

(No Model.)

H. C. DURBOROW.

WASHING MACHINE.

No. 264,030.

Patented Sept. 5, 1882.

Fig. 1.

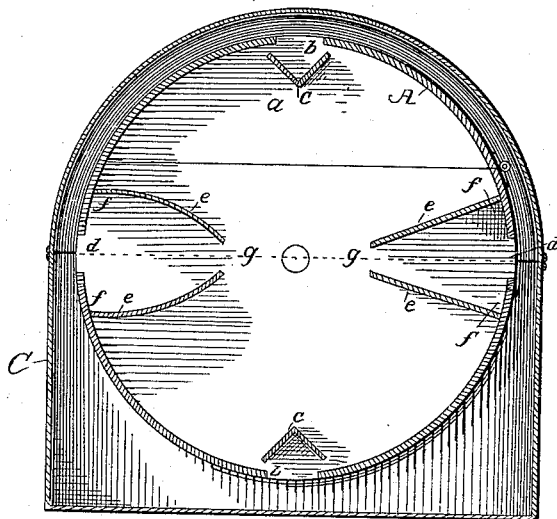
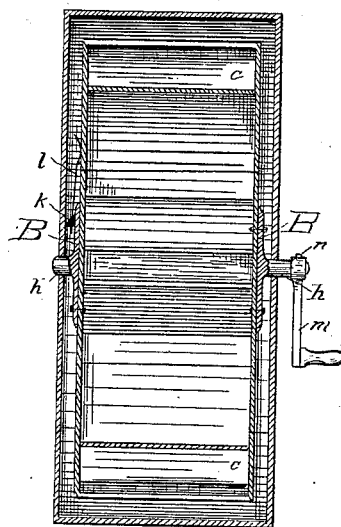


Fig. 2.



WITNESSES

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HENRY C. DURBOROW, OF CHRISMAN, ILLINOIS, ASSIGNOR OF ONE-HALF
TO WILLIAM B. MOORHEAD, OF SAME PLACE.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 264,030, dated September 5, 1882.

Application filed September 27, 1881. Renewed July 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. DURBOROW, of Chrisman, in the county of Edgar and State of Illinois, have invented a new and useful Improvement in Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement upon washing-machines of that class in which the clothing to be washed is contained in a revolving cylinder which is set in a tub or other receptacle containing the water. The general principle of the revolving cylinder or wheel in washing-machines is old and well known, and requires no extended description.

The object of my invention is to provide improved means for conducting the water from the outside to the interior of the wheel in order to discharge it from the inside upon the clothing, as well as to admit it from the outside directly upon the clothing.

In the accompanying drawings, Figure 1 shows a central longitudinal section through the machine and across the axis of the wheel. Fig. 2 shows a central transverse section through the wheel.

In these figures, A represents the wheel or cylinder in which the clothing is placed to be washed. It is set in a boiler, C, being mounted upon trunnions which have their bearings in the side of the boiler, and is turned by an ordinary crank. The interior of the wheel is left clear, the trunnions being fastened to the outside of the wheel, with no axis passing through. The wheel is formed with a section, *a*, hinged to the main portion, for the admission of the clothes.

I provide two openings, as shown at *b b*, in the periphery of the wheel for admitting water from the outside directly into the wheel upon the outside of the clothing as it lies therein. These openings are covered by ordinary guards, *c*, which extend across the wheel from side to side, being soldered to the sides and raised a little way above the opening *b* and overlapping the same, to prevent the clothes from obstructing the entrance of the water.

It will be understood that the openings *b* are simple transverse slits across the periph-

ery, of sufficient width to admit the water. I prefer to make only two of these—one on each side, directly opposite each other; but more may be used, if desired.

In order to admit the water toward the center and discharge it upon the inner surface of the mass of clothing, I have provided openings *d d* midway between those first described and similar to them. Over these openings I provide transverse partitions *e e*, extending across the interior of the wheel and soldered to the sides. These partitions are located at a distance from the openings upon the periphery of the wheel of preferably four or five inches, (more or less,) and incline toward each other as they approach the center, extending toward the center about one-third the diameter of the wheel or two-thirds of the radius, although this distance may be somewhat varied without departing from the spirit of my invention. This construction leaves pockets *f f* between the periphery of the wheel and the partition *e*, which, as the wheel is revolved, take up the water and discharge it toward the center through the opening *g* left at the inner end of the approaching walls *e e*.

