

No. 701,985.

Patented June 10, 1902.

H. F. ACKERMAN.  
MOPPING DEVICE.

(Application filed May 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.

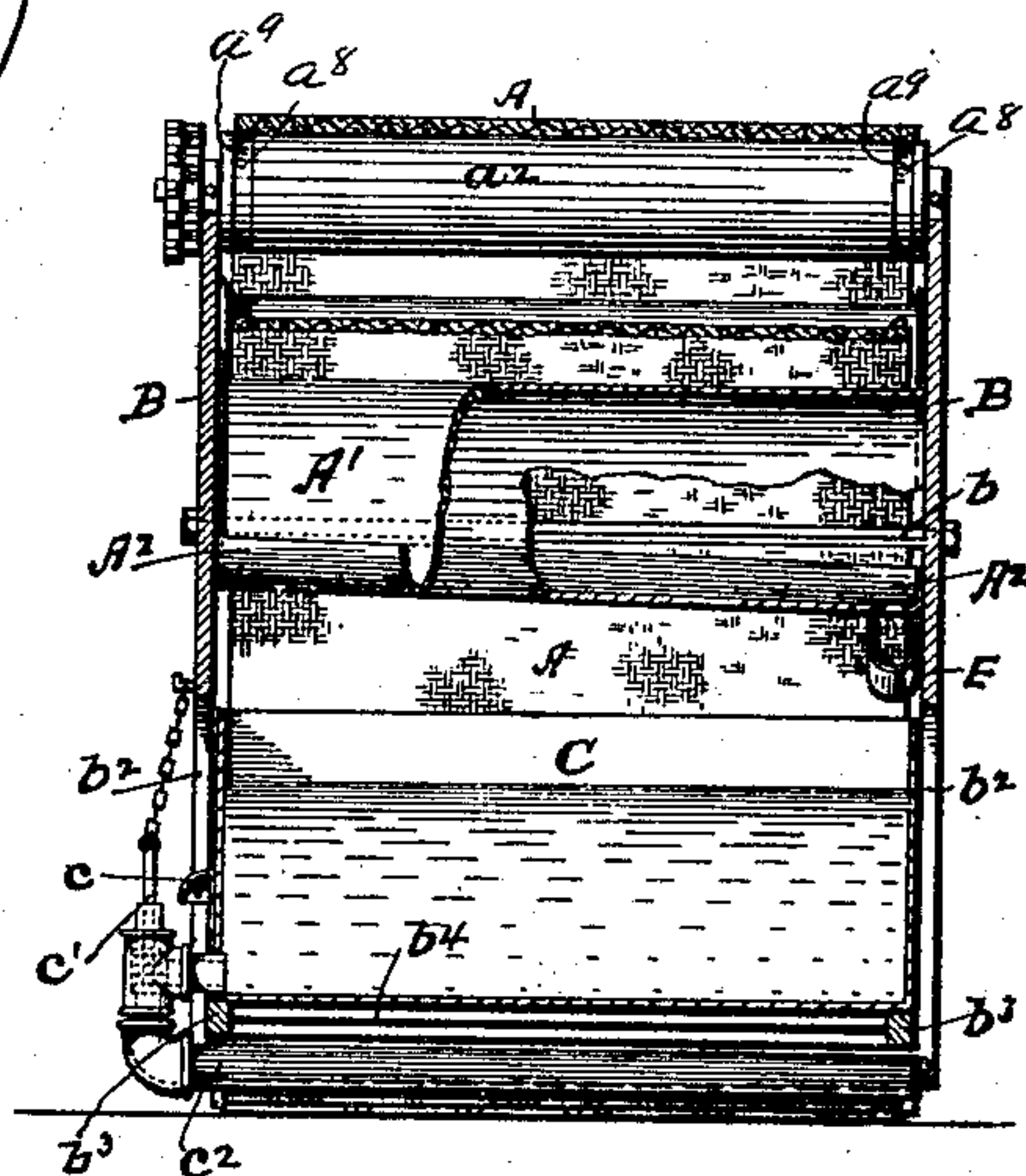
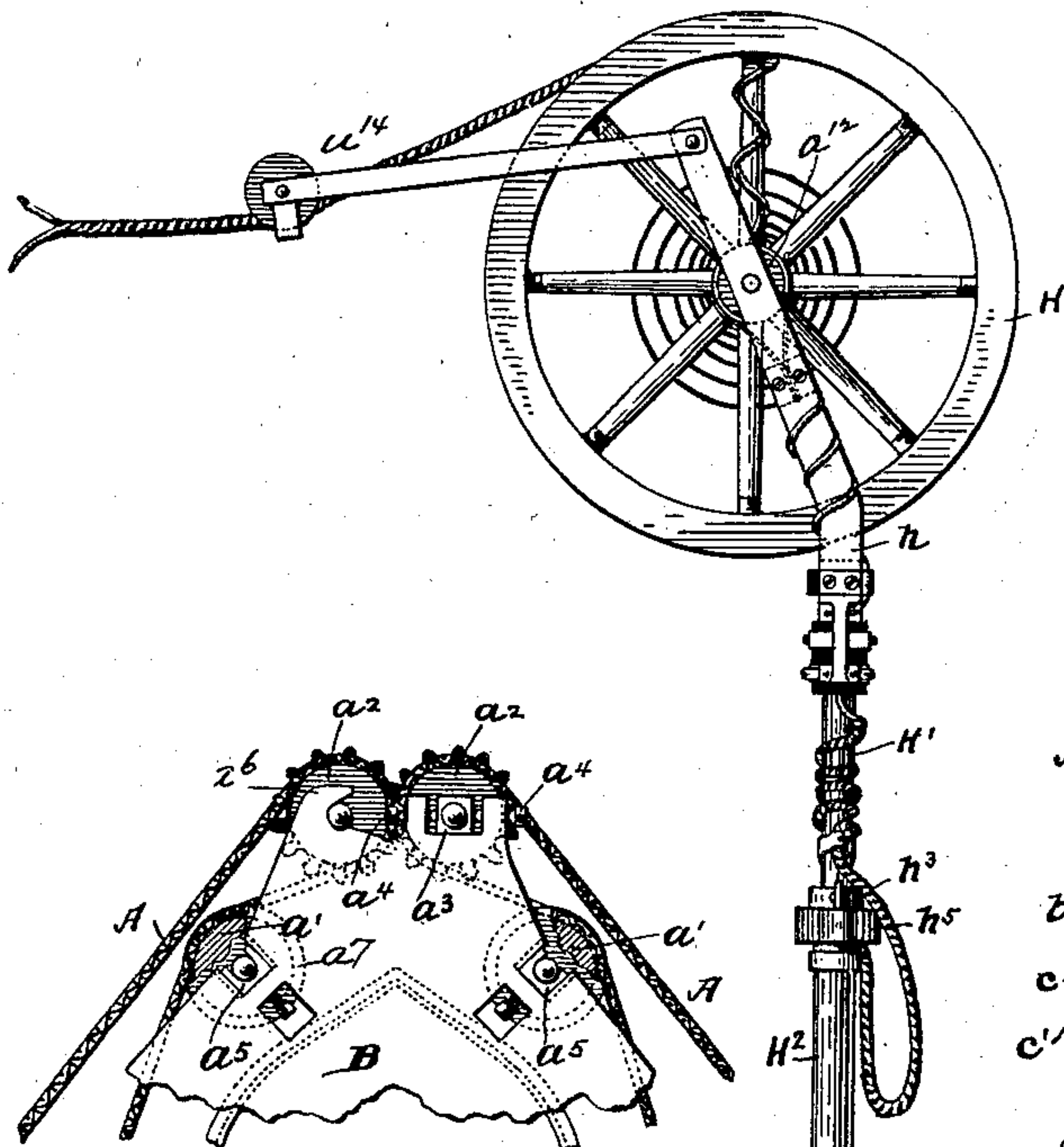


