



# UNITED STATES PATENT OFFICE.

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## REVERSING MECHANISM FOR WASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 419,627, dated January 21, 1890.

Application filed April 19, 1889. Serial No. 307,811. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH E. BOARDMAN, a citizen of the United States, residing at Camden, in the county of Knox and State of Maine, have invented certain new and useful Improvements in Reversing Mechanism for Washing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to cylinder washing-machines of that class wherein the cylinder is rotated intermittently in opposite directions; and the object of my invention is to construct a washing-machine which shall be provided with means for reversing the motion of the cylinder, and which may be cheaply and substantially made without the complicated machinery which is usually found in such machines.

My invention consists of the means for rotating the cylinder of a washing-machine in opposite directions, as set forth in the claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a plan or top view. Fig. 3 is an end view.

A A is a suitable frame-work, and C is the cylinder washing-machine, of ordinary construction, O being its inner perforated cylinder rotating on an arbor C'. A shaft B is coupled to the end of the arbor C' by means of the coupling b. This shaft is journaled in the boxes b' b', and it has on its end a pinion E, and it also has secured to it a large gear D. The pinion E engages the teeth of a crown-wheel F, which is secured to the end of a shaft f', journaled at the end of a bracket L, which is attached to the frame-work A. Projecting from the face of the wheel F and secured thereto is a short arm f. A shaft j is journaled at the lower part of the frame A and is parallel with the shaft B. It contains a small gear or pinion j', which engages the large gear D. The fixed pulley J' is secured on the shaft j, as is also the two loose pulleys J J, one on each side of the pulley J'.

A shipper I is pivoted by one of its ends to

the frame of the machine, and it has two forks or stirrups i and i', one adapted to ship the straight belt and the other the cross-belt. (Not shown.)

A lever H is secured to the shippers I and extends horizontally toward the disk or crown wheel F. The end of the lever H lies near to the face of the wheel and parallel with it. A chain, cord, or other flexible connection G connects the end of this lever H with the arm f.

The position and adjustment of parts is such as to carry into effect the hereinafter-described operation. When the machine is in the position shown in Fig. 1—namely, with the straight belt, which is worked by the fork i', on the fixed pulley—the lever H is at its greatest depression. The shaft B is rotated, putting in motion the cylinder O and the crown-wheel F.

As the wheel F turns in the direction indicated by the arrow the arm f depresses the lever to the position shown in Fig. 1, bringing the straight belt, which is operated by the fork i', to the fixed pulley. The motion of the pulley J' is then reversed and the wheel F caused to move in the opposite direction, carrying the arm f upward to the position shown by dotted lines. When this point is reached, the chain G lifts the lever H and throws the crossed belt to the fixed pulley. The motion is then reversed and the lever H is depressed by the arm f as it descends, as before shown. It will thus be seen that the two belts are alternately thrown on and off of the fixed pulley, reversing at regular intervals the motion of the main shaft, and hence the motion of the inner cylinder.

The length of time during which each motion will continue may be regulated by varying the length of the chain G. The longer the chain the higher it will have to rise before raising the lever and shifting the belts, and the longer it will take it to get back to depress the lever.

I do not wish to limit myself to the exact device here illustrated and described, as it is obvious that many modifications can be made in it without departing from the spirit of my invention.

It is obvious that there are many well-known equivalents which may be used in place of the crown-wheel here shown.

I claim—

1. The combination of a main shaft, a wheel adapted to be rotated by said shaft, a shipper for throwing the straight and crossed belts, a  
5 lever secured to said shipper, and a flexible connection adapted to be varied in length uniting said lever with said wheel, whereby the said lever is moved and the belts shifted when said wheel is rotated, substantially as  
10 shown.
2. The combination of a main shaft, a wheel adapted to be rotated by said shaft, a shipper for throwing the straight and crossed belts, a  
15 lever secured to said shipper, an arm or projection on said wheel for depressing said lever, and a flexible connection adapted to be varied in length uniting said lever with said

wheel for raising said lever, whereby the shipper is thrown one way and the other to reverse the motion of the machine, substantially as shown. 20

3. The combination of a main shaft, a wheel adapted to be rotated by said shaft, a shipper for throwing the straight and loose belts, and a chain uniting said wheel with said shipper, 25 whereby the latter is thrown by the rotation of said wheel, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH E. BOARDMAN.

Witnesses:

ALEX. C. DUNBAR,  
JOHN A. PORTER.