

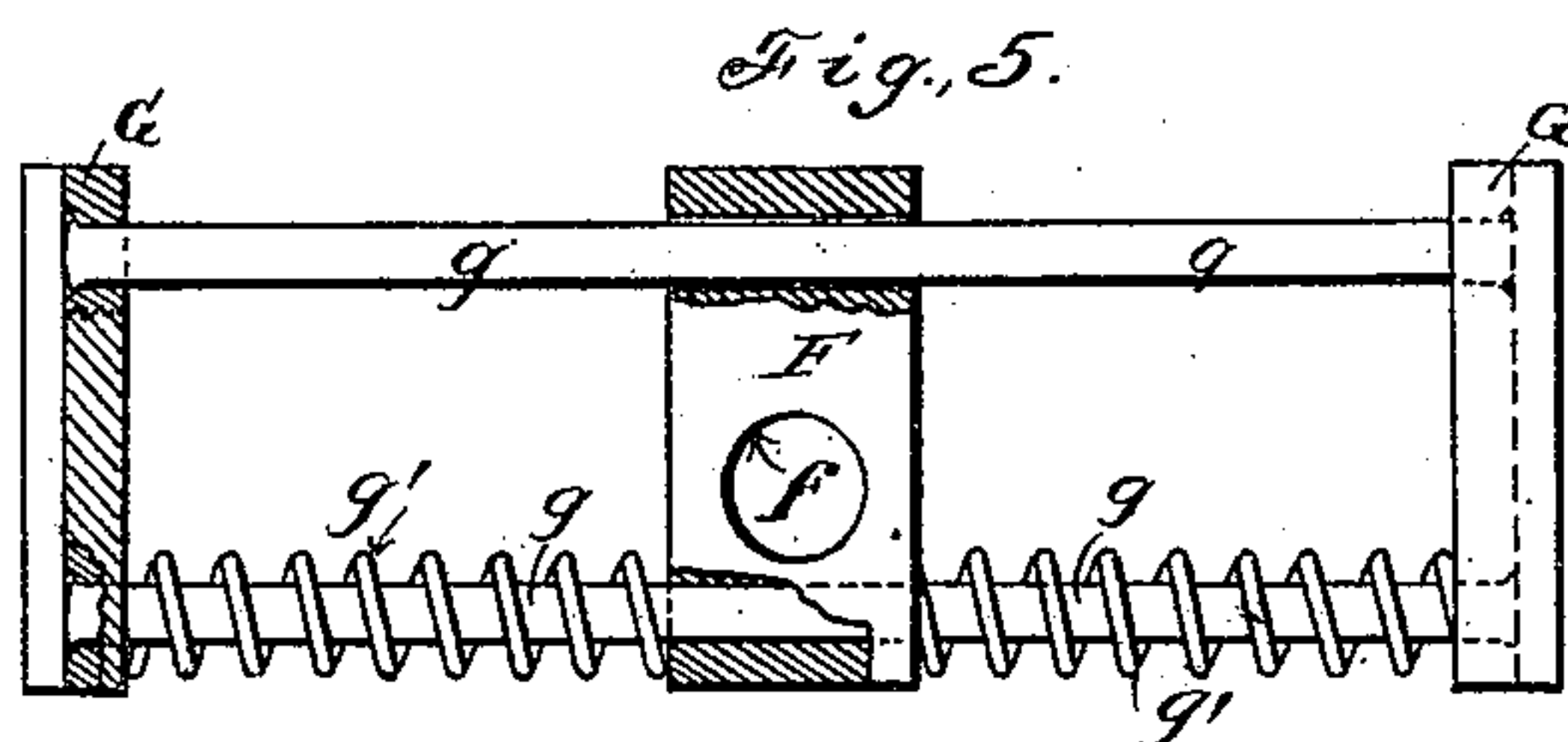
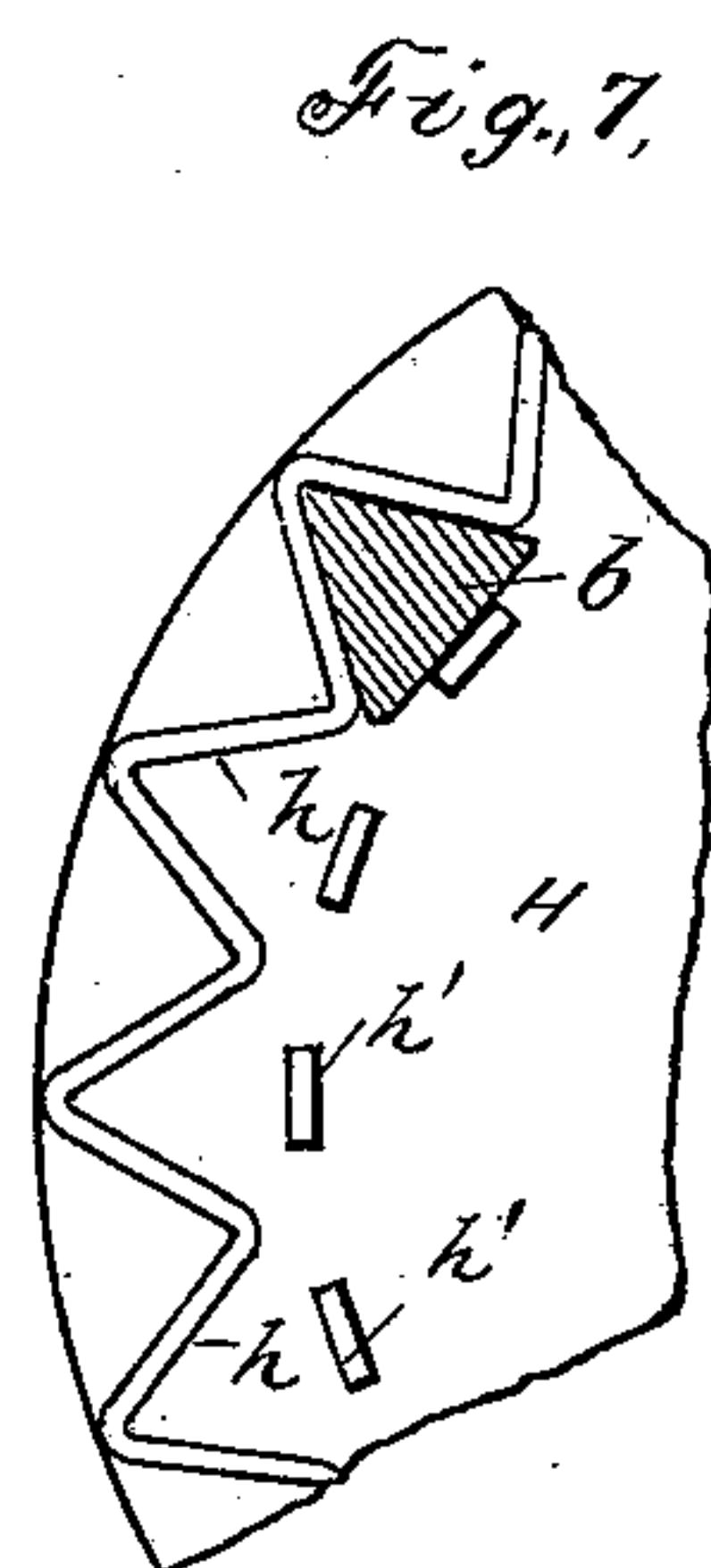
