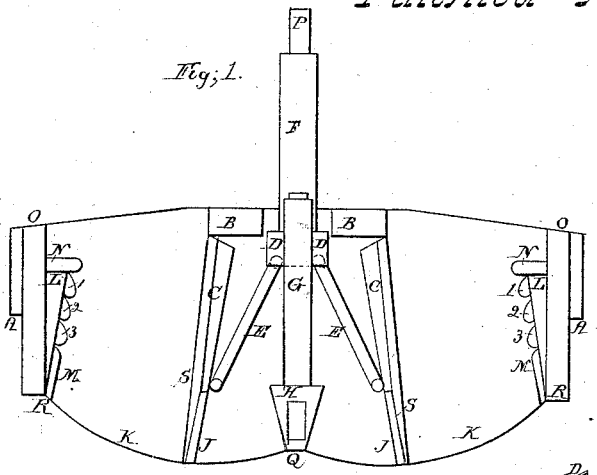
Sheet 1-2 Sheets.

Benteen & Zimmerman,

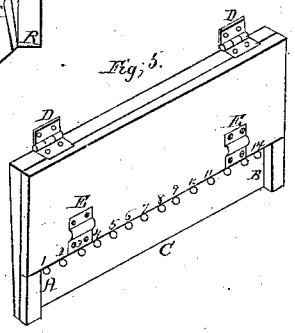
Washing Machine,

No. 4,162. Patented Aug. 26, 1845.

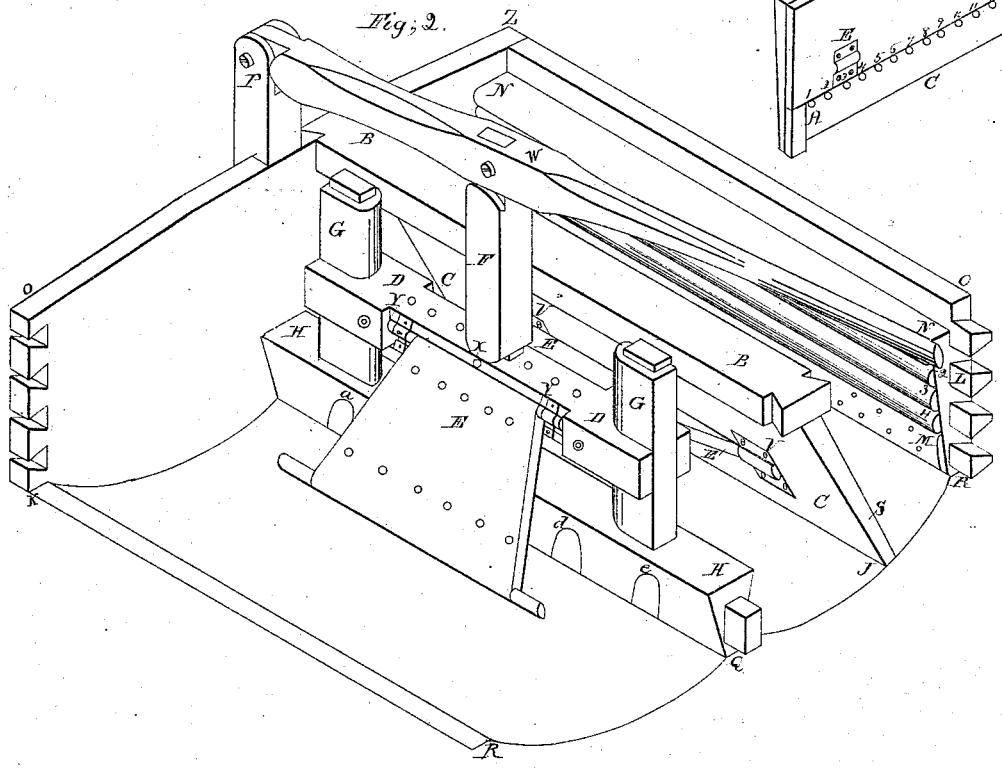
Fig; 1.



Fig; 3.



Fig; 2.



