(No Model.)

H. W. WEBSTER.

WASHING MACHINE.

No. 324,199. Patented Aug. 11, 1885.

Fig. 1.

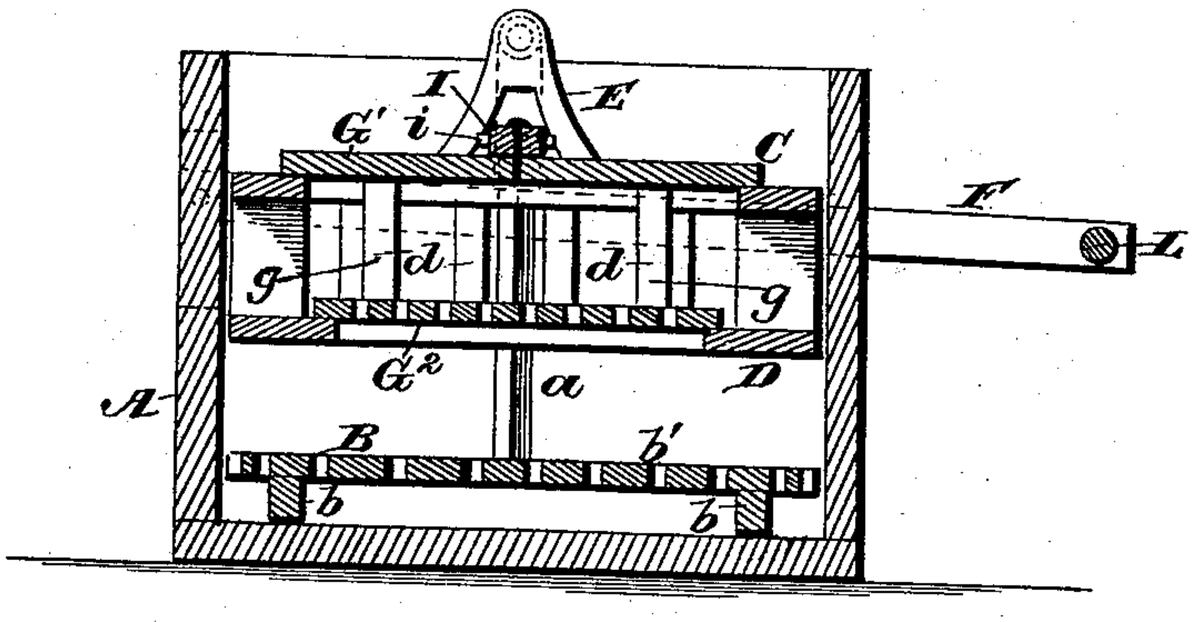


Fig. 2.