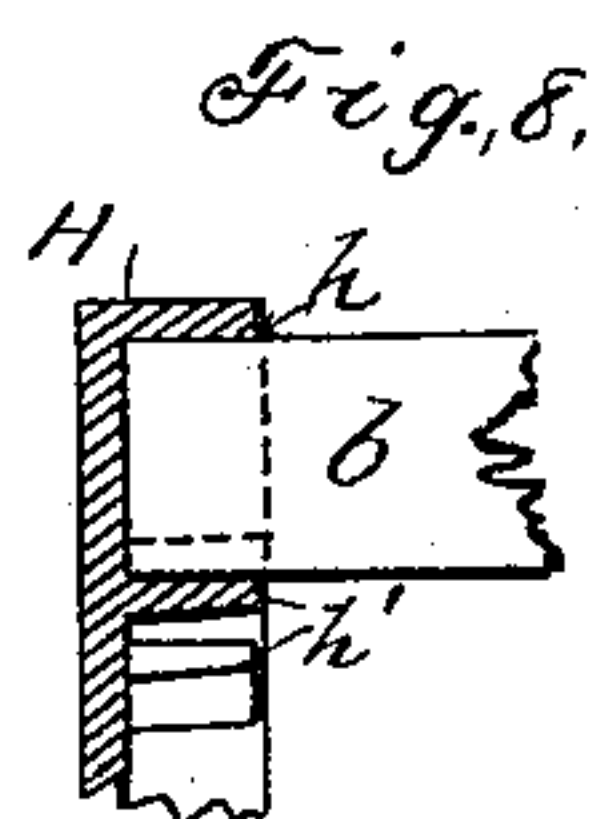
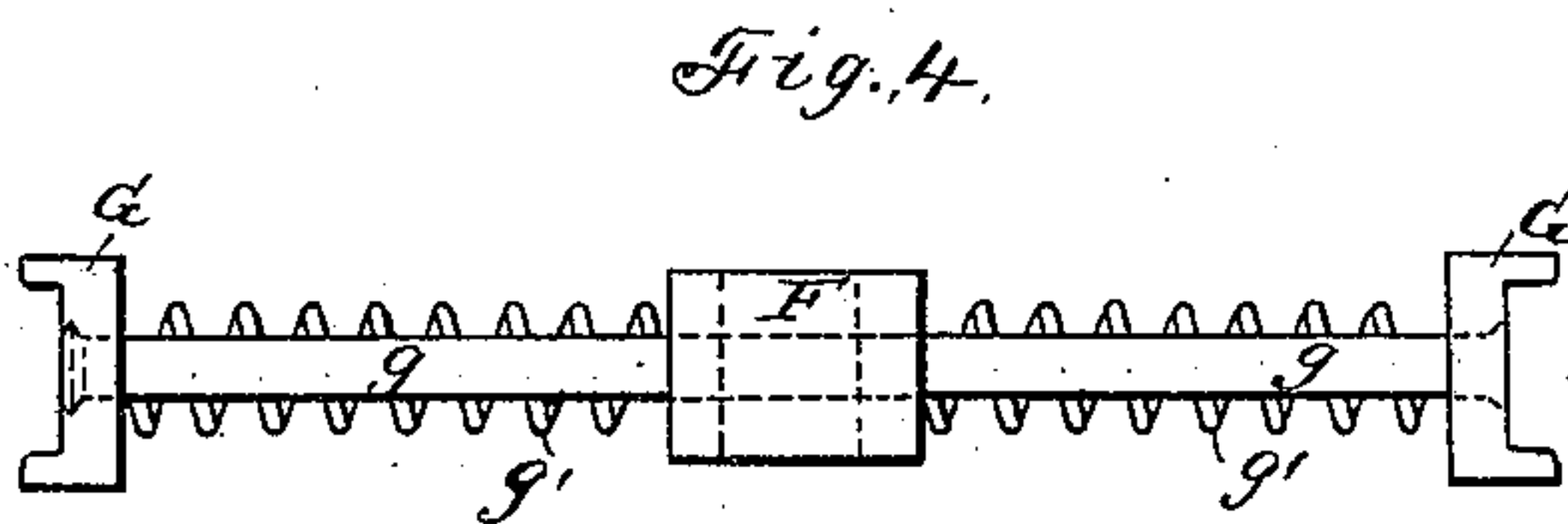
