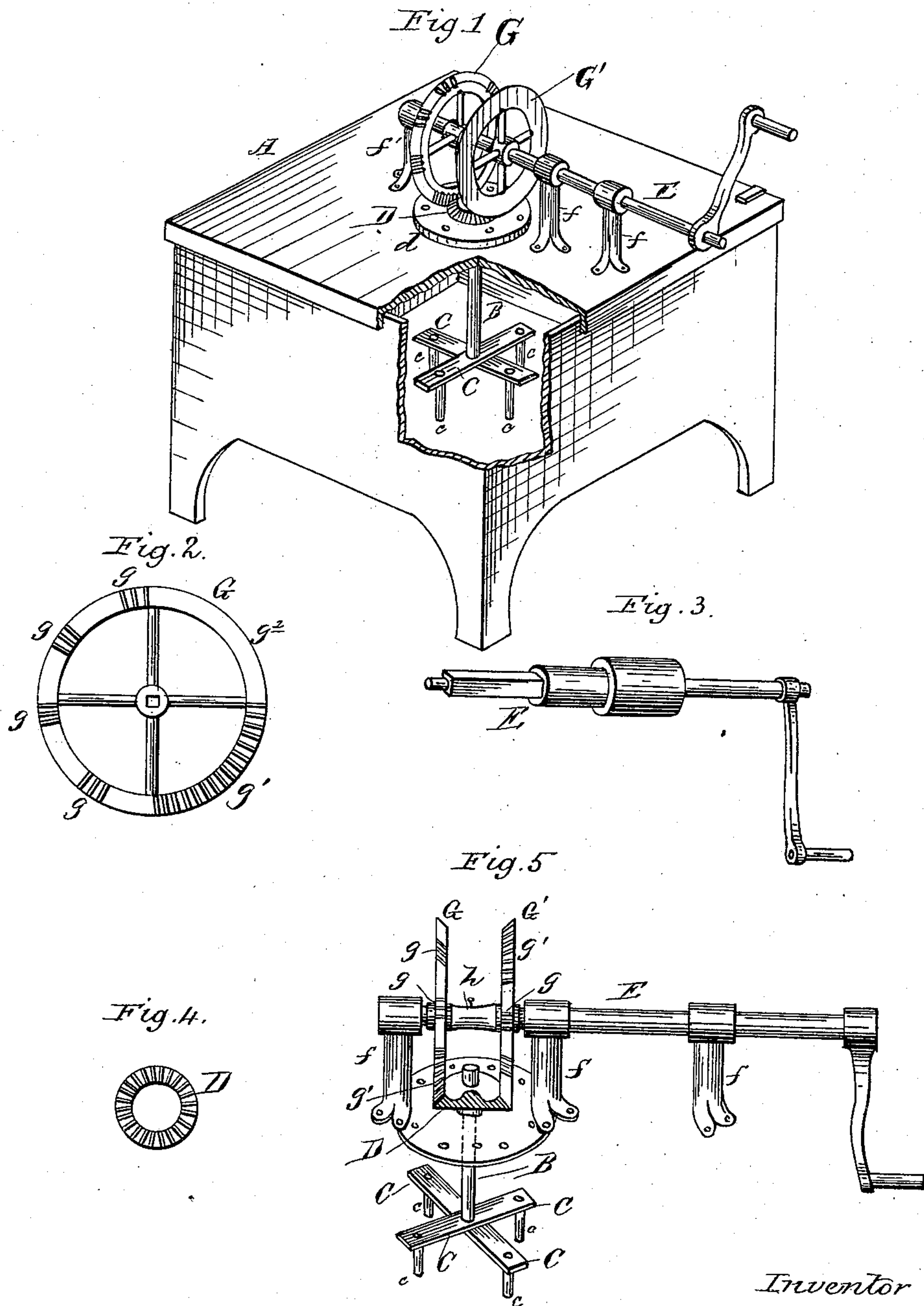


(No Model.)

A. J. MERCER.
WASHING MACHINE.

No. 322,840.

Patented July 21, 1885.



Witnesses:
W. Johnson
H. H. Taylor

Inventor
Andrew J. Mercer
[Signature]
Attorney.

UNITED STATES PATENT OFFICE.

ANDREW J. MERCER, OF BURDENVILLE, ASSIGNOR TO JAMES M. MERCER
AND LORIN E. WHITE, OF BURDEN, KANSAS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 322,840, dated July 21, 1885.

