

(No Model.)

A. MULDER.
WASHING MACHINE.

No. 558,697.

Patented Apr. 21, 1896.

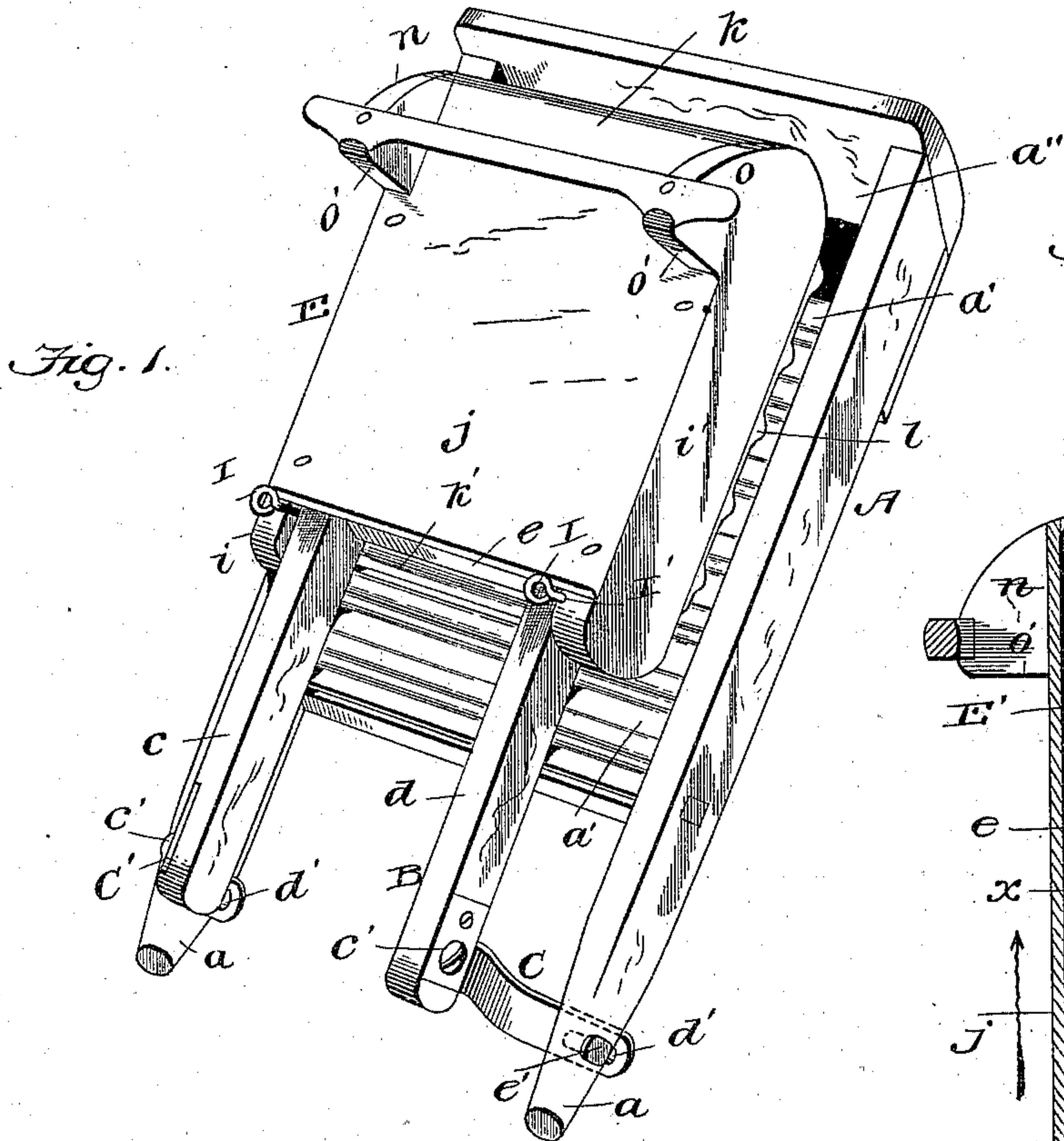


Fig. 2.

