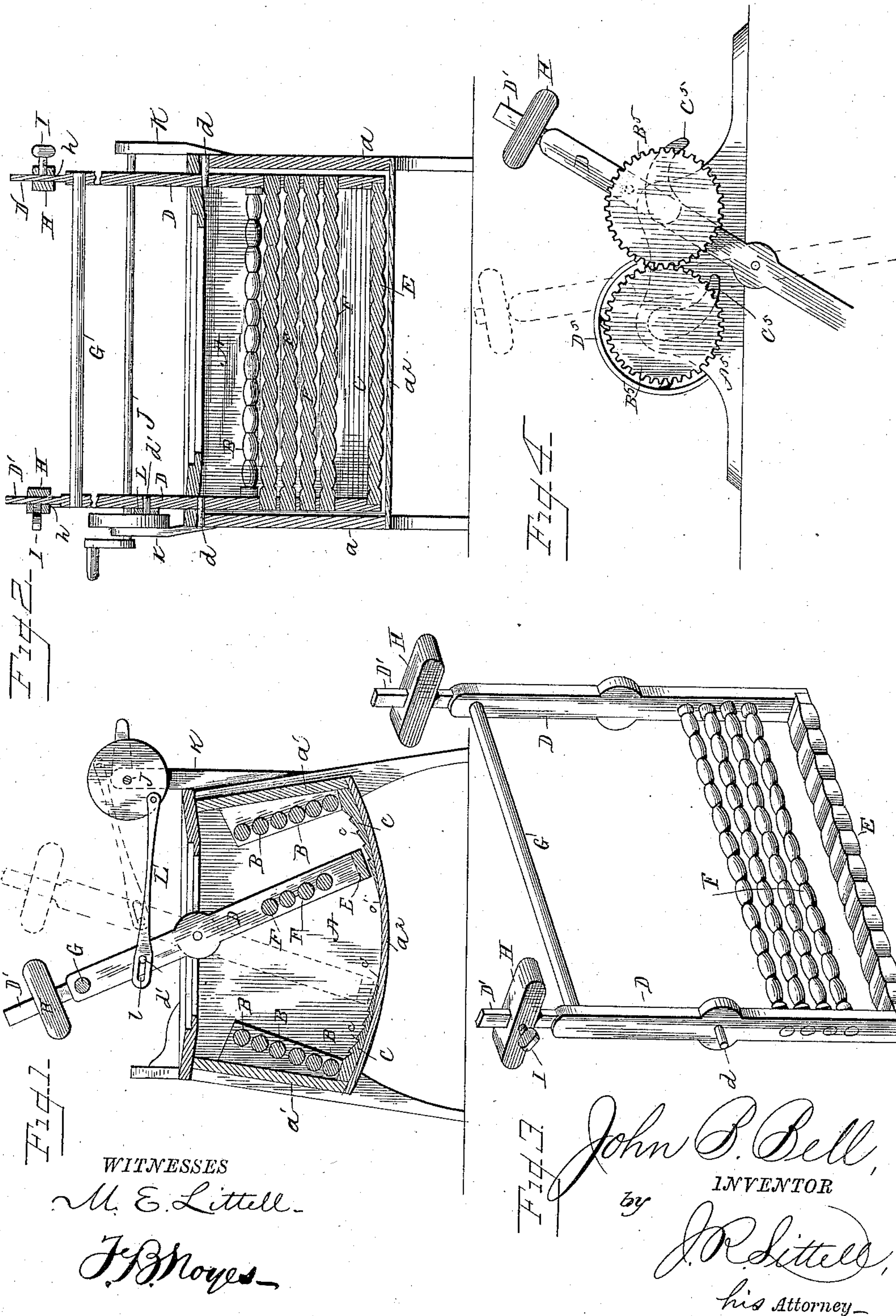


(No Model.)

J. B. BELL.  
WASHING MACHINE.

No. 335,880.

Patented Feb. 9, 1886.





# UNITED STATES PATENT OFFICE.

JOHN B. BELL, OF PITTSBURG, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,880, dated February 9 1886.

Application filed September 20, 1884. Serial No. 143,600. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. BELL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Clothes-Washers; 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.

This invention relates to that class of clothes-washers in which a dasher or beater is suitably journaled in relation to the suds-box, and is adapted to reciprocate within the latter.

