

(No Model.)

E. W. ALLEN.  
WASHING APPARATUS.

No. 335,413.

Patented Feb. 2, 1886.

Fig. 1.

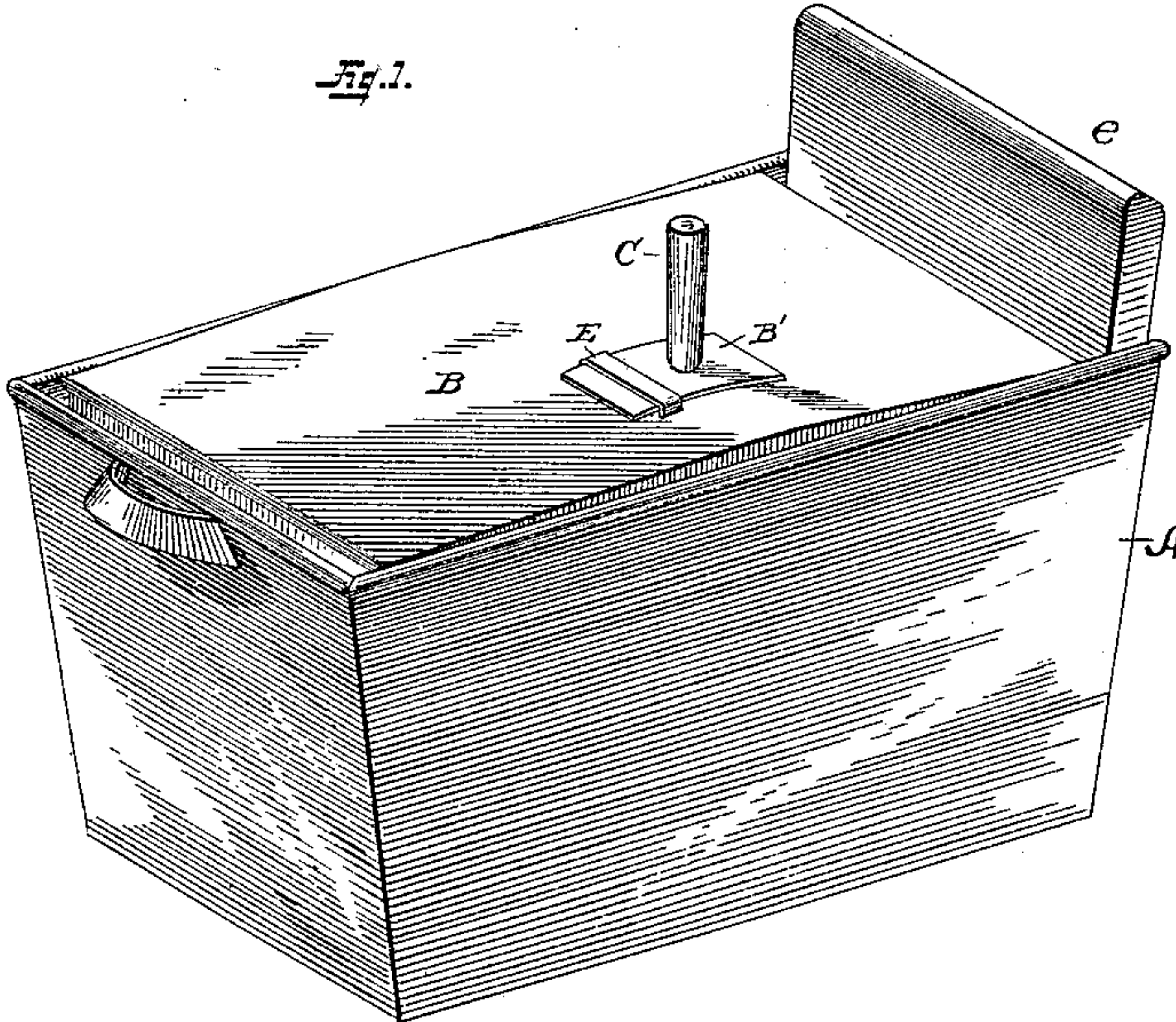


Fig. 2.