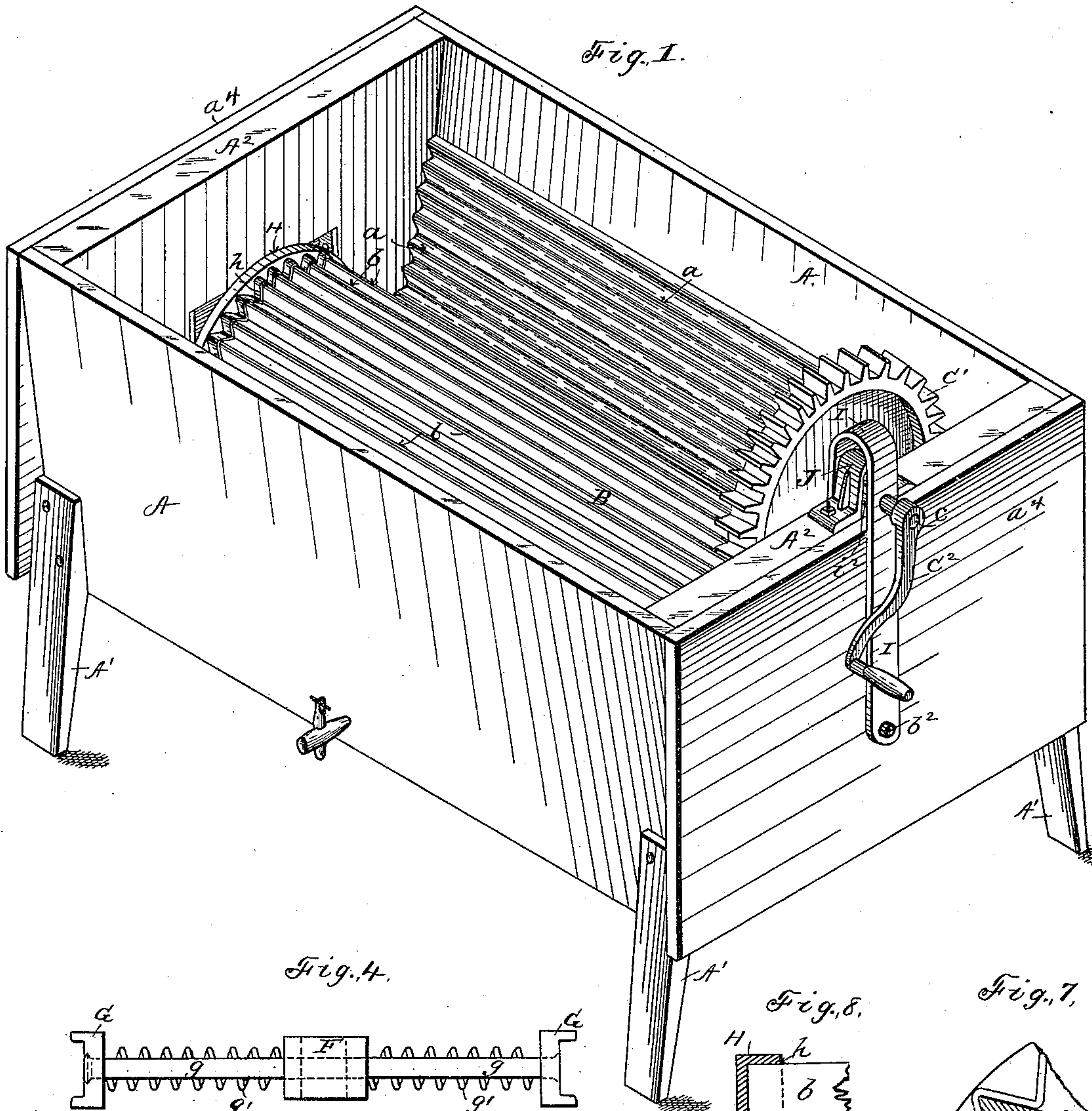
(No Model.)