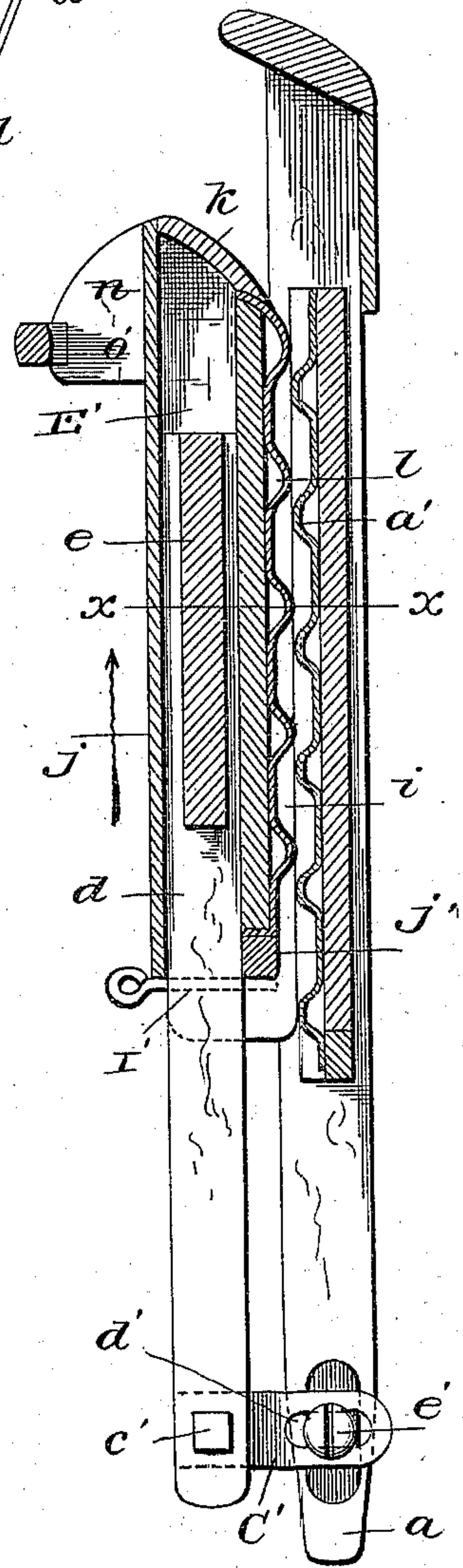


Fig. 3.

