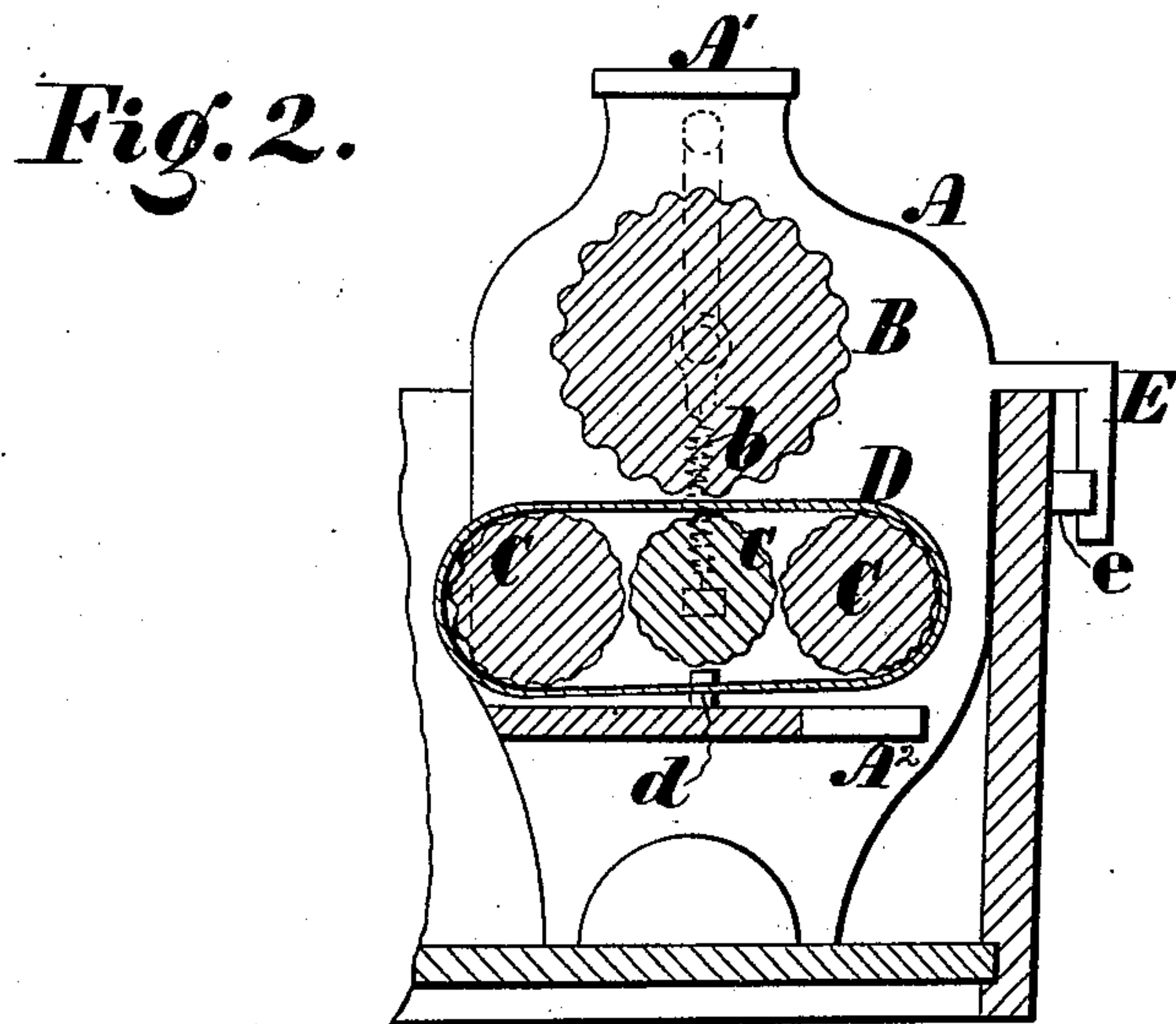
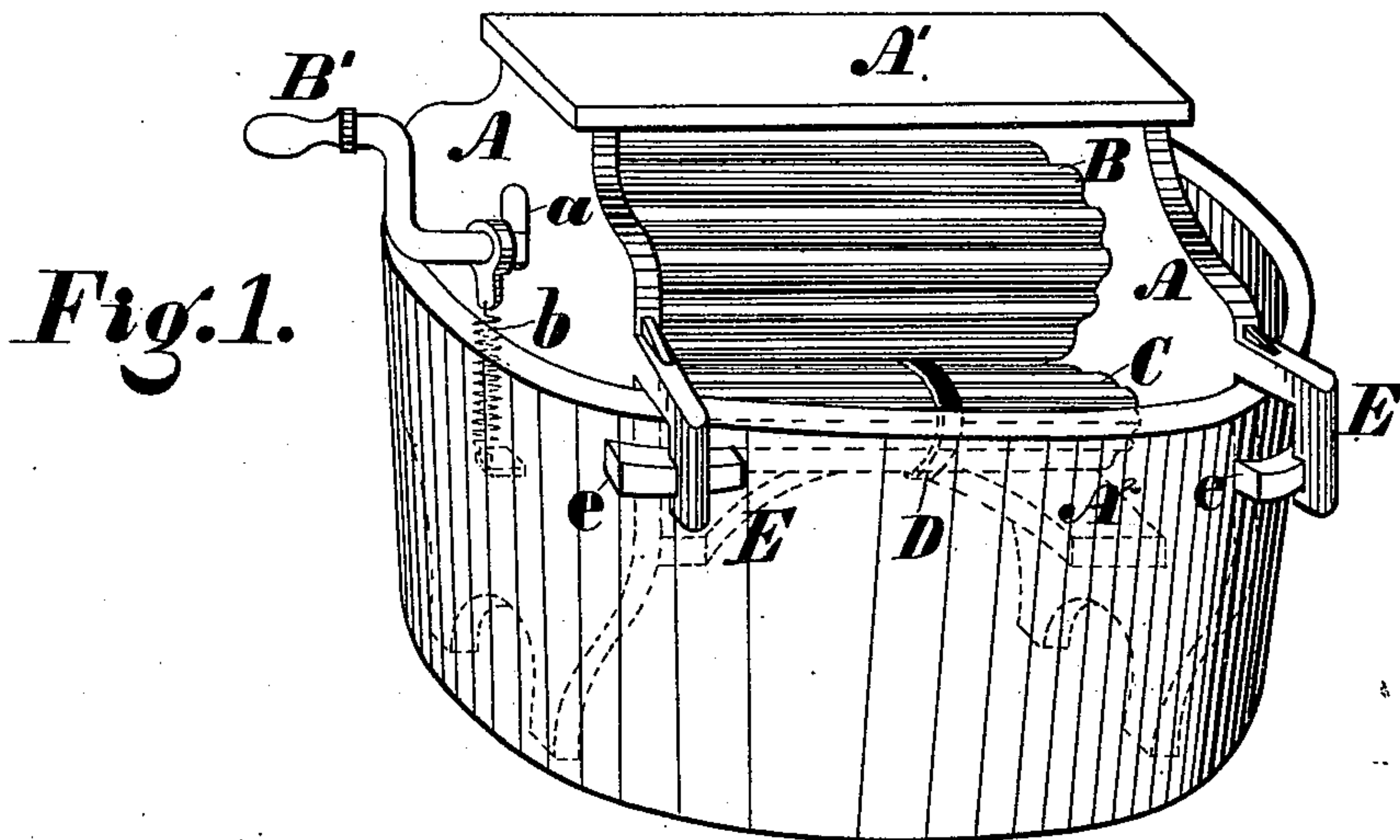


