

(No Model.)

2 Sheets—Sheet 1.

J. G. CRAWFORD.
Washing Machine.

No. 234,393.

Patented Nov. 16, 1880.

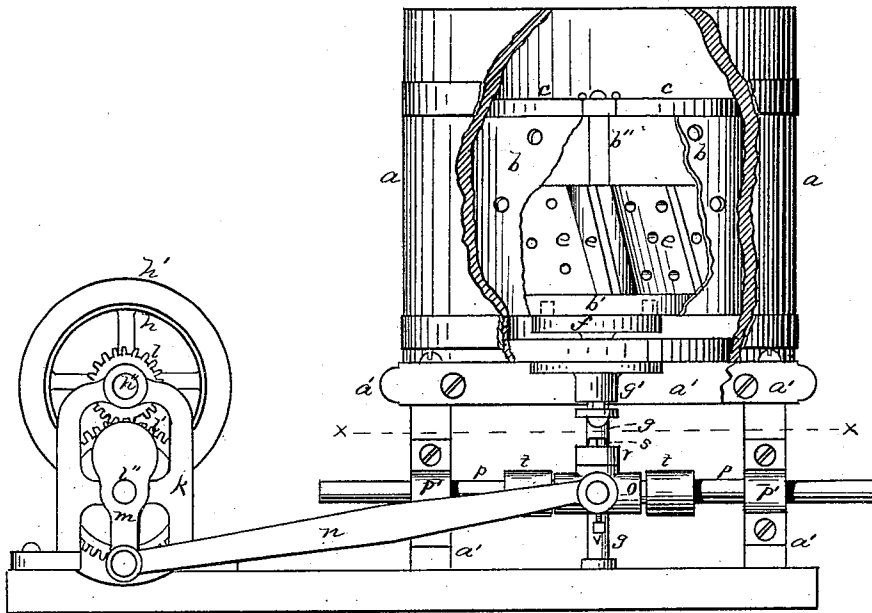


Fig. 1.

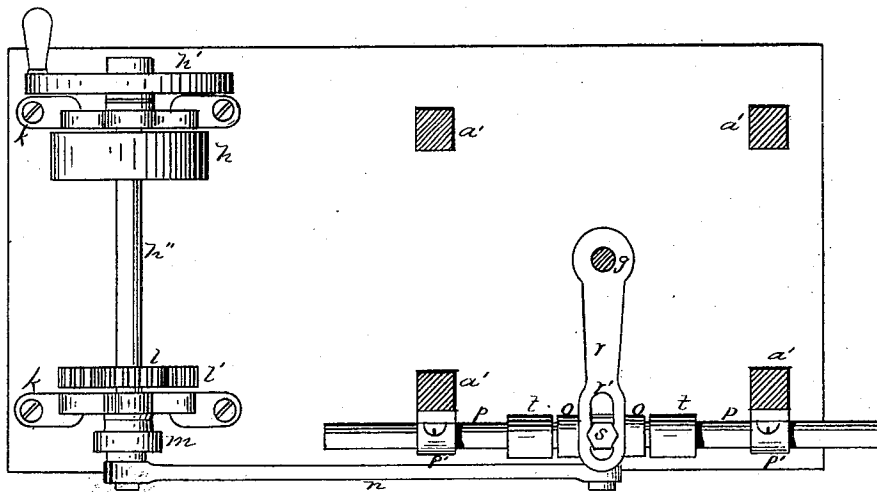


Fig. 2.

WITNESSES

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George V. Mallon

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James G. Crawford
By his Atty.
Henry W. Williams

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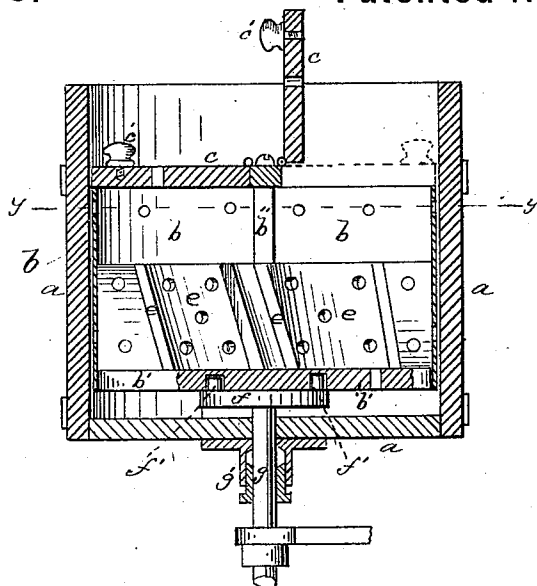


Fig. 3.