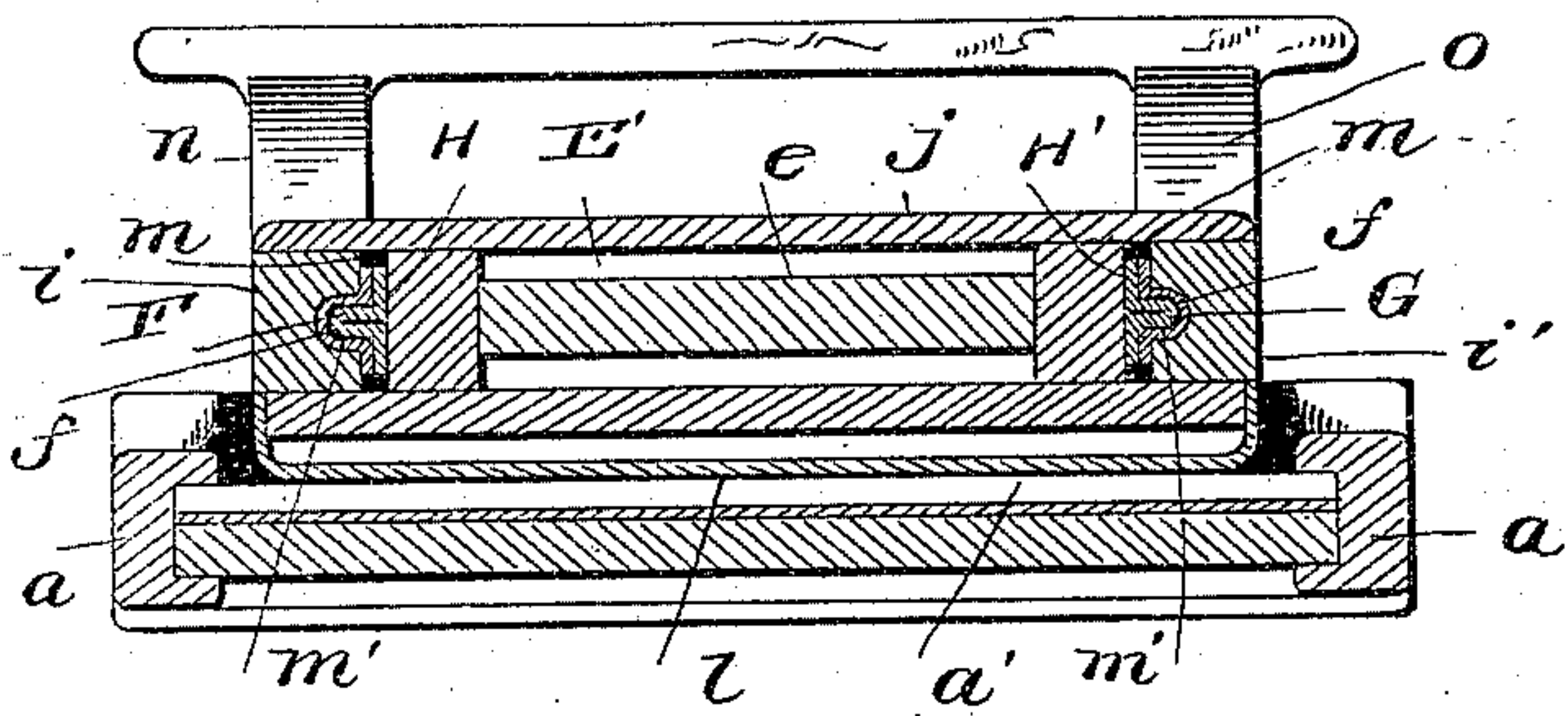
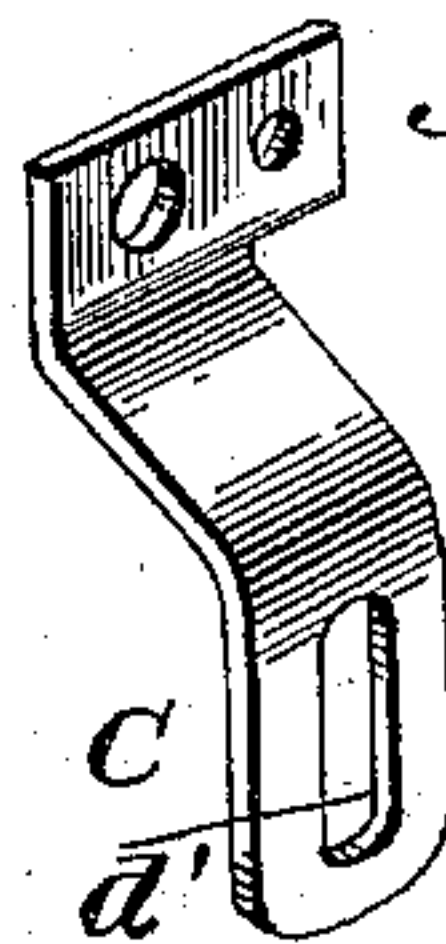
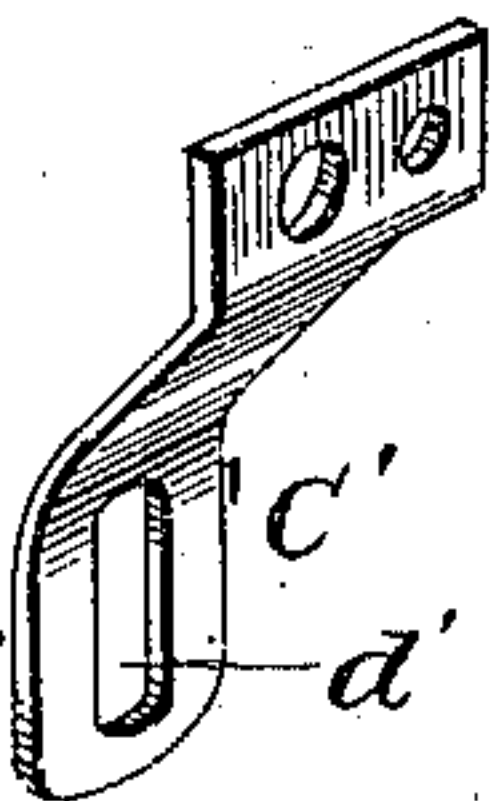


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT MULDER, OF MUSKEGON, MICHIGAN, ASSIGNOR TO JANE MULDER,
OF SAME PLACE.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,697, dated April 21, 1896.

Application filed April 18, 1894. Serial No. 507,958. (No model.)

To all whom it may concern:

Be it known that I, ALBERT MULDER, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, 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 appertains to make and use the same.

