N. DENNY.

Washing-Machines.

No. 147,228. Patented Feb. 3, 1874.

Fig. 1.

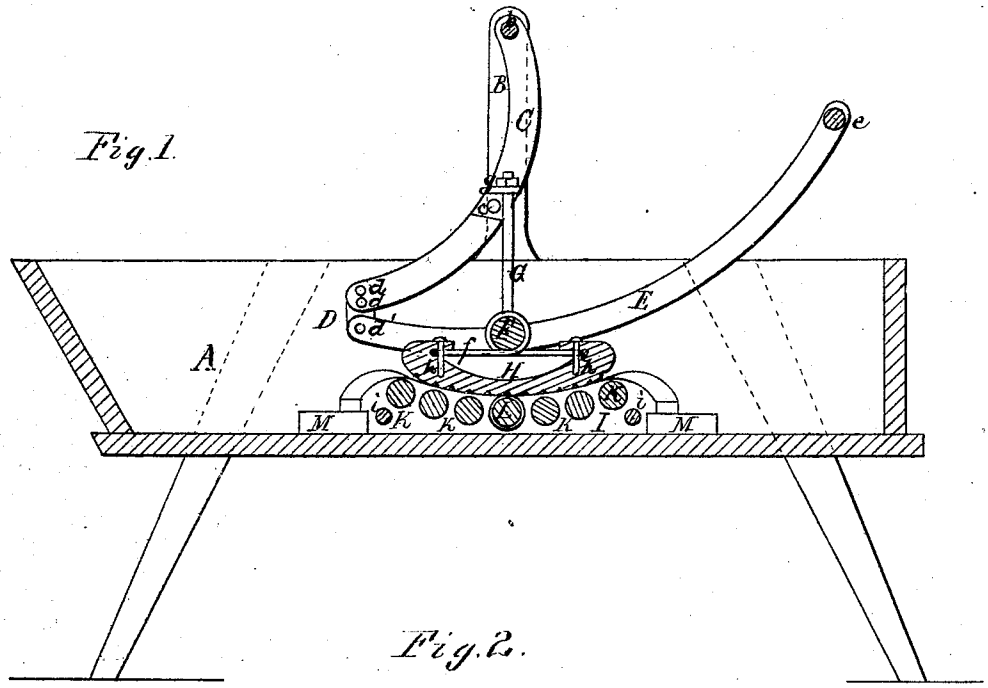
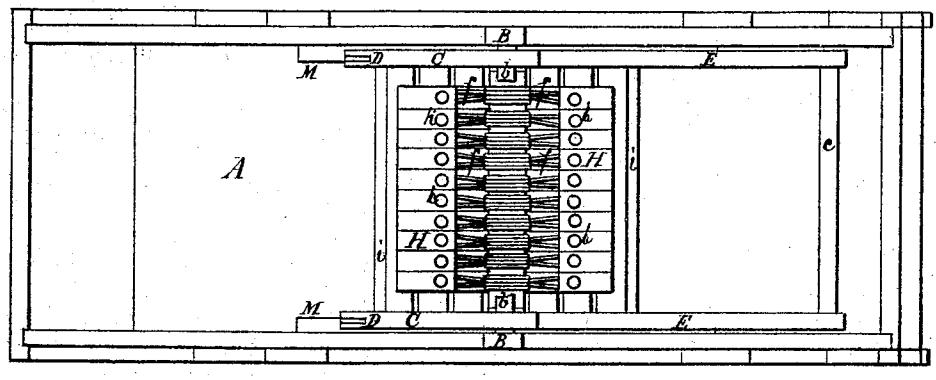


Fig. 2.



Witnesses.
E. H. Bates
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UNITED STATES PATENT OFFICE.

NICHOLAS DENNY, OF BERLIN, MICHIGAN.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **147,228**, dated February 3, 1874; application filed December 27, 1873.

To all whom it may concern:

Be it known that I, NICHOLAS DENNY, of Berlin, in the county of Ottawa and State of Michigan, have invented a new and valuable Improvement in Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of my improved washing-machine, by a longitudinal vertical section. Fig. 2 is a top view of the same.

My invention relates to an improved construction of a washing-machine, by which the operation of washing by hand is very successfully imitated, without making the machine very complicated and expensive.

A represents a tub or suds-box of a washing-machine. Two upright posts, B B, are fastened to the sides of the said suds-box, and are connected at the top by a rod, *b*. The rod *b* supports two curved levers, C C, with the angular guide-plates *c*, and the link-plates D, which are fastened to the lower ends of the said levers by rivets *d d*. The pins *d'* in the plates D D connect two curved arms, E E, with the levers C C. A rod or cross-piece, *e*, connects the upper ends of the arms E E. At a point vertically below the guide-plate *c*, when the same is in line with the uprights B B, there is a cylinder or shaft, F, fastened between and to the arms E E, which carries a number of rubbers, H H, with the aid of spring-wires *f f*. The ends of the wires *f* are fastened to the shaft F, and the wires, after being wound around the shaft F several times, are passed around the pins *h* at the opposite ends of the rubbers H, and again around the shaft F, thereby forming segmental lines over the curved backs of the rubbers H, and tangential lines to the lower part of the round shaft F.

This formation and mode of attachment of the springs *f* serves the purpose of communicating motion and pressure, and at the same time it permits an oscillating or rocking motion on the shaft F, which may be caused by the varying thickness of the clothes, upon which these rubbers operate. The lower parts or faces of these rubbers are ribbed or grooved, in imitation of the wash-board.

To prevent the rod F from turning, and to prevent the rubbers from being lowered too much, I fasten a rod, G, to each end of the shaft F, and pass it through the guide-plate *c*, and make it adjustable by providing its end with a screw-thread and a nut, *g*, resting on the plate *c*.

A small frame composed of two wooden rails, I, and cross-rods *i i*, supports a number of guide-rollers, K K, by their journals and one working roller, L, in the center, which is of larger diameter, and is provided with grooves. The ends of the rails I are beveled, and fit between the dovetail-blocks M M, fastened to opposite corners of the suds-box A.

The clothes are drawn over the rollers K K by the corrugated faces of the rubbers H, and then carried over the working roller L, the grooves of which serve to keep the clothes straight.

The cross-piece *e* serves as a handle for the operator.

The operation of my washing-machine suggests itself to the observer by its own simple construction.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the levers C and curved arms E, of the shaft F and rubbers H, as and for the purposes specified.

2. In combination with the rubbers H and shaft F, the rod G, guide-plate *c*, and adjusting-nut *g*, for the purpose mentioned.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

NICHOLAS DENNY.

Witnesses:

GEORGE YOUNGS,

JOHN AUSTIN.