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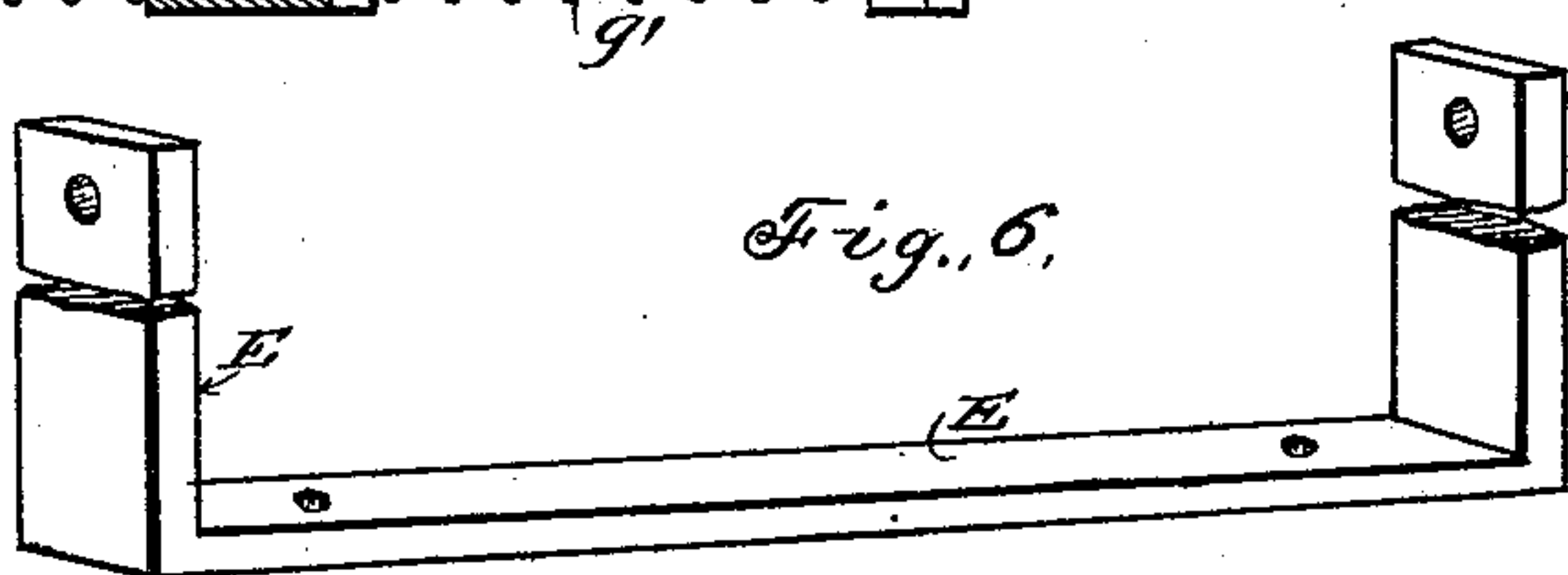
J. ABER.  
WASHING MACHINE.