My invention relates to improvements in washboards of that class which have combined therewith a reciprocating rubber-board; and the objects of the invention are, first, to provide an improved washboard which can be operated with ease to thoroughly and quickly cleanse the fabrics without requiring the operator to constantly immerse the hands in the water and manipulate the clothes; secondly, to so combine the reciprocating rubber with the stationary washboard as to enable the reciprocating rubber to be adjusted at different distances from the stationary board and thereby accommodate the different thicknesses of fabrics, and, thirdly, to enable ready access to be had to the guides in order to lubricate the same.

With these ends in view, and such others as pertain to my invention, it consists in the combination, with a pivoted frame on the stationary washboard, of flanged guide-rails attached to the bars of said frame, a hollow or chambered reciprocating rubber provided with grooved rails, in which are fitted the flanges on the guide-rails on the pivoted frame, and stop-pins carried by the rubber to limit the movement of the reciprocating rubber in one direction on the pivoted frame.

The invention further consists in the combination, with a stationary board, a guide-frame, and a reciprocating rubber fitted to slide on the guide-frame, of a pair of angular brackets attached to the guide-frame and having slotted ends by which the brackets can be adjustably attached by the pivotal bolts to the stationary board, whereby the adjustable frame and the reciprocating board guided thereon can be placed at varying distances from the stationary board to accommodate fabrics of different thicknesses between said stationary and reciprocating boards; and the

invention finally consists in the construction and combination of parts which will be hereinafter fully described and claimed.

To enable others to more readily understand my invention I have illustrated the same in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view. Fig. 2 is a longitudinal central sectional view. Fig. 3 is a detail cross-sectional view, on the plane indicated by the dotted line *x x* of Fig. 2, to more clearly show the slide-guides between the pivoted frame and the reciprocating rubber. Fig. 4 is a detail view of the angular brackets by which the pivoted frame can be attached to the washboard.

Like letters of reference indicate corresponding parts in all the figures of the drawings, referring to which—

A designates the stationary washboard. This washboard may be of any preferred or approved construction, and, as usual, it has the legs *a*, the metallic rubber-surface *a'*, and the soap-receptacle *a''* at the top of the board.

B is the pivotal guide-frame, which is substantially rectangular in form and consists of the slide-rails *c d* and the tie bar or bars *e*, by which the side rails are rigidly connected or united together.

If desired, the rails *c d* may be connected by a single wide board; but the detailed construction of the guide-frame is immaterial and may be changed at pleasure.

The guide-frame is of less width than the rubbing-board A, and it is attached thereto by means of the brackets C C', which extend in opposite directions from the side rails or the guide-frame. These brackets are made of metal, in the angular form shown by Fig. 4 of the drawings, and the brackets are rigidly attached at one end to the side rails *c d* of the frame B by means of the bolts *c'*, while the other ends of the brackets are provided with longitudinal slots *d'*, through which are passed the bolts *e'*, that pivotally and adjustably attach the brackets, the guide-frame, and the reciprocating rubber E to the stationary washboard A.

On the outer faces of the side rails *c d* of the pivoted frame B are attached the flanged guide-rails F G, each of which is formed of a

single piece of metal and provided with a rib or flange *f*, that projects outwardly from the guide-frame, as shown by Fig. 3.

The reciprocating rubber-board E is hollow or chambered to receive the upper part of the guide-frame B within itself. As a preferred construction of the reciprocating rubber I employ a pair of parallel sides *i i'*, an imperforate top board *j*, top and bottom end rails *k k'* at the lower side of the reciprocating rubber, and a roughened or corrugated working surface *l*, which is fitted between the rails *k k'* and suitably attached to the side and end rails of the board E. This construction provides a chamber E' within the reciprocating rubber E, in which chamber is fitted the guide-frame B, and to the inner opposing faces of the sides *i i'* of this reciprocating rubber are attached the grooved guide-rails H H'. These grooved guide-rails are preferably fitted or seated in channels *m*, formed in the sides *i i'* of the rubber-frame E, and in the grooves *m'*, formed in the guide-rails themselves, are fitted the flanges *f* of the guide-rails F G on the pivoted guide-frame, whereby the rubber E is guided in its reciprocating movement on the pivoted frame B.

The upper cross-rail *k'* of the reciprocating rubber E is curved to extend from the lower board *l* to the upper imperforate board *j*, so as to close the upper end of the rubber E.

