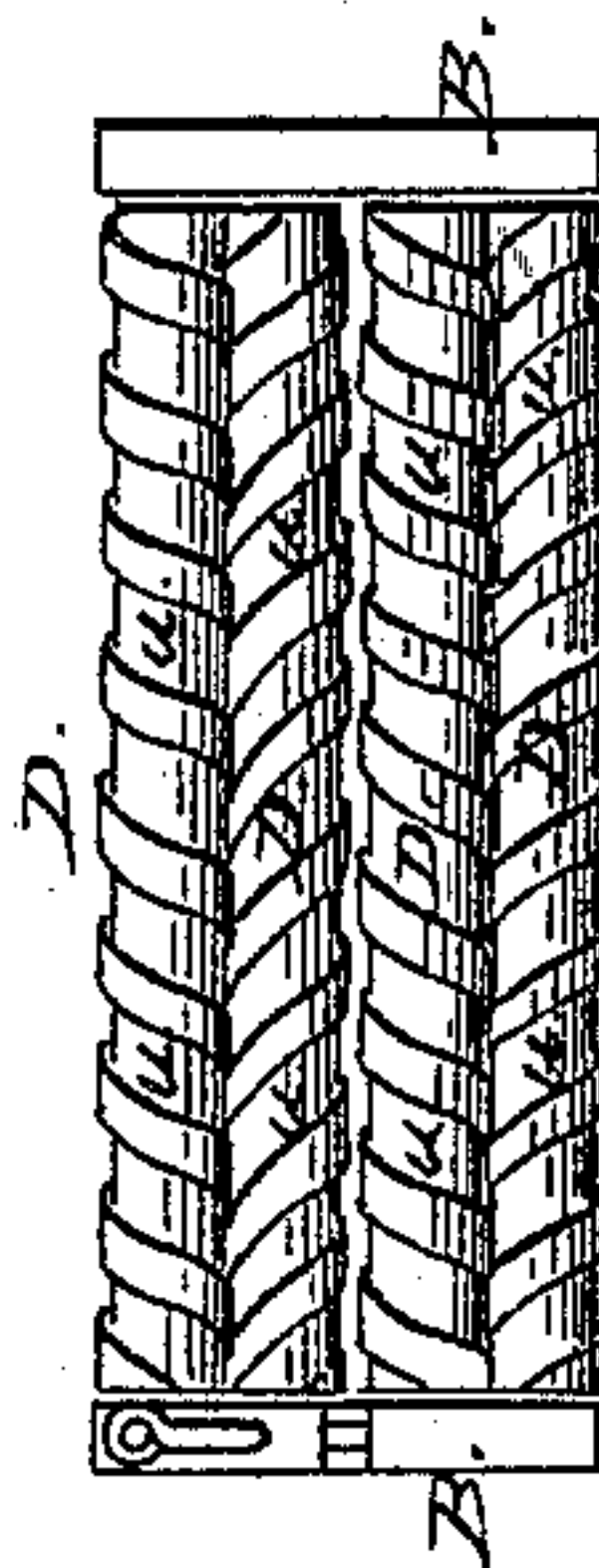
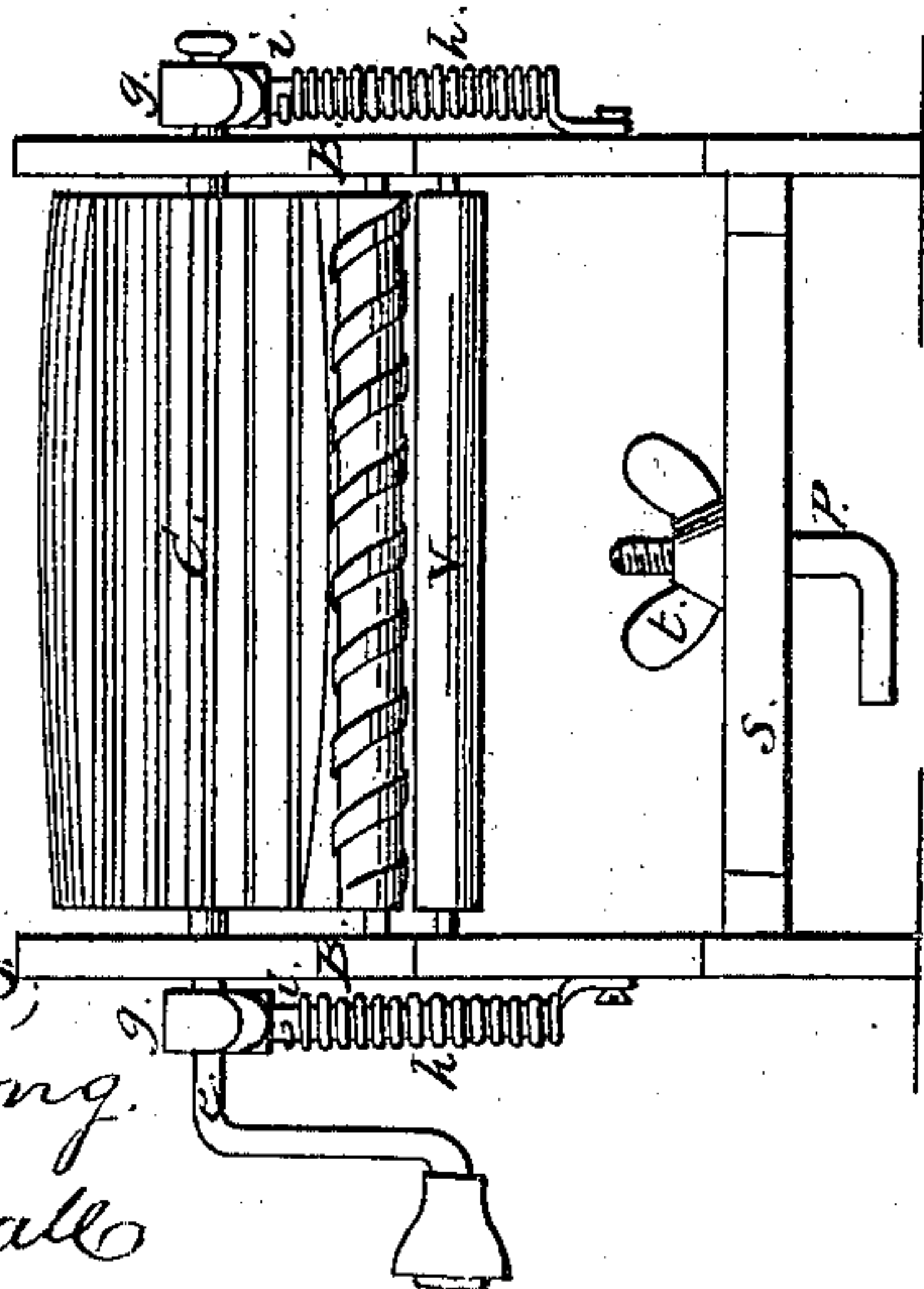


