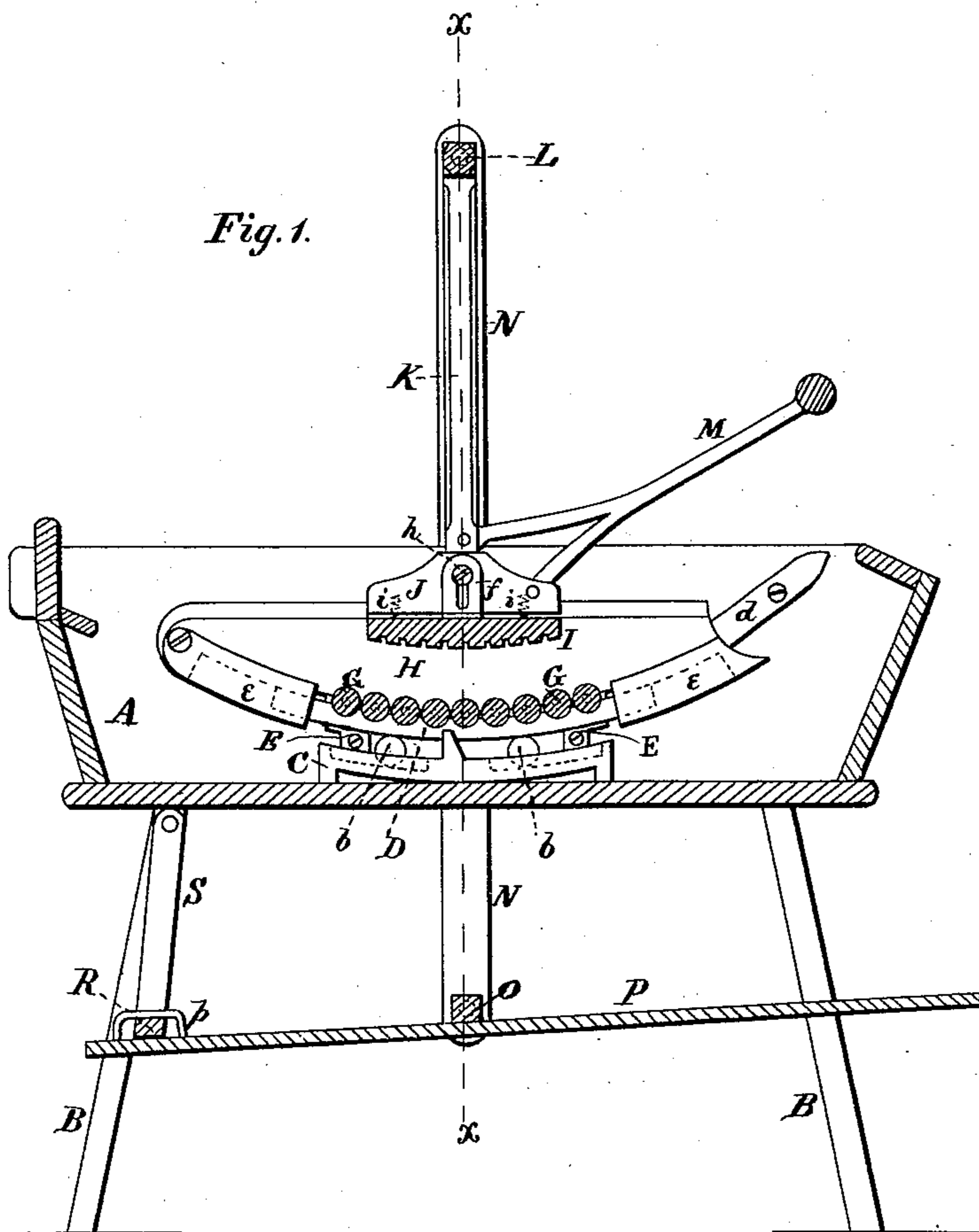


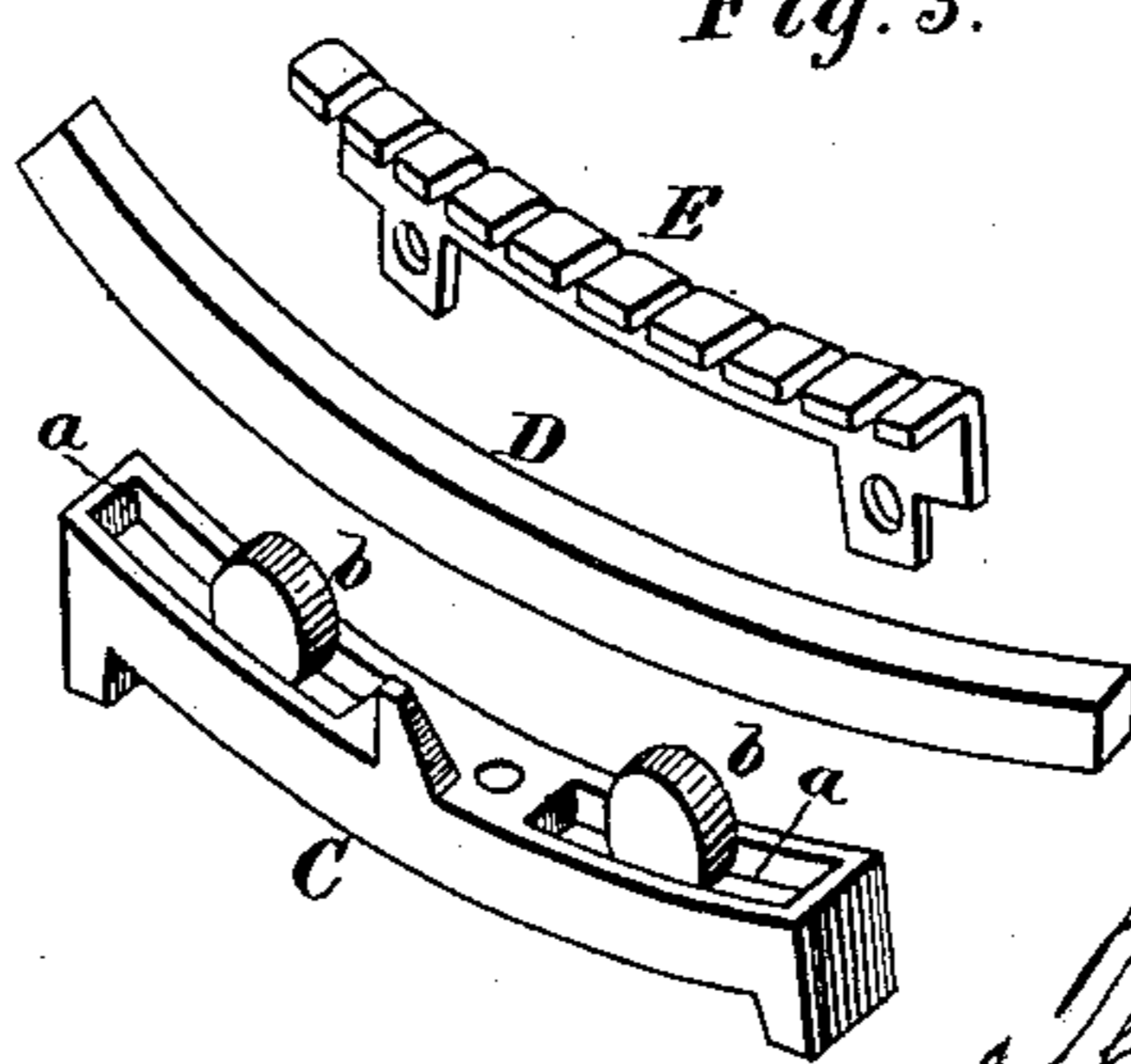
**T. HARRIS.**  
**Washing-Machines.**

No. 153,434.

Patented July 28, 1874.



