(No Model.)

L. E. PALMER.

WASHING MACHINE.

No. 406,764. Patented July 9, 1889.

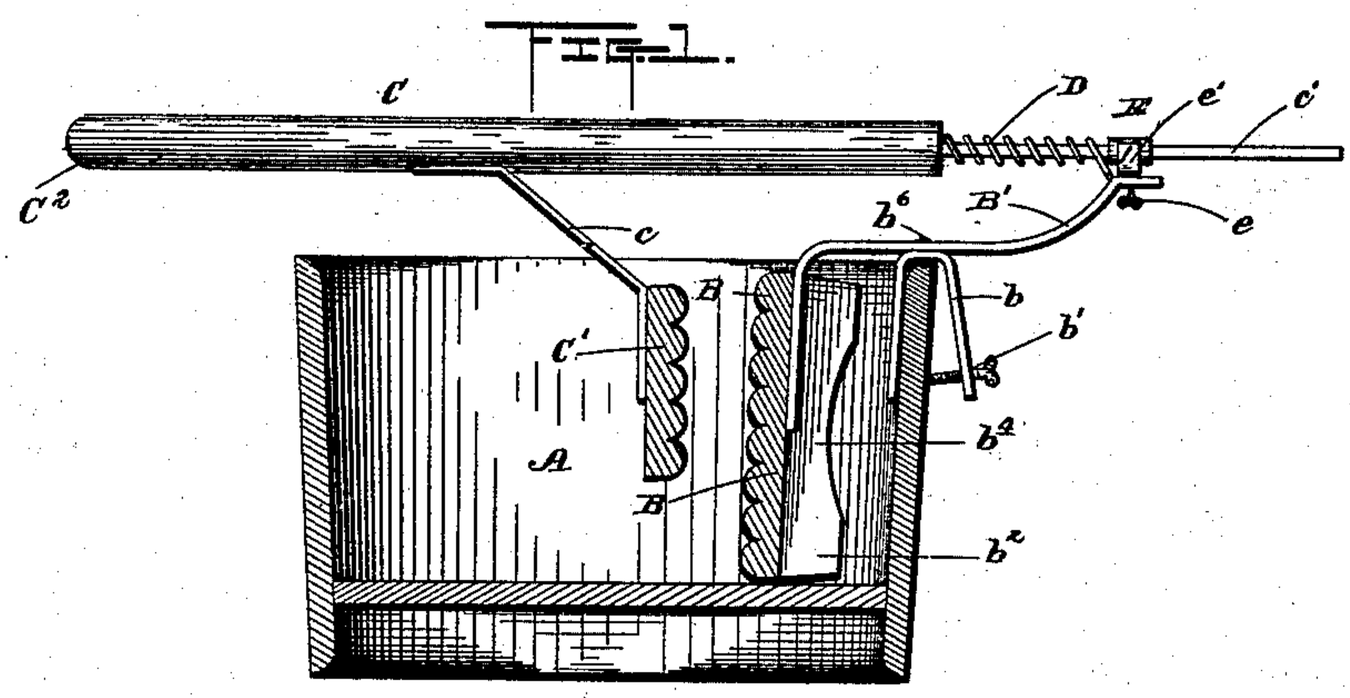


FIG. 2.