Application filed March 1, 1883. Renewed November 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. MERCER, a citizen of the United States of America, residing at Burdenville, in the county of Cowley and State of Kansas, have invented certain new and useful Improvements in Washing-Machines; and I do hereby 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 letters or figures of reference marked thereon, which form part of this specification.

This invention relates to that class of washing-machines in which the clothes are stirred alternately in reverse directions by a series of pegs, its object being to vary the direction and speed of the stirring motion in the manner more conducive to the thorough cleansing of the clothes than has been effected in machines of this class as heretofore constructed.

The invention consists in certain novel constructions and combinations of devices, as will be hereinafter described, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a washing-machine constructed according to my invention. Fig. 2 is a face view of one of the driving-wheels. Fig. 3 is a perspective view of the driving-shaft. Fig. 4 is a face view of the bevel-wheel upon the stirring-shaft. Fig. 5 is a side view, partly in section, of the mechanism detached from the casing.

The letter A designates the casing or box of the machine, centrally and vertically in which is arranged a stirring-shaft, B, carrying at its lower ends the cross-bars C, provided with downwardly-projecting pegs *c*, reaching not quite to the bottom of the machine. The upper end of the shaft B projects through the top of the casing and carries the bevel gear-wheel D, which rests upon a bearing-plate, *d*.

The letter E indicates the driving-shaft of the machine, which is mounted in bearings at the tops of standards *fff*. A portion of this shaft is squared to receive two beveled gear-wheels, G G', the teeth of which are peculiarly

arranged and adapted to engage with the bevel gear-wheel D. The arrangement of the teeth of these bevel gear-wheels G and G' will be understood by reference to Fig. 2, in which it will be seen that there are four groups of three teeth each, and these groups are separated by equal intervening spaces, and one of the end groups is separated by the same space from a group comprising a number of teeth nearly equal to the number of teeth in the wheel D, and this large group is separated from the other end group of three teeth by an intervening space, g^2 , equal in extent to the length of the group g' .

The two wheels G and G' are constructed precisely alike, but when arranged upon the shaft E and separated by a sleeve, *h*, as shown in Fig. 5, the long group of teeth g' of wheel G' stands opposite the long toothless space g^2 of the wheel G, and the small groups *g* of said wheel G' stand opposite the spaces between the small groups of teeth of the wheel G.

It will now be understood that when the shaft is turned, carrying both wheels G and G' in the same direction, their teeth will be alternately engaged with the small beveled gear-wheel D. For instance, the first group of three teeth of the wheel G to the left of the space g^2 engages with the wheel D, gives it a partial rotation and passes out of engagement. Next a group of three teeth of the wheel G' engages the wheel D and gives it a partial rotation in the opposite direction, the small groups of teeth of the two wheels G and G' thus alternately engaging the wheel D and operate it reversely to cause a stirring action of the shaft B, its cross-bars, and pins, which agitate the clothes. When the last small group next to the large group of teeth passes out of engagement with the wheel D, the long group g' of the other driving-wheel engages said wheel D and gives it a complete rotation, or more according to the number of teeth in the long group, and when this long group passes out of engagement the long group of the other driving-wheel comes into engagement and gives the wheel D an equal amount of rotation in the opposite direction. It will now be observed that on every revolution of both wheels the

wheel D will be caused to have four partial rotations in each direction, these partial rotations being alternately reversed and followed by a complete rotation in each direction.

5 I am aware that washing-machines have been constructed to stir the clothes alternately in opposite directions by short movements; yet I have discovered that while these short reverse stirrings are quite efficient in loosening
10 up the dirt and keeping the suds in good condition, they should be alternated with prolonged movements of the clothes in the suds in a continuous direction or two prolonged movements in opposite directions, in order to the
15 efficient removal of the extraneous matter which has been loosened from the clothes, an example of which may be seen in Patent No. 239,081, dated March 22, 1881, and I do not claim such construction; but

20 What I claim is—

The combination, with the stirring-shaft, and the gear-wheel mounted thereon, of the driving gear-wheels engaged therewith on opposite sides and arranged to rotate in the same direction, each of said wheels being provided 25 with a series of separated small groups of teeth, each arranged to give the wheel on the stirring-shaft a partial rotation, and a larger group arranged to give said wheel a complete rotation, the groups of teeth of each wheel 30 being respectively arranged opposite corresponding spaces of the other wheel, substantially as and for the purpose set forth.

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

ANDREW J. MERCER.

Witnesses:

WM. A. MARTIN,
H. W. BROFFT.