*Fig. 1.*



*Fig. 3.*

*Witnesses:*

*Henry N. Miller*  
*W. H. Newhamel,*

*Inventor.*

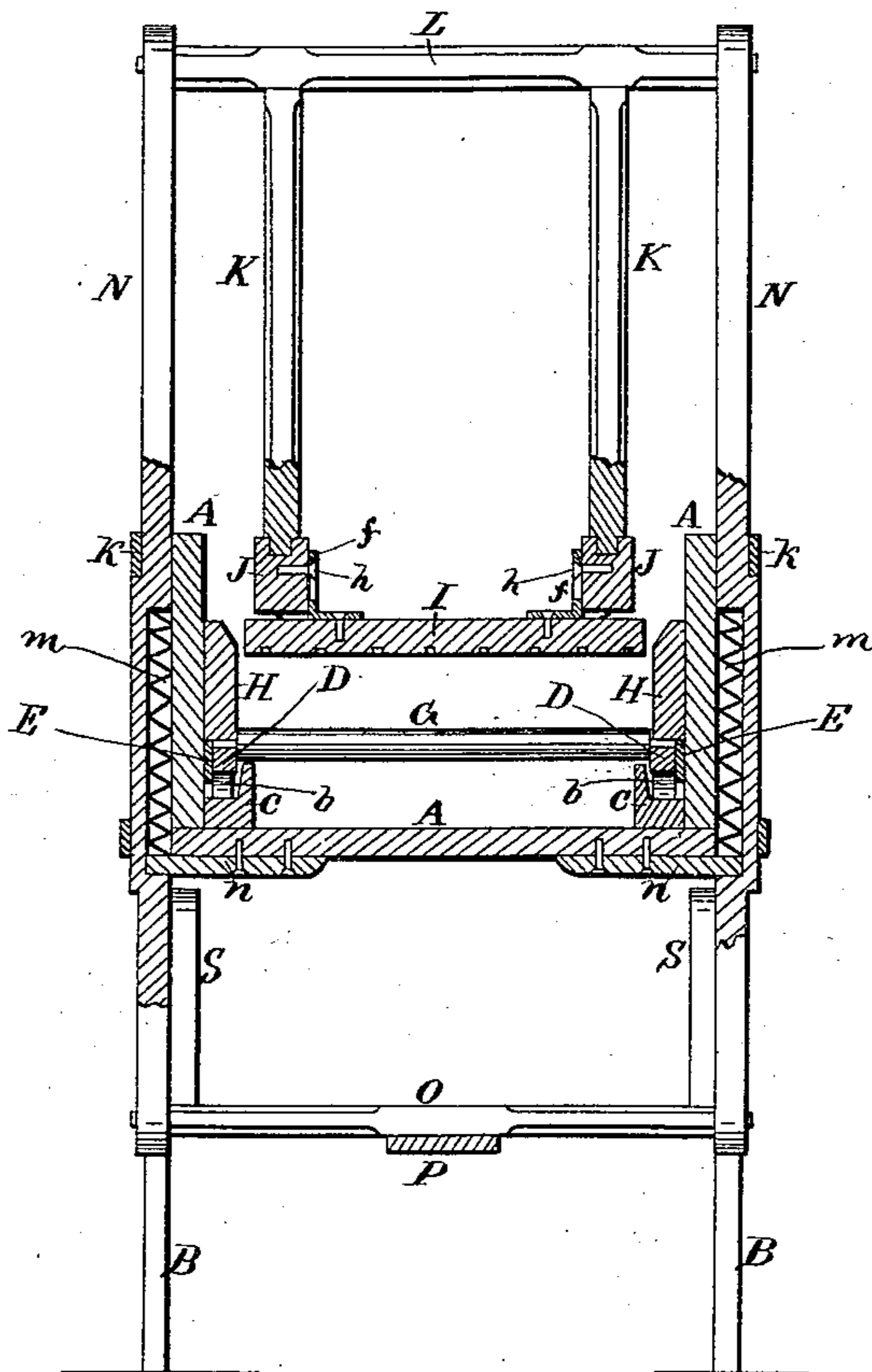
*Thomas Harris.*  
*Per H. J. Abbott.*  
*Attorney.*

**T. HARRIS.**  
**Washing-Machines.**

No. 153,434.

Patented July 28, 1874.

*Fig. 2.*



*Witnesses:*

*Henry W. Miller*  
*H. F. Duhamel*

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*Thomas Harris.*  
*Per H. J. A. Hot.*  
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# UNITED STATES PATENT OFFICE.

