H. E. SMITH.

WASHING MACHINE.

No. 27,391. Patented Mar. 6, 1860.

Fig. 1.

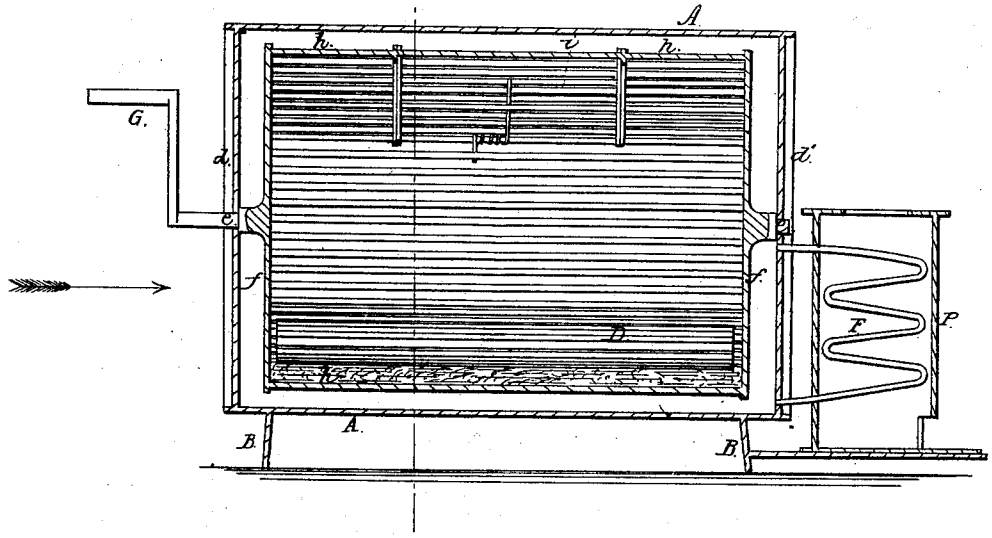


Fig. 2.

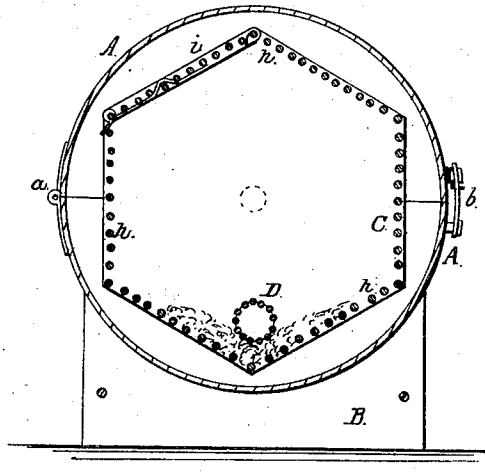
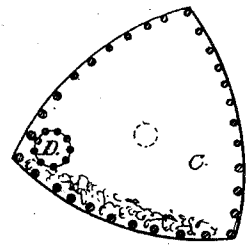


Fig. 3.



Witnesses:

Henry Newton

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Inventor:

Hamilton E. Smith

UNITED STATES PATENT OFFICE.

HAMILTON E. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

WASHING-MACHINE.

Specification of Letters Patent No. 27,391, dated March 6, 1860.

To all whom it may concern:

Be it known that I, HAMILTON E. SMITH, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and Improved Washing-Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to improvements in washing machines which consist of revolving vessels containing the water, clothes, and weighted reels or rollers having a combined rolling and pounding effect on the said clothes and my improvement consists in a slatted or perforated reel having a suitable number of straight sides, and arranged to revolve within a body of water contained in an outer vessel or reservoir, and operating in conjunction with an internal weighted reel or roller, in the manner described hereafter, so that the pounding of the inner reel or roller on the clothes may have the effect of forcing the water contained in the folds, through the interstices of the fabric and through perforations of the spaces between the slats of the revolving reel into the outer vessel or reservoir, and so that the latter may serve as a receptacle for the heavy particles of dirt, which are thus prevented from returning to the folds.

My invention further consists in combining a heating apparatus and outer casing with the above mentioned reel in such a manner that the clothes are exposed to a constant circulation of warm water.

In order to enable others to make and use my invention I will now proceed to describe its construction and operation.