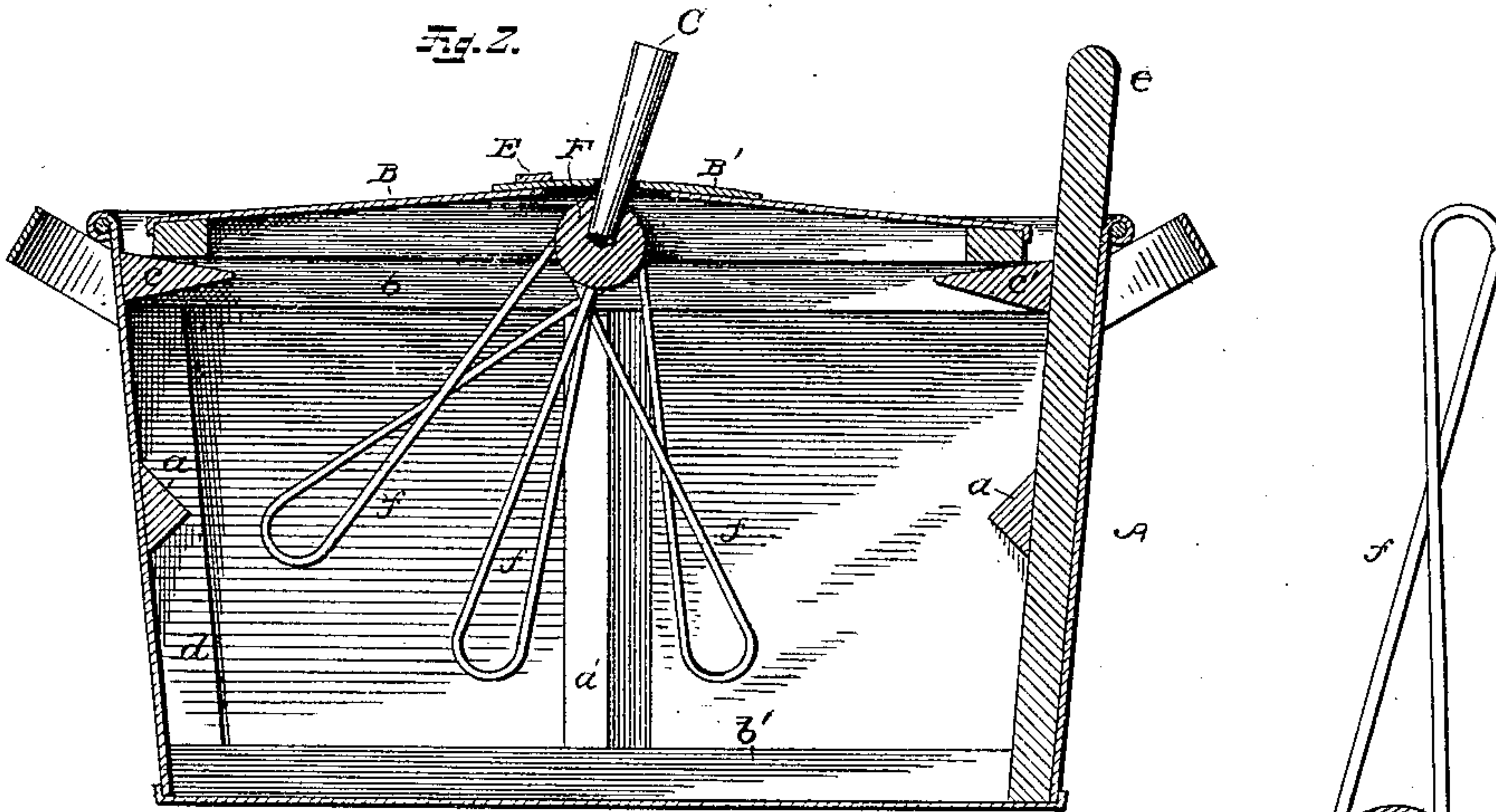
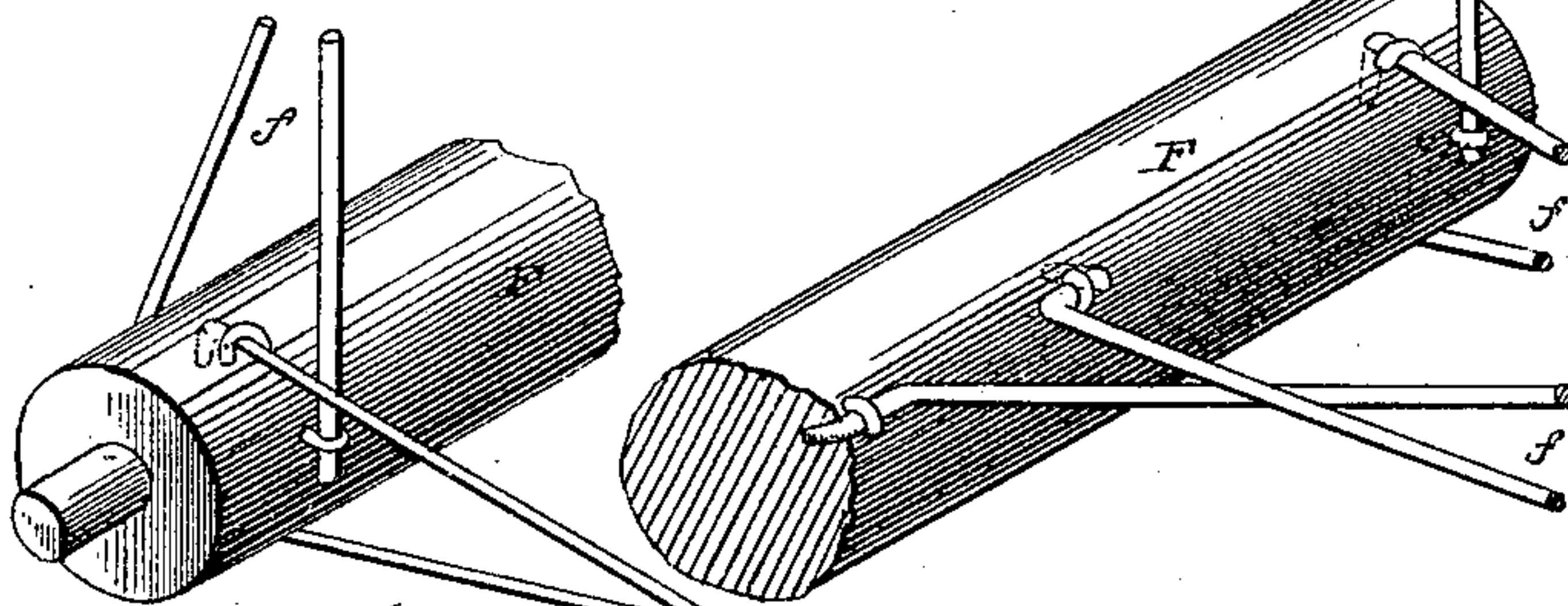


Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ERASMUS W. ALLEN, OF SENECA, KANSAS.

## WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 335,413, dated February 2, 1886.

Application filed August 3, 1885. Serial No. 173,412. (No model.)

*To all whom it may concern:*

Be it known that I, ERASMUS W. ALLEN, a citizen of the United States, residing at Seneca, in the county of Nemaha and State of Kansas, have invented certain new and useful Improvements in Washing Apparatus; 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.

The invention in this case relates to washing apparatus.

The object is to produce a washing apparatus or so-called "washing-machine" which shall be of simple and ready construction and efficient in use.

The invention consists, generally, in a box, tub, or tank provided with inward projections at its ends and sides, in combination with a horizontal vertically-oscillating shaft having attached to and projecting into the box from it rigid loops or fingers.

The invention consists, specifically, in certain details of construction, which will be hereinafter particularly pointed out.

In the accompanying drawings, forming part of this specification, like letters of reference indicate corresponding parts.

Figure 1 is a perspective view of the improved washing apparatus, showing the outside of the same. Fig. 2 is a vertical longitudinal section of the improved washing apparatus, showing the interior. Fig. 3 is a detail view of the loops, showing their manner of attachment to and arrangement upon the shaft, the dotted lines showing the inward bend of the wires.

A designates the suds box or tub. This box may be of any suitable material, shape, and size, and is provided on its inside with projections or ridges. I prefer to construct the box of a combination of metal—such as tin or galvanized iron—and wood, the metal forming the box proper and the wood forming projections or ridges *a* and *a'*, longitudinal braces *b* and *b'* at the top and bottom, respectively, cross-braces *c* and *c'* at the top, standards *d* at the corners of one end, and a projecting board, *e*, at the other end, the ridges *a* being arranged horizontally across the ends on the inside, while the ridges *a'* are arranged vertically at the sides thereof; but the sides and

ends may be entirely of wood, there being a metal bottom extending high enough to protect the wood. The projecting end of the board *e* serves for attachment of the wringer or for a rest for the operator. Where the suds-box is in part of an outer casing and in part of an inner rack or frame, the latter may be removable for drying and cleaning. I have shown only one ridge or projection at each end and one at each side; but it is apparent that there may be any suitable number.

It is well to construct the box with downward inclined or convergent sides, by which construction nearer approach to the box or tub is permitted, and by which construction, also, as is well known, the water is not so easily splashed over the edges as in boxes or tubs which have vertical sides.

The suds-box may rest directly upon a stove or over a heater of any kind, thus taking the place of an ordinary boiler; or it may rest upon the ground or floor or upon a suitable stand, or may be supported upon feet or upon roller attachments capable of being made rigid when desired.