Fig. 2.

Fig. 3.

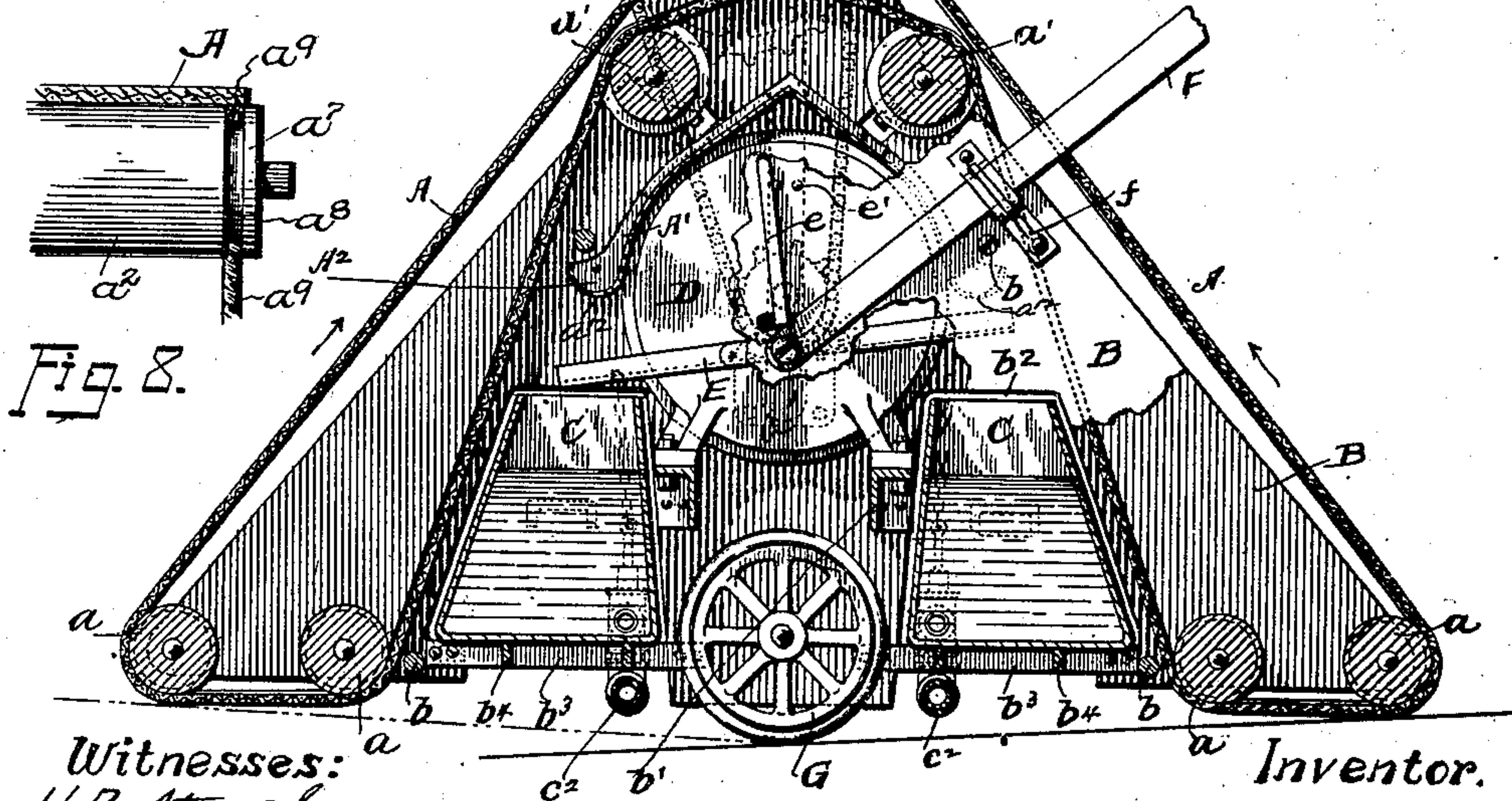


Fig. 8.

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Fig. 1.

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Fig. 6.

