A. HARSHBERGER.
Washing-Machine.

No. 211,012. Patented Dec. 17, 1878.

FIG. 1.

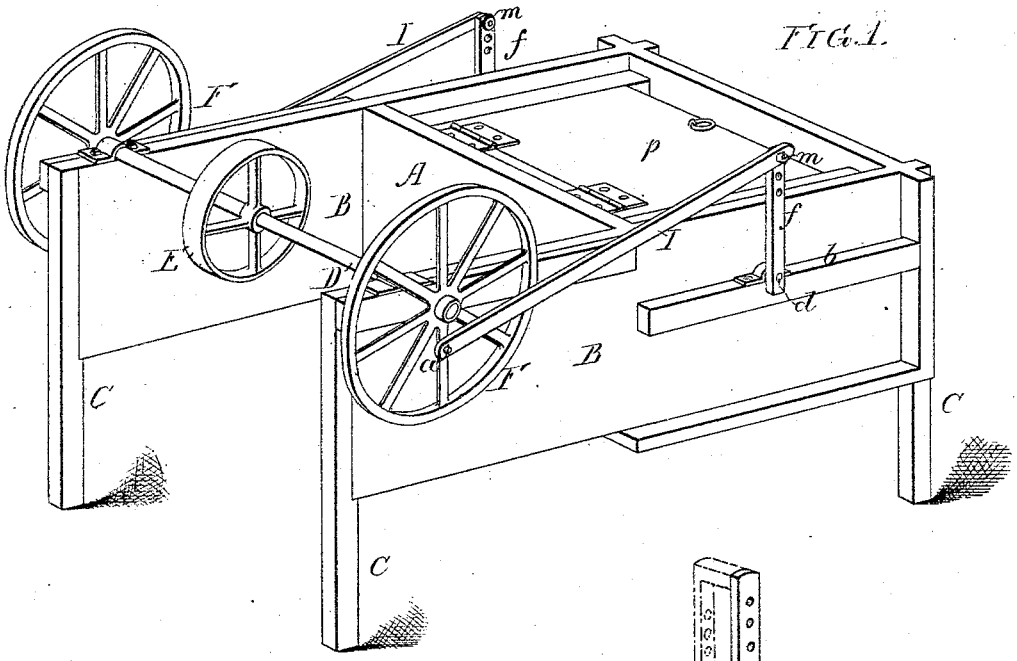


FIG. 3.

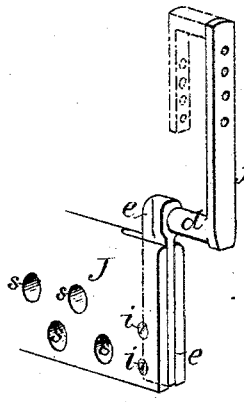
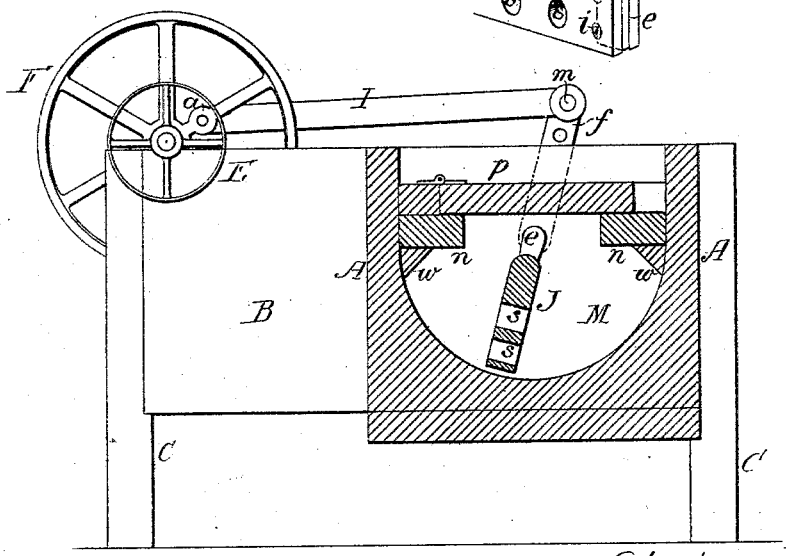


FIG. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

ABRAHAM HARSHBERGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **211,012**, dated December 17, 1878; application filed May 11, 1878.