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

MILO A. RICHARDSON, OF SHERMAN, NEW YORK, ASSIGNOR TO HIMSELF
AND ALVA F. JENNINGS, OF THE SAME PLACE.

IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. 66,740, dated July 16, 1867.

To all whom it may concern:

Be it known that I, MILO A. RICHARDSON, of Sherman, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical cross-section of my improved machine, shown in position in a tub; Fig. 2, a side elevation of the machine detached; Fig. 3, an end elevation; Fig. 4, a plan of the lower rollers, the upper one being removed.

Like letters of reference designate corresponding parts in all the figures.

My invention consists in the manner of combining and arranging a washing apparatus of the kind hereinafter described with an ordinary tub; in the special device for attaching it thereto; the combination of a series of lower rollers having alternately opposing corrugations on their surfaces; the manner of grooving the upper roller; and in the manner of constructing the spring by which it is made self-adjusting and easily removable from the frame, all as hereafter fully set forth.

In the drawings, A represents an ordinary wash-tub; B B, two standards of the frame for the rollers which are mounted therein, C being the upper and largest one and D D D D four smaller ones, arranged concentrically with and below the large one, as shown in Fig. 1. The rollers D are mounted in rigid bearings in the standards B B in any suitable manner. The axis *e* of the large roller rests in vertical slots *f f* in the uprights B, which allow it to yield from pressure exerted below, and is provided on the outside with hooked heads *g g* attached to the frame C by means of the intermediate spiral springs *h h*, which serve to keep the large roller properly engaged with the lower ones D, while they at the same time allow a free vertical adjustment, according to the quantity of clothes that are being passed through. These heads *g* are made, as shown in Figs. 2 and 3, so as to allow them to be easily connected or disconnected from the axis *e* by hooking over it. They are provided with