On reference to the accompany drawing which forms a part of this specification, Figure 1, is a longitudinal sectional elevation of my improved washing machine. Fig. 2, a transverse sectional elevation. Fig. 3, part of a machine representing a modification of my improvement.

On reference to Figs. 1 and 2, A is a hollow cylindrical casing of wood or metal made in two halves, the lower half resting on and being secured to suitable legs B. The upper half of this casing is hinged to the lower half on one side at *a* and the two halves are locked together in front by a suitable latch *b*, on unfastening which the upper half may be turned back, thus exposing the whole interior of the casing. In the opposite ends *d* and *d'* of this casing, turn the journals *e e* of the hexagonal reel C, which is composed of two hexagonal disks H' and H[1] connected together near their peripheries by a series of longitudinal slats *h*, *h*.

At one or more points the slats are cut away so as to leave an opening of suitable size for the admission of the clothes, the openings thus formed being furnished with a gate *i* which can be locked and unlocked at pleasure.

In the inside of the reel C, is a smaller cylindrical reel D consisting of a system of slats fastened to end plates. This internal reel is somewhat shorter than the reel C, so that the former can have more or less end play, and move freely in the latter. The reel D should be weighted either by making it entirely of metal or if made of wood by attaching to it such weights as will cause it to press with the requisite force on the clothes.

In connection with the above described machine, I use a heating apparatus consisting of a casing P, containing a coiled pipe E, the upper end of which communicates with the interior of the casing A at a point near the journal *e* of the reel C, the lower end also communicating with the interior of the casing but at a point near the bottom of the same. Within the casing P and below the coil is a space for receiving the necessary fuel for heating the water as it traverses the said coil.

In using my improved washing machine, the latch *b* is in the first instance unlocked and the upper half of the casing A thrown back. Water, together with any of the usual washing materials is then poured into the casing until the lower half is nearly full. The water heated in the coil will pass through the upper end of the latter into the interior of the casing, while the cooler water in the bottom of the casing will pass into the lower end of the coil through which such a continuous circulation of water is maintained that the contents of the casing A soon acquire the necessary degree of heat. The gate *i* of the cylinder or reel C is then unlocked, and after a mass of dirty clothes have been introduced into the said reel the gate is closed and relocked and the upper half of the casing A folded down and locked to the lower half. A rotary motion is then imparted to the reel by means of an ordinary

handle G, or if the machine be of the large size, by any suitable system of gearing.

As long as the reel C remains stationary the inner reel D will rest in the lowest corner as seen in Fig. 2, and when the outer reel is turned the inner reel will retain this position in the same corner until the latter reaches a certain point when the inner reel will roll down the inclined plane of slats to another corner. Thus, as the outer reel revolves, the inner reel is impelled with a force depending upon its weight from one corner to another, or in other words, it has a rising and falling combined with a rolling motion, within the outer reel. At the same time the clothes within the latter are turned over and over, such of the clothes as are on the inclined plane of slats being subject to the rolling action of the inner wheel as it descends, and such clothes as are in the corner of the reel, receiving the full force and weight of the descending inner reel. The water contained in the folds of the clothes is by this combined rolling and pounding action of the inner reel forced, through the interstices of the fabric and through the spaces between the slats into the body of water contained in the outer casing, the particles of dirt being thus forced from the fabric instead of being rubbed from the same as in ordinary washing machines, and the heavier particles remaining at the bottom of the outer casing.

Instead of using slats for forming the reels, they may be made of boards perforated with a sufficient number of holes to allow the water in the outer casing free access to the reel and to allow free egress for the water forced through the interstices of the fabric by the weighted reel.

I wish it to be understood that I do not claim broadly a vessel so formed that a weighted reel within the same may have a pounding effect on the clothes contained in the vessel such a device being described in the patent granted to J. Boardman July 15, 1851; but

I claim as my invention, and desire to secure by Letters Patent—

1. The slotted or perforated reel C, having any convenient number of straight sides, when the said reel is arranged to revolve within the water contained in the outer vessel A, and when it operates in conjunction with the weighted reel or roller D, as and for the purpose herein set forth.

2. I also claim the heater P with the coiled pipe F or its equivalent, when combined with the outer casing A and the reels C and D, in the manner and for the purpose specified.

In testimony whereof, I have signed my name to this specification before two subscribing witnesses.

HAMILTON E. SMITH.

Witnesses:
HENRY HOWSON,
CHAS. E. FOSTER.