

(No Model.)

2 Sheets—Sheet 1.

M. A. CALDWELL.
WASHING MACHINE.

No. 426,433.

Patented Apr. 29, 1890.

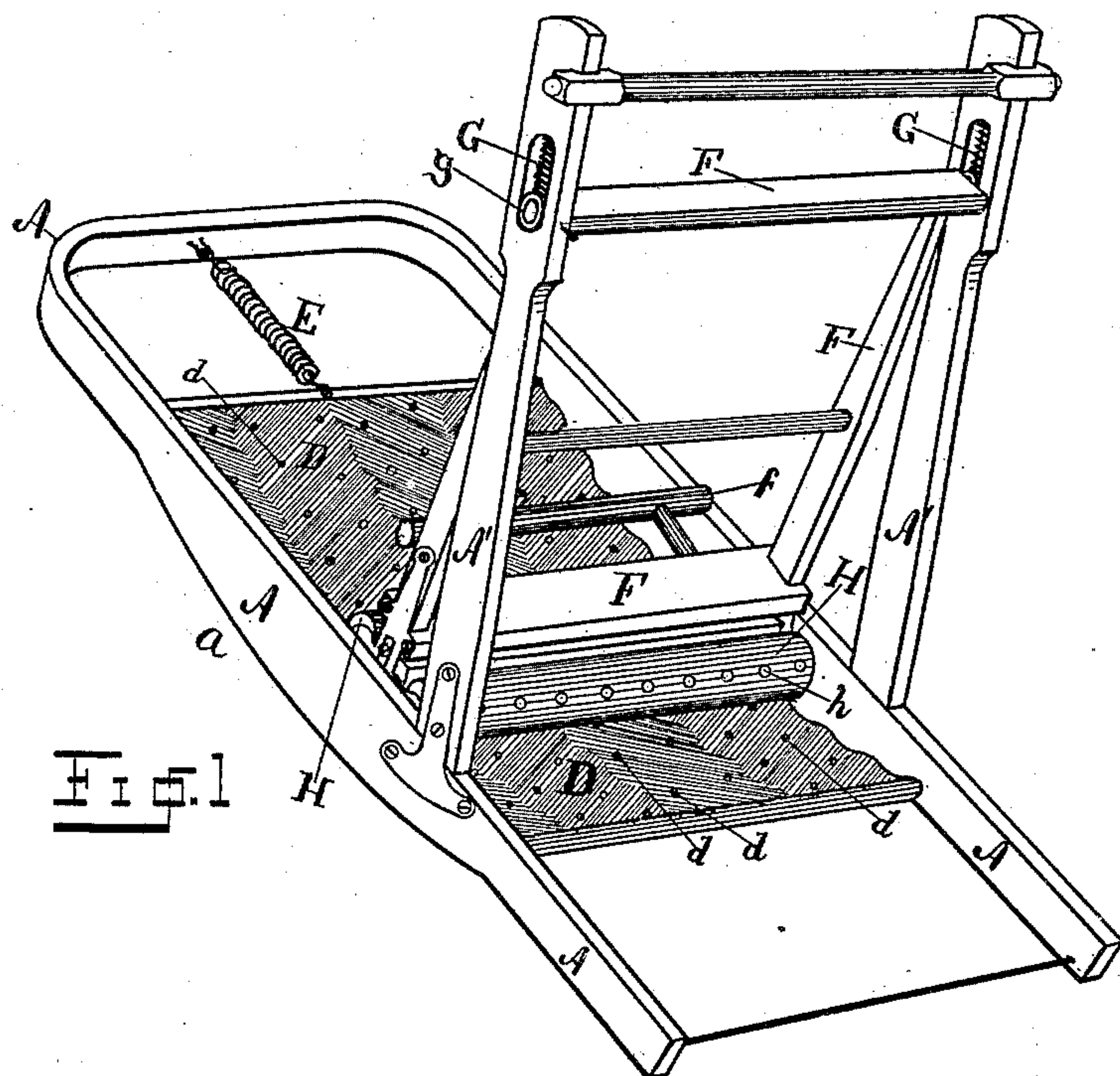


FIG. 1

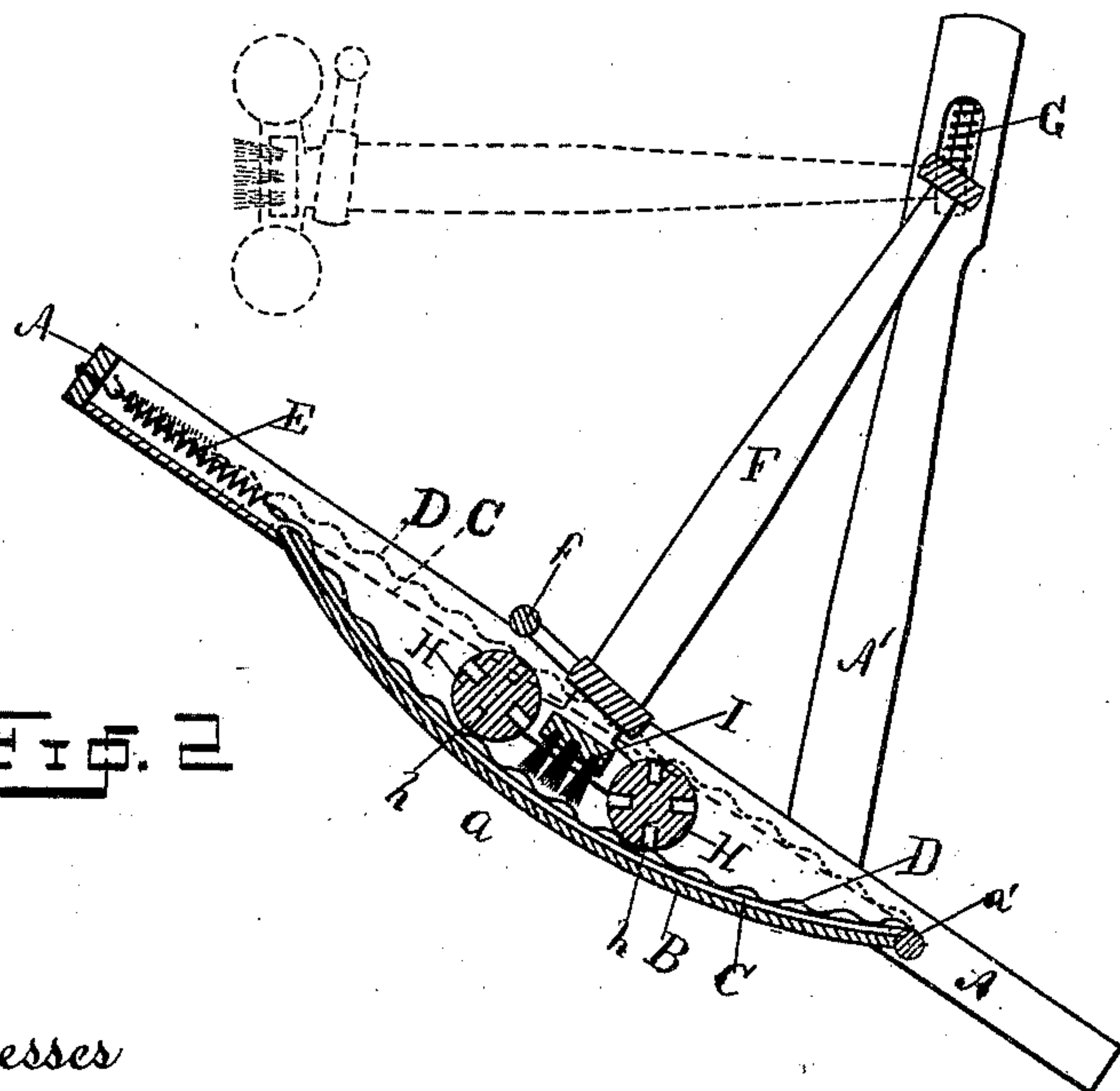


FIG. 2

Witnesses

J. L. Robbins.

H. E. Fick

Inventor

M. A. Caldwell

By his Attys. Hallock & Haller

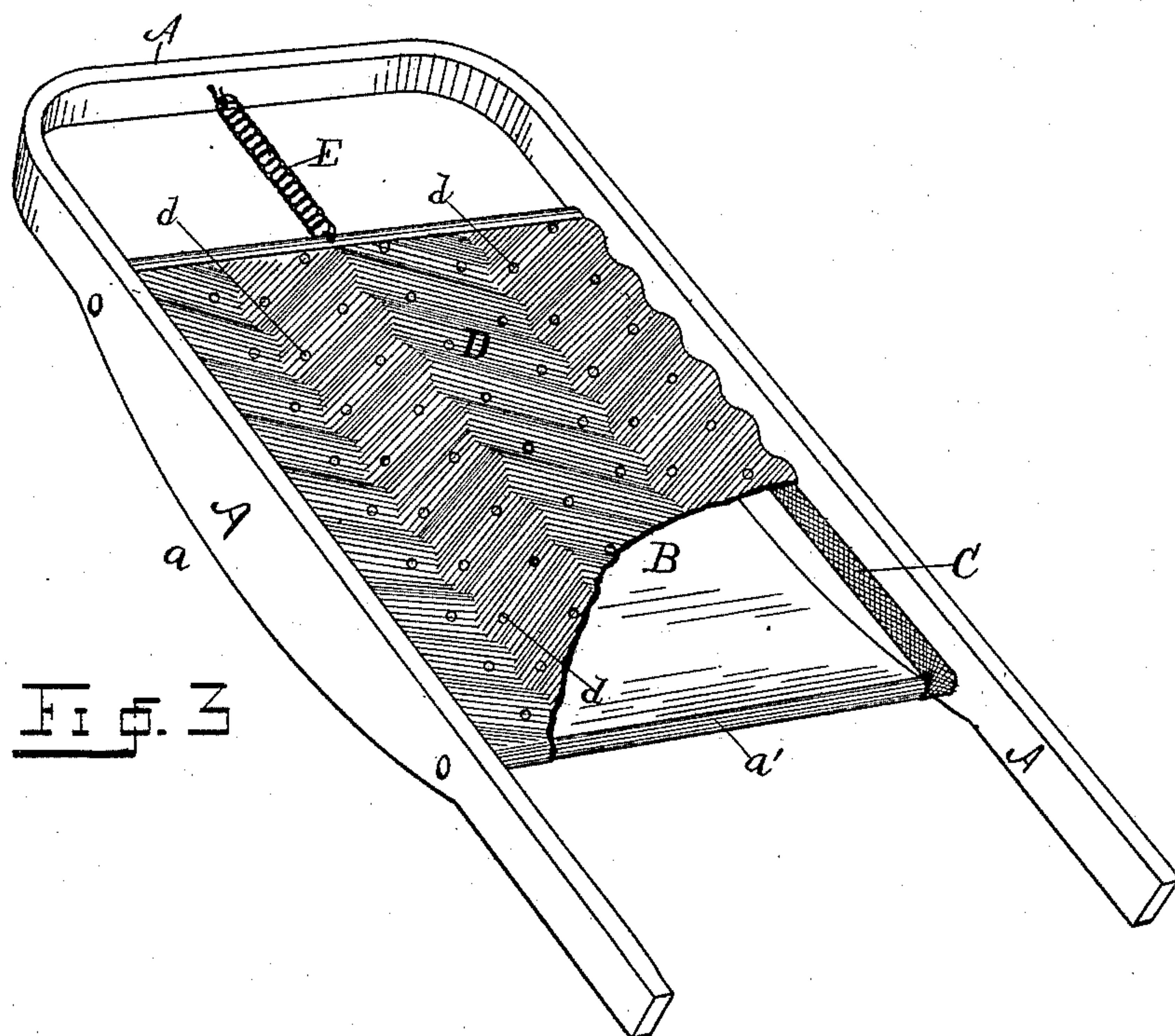
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UNITED STATES PATENT OFFICE.

MARVIN A. CALDWELL, OF ERIE, PENNSYLVANIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 426,433, dated April 29, 1890.

Application filed September 2, 1889. Serial No. 322,795. (No model.)

To all whom it may concern:

Be it known that I, MARVIN A. CALDWELL, a citizen of the United States, residing at Erie, in the county of Erie 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 appertains to make and use the same.

This invention relates to washing-machines; and it consists in certain improvements in the construction thereof, as will be hereinafter fully set forth, and pointed out in the claims.