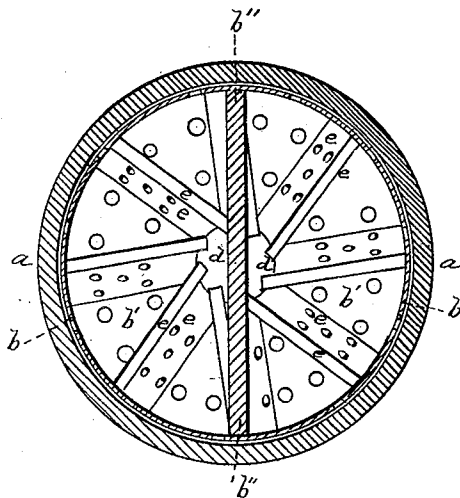


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES G. CRAWFORD, OF BOSTON, MASSACHUSETTS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 234,393, dated November 16, 1880.

Application filed April 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. CRAWFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Washing-Machine, of which the following is a specification.

In this improvement the dasher is divided into two chambers, each of which is provided with radial paddles. The paddles instead of being vertical are placed at an angle with the vertical sides of the dasher, to which reciprocating rotary motion is applied by means of the mechanism below described.

The object is to produce a washing-machine in which the clothes will not knot or tie up, and in which they are thoroughly washed, the same being the result of the extra and peculiar motion imparted to them while they are in the dasher.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a side elevation of my machine, a portion of the tub and the dasher being represented as broken out. Fig. 2 is a plan and horizontal section on line *x x*, Fig. 1. Fig. 3 is a part-vertical section of the tub and dasher. Fig. 4 is a horizontal section on line *y y*, Fig. 3.

a is a stationary tub resting on the frame *a'*. Inside this tub is the dasher, in which the clothes are placed, and which consists of the sides *b*, bottom *b'*, partition *b''*, by means of which the dasher is divided into two chambers, one for large and one for small articles, and swinging covers *c c*, one for each chamber, having knobs *c' c'*. The sides, bottom, and covers are provided with numerous perforations, so as to allow of the circulation of the water and steam.

In the center of the dasher is a post, *d*, from which radiate the perforated paddles *e*, which are set into the post and extend to the sides *b* of the dasher. These paddles are not vertical, but are placed at about the angle shown in the drawings, for the purpose below specified.

The dasher rests upon the round plate or carriage *f*, fixed to the shaft *g*, passing through the bottom of the tub *a* and the stuffing-box *g'*, to mechanism which imparts reciprocating rotary motion to it, (the carriage *f*;) and, by

means of the lugs *f'*, which extend into the bottom *b'* of the dasher from the carriage, to the dasher itself.

The mechanism for imparting reciprocating rotary motion to the shaft *g* and thence to the dasher is as follows: Power is communicated by a belt to the wheel *h*, which, with the fly-wheel *h'*, is fixed upon the shaft *h''*, supported in the frames *k*. The cog-wheel *l*, fixed to shaft *h''*, engages the gear-wheel *l'*, fixed to shaft *l''* in frames *k*. The shaft *l''* turns the crank *m*, which is secured to it. The connecting-rod *n*, which extends from crank *m* to the sleeve *o*, fixed to the horizontal rod *p*, imparts reciprocating motion to the rod *p*, which moves back and forth in the supports *p'*, attached to the frame *a'*. By means of rod *r*, fixed to the vertical shaft *g* and provided with the slot *r'*, in which lies the pin *s*, extending upward from the sleeve *o*, fixed to rod *p*, the reciprocating motion of the rod *p* produces a reciprocating rotary motion of the shaft *g*, and hence of the carriage *f* and the dasher. Suitable means are provided for preventing the rod *p* from twisting. The rubber cushions *t t*, striking alternately the supports *p p*, are for assisting the crank *m* to pass its dead-points. The mechanism having been set in motion and steam applied to the tub *a* in any suitable manner, the dasher *b b'* begins to rotate reciprocatingly in the tub and the steam to enter and circulate in the dasher by means of the numerous perforations. The larger articles—like shirts, for example—are placed one side the partition *b''*, and smaller articles, like collars and cuffs, the other side. As the dasher reciprocates rapidly the articles to be washed do not simply fly back and forth horizontally, as they would if the paddles were vertical, but they dash from the lower edge of the paddle, forming an acute corner, to the upper portion of the next one, thus traveling a greater distance than they would if they traveled horizontally. The result is that there is no tying or knotting, as is the case in most washing-machines.

In case there are a number of tubs and dashers operated by the same mechanism any one could be disconnected, if desired, by the use of simple mechanism.

Having thus fully described my improvement, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described rotary reciprocating
5 dasher, the same consisting of the perforated
bottom *b'*, sides *b*, and covers *c*, the partition
b'', and post *d*, said dasher being provided with
the inclined paddles *e e* at substantially the
angle shown, and operated by mechanism sub-
10 stantially as described, for the purpose set
forth.

2. The combination of the dasher *b b'*, the
carriage *f*, having lugs *f'*, shaft *g*, slotted rod
r, reciprocating rod *p*, provided with sleeve *o*,
having pin *s* and cushions *t t*, supports *p'*, le- 15
ver and crank *n m*, and driving-gear operating
said crank, substantially as and for the pur-
pose described.

JAMES G. CRAWFORD.

Witnesses:

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GEORGE V. MALLON.