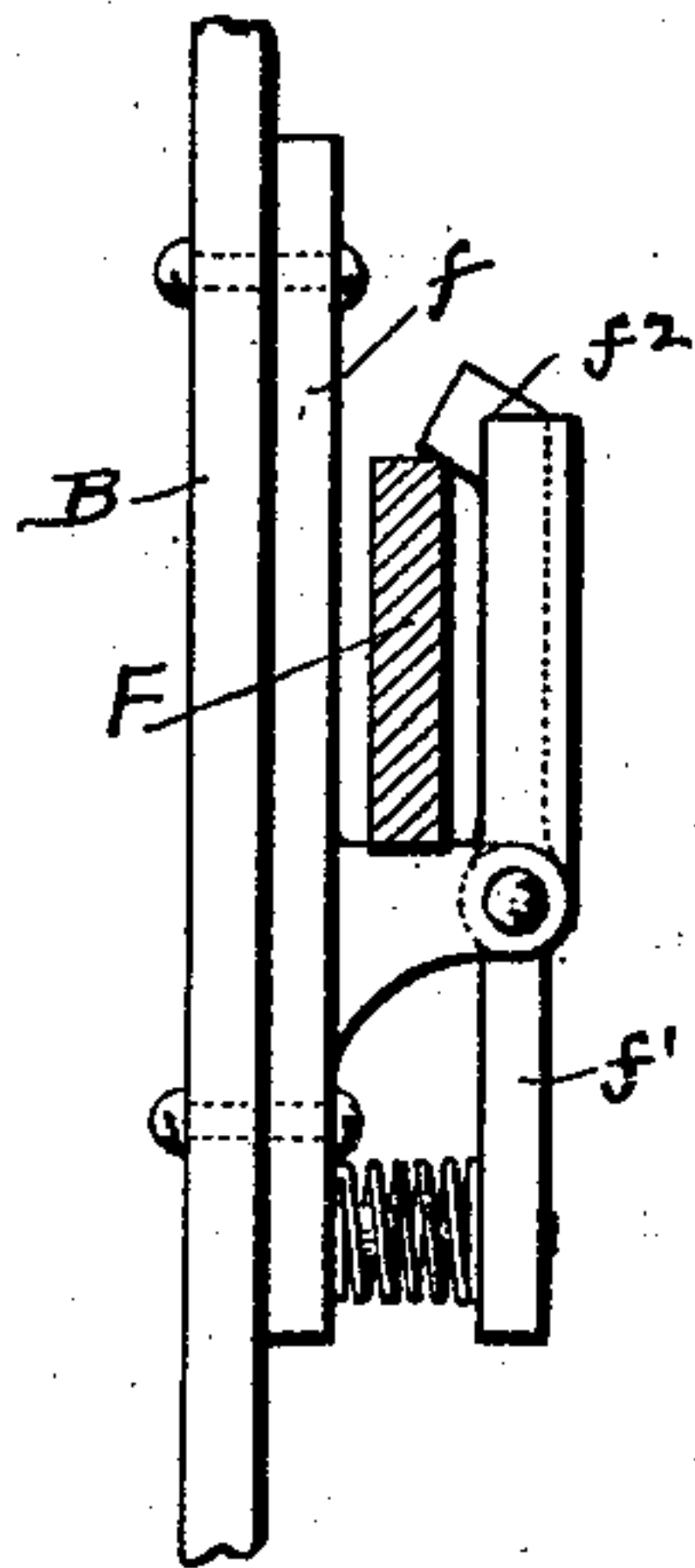


Fig. 4.