My invention is illustrated in the accompanying drawings as follows:

Figure 1 is a perspective view of my improved washing-machine. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a perspective view of the wash-board part of the machine, with parts broken out to show internal construction.

The machine consists of a wash-board and a rubbing device, and is intended to set in a tub when used, the same as a common wash-board. The wash-board is composed of a frame-work A, which has a widened portion *a* on its sides, a bottom board B, which is curved to correspond with the curved widened portion *a* of the frame, and a corrugated or otherwise roughened rubbing-plate D, which is made of sheet metal, preferably zinc, or other non-corrosive metal. The rubbing-plate D is securely fastened at its lower end to the rung *a'*, or to some other fixed part of the frame-work, and the upper end is left free, but is attached to a spring E or other means for giving it tension. When the rubbing-plate is not being acted upon by the rubbing device, it is drawn taut by the spring E, as seen in Fig. 2 in dotted lines and in Fig. 3; but when it is acted upon by the rubbing device it is pressed down upon the back board B, as shown in full lines in Figs. 1 and 2. The rubbing-plate D is perforated with small holes *d*, as seen in Figs. 1 and 3. Beneath the rubbing-plate at each side thereof there is placed a strip of packing material C, the object of which is to prevent water passing out between the edges of the plate D and the side frame-pieces A. This packing may be made of strips of felt or other proper mate-

rial and secured to the plate by rivets, if desired.

The clothes to be washed lie upon the top of the plate D, and in the operation of rubbing them water will be forced through the openings *d* in the plate, as will be hereinafter more fully mentioned.

The rubbing apparatus consists of a fixed upright frame A', a swinging flexibly-pivoted frame F, expressing-rollers H, and a brush I. The flexibility of the pivot of the frame is effected by springs G G, which bear upon sliding boxes *g*, which receive the journals of the frame F.

The rubbing device is moved by grasping the handle *f* and swinging the frame F to and fro.

The rollers H have in their surface indentations *h*, for the purpose of giving a sucking or cupping action upon the clothes as they press upon them.

The rubbing-plate herein shown and above described may be used with many other types of rubbing device or when the rubbing is done by hand.

The essential features of the rubbing-plate are that it yields to pressure, and as it yields it sinks down into the space formed by the curved back B, and when pressure is removed it rises up again into the taut position, and, being perforated, this rising and falling action induces currents of water through the clothing lying on the plate D. Thus, when the rubbing device presses the clothes and plate D down, the water and air confined below the plate is forced up through the holes *d* and through the clothing upon the plate, and as soon as the pressure of the rubbing device is removed the upward movement of the plate D causes a suction down through the clothes and the openings *d*. It will therefore be seen that the action of the machine upon the clothes is, first, a frictional action; second, a pressing or expressing action, and, third, a percolating action, by which the currents or jets of water are forced through the clothes, all of which are effected by swinging the vertically-yielding rubbing device to and fro.

What I claim as new is—

1. In a washing-machine, the combination, substantially as described, of a vertically-

yielding perforated rubbing-plate D and a chamber back of and closed by said plate, and into which the latter sinks when it yields to pressure.

5 2. In a washing-machine, the combination, substantially as described, of a chamber formed of the frame A and the back B, curved as described, and the perforated yielding rubbing-plate closing the top of said chamber.

10 3. In a washing-machine, the combination of a chamber formed by the frame A and back B, the perforated or yielding rubbing-plate closing the top of said chamber, and a spring secured to the loose end of the yielding plate and to the frame.

15 4. In a clothes-washing machine, the combination, with the yielding perforated rubbing-plate D, the frame A, and chamber below said plate, of the packing-strips C along
20 the under side of the edges of said plate.

5. In a washing-machine, the combination of a yielding perforated rubbing-plate, a chamber below said rubbing-plate and closed by the latter, and a vertically-yielding rubbing device arranged to act upon said plate 25 reciprocally.

6. In a clothes-washing machine, the combination, with the yielding perforated rubbing-plate D and a chamber back of said plate, which is covered thereby, of the piv- 30 oted yielding frame F, carrying a rubbing device at its free end in position to act upon and depress said plate when the said frame is vibrated.

In testimony whereof I affix my signature in 35 presence of two witnesses.

MARVIN A. CALDWELL.

Witnesses:

JNO. K. HALLOCK,
WM. P. HAYES.