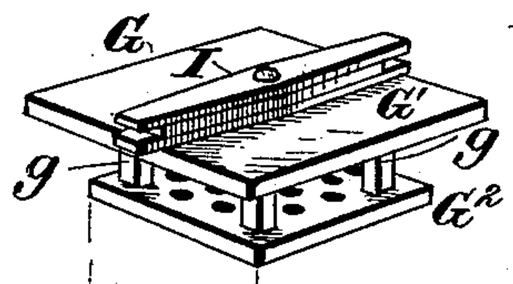
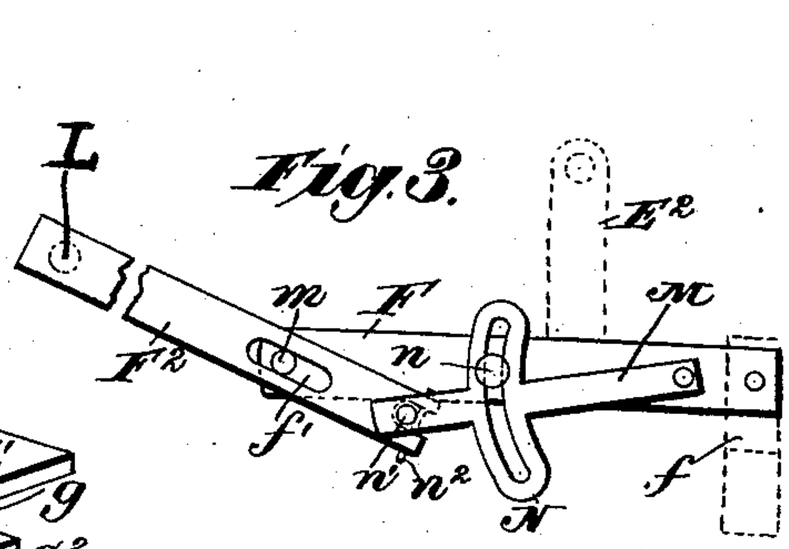
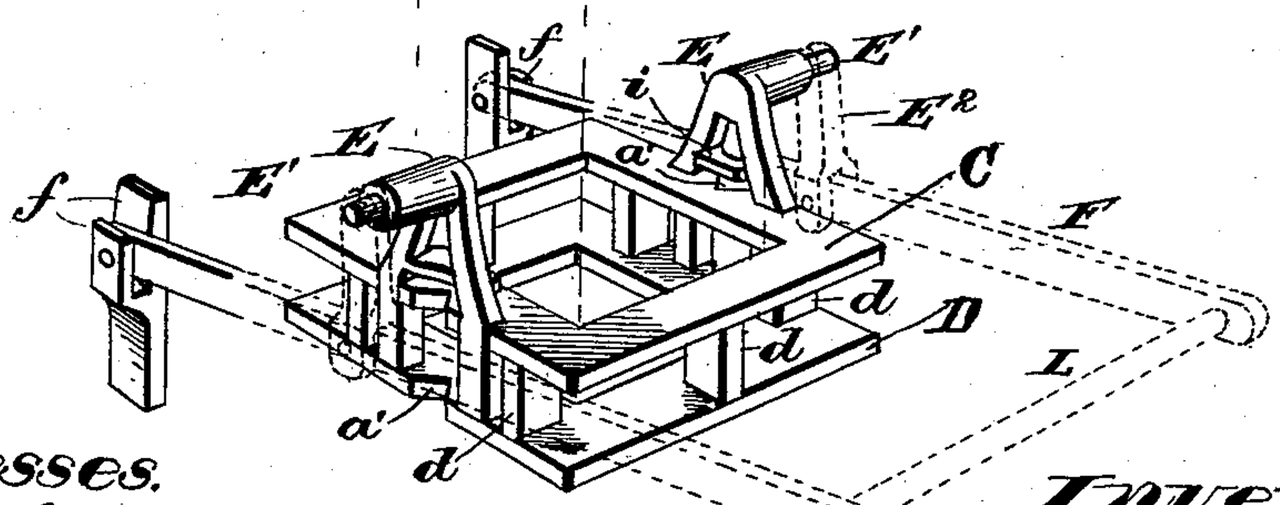


Fig. 3.





Witnesses.
Robert Everett.
Chas. S Hyer.

Inventor:
Henry W. Webster.
By Charles B. Tiden
Atty.

UNITED STATES PATENT OFFICE.

HENRY W. WEBSTER, OF NASHUA, NEW HAMPSHIRE.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 324,199, dated August 11, 1885.

Application filed May 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. WEBSTER, a citizen of the United States, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Washing-Machines; and I do hereby 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, and to the letters or figures of reference marked thereon, which form a part of this specification.

It is the purpose of my invention to provide a washing-machine within which the clothes may be easily and quickly placed, and from which they may be as readily removed, without disturbing or displacing the operative parts of the mechanism. It is also my object to secure a free, rapid, and thorough circulation of water both above and below as well as through the mass of clothing placed in the tub, and to provide means whereby the apparatus may be actuated and a thorough cleansing effected with the least possible expenditure of labor and in the shortest practicable time.

It is a further purpose of my invention to provide washing-machines having a vertically-reciprocating dasher with simple and efficient devices whereby the latter may be operated by persons of different stature without the necessity of stooping and without loss of power, said parts being capable, when not in use, of folding upon the body of the apparatus, thereby diminishing its bulk and enabling it to be stored within a small space, the entire structure being strong and simple in construction, extremely rapid and efficient in operation, and of low cost.

To the ends specified, therefore, my invention consists in a suitable tub having a false bottom, which is supported above the bottom proper, and perforated to allow a free circulation of water in the intermediate space, having combined therewith a vertically-reciprocating dasher composed of an upper and lower diaphragm, the latter being perforated to permit a free circulation within the chamber of the dasher, and the former being solid to prevent water being thrown from the tub upon the downward stroke, and means for reciprocating said dasher vertically, whereby a rapid circulation of water is produced above and below as well as throughout the mass of clothing in the tub and a rapid cleansing effected.

My invention also consists in the combination, with a washing-machine having a perforated false bottom, of a vertically-reciprocating dasher fitting the tub and composed of an upper and lower diaphragm with a water-space between, and a central removable gate, forming, when in place, part of the chambered dasher, whereby the clothing may be readily placed in and removed from the tub without lifting the body of the dasher from the tub.