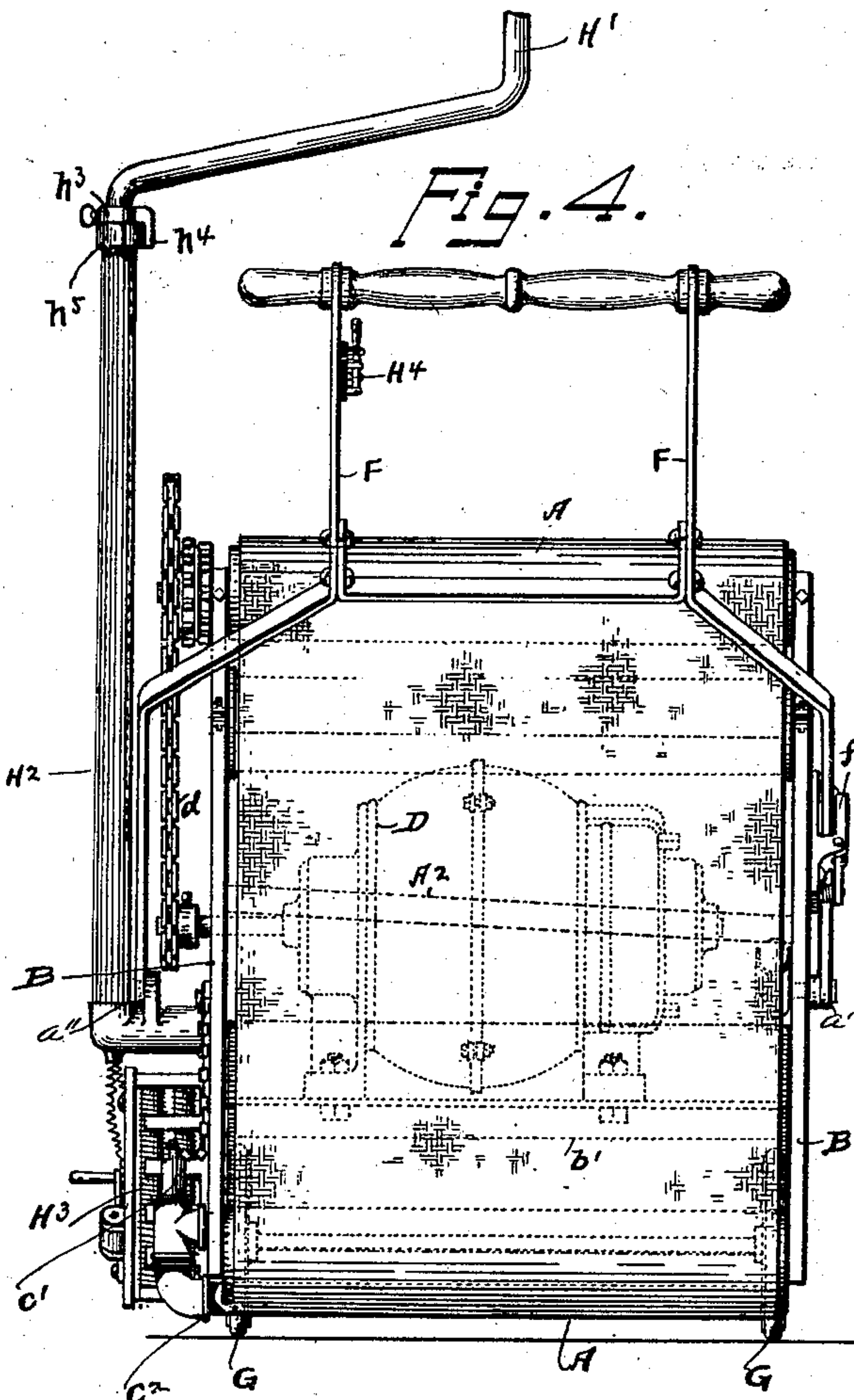
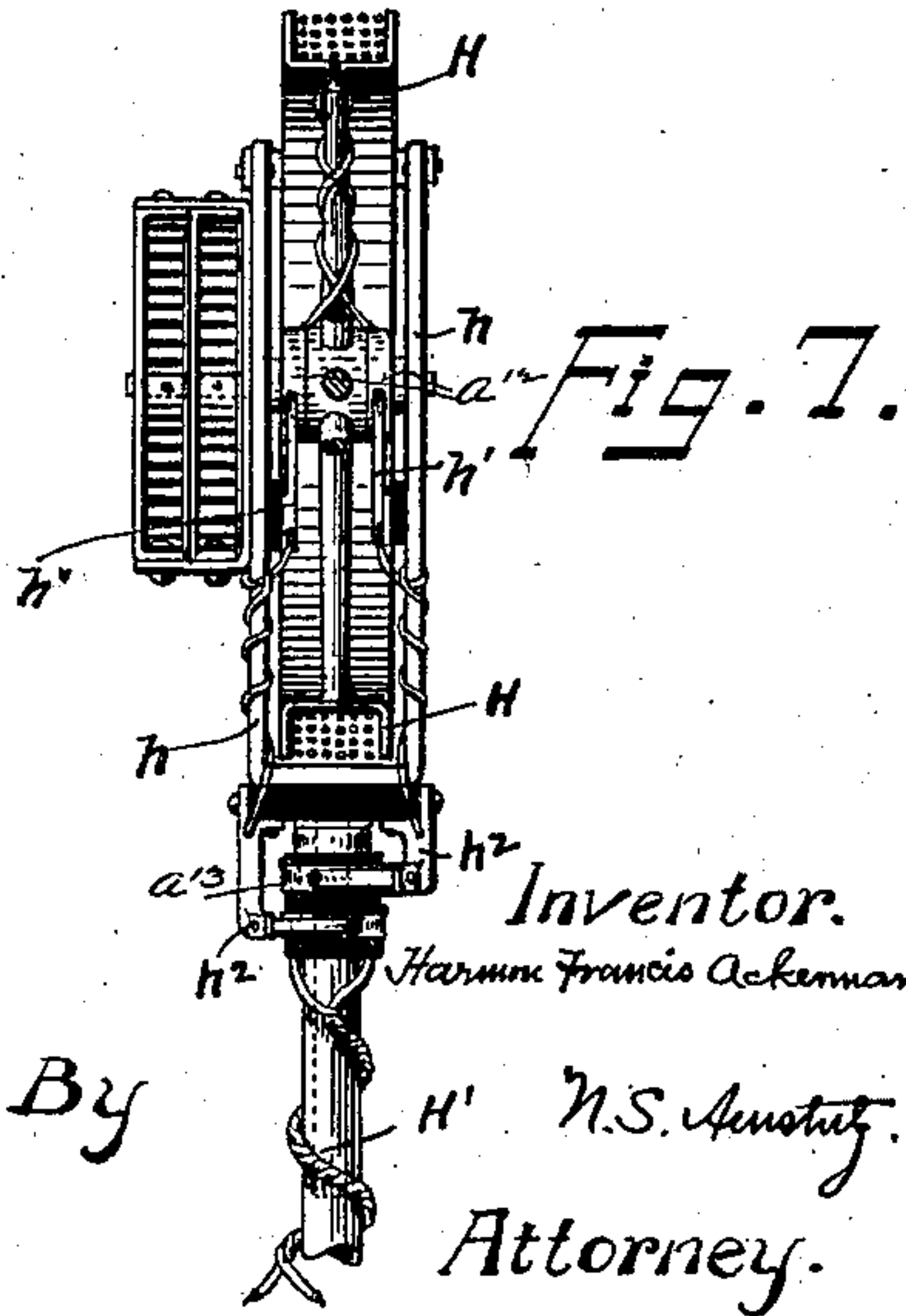