No. 467,219.

Patented Jan. 19, 1892.



Witnesses,  
W. R. Edelen,  
A. A. Edelen.



Inventor  
Jacob Aber  
by O D Lewis  
Attorney



(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

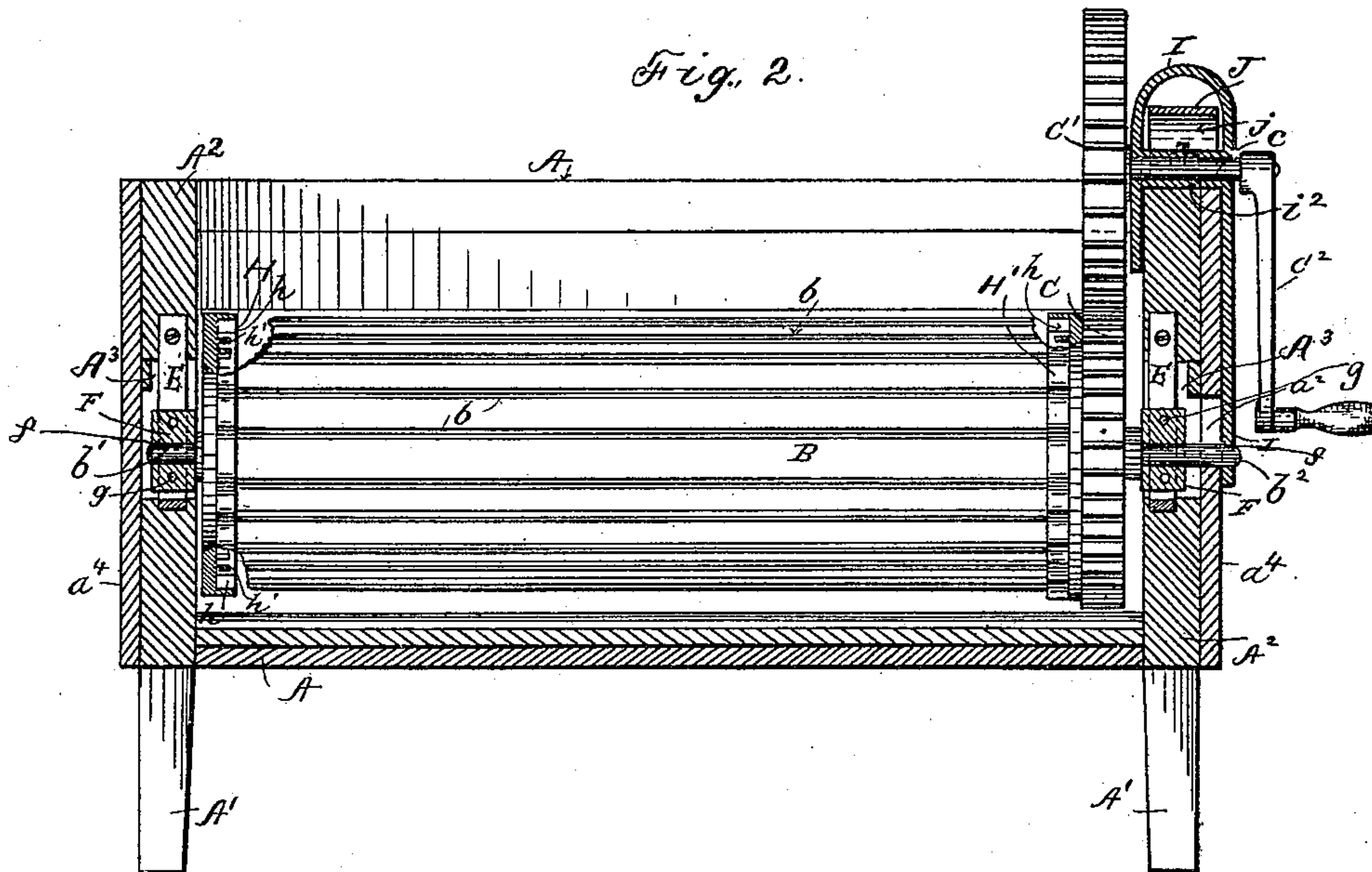


Fig. 10.

