E. S. Howell,

Washing Machine.

No. 22,556. Patented Jan. 11, 1859.

Fig. 1.

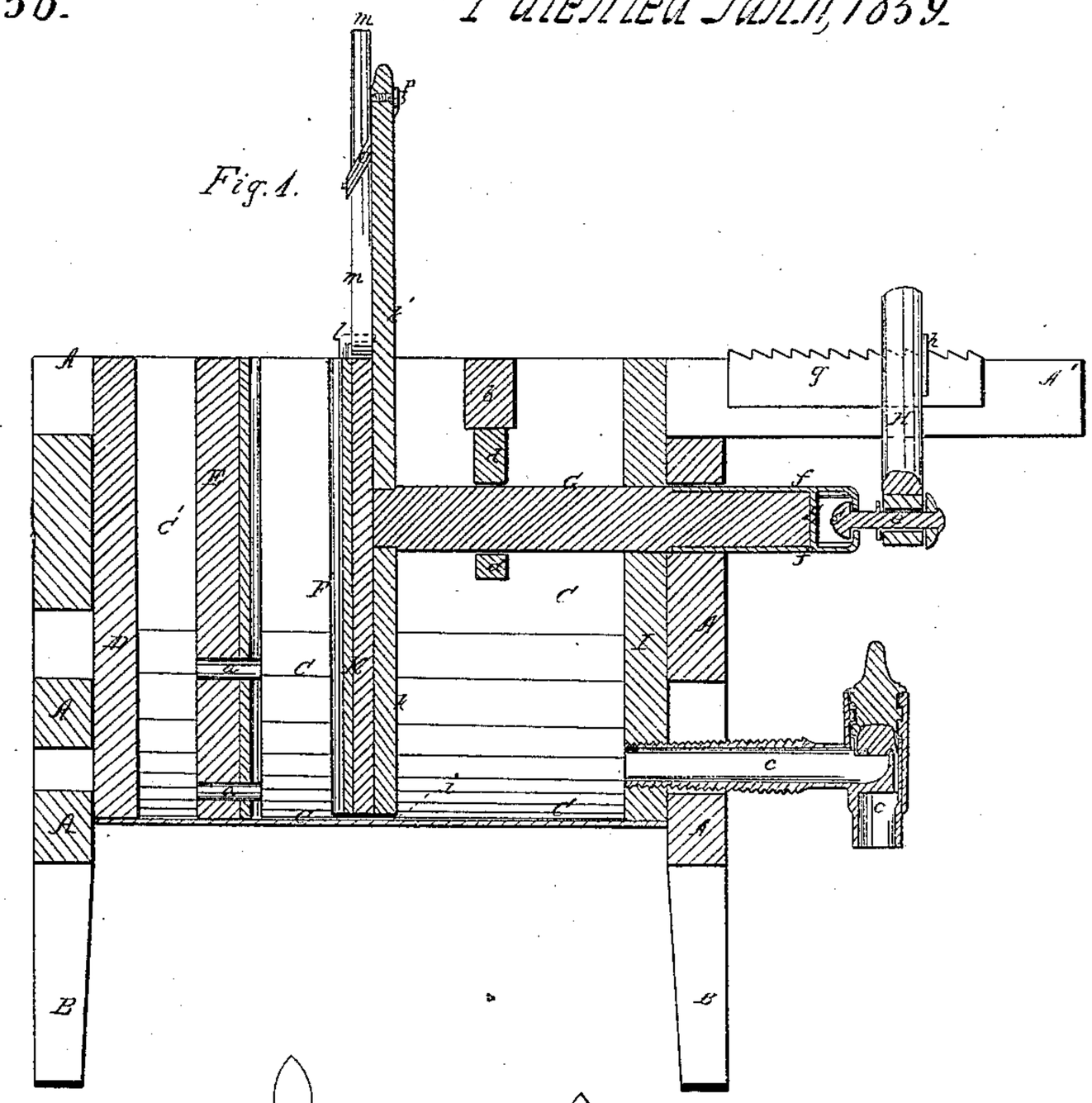
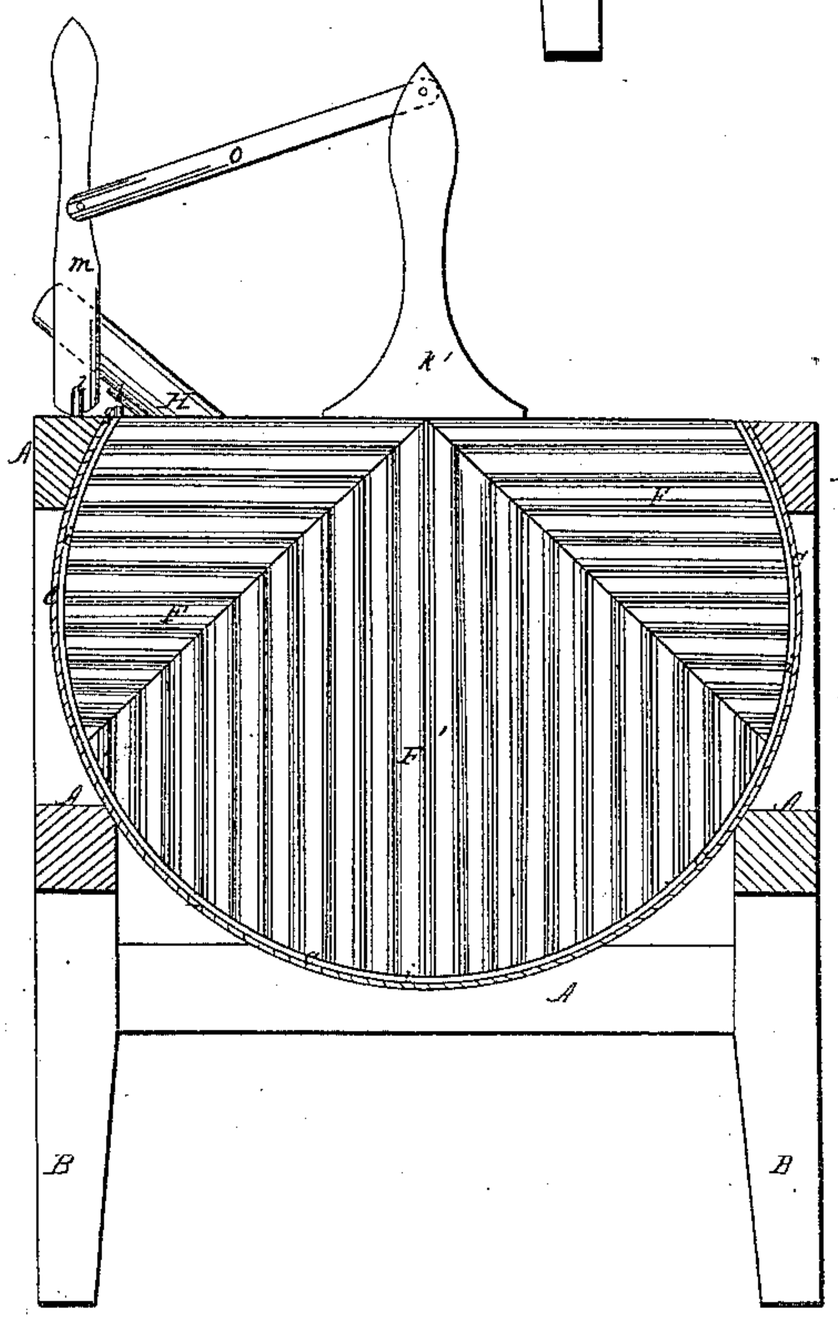