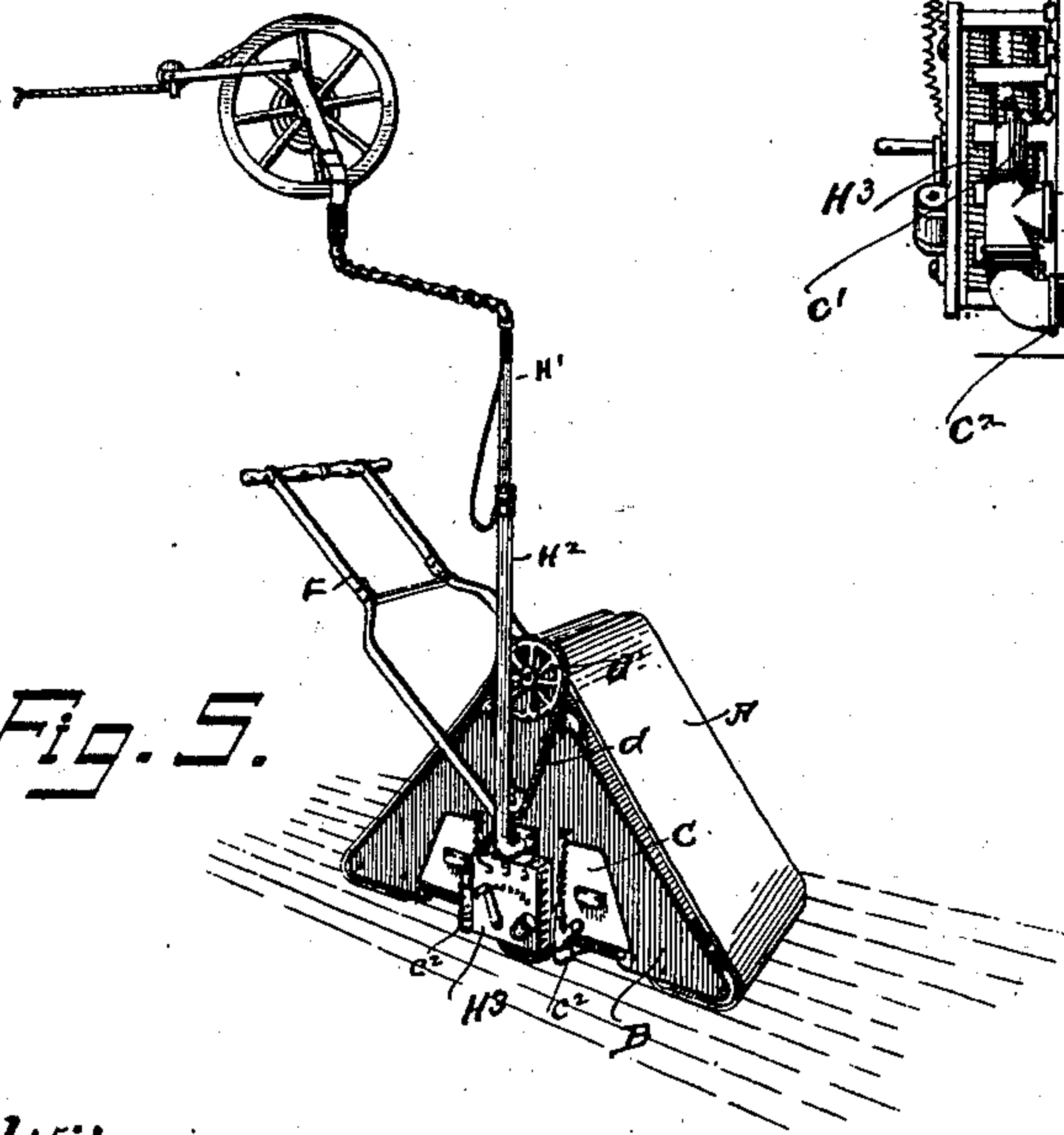