Sheet 2 - 2 Sheets

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Fig. 4

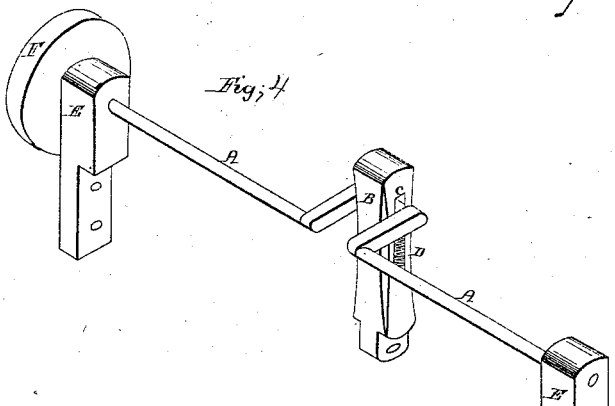
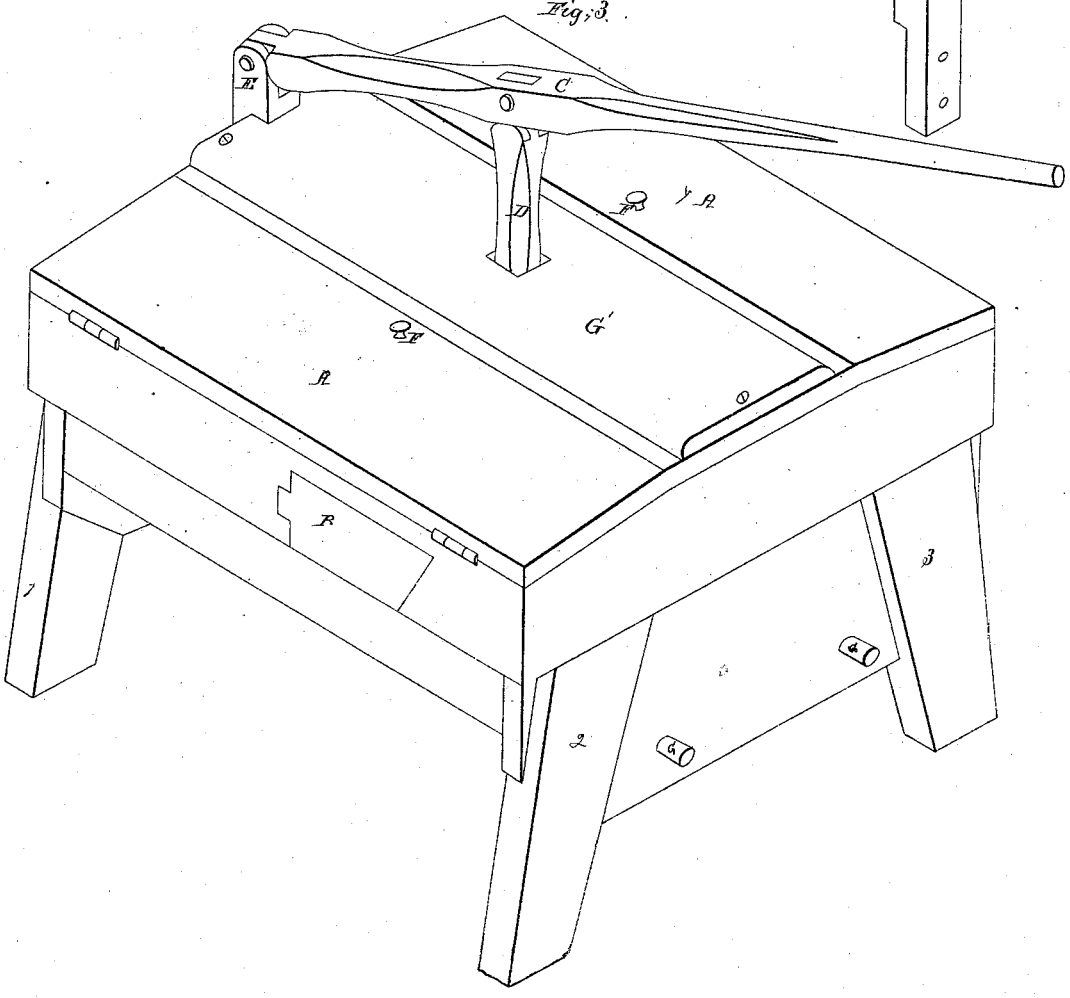


Fig. 3.



UNITED STATES PATENT OFFICE.

T. C. BENTEEN AND H. W. ZIMMERMAN, OF PETERSBURG, VIRGINIA.

WASHING-MACHINE.

Specification of Letters Patent No. 4,162, dated August 26, 1845.

To all whom it may concern:

Be it known that we, T. C. BENTEEN and H. W. ZIMMERMAN, of the town of Petersburg and State of Virginia, have invented a new and useful Machine for Washing Clothes, called the "Suction Washing-Machine"; and we do hereby declare that the following is a full, clear, and exact account and description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a transverse section, the several parts of which are as follows, viz: O, R, Q, R, O, represents the box or tub; B B are two longitudinal bars of wood called "wing holders" to which the wings C, C, are attached by hinges; F is the "piston" attached to the "block" D, D, (which we call the "double forked lever block"), by a pin; this block is supported by two upright pieces called "fork supporters," one of which is shown at G; E E are two triangular levers moving on brass pivots in the block D D, and also on the backs of the wings C C; H is a horizontal beam, somewhat of a triangular shape, to afford a foundation for the supporters G &c., and also to strengthen the machine; the wings C C are made hollow from the lower edges upward as far as S S—and covered with a strip of sheet zinc on the inner side; a full view of one of these wings is shown by Fig. 5, when the inside of the wing is drawn with the strip of zinc taken off in order to show the cavity or hollow part within; it will be seen by reference to this figure, that a row of holes 1, 2, 3, &c., opens a communication from the outside of the wing to the hollow chamber A, B, the use of which, will be shown presently; this chamber, when the whole area from A to B is covered by the sheet zinc, is open nowhere but at the lower edge C and the outlet through the row of holes; D, D, are the hinges by which the wing is hung to the wing supporter, and E E are the brass loops which serve to connect the wing to the triangular lever. But to return to Fig. 1, L L are two triangular blocks or battens (similar ones being at the other end of the machine) to which are attached the semicylindrical rods 1 2 3, 1 2 3, having small spaces between each two of them; M M are two narrow boards fastened to the battens, and perforated with numerous holes as seen at M Fig. 2; N N are pieces fixed on the tops of the battens to prevent the water from being thrown out, and are therefore called "break pieces"; P is a tennon on the piston F, to which the lever W Fig. 2 is attached by a pin, for working the machine; R K Q K R is the bottom, formed of an entire sheet of zinc, and curved so that the wings C C will fit it in any position. Now by pushing down the piston F, the block D D is made to slide down the supporters G &c. (there being notches in it to fit the supporters) thereby causing the triangular levers E E to diverge, they in their turn forcing the wings C C to move from Q toward R R; consequently by raising the piston, the wings return to Q; thus the washing is carried on; for if the clothes to be washed are placed in the spaces S M, S M, and the piston be forced down, the clothes will be compressed against the boards M M and the rods 1, 2, 3, &c.; the water escaping on that side through the holes in the boards and the openings between the rods; and on the other side filling the hollow compartments in the wings through the before mentioned row of holes; but the instant the wings begin to retire, the centrifugal force produced by their circular motion will cause the water to flow from the chambers through the opening at their lower edge, thereby producing a partial vacuum in the spaces above, about the region of the row of holes, this vacuum induces the clothes to stick to the holes for a little while, with sufficient force to cause them to be drawn out and opened at every stroke of the machine; the smooth metallic bottom also materially assisting the operation; thus a new surface is continually presented for the action of the water.

Fig. 2 is an isometric drawing of a part of the machine, O Z O representing two sides of the box or tub; H H the beam, into which are mortised the supporters G G; the other ends of them are made to fit in mortises cut in the piece G″ Fig. 3, and are rounded on their edges to fit in the semi-circular grooves in the block D D, which slides up and down upon them. F is the piston, attached to the block D D by a pin through X; E E are the two triangular levers, pivoted to the block D D by the brass loops Y Y; C C is one of the wings (the other being omitted in the drawing,) supported by and hinged to the bar B B, and pivoted to the lever E E by the loops V V; L is the triangular batten, to which are attached the board M and the

semicylindrical rods 2 3 4, the whole being surmounted by the break piece N N; R R, is the zinc bottom formed into two circular arcs having the wing C C for radius; *a*, *d*, *e*, are arches or openings cut through the beam for the purpose of keeping the water at the same level on both sides of it; W is the lever for working the machine and P is its fulcrum.

Fig. 3 is a drawing of the suction washing machine entire; 1 2 3 &c., are the feet on which it stands; A A are two doors on the top, which fit closely, being hinged one on either side; the doors when opened are thrown back upon the supports B &c., which are made to shut up and open similar to the same appendages when fixed to a dining table to support the leaves; the inside of the doors when open afford convenient places whereon to soap or otherwise prepare the clothes for washing; F F are two buttons for opening the doors and for fastening them when closed; C is the lever, D the piston, E the fulcrum and G G are holes, stopped by plugs, for letting out the water.

Fig. 4 is an appendage to the machine for the purpose of connecting it with any rotary motion force; it consists of a crank A A working in a slot C, in the piston B, and supported by the pieces E E; in the lower part of the slot C through which the crank passes is a strong zigzag spring D adjustable to various heights by screws (not shown); F is a wheel or drum on the crank shaft to connect it with the motive power. This appendage is fixed to the washing machine by removing the piston F, the lever W and the fulcrum P, Fig. 2, and screwing on the supports E E to the sides of the box, also connecting the piston B to the block D D Fig. 2. Now by turning the crank, the piston is forced down causing the wings C C Fig. 1 to press against the clothes—there the wings stop when the clothes will yield no farther, but at that moment the spring D gives way, thus suffering the crank to escape and perform a complete revolution; yet at the same time keeping up the necessary degree of pressure.

The mode of using this washing machine is as follows, viz: The clothes to be washed are first saturated in a tub of cold water, then taken out piece by piece and laid on the open doors of the machine, half on each side; the parts most soiled are then to be well soaped, and the pieces, one by one, laid smoothly in the machine (not rolled up) taking care to divide the clothes, as to bulk, as nearly as may be, into the two sides of the machine; (although one side may be used without the other;) now pour into the machine very hot water, mixed with a little good lye, nearly enough to cover the clothes. Everything being thus prepared, if the lever be moved up and down briskly for a few minutes, say from 10 to 15, the clothes will be well washed, they requiring nothing more after this process but to be rinsed in clean water, which may likewise be done in the machine.

What we claim, is—

The manner in which we construct the wash board, so as to effect a partial vacuum within its lower portion by centrifugal action in the manner and for the purpose above described.

T. C. BENTEEN.
H. W. ZIMMERMAN.

Attest:
LEWIS LUNSFORD,
JAMES E. WOLFF.