Fig. 2.



Witnesses.

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EDEN S. HOWELL, OF HOPE, NEW JERSEY.

WASHING-MACHINE.

Specification of Letters Patent No. 22,556, dated January 11, 1859.

To all whom it may concern:

Be it known that I, EDEN S. HOWELL, of Hope township, county of Warren, in the State of New Jersey, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in certain improvements in washing machines as hereinafter fully described.

In the accompanying drawings forming part of this specification Figure 1 represents a vertical longitudinal section through the center of one of my improved machines, and Fig. 2, represents a vertical cross section through the center of the same.

Similar letters denoting the same parts in the different views A, A, &c. represent the frame pieces of the machine, the four vertical corner pieces of which extend downward from the others sufficiently far to form suitable legs B.

Within the frame work of the machine is supported and properly secured, a semi-cylindrical shell, C. This shell as made water tight, and is fitted with heads I, and D, at each end and has arranged in it, a short distance from the head D, a partition, E, which fits closely to it and is perforated by two or more holes, *a*.

K, is the moving board or "live rubber" which consists of a flat disk, corresponding in contour to a cross section of the shell, C, and furnished on one side with an inlaid strip or piece, *k*, which extends upward beyond the rubber forming a handle, or lever, while said disk is faced on its other side with a corrugated rubber, or corrugated sections F, F′, as seen at Fig. 2. The "live rubber" K, is supported (in a vertical plane) by means of the horizontal shaft, G, upon one end of which it is firmly secured this shaft, G, is hung in bearings, formed in the head piece I, and in a stand, *d*, which is pendant from a cross beam, *b*, in such manner as to be capable of both a rotary and longitudinal sliding motion and carries with it, in its motions, the "live rubber" K. The outer end of the shaft, G, (which protrudes some distance beyond the head I) is furnished with a metallic cap, *s*, and has secured upon it a V shaped stand, or strap *f*, in the end of which latter is formed a suitable bearing for the stud, *e*, which is connected to the pressing lever (as will be presently explained).

m is a detachable lever which is hung upon an L-shaped hinge or staple *l*, upon which it vibrates.

o is a connecting bar, or pitman which communicates the vibration of the lever, *m*, to the lever or handle, *k*, of the live rubber.

