



# UNITED STATES PATENT OFFICE.

A. HALL, OF DANSVILLE, NEW YORK.

## WASHING-MACHINE.

Specification of Letters Patent No. 20,154, dated May 4, 1858.

*To all whom it may concern:*

Be it known that I, ASHMAN HALL, of Dansville, county of Livingston, State of New York, have invented certain new and useful

5 Improvements in Washing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 represents a perspective view of a washing machine embracing my improvements. Fig. 2 represents a plan of the under side of the same; and Fig. 3 represents a modification in the arrangement of the inclination of the grooves and ridges of the

15 rubbing bars.

My improvements in washing machines relate to that class in which the clothes are scrubbed by being passed between two or

20 more sets of rubbers, all of which may receive motion, or only the upper set. As the clothes are drawn between these rubbers they are folded or plaited longitudinally, and the rubbers press these folds down as they pass

25 over and only rub one side; hence it is necessary to change the position of the article while being washed and pass and repass it through the machine in order that all parts may be subjected to the direct action of the

30 rubbers.

The object of my improvements is to displace or change the position of these folds in the clothes while under the action of the rubbers, to prevent the article from being carried toward the edges or corners of the rubbers, to more effectually remove the dirt from the clothes while under the action of the rubbers, and also to regulate or vary the pressure of the rubbers on the clothes, instantaneously, at the will of the attendant without leaving the position in which he operates the machine; and my invention for effecting these objects consists. First, in constructing the bars or slats that form the

45 rubbers with a spiral grooved and ridged surface inclining either to the right or left of the axis of the bar, by which means the folds in the clothes are displaced as the rubbers pass and repass over them, in one direction acting on one side of the folds, and in the other, turning them over and acting on the opposite side. Second, in arranging the grooves and ridges so that they incline in opposite directions in the alternate slats of both

55 the upper and lower rubber, by which means

not only are the folds turned in the clothes as each bar in succession passes over them, but they are retained in the center of the tub, and prevented from being caught on the corners of the vibrating rubber. Third, in

60 combining with the vibrating rubber a dipping cup or scoop by which the suds are carried forward on the forward motion of the rubber, thrown over the clothes before the rubber passes over them, and again on the

65 backward motion the water remaining in the cup is thrown out over the clothes after the rubber has passed back, thus the clothes are dashed both before and after they are acted on by the rubbers, for the purpose of removing the dirt loosened by their action.

In the accompanying drawing is represented a washing machine embracing my improvements, which consists of a rectangular box or tub (A) for holding the clothes

75 with sloping or curved ends, and supported by proper feet (E) to be of convenient height. To one of the sloping bends of the box is attached a series of transverse semicylindrical slats (F) which form the

80 lower or stationary rubbers; the surface of the slats is formed into alternate grooves and ridges running spirally around the curved surface similar to the thread of a

85 semiscrew, and in every other slat of the series the direction of the thread changes, running to the right in one, and to the left in the next.

A series of cylindrical slats (B) constructed as those above described, except that

90 the spiral grooves and ridges extend around the slat similar to the thread of a screw, and these cylindrical rubbers are pivoted to a frame (I) so that they can turn as they are vibrated back and forward over the

95 clothes. The frame (I) is suspended by arms (C) from an axle (D) which has its bearings in boxes (f) that are supported on springs (a) and traverse in guides formed in posts (B) attached to the sides of the tub.

100 To the end of the bearing of the axle which extends beyond the boxes is attached a cord (b) which passes to a cross bar (d) on the under side of the tub. This cross bar (d) is operated by a treadle (e) extending to

105 the forward end of the tub where the operator stands, so that with his foot pressing on treadle (e) he draws down the upper rubber, thus regulating its pressure on the clothes without changing his position.

110

To the vibrating frame (I) is attached a scoop (H) which on the backward motion of the rubber is filled with the soap suds contained in the tub, and on its forward motion, a portion is thrown over the clothes on the stationary rubber, and on the retrograde motion of the rubber whatever is remaining in the scoop is discharged over the clothes; thus as the vibrating rubber passes and repasses over the clothes the scoop continually dashes water over them, thus washing out the dirt that has been freed by their action. It will be seen that as the slats of the upper rubbers turn upon their axes when they come in contact with the clothes on the lower rubber, the spiral ridges on the slats carry the folds to one side of the tub on their forward motion, and on their backward motion the rollers revolving in the opposite direction, turn over those folds and act on the opposite side, thus are the folds in the clothes alternately rubbed on opposite sides.

In arranging the rubbing slats so that in every other one of the series the direction of the spiral grooves or ridges change from right to left or from left to right, the tendency that they would otherwise have to carry the clothes to the side of the tub if all run in the same direction, is avoided; as the first slat acting on the clothes carries them to one side, while the next brings them back the same distance, thus they are retained in the center of the tub and pre-

vented from being caught on the ends of the vibrating rollers. 35

I do not confine myself to the exact arrangement as herein described of the position or the form of the grooves and ridges; provided they are only spiral they may run as shown in Fig. 3, in which the grooves or ridges in one half of the length of the slat incline in one direction, and in the other half, in the opposite direction, and their direction is reversed in the next succeeding slat of the series; the slats of the lower rubber, if thought best, may be made to turn as well as those in the upper. 40 45

Having thus described my improvements in washing machines, what I claim therein as new and desire to secure by Letters Patent, is— 50

1. Constructing the slats or bars which form the rubbers with spiral grooved and ridged surface, for the purpose described. 55

2. In arranging the spiral grooves and ridges formed on the slats, so that they incline in opposite directions in each succeeding slats for the purpose set forth.

3. The combination of the dipping scoop with the vibrating rubber, arranged as described for the purpose set forth. 60

In testimony whereof I have subscribed my name.

ASHMAN HALL.

Witnesses:

C. R. KERN,  
J. F. TERRIL.