stems or shanks *i*, which extend through, or nearly through, the coil of the spring, which serve as a guide and stiffener and prevent the springs from being bent or otherwise injured. The upper roller C is made a little larger in diameter at the center so as to produce from the ends a slight and gradual swell, shown in Fig. 1, for a purpose presently to be explained. It is provided with longitudinal corrugations, the two sides *l m* of each groove being differently inclined, the side *l* inclining toward the tangential, while the side *m* takes a more radial direction, so that the edge of the roller in cross-section will present a serrated appearance, resembling the blunted teeth of a saw, as clearly shown in Fig. 1. The effect of this construction is to cause the garment to feed through faster when the roller is revolved in that direction toward which the ribs incline than in the other. This causes the garment to gradually feed through, when the roller is turned alternately in opposite directions, and when the clothes are fed through by revolving the roller, and then reversed, the unequal feed prevents the corrugations of the roller when reversed from merely repeating the pressure upon the same points as would otherwise ensue were the sides forming the corrugations of the same inclination. The rollers D are provided with spiral corrugations *u u*, which are so arranged that the corrugations of one come intermediate those in the next adjacent roller, the spiral of each running in opposite directions, as clearly shown in Fig. 4. These spiral corrugations retain and convey a greater quantity of water in and between the rollers, which is of great importance. The relative arrangement of the corrugations of the different rollers as before described, causes the garment to work in a zigzag direction as it passes through, which produces such a change, though a slight one, in the various portions as greatly facilitates the cleansing process. The curvature or swell in the upper roller, in connection with the increased depth of the grooves at the center, as a necessary consequence of their being straight or parallel with its axis instead of following the convexity of its surface, causes the fabric to feed a trifle faster at the center of the machine, and thereby draws it sufficiently toward that point to prevent it

from wedging against the edges of the frame. The increased pressure between the rollers at the center also tends to produce the same result. V V are two rods or cross-braces which connect the two standards of the frame, and prevent the garment from winding around the grooved rollers D as it leaves the machine, as it might otherwise do.

I arrange the machine in nearly the center of the tub, as shown, so that both ends of the garment, which is fed through backward and forward between the rollers, will dip in the water, which greatly facilitates the operation of washing, as the garment is thereby subjected to successive rinsings after each passage through the rollers, a result that is not accomplished by any other arrangement with which I am acquainted. It is secured to the tub by means of a bent bolt, P, the horizontal end of which fits in a hole in a cleat, Q, fastened to the bottom of the tub, and the other passes up through a cross-piece, S, which connects the two end portions B of the frame, where it is provided with a thumb-screw, *t*, by which the machine is firmly clamped to the bottom of the tub, as shown in Figs. 1 and 3. This device enables the machine, when not required for use, to be readily removed from the tub, which may then be employed for other purposes, as desired.

The connecting of the machine centrally, or nearly so, with the bottom of the tub, secures the important advantage of convenience in having the apparatus surrounded by the suds and clothing, and the latter fully exposed to the observation of the operator, and admits of the garment being passed through the rollers forward and back successively, the part which leaves the roller returning again to the suds, and the roller to be revolved in either direction. This result is not attained where the machine attaches to the side or top of the tub.

My improvement enables the operator by

semi-revolving the upper roller to subject the more soiled portions to the continued action of the machine, which is an advantage of great importance.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the wash-tub A I claim the washing apparatus, constructed substantially as described, centrally attached to the bottom thereof when in use, and readily removable when not required, substantially as set forth.

2. I claim the series of bed-rollers D D spirally grooved in alternating directions, in combination with the driving-roller C, arranged and operating substantially as set forth.

3. I claim a convex-surfaced roller, C, provided with serrate grooves, as described, the bed of which is parallel with the line of the axis of said roller, and not with the surface thereof, substantially as and for the purposes set forth.

4. I claim the hook-headed spring connections, consisting of the heads *g*, shanks *i*, and coiled springs *h* for holding the working-roller adjustably in its bearings and permitting ready disconnection therefrom, substantially as set forth.

5. In combination with the washing-machine as described, I also claim the device for clamping the frame B to the tub, consisting of the bent bolt P, clutch-block Q, and thumb-screw *t*, arranged and operating substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

M. A. RICHARDSON.

Witnesses:

JAY HYATT,
ALBERT HAIGHT.