Fig. 5.



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# UNITED STATES PATENT OFFICE.

HARMON FRANCIS ACKERMAN, OF CLEVELAND, OHIO.

## MOPPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 701,985, dated June 10, 1902.

Application filed May 13, 1901. Serial No. 60,104. (No model.)

*To all whom it may concern:*

Be it known that I, HARMON FRANCIS ACKERMAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mopping Devices; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in mopping-machines; and it consists of the features herein described and illustrated in the accompanying drawings and more especially pointed out in the annexed claims.

The object of my device is to afford a simple and reliable apparatus that though power-driven is independent of its source of power in its radius of action and can be operated from either end without change of the driving relation of the several parts of the device.

The device quickly and most efficiently cleans a surface by spraying water thereon and mopping the surface with a rapidly-moving mopping fabric. This gathers up all the surplus water, and by means of the mop the charged surplus is conveyed to a storage water-tank, from which it can again be used when the machine is operated in a reverse direction. When the machine is used daily on floor-surfaces, they are kept much cleaner than could be attained by hand manipulation. Consequently the water used in connection with my device does not become as dirty as when the work is hand done. For this reason I am enabled to use the water over and over again during a single period of cleaning.

With these ends in view I illustrate such features of adaptation in the accompanying drawings as show the underlying principles of my device without in any sense limiting myself to the specific construction shown.

Figure 1 is a side elevation in vertical section. Fig. 2 is a side elevation of the upper portion of the device. Fig. 3 is an elevation in section of Fig. 1 through one of the storage-tanks on a somewhat smaller scale. Fig. 4 is a front elevation showing the motor in

dotted lines. Fig. 5 is a small perspective view of the entire machine. Fig. 6 is a detail of a handle-catch. Fig. 7 is a view showing the conductor-wheel and interrelated parts. Fig. 8 is an enlarged detail view.

I utilize a pair of continuously-moving mops A, which move over idler-rollers  $a$ , over take-up rollers  $a'$ , and over driving wringer-rolls  $a^2$ . The wringer-rollers are intergeared at one end. One of these rollers is made adjustable, so as to modify the wringing effect. This is accomplished by moving the bearing-blocks  $a^3$  to and fro by means of set-screws  $a^4$ . The other wringer-roll runs in a hooked bearing  $a^6$ , as shown in Fig. 2. Rollers  $a'$  also have bearing in adjustable blocks  $a^5$ . These rollers have flanges  $a^7$  for the purpose of guiding the mops. If desired, all the rollers may have one or more circumferential grooves  $a^8$  formed thereon, the grooves of all the rollers lining up with each other. On the "roller side" of the mops ropes  $a^9$  may be secured. These ropes will run in the grooves of the roller, and thus prevent any extreme sidewise movement of the mops. Rollers  $a$  to  $a^2$  are supported by side plates B, these being held in position by tie-rods  $b$  and motor-supports  $b'$ . The side plates B have openings  $b^2$  formed therein. Tie-bars  $b^3$  span the openings, and they serve to hold the cross-ties  $b^4$ . Parts  $b^3$  and  $b^4$  serve as supports for water-tanks C.

In order that the tanks C may be easily withdrawn from the machine, handles  $c$  are placed thereon. The two tanks are built in duplicate.

From the bottom of tank C a pipe-outlet is formed which leads to a spring-pressed valve  $c'$ , which is controlled by any suitable means—such, for instance, as the chain shown. From the valve a transverse pipe  $c^2$  leads underneath supporting-pieces  $b^3$ , and this pipe is perforated, so as to distribute the water-delivery. By means of this construction there is nothing to hinder the easy withdrawal of the water-tanks whenever found necessary.

The machine is preferably driven by an electric motor D, though I do not limit myself to this method of driving, as compressed air might be utilized or a flexible-shaft arrangement might be adopted, and instead of the current-conductor wheel I might use stor-



age batteries with the motor, if such a method of driving were found desirable. Motor D drives, by means of chain  $d$ , onto sprocket-wheel  $d'$ , which is fastened to either one of the

5 wringer-rollers  $a^2$ .

The mops A travel in the direction of the arrows, and the moisture collected by them is extracted by reason of one mop running against its companion between the wringer-rolls.

10 The water that is extracted from the mops drops upon a deflecting shield-plate  $A'$ , which covers over the motor D and drops down on each side thereof, ending in upwardly-curving troughs  $A^2$ , which have an inclination toward one side of the machine. (See Figs. 1 and 3.) At the lowest point of troughs  $A^2$  holes  $a^{10}$  are formed, which communicate with a reversing trough E, pivotally attached to one of the side plates B. A projection extends out from this trough through the plate B and terminates in a hand-lever  $e$ , which is held by pins  $e'$  at either extreme of movement.

When it is desired to direct the water extracted from the mops to either tank, the hand 25  $e$  is moved in the direction the water is to go.

When the machine is moved in one direction, the proper tank is used, and when moved in an opposite direction the other tank may be used. The machine is directed to its work 30 by a handle F, that may be reversed on its pivoted supports  $a$ ,<sup>11</sup> according to the direction the machine is to move. Catches  $f$  are placed on one of the plates B at each end of the movement of handle F. These catches 35 consist of a pivoted member  $f'$ , that is spring-pressed and has a beveled head  $f^2$ , so formed that the handle F will pass by the same more readily in one direction than the other. The member  $f'$  is spring-pressed, as shown in Fig. 40 6, and this construction allows the operator to lift the mops from the floor and then move the machine around on wheels G.