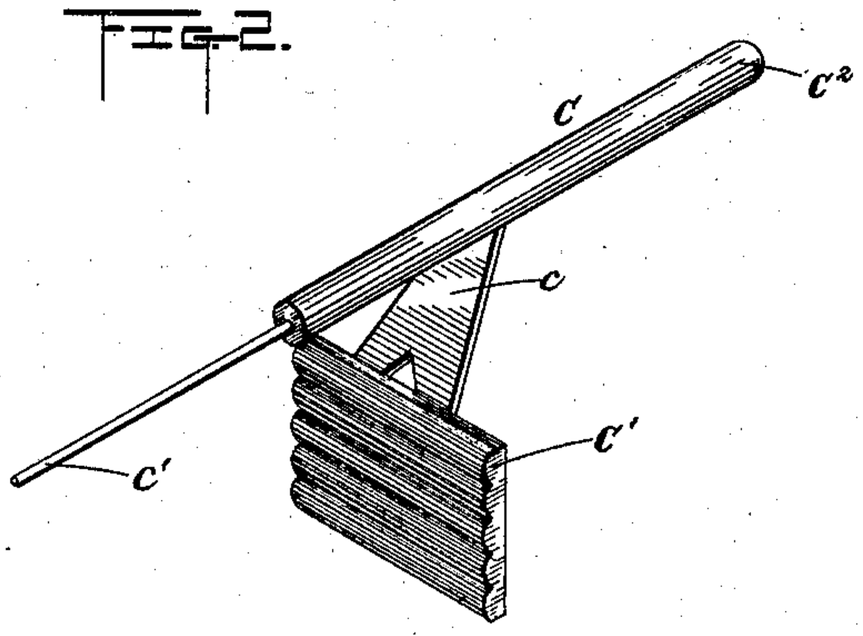


FIG. 3.

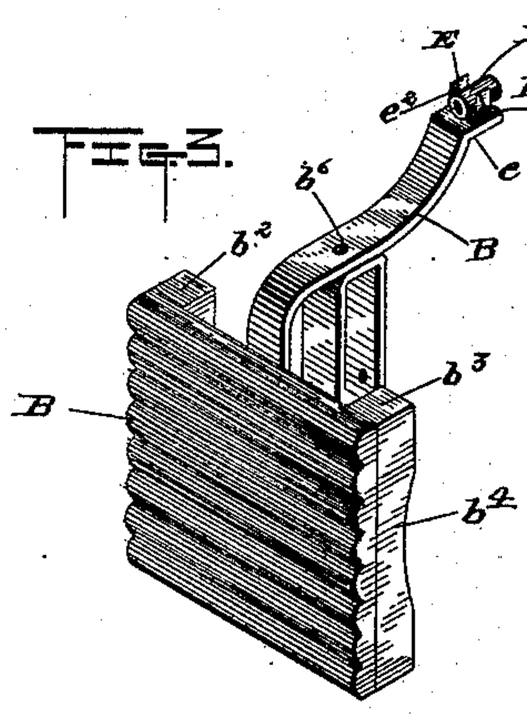
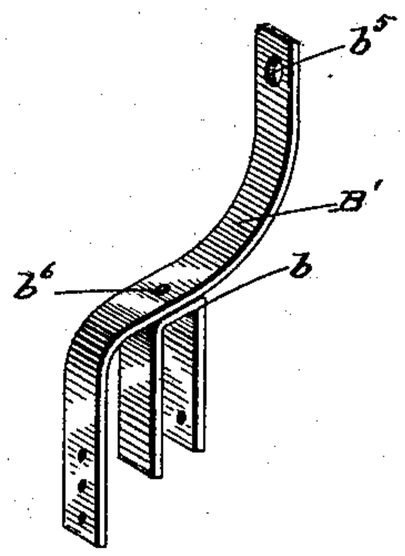


FIG. 4.



Witnesses

R. B. Seward.

Benj. L. Cook

Inventor

L. E. Palmer.

By E. C. Seward.

Asso. Atty.

UNITED STATES PATENT OFFICE.

LEE E. PALMER, OF IMLAY CITY, MICHIGAN.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 406,764, dated July 9, 1889.

Application filed April 14, 1888. Serial No. 270,641. (No model.)

To all whom it may concern:

Be it known that I, LEE E. PALMER, a citizen of the United States, residing at Imlay City, county of Lapeer, State of Michigan, have invented a certain new and useful Improvement in Washing-Machines; and I 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, which form a part of this specification.

My invention relates to certain new and useful improvements in washing-machines, and more particularly to that class having a reciprocating rubber.

It consists, essentially, of the construction of devices and appliances and their combinations, as herewith shown in the accompanying drawings, and more particularly hereinafter described, and set forth in the following claims.

In the drawings, Figure 1 is a sectional view of a tub showing my invention in elevation, partly in section, as applied thereto. Fig. 2 is a perspective view of the reciprocating rubber, and Fig. 3 a view in perspective of the stationary rubbing-board to be removably engaged upon the tub. Fig. 4 is a separate view of a modification in detail.

I will now proceed to describe my invention.

A represents a tub of any desired construction.