THOMAS HARRIS, OF VESTAL, NEW YORK.

## IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **153,434**, dated July 28, 1874; application filed April 13, 1874.

*To all whom it may concern:*

Be it known that I, THOMAS HARRIS, of Vestal, county of Broome and State of New York, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification:

My present invention is intended as an improvement upon the washing-machine for which Letters Patent were granted to me September 17, 1872; and consists in the construction and arrangement of devices hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a longitudinal vertical section of my washing-machine. Fig. 2 is a sectional view taken on the line *x x* of Fig. 1. Fig. 3 is a detailed perspective view of the device under the ends of the wooden rollers.

A represents the suds-box, made of any desired dimensions, and supported upon suitable legs B B. Upon the bottom of the box A, at each side, is fastened a narrow metallic box, C, having two grooves, *a a*, in its upper surface for the reception of two metallic wheels, *b b*, which are entirely disconnected from the box C, and capable of moving from end to end of their respective grooves. On these wheels is placed a curved bar, D, which passes immediately below a notched or slotted bar or plate, E, fastened to the side of the suds-box A. G G represent the wooden rollers, which form the surface against which the clothes are rubbed. The journals or gudgeons of these rollers are placed in the slots or notches of the plate E and rest upon the bar D. The whole is held in place by a head-board, H, on each side pivoted at one end to the side of the suds-box, and held at the other end by a button, *d*. At each end of the head-board H is an apron, *e*, which comes over the end of the bar D, and within which is a shoulder to form a stop for the movement of said bar.

In washing the clothes, the rub-board is moved back and forth, which gives the rollers G a rotary motion first in one direction then

in the other. As the rollers revolve in one direction, the bars D slide in the opposite direction by the friction of the roller-gudgeons, and these bars moving upon the wheels *b b*, which, in turn, move in their grooves *a a*, having both a revolving and a backward and forward motion, it follows that the friction is reduced to the smallest possible fraction, and consequently the operation of washing is rendered very easy, requiring but little strength.

The aprons *e e*, covering the ends of the sliding bar D, prevent the clothes from catching thereon.

I represents the rub-board, which is convex on its under side, and provided with diagonal or oblique grooves. This board is connected, by means of slotted plates *f* and screws *h*, to feet J attached to the lower ends of arms K. In recesses upon the under side of the feet J are inserted springs *i*, which press upon and force down the rub-board to the extent of the slots in the plates *f*, and, therefore, allow the rub-board to yield to the pressure upon the clothes. M is the handle attached to the arms K and feet J, as shown. The arms K are attached to a cross-bar, L, hung upon journals in the upper ends of two vertical bars, N, which pass down through loops *k*, one upon each side in the center of the suds-box A. In the inner side of each bar M is made a groove or elongated recess for the reception of a spiral spring, *m*, and upon the side of the suds-box, at the bottom, is a lug, *n*, projecting into said recess below the lower end of the spring. The springs *m*, therefore, throw the bars N upward, so as to elevate the rub-board a certain distance above the rollers G. The lower ends of the bars N are connected by means of a cross-bar, O, which is journaled upon its ends and allowed to turn in the bars N. To this cross-bar is attached the treadle P, by means of which the bars N are drawn down, so as to bring the rub-board down upon the clothes. The rear end of the treadle P is provided with a staple, *p*, passing over a cross-bar, R, which is attached to arms S pivoted to the suds-box, or to the legs thereof, by which means the cross-bar R is allowed to swing sufficiently to cause the treadle to bring down the bars N in a vertical line.

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

1. The head-board H and aprons *e e*, in combination with the bar D and grooved box C, substantially as shown and described.

2. In combination with the grooved box C and sliding bar D, the movable wheels *b b*, as herein set forth.

3. The combination, with the grooved box

C and sliding bar D, of the slotted plate E, as and for the purpose herein set forth.

In testimony that I claim the foregoing as my invention I hereunto affix my signature this 10th day of April, 1874.

THOMAS HARRIS.

Witnesses:

JOHN WHEELER,

WM. C. BLAKESLEE.