The suds-box is provided with a suitable cover, B, which in the present instance is, like the suds-box, constructed of wood and suitable metal. Crosswise in the cover, and journaled therein at its ends, is a shaft, F, the reduced ends of which enter proper openings in the cover, in which it has its bearings, and to which are attached wooden pins or rigid loops or wires *f*. These loops are of a material—such as galvanized wire or coated or protected wire—which will not rust and stain the clothes, and in the present example are constructed and are applied to as well as arranged upon the shaft in a peculiar manner. There may be any number of loops; but I have shown the shaft here as carrying five, two being arranged at each end and one centrally. Each loop here consists of a long piece of wire bent upon itself, the bow thus formed being then twisted upon itself about half a turn, as shown at *f'*, and having its free ends, near their extremities, bent horizontally inward, or first horizontally outward and then vertically over or downward to a position about parallel with their respective sides of the wire composing the loops. The end loops upon the shaft have the single horizontal bend at their ends. The



central loop upon the shaft has the vertical as well as the horizontal bend at its ends.

The end loops are attached near the ends of the shaft in pairs, as follows: The inward-bent ends of one loop are inserted into holes in the shaft or are driven into the shaft in such manner that the loop, when the shaft is stationary at its center of oscillation, will project obliquely downward, and, say, forward, and the loop is then secured to the shaft by staples, which are driven over the legs of the wire forming it, near the end thereof, while the inward-bent ends of the other loop are inserted into holes in the shaft or are driven into the shaft in such manner that the loop, when the shaft is stationary at its center of oscillation, will project obliquely downward and, say, backward, one leg of each loop—its inner leg—being about centrally between the legs of the other, and the outer legs nearly embracing the shaft.

The central loop is attached to the shaft as follows: The vertically-bent ends of the loops are inserted into holes in the shaft or are driven into the shaft in such manner that the loop, when the shaft is stationary at its center of oscillation, will project vertically downward and in such manner that this horizontal bend will be flush upon or countersunk in the shaft, whereupon the loop is secured to the shaft by staples driven over the horizontal bends.

When the cover is in position, the loops will extend nearly to the bottom of the suds-box, and by the twist they are so arranged that they present oblique or feathering edges in the direction of their motion—that is to say, no loop presents one edge or its flat side to either end, or has the parts of wire composing it parallel either with the ends or sides. This is to exert a stirring action upon or give circulation to the material operated upon, and to enable the loops more readily to free themselves or shed it. I have shown the central loop arranged at right angles to the others, which produces a stirring action within the area of the loops.

To oscillate the shaft, the same is provided with the lever-handle C, which projects upward through a slot in the cover and is fixed in a slide, B', which moves in suitable ways or under bands or straps E.

Instead of locating the oscillating shaft in the cover, it may be directly in the suds-box, in which case the slot in the cover would be large enough to allow the cover to be removed without disturbing the operating-lever; or the lever might be removed from the shaft to let the cover be removed. On the score of convenience and utility, however, the construc-

tion shown is greatly to be preferred, and it will be seen that by my invention a very simple, compact, convenient, and useful apparatus is presented.

The operation will readily be understood. The articles to be washed are placed in the box or tub, together with soap and water in suitable quantities, the cover which carries the oscillating shaft, loops, and lever-handle is put on, and the lever-handle being moved back and forth oscillates the shaft, which reciprocates the loops, causes agitation of the contents of the tub, and circulates the articles and causes them to rub against the projections or ridges, thus effectually cleansing them. As already said, the position and twist of the loops serves to cause the desirable motion of the clothing in the box, and it also causes, in connection with the articles therein, a very desirable stirring and circulation of the water or cleansing medium contained. The reciprocation of the loops may be carried on while the suds-box is subjected to heat, thus getting the assistance of the steam and boiling water. When the articles have been sufficiently cleansed, the water is drawn off through a suitable spigot or opening, fresh water may be put into the box, and the lever-handle then be operated to rinse them. The clothes may then be raised from the box or tub and wrung at its end.

The internal circulation between the loops, as well as the general circulation, is very efficient in the rinsing operation.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with a shaft capable of oscillating, the loops or fingers *f*, twisted as described.

2. In combination with a shaft capable of oscillating, the loops or fingers *f*, twisted as described, bent at their free ends, applied to the shaft by insertion of their ends therein, and one secured there by staples, substantially as described.

3. In combination with a suds-box having horizontal and vertical projections and ridges on its inside, an oscillating shaft carrying twisted loops or fingers, whereby the material or articles to be washed may be agitated or circulated, and will be rubbed against the projections, substantially as described.

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

ERASMUS W. ALLEN.

Witnesses:

C. C. K. SCOVILLE,  
T. J. BUCK.

Correction in Letters Patent No. 335,413.

It is hereby certified that in Letters Patent No. 335,413, granted February 2, 1886, upon the application of Erasmus W. Allen, of Seneca, Kansas, for an improvement in "Washing Apparatus," an error appears in the printed specification requiring correction, as follows: In line 104, page 2, the word "one" should be omitted; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 9th day of February, A. D. 1886.

[SEAL.]

H. L. MULDROW,  
*Acting Secretary of the Interior.*

Countersigned:

M. V. MONTGOMERY,  
*Commissioner of Patents.*