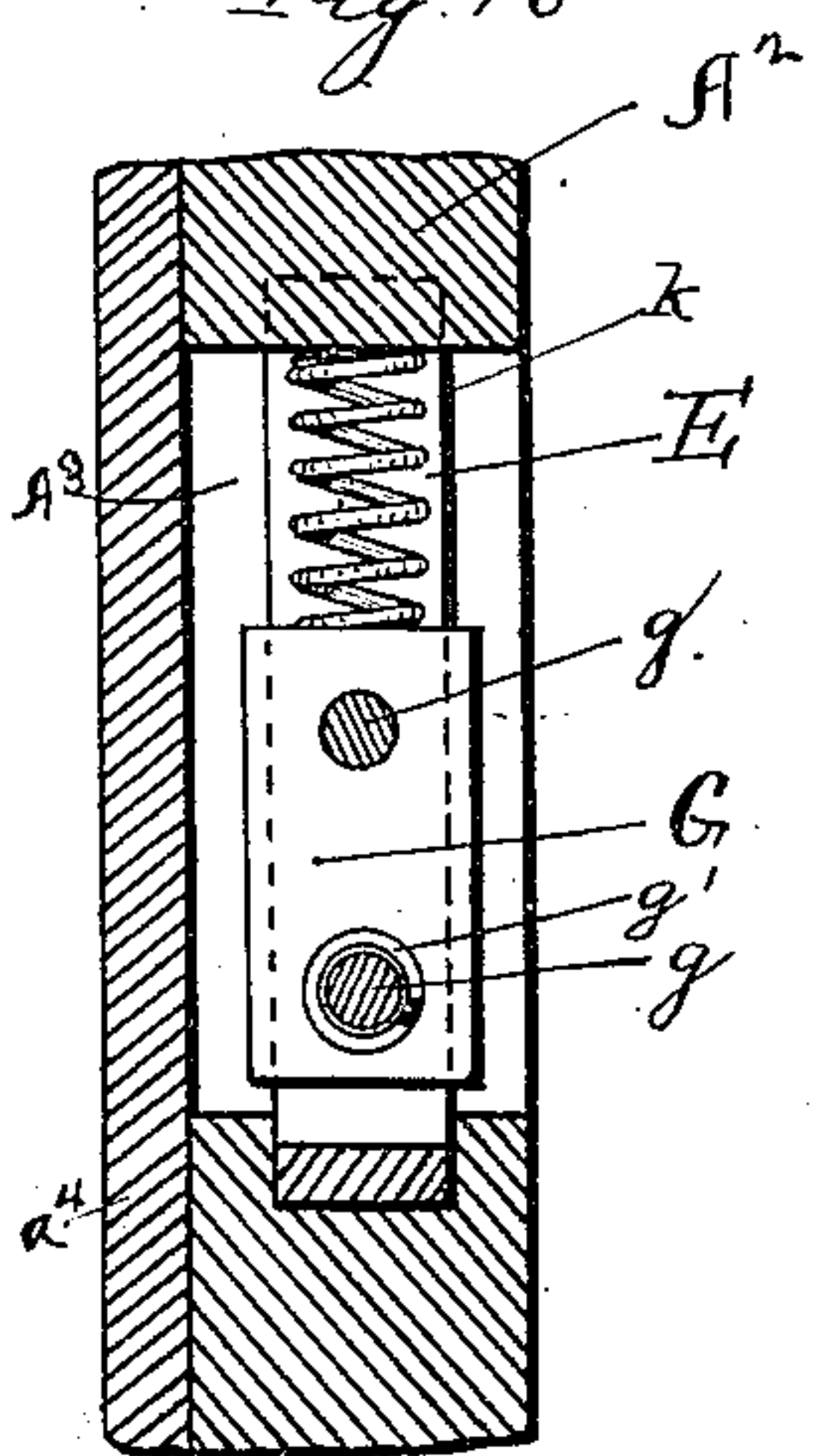


Fig. 3.