I lead the current to the motor D by a flexible cable attached to a plug that is inserted 45 into any ordinary lamp-socket. The cable is reeled upon a flanged wheel H. This wheel is pivoted on a fork  $h$ , its axle being attached to a coil-spring mechanism which keeps the cable under tension at all times, automatically taking up the slack thereof when the 50 machine is moved in the direction of the fixture end of the cable.

Connections are made from the wheel through metallic rings  $a^{12}$  on its hub onto insulated contact-brushes  $h'$ , and from here the 55 wires lead to insulated brushes  $h^2$ , which bear on insulated rings  $a^{13}$ , secured to the wheel-fork standard  $H'$ . From here the wires pass down into the standard  $H^2$  and from thence 60 to the starting-box  $H^3$ , switch  $H^4$ , and motor D.

Standard  $H'$  is bent as shown, or it may extend up straight from standard  $H^2$ ; but it is pivoted in  $H^2$ , and it has pivoted at its upper end wheel-fork  $h$ . This standard has a collar 5  $h^3$ , from which a depending finger  $h^4$  projects. This collar serves to prevent the movement of standard  $H'$  to a greater extent than one-

half a revolution, so as to prevent twisting off of the leading-in wires. The finger strikes against stops  $h^5$  at the extremes of its movement. Collar  $h^3$  also serves to establish the 70 operative height of the wheel H.

The wheel H has a cable-guide  $a^{14}$  pivoted to its fork, which serves to guide the cable on and off of the wheel as the machine is moved to 75 and fro. The specific wire connections from rheostat  $H^3$ , switch  $H^4$ , and motor D are not specifically shown, as they are well known in the art.

In Fig. 1 the floor-line being operated upon 80 is shown in full lines and the floor-line upon which the machine would operate if moved in the opposite direction is shown in dotted lines, this being illustrated in this manner so as not to necessitate showing the machine in 85 a tilted position, thereby destroying the symmetrical proportions of the drawing.

Fig. 5 is given to show the assembled relation more than to disclose specific details.

It should be understood that I do not limit 90 myself to the specific details as shown, but believe myself entitled to numerous modifications without departing from the spirit of my invention.

I do not claim in this case, broadly, the automatic current-collecting devices, nor the current-conductor reel and conductor-guide pivotally secured to the wheel-support, in combination with a tension device secured to the 95 wheel, nor the movable stop secured to the wheel-standard, in combination with means on the base-standard for limiting the motion of the wheel-standard, these devices forming the subject-matter of an application for patent filed by me and designated by Serial No. 105 82,450.

What I claim is—

1. In mopping-machines, a pair of continuously-moving mops, and means for driving the same in reverse directions in combination 110 with means for wringing the mops while moving in contact with each other, substantially as set forth.

2. In mopping-machines, a suitable supporting-frame, endless mops movably held thereon, and means for causing said mops to travel 115 in different directions in combination with suitable carrying-wheels for said frame, and means for controlling the position of the frame on said wheels, substantially as set forth. 120

3. In mopping-machines, a suitable supporting structure, endless webs of moisture-absorbing material movably held thereon, and means for causing said webs to travel in different directions in combination with rolling 125 supports for said structure, and means for controlling the position of the structure on such supports whereby either one of said webs may be brought into action, substantially as set forth. 130

4. In mopping-machines, a pair of mops running in contact with each other between wringer-rolls, a pair of tanks located in operative relation to the wringer-rolls, means



for directing the extracted water into either tank, and means for delivering water in advance of either mop, in combination with means for movably supporting the mops  
5 tanks &c., and suitably controlling constructions whereby either mop may be brought into operation, substantially as set forth.

5. In mopping-machines, a pair of continuously-moving mops, means for wringing said  
10 mops simultaneously, and means for moving them in reverse directions, in combination with means adapted to bring either mop into action upon a surface to be mopped, substantially as set forth.

15 6. In mopping-machines, a movable structure, supporting-wheels therefor, and a pair of mopping devices secured thereon, in combination with a controlling-handle pivotally se-

cured to the structure and means for removably holding the same in extreme positions 20 whereby either of the mopping devices may be brought into action, substantially as set forth.

7. In mopping-machines, a continuously-moving fabric, rollers for supporting the same, 25 an enlarged cross-section of said fabric extending lengthwise thereof, and companion places of the rollers formed of smaller diameter, substantially as set forth.

In testimony whereof I affix my signature 30 in presence of two witnesses.

HARMON FRANCIS ACKERMAN.

Witnesses:

H. C. OSBORN,  
E. S. HOUGH.