The walls on each side of the opening being alike in shape and location, water will be taken up and discharged, as described, whichever way the wheel is turned, so that the motion of the wheel may be reversed at intervals, in order to throw the clothing in opposite directions and expose it more thoroughly to the action of the water.

It will be apparent from an inspection of the drawings that as the clothing is placed within the cylinder in sufficient quantity to nearly fill the interior it will be exposed to the action of the water upon the outside, flowing through one of the openings *b*, the boiler being supplied with water to about one-third its depth. As the wheel is turned the pockets *f f* take up the water entering by the openings *d* and discharge it when the lower partition *e* has reached a horizontal position. As the mass of clothing in the revolution of the wheel will be brought against the inside of the wall *e*, it is carried around until the side against which it rests is in an inclined position, as shown in Fig. 1, when it will slip off and fall to the bottom of

the wheel—that is to say, into the space on the bottom between the two inclined walls *e e* on opposite sides of the wheel. As the forward wall *e* in the motion of the wheel is the first to assume a downward position toward the interior, as shown in said figure, it is apparent that the clothing will fall through the space between the openings *g g* before the water is discharged, and after it has fallen by the further rotation of the wheel water is discharged upon it, and thereby applied from the inside as well as from the outside. The space between the openings *g g*, being about one-third of the diameter of the wheel, is sufficient for the passage of the clothing from side to side, and as it slips from side to side it is to a greater or less degree turned, and as it is thus turned twice in every revolution of the wheel it is thoroughly exposed to the action of the water; and one special advantage of this apparatus is that a dash of water is applied to it at every turning of the clothing.

The feature also of throwing the water upon the clothing by sudden dashes is of importance, and to this end the openings *g* are made of sufficient width to permit the water to fall quickly in mass upon the clothing as the wheel is turned.

It will be observed, by reference to Fig. 1, that the walls *e e* upon one side are straight, as shown in section, and those upon the left-hand side are represented as slightly curved, which perhaps is the preferable form, in order that the capacity of the pocket *f* may be increased. Good results, however, are obtained by the use of the straight walls, as shown on the right hand of the figure. As no central shaft is used with this construction, it is necessary to provide trunnions to be secured to the ends of the cylinder to work in bearings in the case. These trunnions are attached to or form a part of a plate, *B*, made preferably of cast-iron, and secured to the heads of the cylinder by bolts or rivets. The plate is about six inches in diameter, and forms a stiffening for the head of the cylinder. On one of these plates is a lug, with which a spring-catch, *l*, attached to the hinged cover, engages and holds such cover down.

The cover may form when closed a portion of either the periphery of the cylinder or of the head, as it may be hinged in either position.

The trunnion on one side is a plain cylinder. Upon the other it is squared at the outer end and projects through the side to receive the crank *m*, which may be placed upon it and held by a pin, *n*. The crank may be removed for transportation or storage.

The boiler is designed to be set upon the stove and receive heat therefrom, but may be heated in any convenient way.

All the openings, as shown, are made symmetrical, and the wheel may be turned first in one direction and then in the other to loosen the clothing, and to expose it thoroughly to the action of the water.

I have shown two openings, *d d*, and two sets of walls. This is the preferable form; but the apparatus may be used with one set of walls and one opening only, and in this case the walls may extend nearly or quite to the center and be spread more widely, so as to make larger pockets *f*.

Having thus described my invention, what I claim is—

In a washing-machine, the cylinder *B*, adapted to revolve on its axis and fitted to a chamber or box to contain the water, the said cylinder being provided with two pairs of approximately-radial plates, each pair being set against the periphery, one on each side of an opening, *d*, in the periphery and at a distance from said opening, and also extending about two-thirds ($\frac{2}{3}$) of the distance toward the center, in combination with openings *b b*, placed in the periphery opposite each other and approximately midway between the pairs of plates, the whole being constructed as shown, and adapted to operate in the manner described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY C. DURBOROW.

Witnesses:

E. A. DICK,

WALTER DONALDSON.