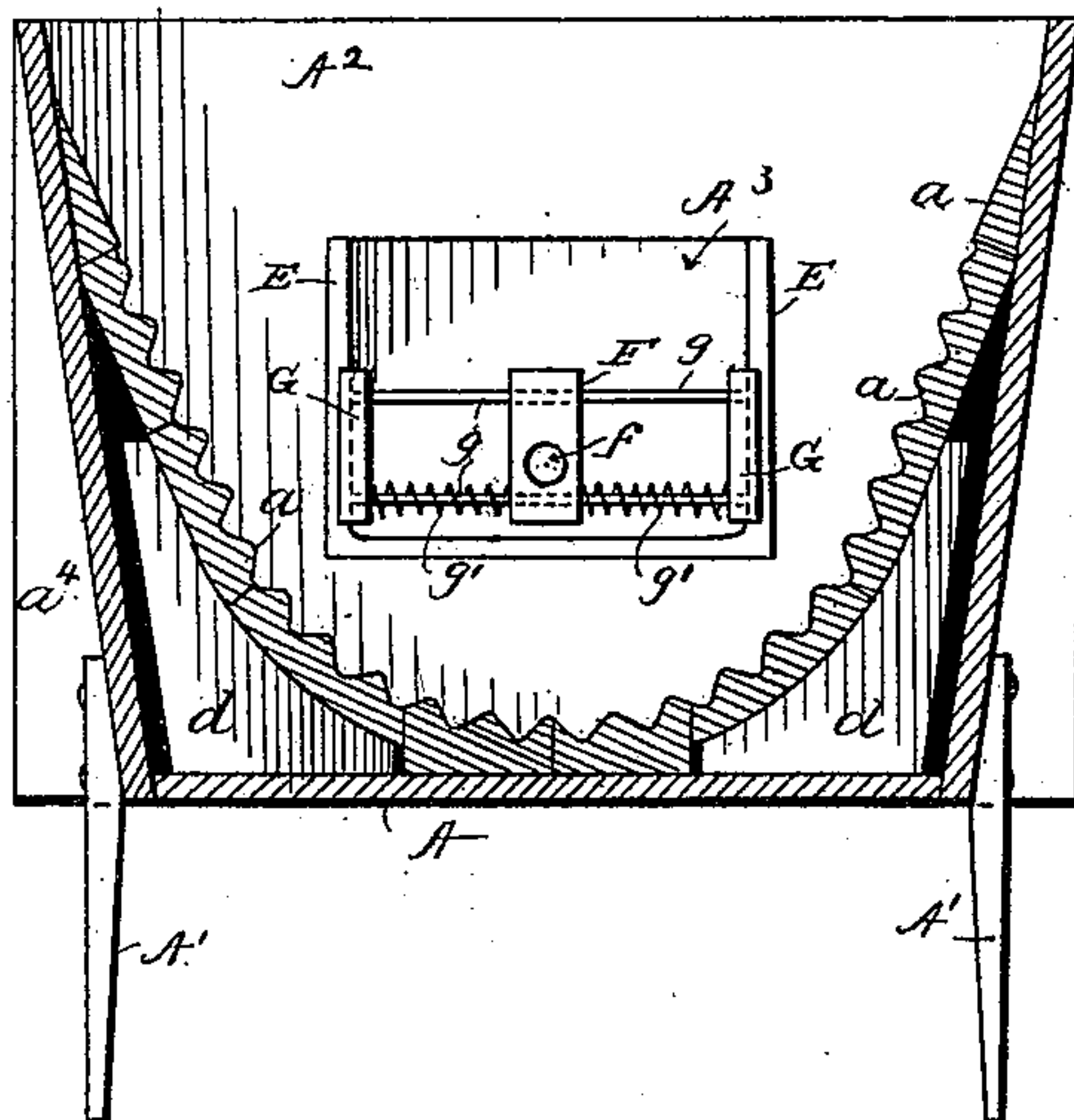
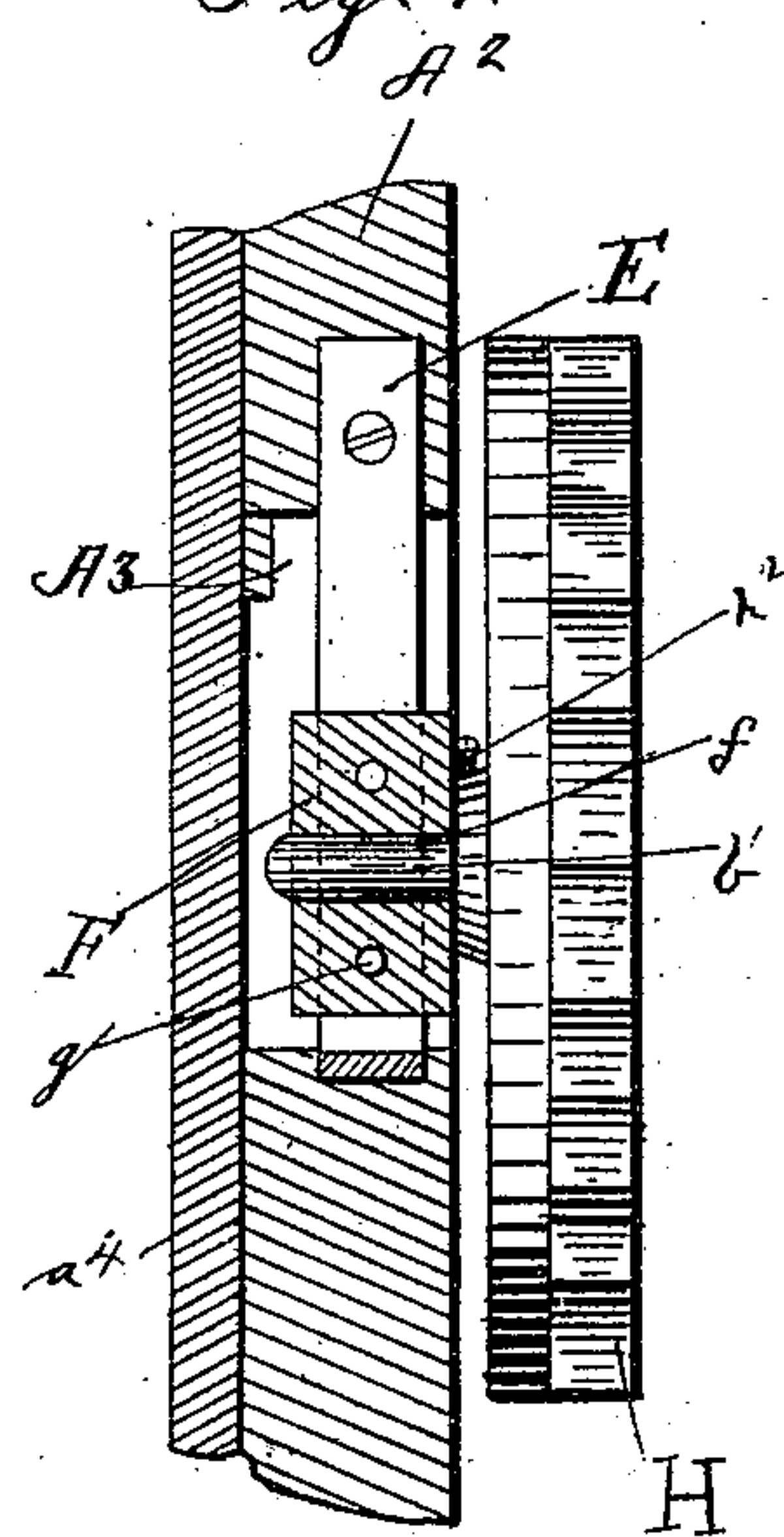