The side rails *i i'* are formed at their upper ends with enlarged beaks *n o*, which project beyond the upper imperforate board *j*, and these beaks have the straight shoulders *o'*, which are adapted to fit or take over the upper edge of the washtub when the pivoted frame B and the rubber E are turned at an angle to the board A, to enable the fabrics to be adjusted upon the board A preparatory to lowering the pivoted frame and rubber E into a substantially parallel position to the washboard so as to rub and cleanse the fabrics between the board A and the rubber E. To these beaks *n o* is attached the handle-bar Q, which may be fastened in place by screws or equivalent means, and by grasping which handle-bar the attendant can reciprocate the rubber E back and forth over the board A and the fabrics between the rubber E and said board A.

The reciprocating rubber is limited in its movement in one direction on the guide-frame B by means of the stop-pins I, which are attached to the rubber E in positions to be in line with the flanged rails F G, so that when the rubber E is moved upward the pins abut against the ends of the rails F G, and thus arrest the upward movement of the rubber, the downward movement of the rubber being limited by the end rail *j'* of the rubber coming in contact with the ends of the side rails *c d* of the frame B. These stop-pins are preferably threaded and screwed into the tapped sockets I', formed in the side rails *i i'* of the rubber E. By removing the pins I the rubber can be drawn from the guide-frame,

so as to expose the flanged and channeled guide-rails, and thus enable easy access to be had thereto for the purpose of cleaning or lubricating the same.

The operation and advantages of my invention will be readily understood and appreciated by those skilled in the art from the foregoing description, taken in connection with the drawings.

I am aware that slight changes in the form and proportion of parts and in the details of construction, such as employing a metal which will not rust when exposed to water, or of employing metallic parts which are coated with non-corrosive metals, such as zinc. I therefore reserve the right to make such alterations and modifications as fairly fall within the scope of invention.

I am aware that it is not new, broadly, to provide a guide-frame which has a pivotal connection with a washboard, and which is provided on the opposing faces of its side rails with longitudinal grooves, in which are fitted tenons on the sides of a reciprocating rubber; and I am also aware that a washboard has been provided with grooves in the legs at the bottom side of said washboard, in which grooves are fitted guide-pins that are attached to sliding bars, combined with a flat solid rubber which is pivoted to said sliding bars, and springs acting upon said rubber to normally press it toward the washboard.

My improvements are distinguished from these prior devices in that my rubber is made hollow to receive the guide-frame, from which frame said rubber is readily detachable for the purpose of cleaning and drying the parts; in the employment of guide-rails on the engaging parts of the rubber and guide-frame to give long solid bearing-surfaces on which the rubber is free to slide and by which the rubber is held in proper relation to the washboard, and in the employment of removable stop-pins, which are attached to said rubber and arranged in the path of the guide-rails on the pivoted guide-frame to limit the play or movement of the rubber in one direction, which pins can be detached to permit the rubber to be taken off the guide-frame.

In my improved device the brackets C have their slotted ends connected to the legs of the washboard, and the guide-frame is pivoted to the inner end of said brackets, whereby the guide-frame and the rubber can be adjusted at varying distances relatively to the washboard for the purpose of accommodating clothes of different thicknesses between the board and rubber, and the latter is guided properly by the rails interposed between the frame B and the rubber to cause the rubber to properly operate on the clothes.

It is frequently desirable to throw the rubber and guide-frame away from the washboard for the purpose of rubbing the clothes by hand on the board, and to hold the rubber and frame out of position I have provided the rubber with the beaks *o'*, which can be caused

to rest upon the upper edge of the washtub, so that the rubber or frame B will not drop back toward the board A when the clothes are being rubbed by hand upon the board.

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

1. The combination with a washboard, A, of the hollow rubber E provided, on the in-
10 side thereof, with the interior grooved guide-rails m' , the frame B fitted within said hollow rubber, the flanged rails m fastened to the sides of said frame B and fitted into the grooves of the rails m' the removable pins, I,
15 attached to the rubber and arranged in line with the guide-rails m , and the brackets C connecting the frame B to the washboard, substantially as described, for the purposes set forth.

20 2. The hollow rubber E provided on the

outer face thereof with the holding shoulders or ledges o' which project beyond the plane of the rubber, combined with a washboard, the frame B fitted within said hollow rubber, the interlocking sliding rails m, m' , attached 25 respectively to the guide-frame B and the hollow rubber E, the detachable pins I connected to the lower end of said rubber in line with the guide-rails m on the frame B, and the brackets C, C, attached to the frame B 30 and having their slotted ends loosely connected to the washboard, substantially as and for the purposes described.

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

ALBERT MULDER.

Witnesses:

JOHN B. BARLOW,
JACOB J. OLSEN.