G. E. Chamberlin,

Washing Machine.

No. 98,556. Patented Jan. 4. 1870.

Fig. 1.

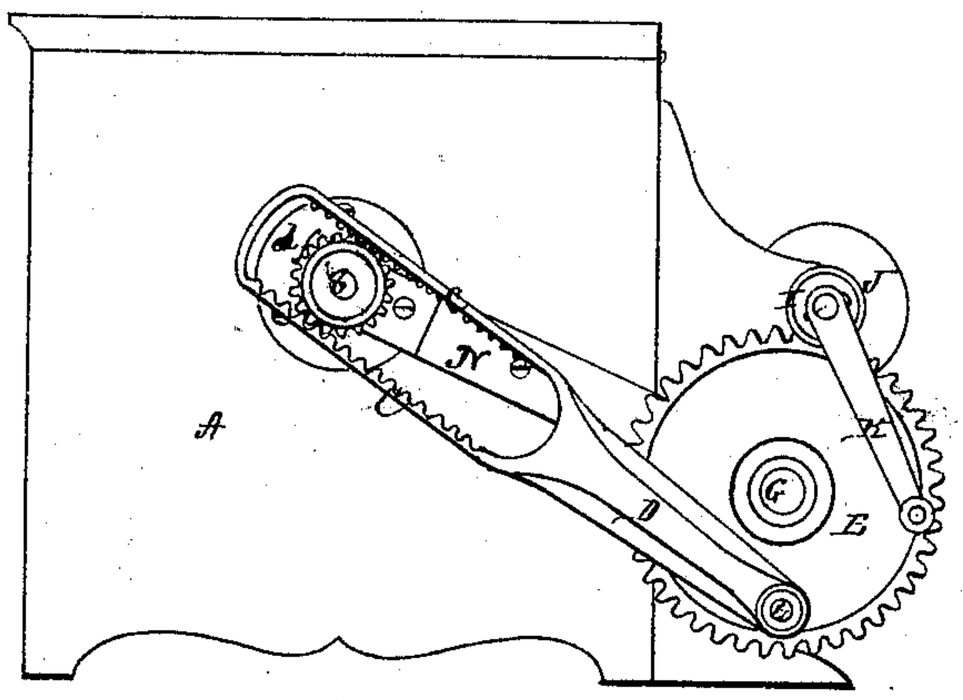


Fig. 2.

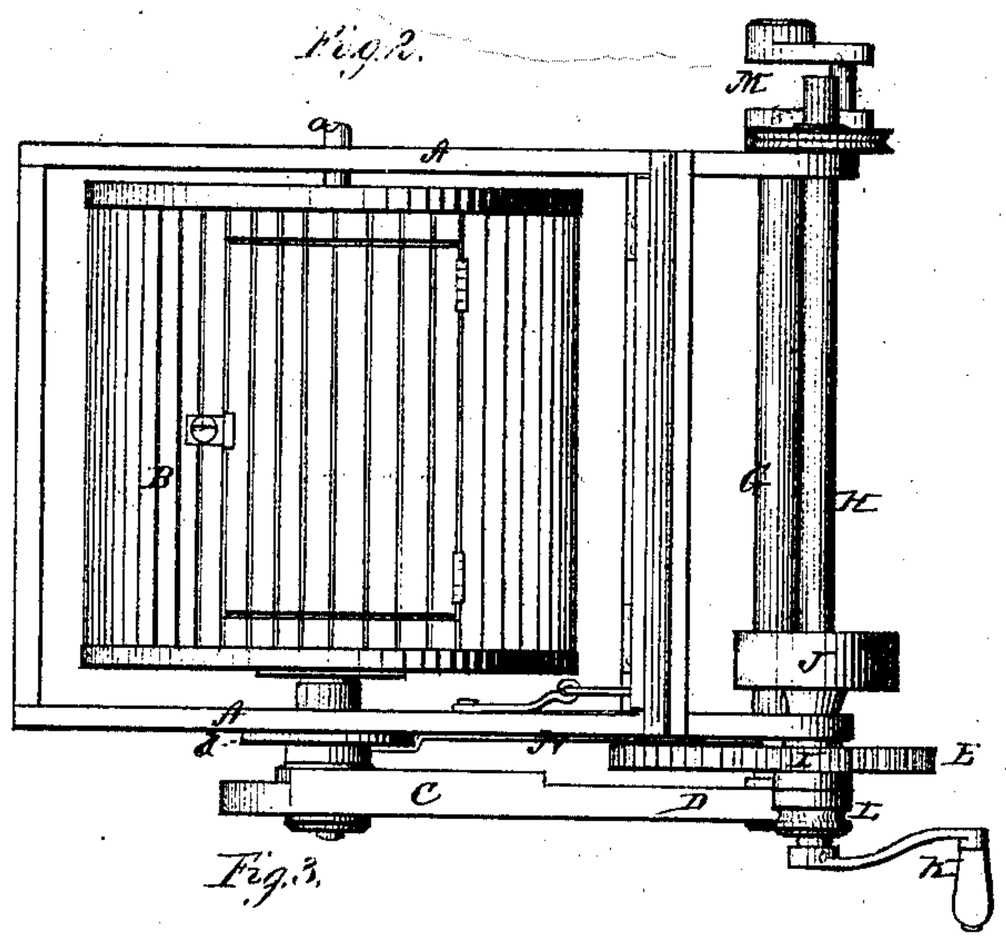
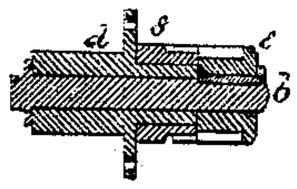


Fig. 3.