To all whom it may concern:

Be it known that I, ABRAHAM HARSHBERGER, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Washing-Machines, of which the following is a specification:

The object of my invention is to so construct a washing-machine having a vibrating dasher that the escape of water and suds from the tub or box when the machine is in operation will be prevented.

This object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of my improved washing-machine when arranged to be driven by power; Fig. 2, a transverse section of the same; and Fig. 3, a perspective view of part of the machine.

A represents the body of the tub, and B B the ends of the same, the latter extending beyond the body, so as to form bearings for a shaft, D, provided with a pulley, E, to which power is applied, each end of the shaft being furnished with a fly-wheel, F, on which is a crank-pin, *a*.

The structure is supported at a suitable height by means of legs C at the corners.

On each end of the tub is a strip, *b*, on which is a bearing for a rock-shaft, *d*, the latter having two arms, *e* and *f*, which are, by preference, cast in one piece with the shaft, as shown in the perspective view, Fig. 3.

The arm *e* of each rock-shaft is within the tub, and is adapted to one of the slotted ends of the dasher J, to which it is secured by screws *i*, the arm *f* of each rock-shaft being outside of the tub, and having at the top a series of openings, to any one of which may be adapted a pin, *m*, the latter serving to connect said arm to one end of a rod, I, the opposite end of which is adapted to the crank-pin *a* of one of the wheels F.

In some cases the upper ends of the arms *f* may be bent over, as shown by dotted lines in Fig. 3, so as to embrace the end of the connecting-rod, and provide a firmer means of attachment for the same.

The interior of the tub is rounded at the bottom, and the clothes-receptacle or washing-chamber M is closed at the top by longitudinal strips *n* and a hinged lid or cover, *p*, the cover being somewhat below the upper edge of the tub, as shown in Figs. 1 and 2, and so constructed as to fit tightly and prevent the escape of water.

When the tub has been partially filled with the clothes to be washed and with a proper quantity of water and soap, power is applied to the shaft D, thus causing the revolution of the same, and, through the medium of the crank-pins *a*, connecting-rods I, rock-shafts *d*, and arms *e* and *f*, the vibration of the dasher J, the extent of this vibration depending upon which of the openings in the arms *f* receive the pins *m*, by which the connecting-rods are attached thereto. As the dasher is vibrated the clothes, suds, &c., are thrown forcibly against the sides of the tub and the under sides of the strips *n*, the suds being compelled to pass through the interstices of the cloth, so as to dislodge and remove the dirt.

To facilitate the operation of the dasher J, it is provided with the usual perforations *s*.

It is advisable, in most cases, to adapt to the angle formed by the strips *n* and the interior of the body of the tub triangular strips *w*, in order to present a more direct resistance to the mass of clothes, &c., thrown over by the vibrating dasher.

Heretofore in machines of the class to which my invention relates the bearings for the vibrating arms carrying the dasher were arranged either above or at one side of the tub, and the latter was either entirely open at the top, or the lid or side of the tub was slotted, for the passage of the vibrating arms. These modes of construction are objectionable, because when the machines are in use there is always more or less splashing of water and suds from the tub, owing to the openings or slots in which the vibrating arms work.

By forming the bearings for the rock-shafts *d* in or on the ends of the tub below the lid, I am enabled to make the latter close-fitting and without the slots, which are necessary when the bearings for the vibrating arms are above the lid; and, as the shafts *d* fit closely to their bearings, any splashing of water from the tub when the machine is in operation is effectually prevented.

I do not wish to claim, broadly, the construc-

tion of the tub, or the mode of operating the dasher by means of rock-shafts, each having two arms; but

I claim as my invention—

The tub A, having a closely-fitting lid, *p*, in combination with the dasher J and the rock-shafts *d*, the latter being adapted to bearings formed in or secured to the ends of the tub below the lid of the same, and each rock-shaft having two arms, *e* and *f*, the former arranged entirely within the tub and secured to the dasher, and the arm *f* arranged entirely outside of the tub, for the application of power thereto, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ABRAHAM HARSHBERGER.

Witnesses:

HARRY A. CRAWFORD,

HARRY SMITH.