It also consists in the combination, with the vertically-reciprocating dasher of a washing-machine, of an operating-lever having an extension-arm pivoted or coupled thereto in such manner that it may be adjusted to form a parallel or an angular continuation of said lever, thereby placing the grasp-bar at a lower or a higher point, respectively, and adapting it to be operated by persons of different stature without stooping, or to be folded over upon the tub, when not in use, to diminish its bulk.

My invention finally consists in the several features of construction and combinations of parts hereinafter fully set forth, and definitely pointed out in the claims.

Referring to the drawings forming part of this specification, Figure 1 is a central vertical section taken through the machine from front to rear. Fig. 2 is a detail perspective representing the dasher, with its several connections, removed from the tub, and showing the dasher-gate displaced. Fig. 3 is a side elevation in detail illustrating a modified construction of the operating-lever, the ears to which it is pivoted, and the links connecting it with the dasher being shown in dotted lines.

A in said drawings indicates the tub of the machine, and may be of any suitable form and dimensions. Within this tub and resting upon its bottom is placed a false bottom, B, supported by cleats *b b*, and having numerous perforations *b'*, to permit a free passage of the water through the space between the false bottom B and the bottom of the tub. Within the body of the tub and fitting it as closely as is consistent with the unobstructed action of the parts is suspended a dasher having an up-

per and a lower diaphragm, C and D, respectively, a suitable chamber or space being provided between, the upper and lower parts named being connected together by strong braces *d*. The dasher is supported by lugs E, which rise from its opposite sides and are mortised into both the upper and lower diaphragm, said lugs being provided with outwardly-projecting pintles E′, which receive links E², having their lower forked ends pivoted to an actuating yoke-lever, F, the ends of which are connected with the tub A by means of ears *f*, mounted upon the latter. The dasher is guided in its vertical movement by feather-bars *a* upon the inner faces of the tub, which engage with notches *a*′, formed in the opposite sides of the upper and lower diaphragm, thereby retaining the horizontal adjustment at all points of the stroke and permitting the parts to fit more closely than would otherwise be possible. The lower diaphragm, D, of the dasher is perforated, like the false bottom, to permit a free circulation of water throughout the intermediate chamber; but the upper, C, is solid to prevent the water, which is thrown into said chamber with great force upon the downward stroke, from escaping from the tub. In the central portion of the dasher is formed a removable gate, G, by means of which the clothes may be placed in and removed from the tub. This gate consists of an upper portion, G′, which lies upon and practically forms part of the upper diaphragm of the dasher, and a lower perforated portion, G², which in like manner forms part of the lower diaphragm, D. It is securely held in place by a bar, I, centrally pivoted upon the upper portion, G′, and having forked ends, which engage with lugs *i*, formed upon the lugs E. The upper and lower portions of the gate are connected together by braces *g*, and when the parts are locked in position for operation the structure has all the strength that it would possess if the parts forming the dasher were integral. It will be seen that by the construction described the clothes may be placed in and removed from the tub with great ease and rapidity, and the removal of the dasher bodily from the tub is avoided, this being a work involving considerable difficulty and labor.

The operating-lever F is provided with a grasp or handle, L, and when the clothes, together with a proper quantity of water and soap, are placed in the tub and the gate G fastened in place the operator gives vertical reciprocation to the dasher by raising and depressing the handle end of the lever. As the dasher falls and is forced down upon the mass of clothing in the tub the water is driven in both directions throughout the mass, the greater portion entering the chamber in the dasher after being driven down through the false bottom B, and then upward through the central portion of the clothing. As the dasher rises the water contained therein flows in the opposite direction with great rapidity upon the compressed mass, and especially upon the central portion, shifting its position and preparing it for a repetition of the stroke. It is evident that by perforating the central portion of the dasher-diaphragm only, as compared with the entire surface of the false bottom, I am able to effect, in a great measure, a double circulation at each stroke, in the manner described, thus effecting a thorough cleansing with a great economy of labor and time.

In this class of washing-machines, in which vertical reciprocation is given to the dasher by means of a lever of the second order, considerable inconvenience has been experienced, from the fact that the grasp of the lever being always at the same height from the floor, or substantially so, persons of different stature could not easily operate the machine without much fatigue. For example, while such apparatus is generally used by adults the power imparted by the lever renders it perfectly operative in the hands of a child. When, however, it is in position to be actuated by the latter, the handle would be so low that any person of the usual height would be compelled to stoop into a painful position to seize it. To obviate this objection I have devised the modification shown in Fig. 3. In said figure F indicates the ordinary yoke-lever shown in Figs. 1 and 2, and pivoted to ears *f*, as already described. In this modified construction the lever may be made somewhat shorter, since the extension-coupling I am about to describe will give it the required length.