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GEORGE E. CHAMBERLIN, OF NEW YORK, N. Y.*

Letters Patent No. 98,556, *dated January* 4, 1870.

IMPROVED WASHING-MACHINE.

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, GEORGE E. CHAMBERLIN, of New York, in the county of New York, and State of New York, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Devices hitherto employed for reversing the cylinders of washing-machines, have consisted either in the employment of two belts, straight and crossed, arranged to drive the shaft in opposite directions, by being shifted horizontally from a loose to a fast pulley, or by one belt similarly shifted, operating directly on the shaft in one direction, and, through a system of gearing, causing the driving-shaft to revolve in an opposite direction.

The object of my invention is to obviate all this complicated gearing or machinery; and

It consists in the use of but one belt, or crank for hand-machines, which drives the cylinders of one or more washing-machines in opposite directions alternately, without being shifted horizontally, and without changing the direction of the revolutions of the driving-shaft, thereby saving power and the rapid deterioration of belts and shifting-gear experienced in devices hitherto employed.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation, and

Figure 2, a plan view of my machine.

Figure 3 is a longitudinal vertical section of the cylinder-gudgeon, through which the reversible motion is communicated to the cylinder.

A represents the tub of the washing-machine, within which is the cylinder B, revolving upon journal *a* at one end, and upon the gudgeon *b* at the other end.

The gudgeon *b* passes through a metal hub, *d*, secured in the side of the tub A, and is at its outer end provided with a pinion, *e*, keyed or otherwise firmly secured to the same.

Between the pinion *e* and the flange-plate of the hub *d*, upon the outer end of hub D, is placed a loose anti-friction roller or pinion, *f*.

Around the pinions *e* and *f* is placed a yoke-rack, C, having cogs on its inside, on both the upper and lower sides, the cogs on the lower side gearing with the pinion *e*, and those on the upper side with the roller *f*. This latter roller, being of a diameter somewhat larger than that of the pinion *e*, prevents the upper cogs of the yoke-rack from catching in any manner in the cogs of the pinion *e*.

The yoke-rack C is made in one piece with a rod, D, which connects with a crank or wrist-pin, *i*, upon the side of a large cog-wheel, E, mounted upon the shaft G, having its bearings in suitable brackets on the rear side of the tub A.

The shaft G, with its wheel E, obtains its rotary motion from a pinion, I, upon the primary driving-shaft H, which is revolved in one direction, either by a belt around the pulley J, or by hand, by means of the crank K.

It will readily be seen that the main shaft revolving in the same direction all the time, will cause the cylinder to revolve in opposite directions, first making one revolution, more or less, in one direction, then another revolution in the opposite direction, and so on, constantly alternating from one side to the other.

The operation of the yoke-rack C, with the pinion *e* and crank-pin *i*, causes the cylinder to remain an instant at rest before it commences its movement. This movement is first slow, and gradually increases until the cylinder has performed half a revolution, when it decreases, until, when the revolution is completed, the cylinder is at rest again, when it commences a similar movement in the opposite direction.

The cylinder B is made in any of the known and usual ways, of slats, and having a lid through which the clothes are put in.

The pinion I is placed loosely upon the primary shaft H, and is thrown in and out of gear by means fo a feathered collar, L, in any suitable manner.

Upon the shaft G are placed one or more other cranks M, connecting with the cylinders of other washing-machines, but said cranks are so arranged that but one cylinder in the series will be reversed at the same time.

Upon the side of the tub A is secured a bar, N, which connects the hub *d* with the bracket, supporting the crank-shaft G, and thence with the foot or foundation, for the purpose of relieving the hub from the strain of driving the cylinder by means of the crank, the motion having a tendency to draw the two shafts together and thrust them apart alternately. This motion is also superior, from the clothes being thrown across and impinging with greater force on the opposite side of the cylinder by the accelerated velocity of the same, producing a more constant agitation and equal action on all the clothes. Being more simple and direct, it is less liable to get out of repair, and more durable than former devices.

The same device may be used on any other machine, for reversing the motion, without changing the direction of the revolution of the main shaft.

* Assignor to the New York Laundry Manufacturing Company of New York City.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The yoke-rack C and connecting-rod D combined, acting directly on the cylinder-gudgeon *b*, through the pinion *e*, when constructed and operating substantially in the manner and for the purposes herein set forth.

2. The anti-friction roller *f*, used in combination with the yoke-rack C, substantially as shown and described.

3. In combination with the central hub *d*, and the bracket supporting the driving-shaft G, the bar N, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own, I affix my signature, in presence of two witnesses.

GEO. E. CHAMBERLIN.

Witnesses:

ANDW. GILL,

CHARLES NETTLETON.