The bar *o* is pivoted at one end to the lever *m*, near the center of the latter, and is pivoted at *p*, to the extremity of the handle *k*′.

One of the horizontal upper corner pieces of the frame of the machine extends some distance beyond the others as seen at A′. Fig. 1, as does likewise one of the lower horizontal corner pieces (diagonally opposite the one seen at A′) the object of this extension of one upper and lower horizontal corner piece (each diagonally opposite the other) is to obtain support for a fulcrum or hinge joint for the lower end of the diagonal pressing lever H, and for the ratchet, *g*, in which operates the pawl or catch plate, *g*, on the upper end of the pressing lever. The stud, *e*, is formed with a semi-spherical head at, *e*′, and is inserted from the inner side of the strap, *f*, (before said strap is secured to the shaft G,) then passed through lever H, (its collar, *v*, coming against the inner side of said lever) and secured on the opposite side of said lever by a nut, being riveted, or in any other desirable manner. The live rubber, K, is so constructed and arranged within the shell, C, that its perimeter shall always be a short distance from the inner surface of said shell, leaving a space, as seen at, *i*. The object of this space is that the water may flow around said "live rubber" when being displaced by it. That side of the partition E, which is nearer the live rubber is covered with corrugated sections similar to those seen on the live rubber at, F, F, (Fig. 2.)

The lever, *m*, and connecting bar, *o*, may be detached from the machine by simply extracting the screw, *p*, when the lever, *m*, slips off the staple, *l*.

c, is an ordinary cock for drawing off the water from the machine.

After the description already given of the construction of my improved machine, its operation will be readily comprehended

from the following explanation: The shell (or reservoir), C, being supplied with a suitable quantity of water and the live rubber removed from the dead rubber, on partition E, the clothes to be washed are placed between the live and dead rubbers and while with one hand the operator standing between the lever *m*, and pressing lever H pulls the upper end of lever H toward her (or him) she (or he) vibrates the upper end of lever *m* (which is grasped in the other hand) backward and forward, causing the live rubber K, to partially rotate, or oscillate with the shaft, G. As the lever is pulled toward the operator it is kept down so that its plat, *g*, will bite into the notches of the ratchet, *g*, and when pushed backward is slightly lifted so that its plate, *n*, will clear the ratchet, *g*. When the lever H, pressing the live rubber against the clothes its stud's head, *e'*, is in contact with the plate, S, on end of shaft, G, but by virtue of the shape of said head, *e'*, no resistance is offered to the rotation, at the same time, of the shaft, G, in its bearings. As the live rubber approaches toward and recedes from the dead rubber, or partition E, the water is displaced in the shell, C, but soon gains its own level on either side of the "live rubber", in consequence of the space, *i*, around the latter. In washing the piece the live rubber is kept continually oscillating on its axis and periodically pressed against, and removed from, the dead rubber during this operation upon the piece of the clothes, the water in the piece is at each pressure of the live rubber, partially forced through the apertures, *a*, *a*, causing the water in that portion (C') of the shell included between the head I, and partition E, to rise higher than in the other part of said shell, and at each receding of the live rubber or even while it continues to press and rub the surplus water in the portion C', of the shell flows back, through the apertures, *a*, *a*, keeping the piece flooded.

It will be seen that by the combined action of the pressing lever H, and vibrating rubbing lever *m*, the piece to be washed may be alternately rubbed and rinsed, and may be rubbed with any desired degree of velocity, and pressure.

In washing articles which require more rubbing in some places than in others (as for instance a shirt) the piece may be inserted between the live and dead rubbers and subjected to the proper amount of washing for that portion requiring the least, when said portion may be laid over in the portion of the reservoir or tub, embraced between the head D, and partition E, and the parts requiring more washing, brought over the top of partition E, and subjected to further rubbing.

With a machine constructed after my plan articles of coarse or delicate texture may be equally, well and readily washed. When articles of fine texture, not capable of enduring hard rubbing, are to be washed, it would be much more convenient to operate the "live rubber" directly by its handle, *k'*. To render this practical the lever, *m*, and bar *o*, (attached as already mentioned) may be detached from the machine by simply taking out the screw, *p*.

Having fully described the construction and operation of my improved washing machine, and not wishing to limit my invention to the exact detail of mechanical construction illustrated, what I claim therein as new and desire to secure by Letters Patent is:

1. The combination of the "live rubber" K, with the horizontally sliding, and rotating shaft, G, vibrating pressing lever H and ratchet, *g*, or its equivalent, the whole arranged and operating substantially as hereinbefore described, for the purposes set forth.

2. In combination with the rocking and pressing rubber K, the perforated rubber partition E, substantially as described.

3. The detachable lever, *m*, and bar, *o*, substantially described for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal this 21st day of December 1858.

EDEN S. HOWELL. [L. S.]

Witnesses:
J. N. McIntire,
Henry W. Turpin.