Fig. 9.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JACOB ABER, OF GILL HALL, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 467,219, dated January 19, 1892.

Application filed June 11, 1891. Serial No. 395,921. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB ABER, a citizen of the United States, residing at Gill Hall, in the county of Allegheny 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to washing-machines; and it consists in certain peculiarities in the construction, arrangement, and combination of the several parts, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

In the accompanying drawings, illustrating the invention, Figure 1 represents in a perspective view my improved washing-machine. Fig. 2 represents a longitudinal vertical section of the machine with the reel in elevation and partly broken away at its opposite ends. Fig. 3 is a transverse vertical section with the reel removed and exhibiting the arrangement of the reel bearing or box. Fig. 4 represents in plan one of the reel bearings or boxes enlarged. Fig. 5 is a side elevation of the same device, partly broken away to exhibit the construction of the same. Fig. 6 represents in perspective one of the guides for securing the reel-boxes. Fig. 7 is a detail, enlarged, of the inside of one of the reel-plates, exhibiting its construction and the means for securing the staves. Fig. 8 is a detail, in vertical section, of the same as shown in Fig. 7. Fig. 9 is a detail view, enlarged, partly in section, showing the manner of movably securing the plates to the reel-shaft; and Fig. 10 is a view, partly in section, of a modification.

My invention consists of a box or body A, the sides of which are slightly tapering toward the bottom, and to which are attached legs A'. The corrugated boards *a* on the inside of the machine taper from the top and terminate in an arc of a circle at the bottom and immediately under the reel B. Said corrugated boards *a* are partly supported by brackets *d*. Each end of the machine is provided with supplemental ends A<sup>2</sup>, which are

mortised at A<sup>3</sup> for receiving guides or ways E, which are rigidly secured within said mortises. Inclosed within said mortise A<sup>3</sup> are adjustable bearings or boxes F, which have a vertical and also lateral movement through the medium of said guides E, jaws or slides G, rods *g*, and equalizing-springs *g'*. Boxes F are provided with openings *f* (see Fig. 3) for the reception of and forming bearings for journals *b'* and *b*<sup>2</sup>, which are secured to the reel-plates H and H'. Journal *b*<sup>2</sup> extends outside of the machine in a bearing formed in a yoke I. Said yoke extends over and on the inside of the machine, forming a bearing for shaft *c*, which supports driving-gear C' and crank C<sup>2</sup>. Immediately inside of said yoke I and secured to said supplemental end A<sup>2</sup> is a box or bifurcated guide J, with an opening *j* for allowing the bearing *i*<sup>2</sup> vertical movement, which will be hereinafter more fully described. Reel B is provided with staves *b b*, &c., which are secured in V-shaped openings *h* and supported, in conjunction with lugs *h'*, near the periphery of said reel-plates H H'. (See Figs. 7 and 8.) Said staves *b* are not secured by any other fastenings than those aforesaid, except through the end-pressure of said reel-plates H and H', which are keyed or secured to the portion of the shafts *b' b*<sup>2</sup> by means of set-screws *h*<sup>2</sup>. When necessary to remove a stave *b* from breakage or other reasons, reel-plate H can be quickly removed and a new stave or staves inserted by any person not skilled in mechanics. Secured to and forming part of said reel-plate H' is a spur gear-wheel C. Said wheel C is to actuate said reel B through the medium of the driving-gear C' and crank C<sup>2</sup>.

In operating my machine the wash is put in promiscuously and the operator turns the crank C<sup>2</sup>, secured to shaft *c*, thus rotating the spur gear-wheels C' and C, which revolves the reel B. Any inequality of the clothes elevates or depresses said reel B or moves the same in a lateral direction, according to circumstances. When the reel B has a lateral movement, the box F is forced in either direction along the rods *g g*, and at the same time the reel is held firmly, but not rigidly, against the wash through the medium of the springs *g' g'*, and as soon as any undue pressure is removed from said reel B the boxes F resume their nor-



mal position in the center of the machine through the medium of the equalizing-springs  $g'g'$ . When said reel B is elevated from the causes previously stated for lateral or both movements simultaneously, the entire mechanism, consisting of boxes F and jaws or slides G, is forced upward upon the ways or guides E, thus compensating for irregularities, as previously stated. At the gear end of the machine additional devices are employed for allowing the driving-gear C' to be elevated simultaneously with said reel B and its accompanying actuating-gear C. As reel B is elevated, the end of the shaft  $b^2$ , which is secured near the bottom of said yoke I, elevates said yoke and consequently, also, the spur-gear C', which is secured to said shaft  $c$ , said shaft being journaled in the bearing  $i^2$ , which is integral with said yoke. The slotted box J, by means of its slot  $j$ , maintains the bearing  $i^2$  in a vertical position when elevating the yoke and its accompanying mechanism, and consequently both ends of said reel B are elevated simultaneously and its accompanying mechanism when in operation. At each end of the machine recesses  $a^3$  are provided and also recess  $a^2$  for allowing free movement to the mechanism when elevating reel B. The vertical adjustment of the reel depends upon gravity of the same when operating the machine. If necessary, springs could be employed on the top of jaws G G and secured on the under side of mortise A<sup>3</sup>, as shown in Fig. 10, for exerting more pressure upon the reel B. The ends  $a^4$  of the box are exterior to the supplemental ends A<sup>2</sup>, within which latter are formed the openings, mortises, &c., for the bearings, and are unbroken, with the exception of the open-

ing  $a^2$  in one of them, which serves to cover and protect the adjacent mechanism. 40

Having described my invention, that which I desire to secure by Letters Patent is—

1. In a washing-machine, the combination, with the box, vertically and laterally movable blocks formed with openings, and the reel having its journals received and borne by said vertically and laterally movable blocks, of a movable yoke connected to one of said blocks, a shaft journaled on said yoke near the upper end thereof, a gear-wheel on said shaft in gear with the reel-shaft, a crank on the outer end of said shaft for operating the same, and a guide within said yoke for keeping the reel-actuating mechanism in a vertical position. 55

2. In a washing-machine, the combination of the box, reel, and its journals, guides E, vertically and laterally movable boxes between said guides, serving as bearings for said reel-journals, an adjustable shaft supporting at one end a gear-wheel in gear with the reel-shaft and at its other end a crank for operating it, an adjustable bearing for said shaft, connected with one of said boxes, whereby it and said shaft, crank, and gear-wheel will move with said reel, and equalizing-springs for holding the reel firmly, but not rigidly, against the clothes being cleansed. 60

In testimony that I claim the foregoing I hereunto affix my signature this 31st day of March, A. D. 1891. 70

JACOB ABER. [L. S.]

In presence of—

CHARLES LARGE,  
M. E. HARRISON.