B is a stationary rubbing-board constructed to be removably engaged, preferably, upon the tub in any proper manner—as, for instance, by means of a clamp *b* and set-screw *b'*, although any other fastening means may be employed, if desired. This stationary rubbing-board may be provided with supporting and strengthening cleats b^2 b^3 of suitable width to make the rubbing-board stand out properly into the tub and form also bearings for said board against the surface of the tub, so that the rubbing-board shall be firmly held in position. They may be hollowed out or recessed, as at b^4, to permit a free circulation of the water in the tub. The rubbing-board may be made of any suitable material and form.

B' is a supporting-arm engaged, preferably, with the stationary rubbing-board at one extremity, so as to be attached and removed simultaneously therewith, the opposite extremity being preferably turned outward, as shown, and provided with an orifice or bearing b^5. The clamp *b* may conveniently be engaged with said arm, as shown at b^6.

C is a reciprocating rubber, consisting of a rubbing-board C', engaged upon an operating-handle C^2, as by an intervening arm *c*, which arm may also be constructed to serve as a brace, and which may be forked, as shown in Fig. 2, to firmly support the board at both sides.

The handle is provided with a rod or spindle *c'* to project through the orifice b^5 of the supporting-arm of the stationary rubbing-board and reciprocate in said orifice as the rubbing-board C' is forced to or from the board B.

The operation of the device is as follows: The clothes being placed between the stationary and reciprocating rubbing-boards, the reciprocatory rubber C is given a forward and upward movement, whereby the clothes are pressed against the stationary rubbing-board and also rubbed upward thereupon, the water being pressed from the clothes as they are simultaneously rubbed between the two boards. This operation is performed by lifting the operating end of the handle and at the same time projecting the spindle through the orifice b^5. The spindle sliding therein thus permits any practical degree of contact or approach of the rubbing-boards the one toward the other. The clothes are thus pressed and rubbed at the same time between two rubbing-surfaces, thereby securing double result of ordinary hand-rubbing in the same instant of time. The spindle having a sliding movement in the supporting-arm is not only supported thereat, but in such a manner also as to permit the movement of the reciprocating rubbing-board in a straight line, enabling both boards to be constructed with plane surfaces, thereby simplifying the construction of the boards. When the operating-handle has been lifted and forced forward to the practical limit of its stroke, a retracting and downward movement separates the

boards, allowing the clothes to drop into the water, ready for another operation.

The spindle c' may be provided, if desired, with an assisting-spring D, engaged upon the arm B′ and handle C^2 or otherwise, and so arranged as to assist the operation of forcing the reciprocatory rubber toward the rubbing-board B.

Instead of engaging the spindle c' through an orifice or bearing b^5 in the stationary or supporting arm B′, (see modification, Fig. 4,) the supporting-arm may have its outer extremity bent into substantially a horizontal position, while the handle has a reciprocatory engagement therewith by means of an intermediate double joint or universal bearing E—as, for instance, a bracket E′, having a pivotal engagement upon the arm B′, as shown at e, the engagement being by a pivot or thumb-screw. The bracket supports a thimble E^2, having a rocking engagement with the bracket, as by a thumb-screw or pivotal engagement at e' e^2, the thimble answering the same function as the orifice at b^5 (shown in Fig. 4)—viz., to receive the spindle c' and permit its reciprocatory movement therein, while at the same time the handle may be worked upward and downward or sidewise, the thimble rocking in the bracket and the bracket oscillating about its connection with the arm. Any analogous joint may be used at this point, if preferred, to afford the movements described.

This construction would enable the rubbing-boards to be made on the arc of a circle, if desired, and I do not confine myself to making them either with straight or circular faces.

What I claim is—

1. The combination, with the stationary rubbing-board provided with a supporting-arm having a bearing, of a reciprocating rubbing-board provided with an operating-handle projected forward from its engagement with said latter board, its forward end engaged with the bearing of said arm and having a sliding movement therein, substantially as described.

2. The combination, with a stationary rubbing-board provided with an arm having a bearing and a tub-clamp secured to said arm, of a reciprocatory rubber provided with a handle which slides in said bearing and a spring for imparting a resilient movement to said reciprocatory rubber, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

LEE E. PALMER.

Witnesses:

A. A. LORD, Jr.,

E. J. LANDERS.