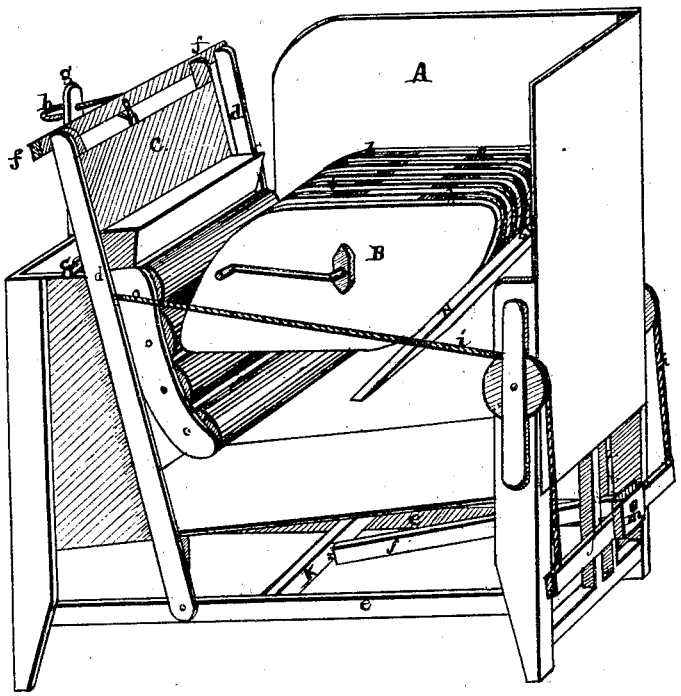
De Witt C. Cooley,

Washing Machine.

No. 109387. Patented Nov. 22. 1870.



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Letters Patent No. 109,387, dated November 22. 1870; antedated November 9, 1870.

IMPROVEMENT IN WASHING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DE WITT C. COOLEY, of the Borough of Wilkesbarre, county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Washing-Machines for Washing Clothes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and being a perspective view of the entire machine, with the side of the suds-box broken away so as to show the interior construction and combination of the several parts of said machine.

I construct said improved washing-machine in the manner following, to wit:

In the suds-box A I place the rotating-beater B, which is constructed of alternating blades *b b*, projecting, say, the same length as their width, made of strips of board cut cam-shaped, as *b b*, say, by cutting the projecting ends to a quadrant, by a radius equal to the width of said blades.

The cam-shaped edges of the blades, on the opposite sides of the beater, are reversed to each other, with alternating spaces between the blades.

The beater is mounted, and revolves on a shaft and crank turning in boxes at the sides of the suds-box.

The vertical oscillating wash-board or roller-frame C, by means of the projecting trunnions *c c*, is pivoted through the upright vibrating arms *d d* at a height a little above the level of the beater-shaft, and so as to allow the trunnions to move back and forth freely over the sides of the suds-box.

Said arms *d d* are pivoted at their lower ends to cross-bars *e e*, joining the legs of the suds-box at the sides near the floor, so as to allow said roller-frame C to oscillate back and forth freely, at as long a radius as the height of the machine will allow.

The ends of a cross-bar attached horizontally to the top of the roller-frame C so project, as at *f f*, as to catch the upper ends of the vertical arms *d d*, and prevent the roller-frame, at bottom, from swinging further back than in line with said arms.

The upright *g*, and cord *h*, attached to the top of said roller-frame, adjust the roller-frame at any desired angle of inclination, when the same is carried forward against the sides of the beater.

By means of cords, attached to the arms *d d*, and running over pulleys, as at *i*, the cross-bars *j j*, pivoted to the cross-bar *k*, and moving in the slot *l*, and furnished with the weight *m*, are suspended, so as to pull forward, by means of gravity, the roller-frame against the beater.

The rollers of the roller-frame are pivoted in the frame in a curve facing the beater, about equal to the curve of the cam-shaped blades of the beater, and so that the two fit into each other, when the roller-frame has a certain inclined position to the beater, when the latter has its blades nearly vertical, and so that the lower ends of the two descend to about the same depth in the suds-box.

The floater N, being a piece of board of the length of nearly the width of the suds-box, is pivoted at the upper edge in the sides of the suds-box, parallel with the beater, and so that when the suds-box is filled with water, said floater shall float up against the beater, on the opposite side of the same to that of the roller-frame, and at the highest end of the suds-box.

The said washing-machine is operated, and effects the washing of clothes, in the manner following, to wit:

The suds-box being filled with water, so as to touch the beater when its blades are horizontal, the clothes are placed between the beater and the floater N, and the beater revolved, so that its lower blades move toward the roller-frame.

The floater N floats the clothes against the beater, the descending blades carry the clothes against the roller-frame, and press and roll the same upward, until they are carried through to the top of the rollers, and from thence over the beater into the water again in continuous rotation, the floater returning the clothes under the beater, and the alternating blades acting successively on them.

The rotation of the beater presses the roller-frame back with the cam-edges of the blades, thereby raising the weight *m*, which is left free to fall on the passage of the ends of the blades from the roller-frame, and the presentation of the flat or depressed sides of the beater, thereby bringing the roller-frame with a concussion, corresponding to the momentum of the weight, against the clothes and side of the beater.

By means of the roller-frame being pivoted in the vibrating arms *d d*, it is left free to adjust itself to the inequalities of the thickness of the clothes at the sides, between the rollers and beaters; and by means of the upright *g* and cord *h*, the roller-frame, when carried forward by the weight *m*, may be adjusted at any desired angle of inclination, so as to catch the clothes best at the bottom, thus making said roller-frame automatic or self-adjusting; and whereby a double motion is given to said roller-frame, in which it first moves, as though pivoted at the top, at a point where said cord *h* is attached, until the projections *f f* meet the upper ends of the arms *d d*, when it takes the motion of said arms, and as if pivoted at *e e*, whereby the effectiveness and ease of the process are much aided in catching the clothes at the bottom, and in passing them in the easiest and most effective manner over the rollers, such variable motions suffering the cam-faces of the beater to press, for the longest time, against the rollers throughout their whole extent that is possible, and relieving the concussion of the two coming

together, and the binding at the top, incident to the shape of the two meeting curved surfaces.

The sides of the suds-box, of the end opposite the roller-frame, are made higher than the other end, so as to catch the clothes as they pass over the beater.

When special rubbing is required, the machine can be used for that purpose by oscillating the crank, as though the same was a lever, occasionally reversing the sides of the beater.

What I claim as my invention, and desire to secure by Letters Patent, is as follows, viz.:

1. The rotating beater B, with alternating cam-shaped blades with alternating spaces between them.

2. The vertical oscillating automatic roller-frame C, pivoted to movable arms *d d* outside the suds-box, with or without the upright standard *g* and cord *h*, or their equivalents, and furnished with the cords *i i*, pulleys *i*, cross-bars *j j*, and weight *m*, or their equivalents.

3. The floater N, in combination with the said beater and roller-frame specified in the foregoing first and second claims.

All of the said several claimed parts being constructed substantially, and for the use as above specified.

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Witnesses:

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