G. FRIEND.
Washing-Machine.

No. 167,757.

Patented Sept. 14, 1875.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE FRIEND, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **167,757**, dated September 14, 1875; application filed August 2, 1875.

To all whom it may concern:

Be it known that I, GEORGE FRIEND, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective of the invention; Fig. 2, vertical transverse section.

The object of my invention is to provide a machine or device for washing clothes, which can be attached to, and removed from, the ordinary wash-tub, thereby combining portability and cheapness with complete efficiency.

My invention consists of a frame provided with clamping devices for securing it to the side of a wash-tub. Within this frame are four corrugated rollers, viz., a lower bed formed of three rollers of small diameter, rotating in fixed bearings, and an upper roller of large diameter, having spring-bearings in a vertical slot in each side of the frame. To the upper roller is affixed a handle, by which it is turned, while around the lower rollers passes an endless belt, preventing the articles of clothing from passing down between said rollers, the belt itself being prevented from moving laterally out of position by guide-pins in the frame.

A A in the drawing represent the side, and A¹ A² the top and bottom, pieces forming the frame. C C C represent the lower rollers, which revolve in fixed bearings in the sides A A. D is an endless belt, passing around the rollers C C C, and kept in position by the guide-pins *d d* projecting from the cross-piece A². B represents the upper roller, its journals revolving in vertical slots *a a* in the sides A A, and kept down by springs *b*. B' represents the handle by which the roller B is

caused to revolve. E E are hooks, attached to the sides A A, and *e e* wedges, for inserting between the same and the sides of the tub, for holding the machine firmly clamped to the latter.

The operation is as follows: The device is clamped to the inside of a tub, as shown in the drawing, and the garment requiring to be washed passed in between the upper roller B and lower rollers C C C. The handle B' is then turned backward and forward, so as to dip the clothing into the soaped water contained in the tub, and then draw it to and fro between the rollers.

As soon as the washing is completed the machine can be readily unclamped and put away, permitting the tub to be devoted to other uses, as rinsing or bluing.

What I claim as my invention is—

1. The improved washing-machine herein described, designed for attachment to a common wash-tub, and consisting of the frame A A¹ A², having the rollers C C and B, the former provided with the endless band D, held in place by holding-pins *d d*, and the latter having spring-bearings in the vertical slots *a a*, with the L-shaped clamps E E resting upon the edge of the tub, and notched on their depending arms, and wedges *e e*, the several parts being constructed and combined for operation substantially as shown and described.

2. The combination, with the frame A A of a roller washing-machine, of the L-shaped clamping-arms E, having notches in their depending portions, and the curved wedge *e*, corresponding to the cylindrical form of the tub, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of July, 1875.

GEORGE FRIEND.

Witnesses:

M. DANL. CONNOLLY,
CHAS. F. VAN HORN.