My invention consists in certain improvements over my former patent, No. 270,726, dated January 16, 1883; and it further consists in certain improvements in the construction and operation, substantially as will be hereinafter fully set forth, and particularly pointed out in the claim.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a washing-machine embodying my improvements. Fig. 2 is a vertical transverse sectional view of the same. Fig. 3 is a detail perspective view of the beater or rubber. Fig. 4 is a detail side view illustrating a modification in the mechanism for operating the beater-frame.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the suds-box, which forms the body of my improved clothes-washer. The box A preferably comprises sides  $a$ , inwardly convergent or inclined ends  $a'$ , and a concave bottom,  $a^2$ , as shown. Each end of the box is preferably provided with a series of stationary rungs or slats, B, which series incline toward the center of the box, against which the clothes are driven by the reciprocating beater. At the bottom of these series of rungs, and at the junction of the bottom and ends of the box, transverse corrugated strips C are provided, the foregoing construction being substantially as illustrated in my above-mentioned patent.

The bottom of the suds-box forms a segment of a circle, and to provide for this the ends of the bottom piece,  $a^2$ , diverge from the plane of the segment, so that the transverse corrugated end strips will complete and form the ends of the interior segmental face of the bot-

tom, above which the lower end of the beater reciprocates in a corresponding segmental plane. The corrugations upon the strips C are formed with an abrupt wall or shoulder,  $c$ , from which the face of the strip is inclined toward the center of the box, as shown at  $c'$ , by which construction the clothes will be carried over the surface of the strip on the upward stroke of the beater toward the ends of the box; but instead of sliding back they will encounter the abrupt walls or shoulders of the corrugations, and will turn over and present a new surface to each stroke of the beater.

Under some circumstances the strips C may be dispensed with, in which case the corrugations will be formed directly upon the bottom piece.

D D designate the parallel upright side pieces of the beater-frame, which are provided with lateral gudgeons  $d$ , having suitable bearings at the top of the sides  $a$ . The bottom ends of the side pieces, D D, are connected by a transverse bar or rung, E, preferably formed of wood and wider than the transverse rungs or slats F, which are disposed in a vertical series above it and form the beater. This wide bottom bar is adapted to go under the clothes and assist in turning them over at each stroke. A transverse handle-bar, G, connects the side pieces, D D, above their bearing, and the said side pieces are provided with an extension, D', above the handle-bar, upon which weights H are fitted. These weights are preferably formed by oblong blocks placed longitudinally in relation to the suds-box, and provided with a central perforation,  $h$ , to receive the extensions D', upon which the weights are preferably vertically adjustable or removable therefrom by means of set-screws I. By this arrangement the weights may be readily adjusted according to the work to be done or the strength of the operator.

It is obvious that the beater may be readily reciprocated by means of the handle-bar, and that the adjustable weights, in the position above described, will accelerate the velocity and force of the beater and its action upon the clothes, and will enable the operation of the machine with a small expenditure of power.

When steam or other power is to be used to provide for the more convenient operation of the machine, a crank-wheel, J, is journaled in



suitable bearings upon standards K K, projecting at the end of the box A. A pitman, L, extends from this crank-wheel, and has its other end provided with an elongated bearing-slot, l, which receives a journal-pin, d', projecting from the side piece, D, above its bearing. It will be seen that the end of the pitman which is connected to the end of the beater will have its greatest velocity at the top and bottom of the stroke of the crank. The elongated bearing l is therefore provided to enable the beater to continue the velocity imparted by the weights, and not have its momentum retarded by the slower motion of the crank at each extreme end of the stroke, at which point the journal-pin d' is adapted to slide in the elongated slot. Thus the momentum of the beater is only arrested by its contact with the clothes, which therefore receive the full force of the stroke, whether there be a small or large quantity of clothes in the box.

In the modification illustrated in Fig. 4 a suitable frame is secured at the top of the box, and provides bearings for two intermeshing gear-wheels, B<sup>5</sup> B<sup>5</sup>, carrying cams C<sup>5</sup>, a band-wheel, D<sup>5</sup>, being provided upon the end of the

shaft of one of the gear-wheels, to provide for transmitting motion to the gears to cause them to revolve upon their bearings in the frame A<sup>5</sup>. As the gear-wheels revolve, the cams engage alternately with the lateral pin d' upon one of the side pieces, D, of the beater-frame, and thereby effects the operation of the latter.

I claim as my invention—

The combination of the beater comprising the side pieces having suitable bearings, and provided with the journal-pin above said bearings, the side pieces being connected by the handle-bar at their top, and provided with extensions above said bar, the weights fitted upon these extensions, the crank-wheel, and the pitman extending from the crank-wheel, and provided with the elongated bearing receiving the journal-pin upon the beater, substantially as and for the purpose set forth.

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

JOHN B. BELL.

Witnesses:

WM. LITTLE,  
JAMES M. BELL.