Upon the outer face of each lever-bar F, and near its point of attachment, I pivot an arm, M, extending toward the outer end of said bar, and provided at a point between its ends with a slotted segment-arm, N, a set-screw, *n*, passing through the slot into the lever-bar F, and holding the arm M at any point to which it may be adjusted. Upon the outer end of the lever-bar F is formed or attached a stud, *m*, which receives an extension-arm, F², having an elongated slot, *f*′, to admit the stud. The end of the extension-arm F² is forked, and straddles a stud-pin, *n*′, formed upon the extremity of the arm M, a pin, *n*², being inserted in the ends of the fork to retain the parts in engagement. The extension-bar F², which is represented for convenience of illustration as being broken away between its ends, is of such length as to give the entire lever the required acting distance. It will now be seen that by loosening the set-screw *n* the arm M and the extension-bar F² may be turned into substantial parallelism with the lever F, and by fastening the set-screw *n* they may be retained in that position while the lever is operated. In a similar manner the extension-arm may be placed and retained at any required angle with the lever F, as is shown in the drawings, thereby giving a greater or less height to the handle L, and effectually accomplishing the purpose heretofore described. It is evident, moreover, that by this construction of the coupling I avoid any practical loss of power, as the acting distance

of the lever is not materially diminished. Moreover, as this distance becomes slightly greater as the parts approach parallelism, it will be seen that when the handle is lowered to such a point the power of the lever will be at its maximum, and as it is then in position for use by a child the gain in power will in a measure compensate the lesser degree of strength exerted by the operator.

When not in use, the parts may be instantly uncoupled by drawing the pins n^2, and the extension-arms F^2 folded over upon the sides of the tub and upon the levers F. This considerably diminishes the space required to stow the apparatus, either for shipment or when not in use.

The entire mechanism is extremely simple in construction, possesses great strength, cannot by any possibility tear or injure the clothes, will cleanse them thoroughly in a short time, and with the minimum expenditure of labor, and can be used by a child as easily and as intelligently as by a practical laundress.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a washing-machine, of a tub having a perforated false bottom, a vertically-reciprocating dasher composed of an upper and a lower diaphragm with a water-space between, and a central removable gate forming part of said dasher, said gate having an upper and a lower plate, forming practically continuations of the upper and lower diaphragm thereof, the latter plate only being perforated, substantially as and for the purpose set forth.

2. The combination, in a washing-machine, of a tub, a vertically-reciprocating dasher substantially fitting said tub and composed of a double diaphragm, with a water-chamber between, a central removable gate in said dasher, having an upper and lower plate which practically form continuations of the upper and lower diaphragm in the dasher, and a turn-bar mounted upon said gate and engaging by its forked ends with lugs upon the pintle-lugs of the dasher, substantially as and for the purpose set forth.

3. The combination, in a washing-machine, with a vertically-reciprocating dasher, of an actuating-lever having an extension-arm coupled thereto, and an intermediate arm having a slotted segment and set-screw, whereby the extension-arm may be adjusted and retained at any required angle with the actuating-lever, substantially as and for the purpose set forth.

4. The combination, in a washing-machine, with a vertically-reciprocating dasher, of an actuating-lever pivoted to ears upon the tub, an arm pivoted to said lever near its point of attachment, and having a segment-plate provided with a slot through which a set-screw passes into the lever, an extension-arm having a slot which engages with a stud upon the outer end of said lever, and a forked end which engages with a stud-pin upon a projection from the segment-plate, substantially as and for the purposes set forth.

5. The combination, in a washing-machine, with a tub having a perforated false bottom, B, supported upon cleats, of a dasher composed of a solid upper diaphragm, C G′, and a lower diaphragm, D G^2, having a central portion of its area perforated, feather-bars engaging with notches upon the edges of both diaphragms, and a pivoted lever by which vertical movement is imparted to the dasher, substantially as and for the purpose set forth.

6. The combination, with the dasher having an upper and a lower diaphragm, of a removable gate composed of the solid upper plate, G′, and the perforated lower plate, G^2, the former being provided with the turn-bar I, which engages with lugs *i* formed upon the pintle-lugs E, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. WEBSTER.

Witnesses:

ROSWELL T. SMITH,

FREDERICK A. EATON.