

No. 715,408.

Patented Dec. 9, 1902.

T. S. MURRAY & E. E. JACKSON.  
CISTERN, TANK, OR RESERVOIR CLEANER.

(Application filed July 19, 1902.)

(No Model.)

2 Sheets—Sheet 1.

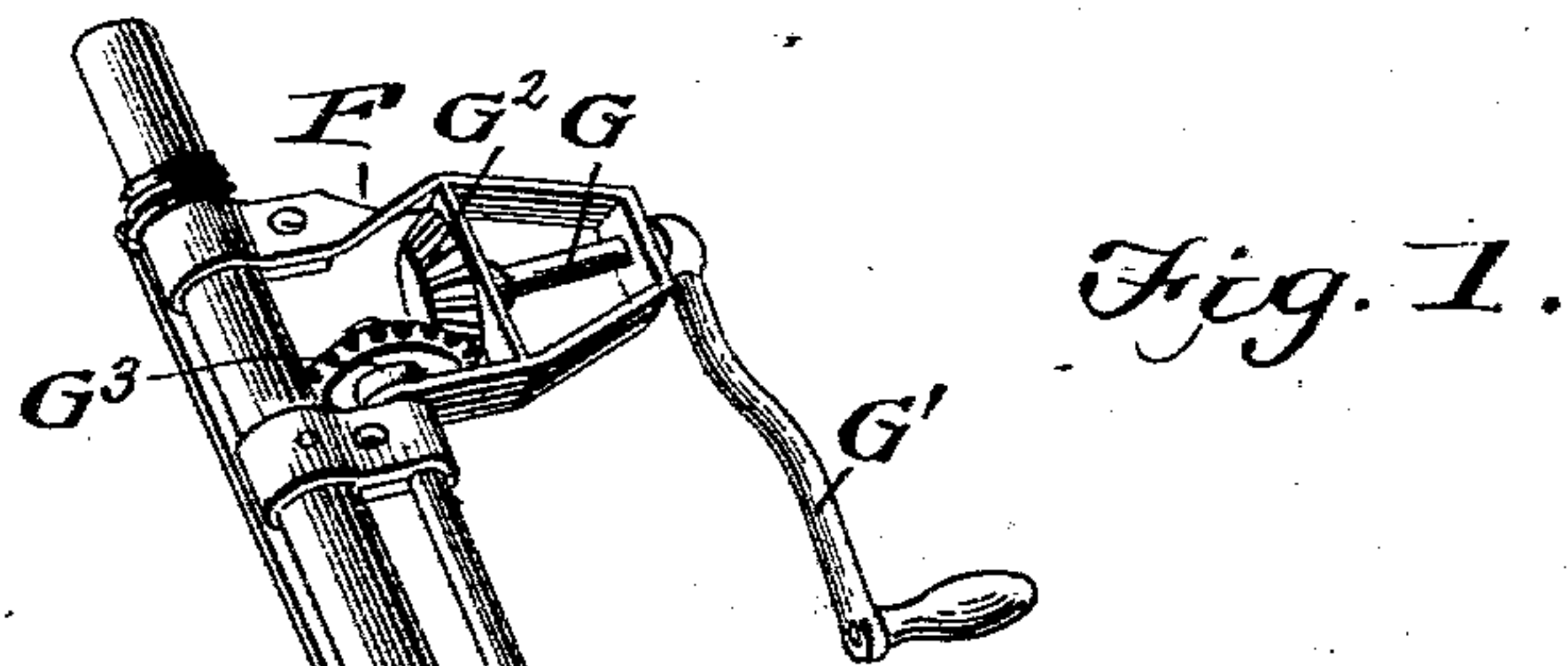


Fig. 8.

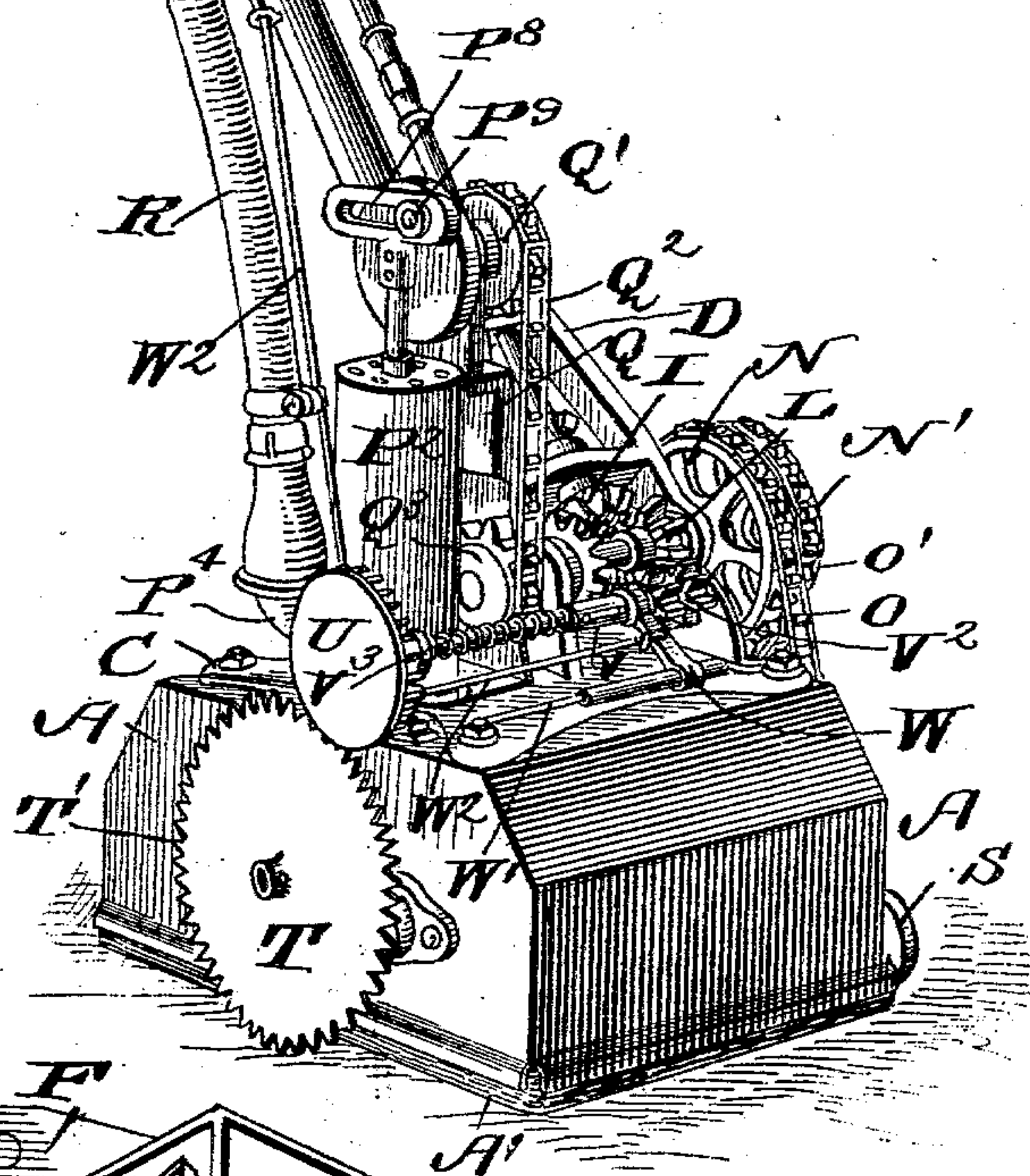
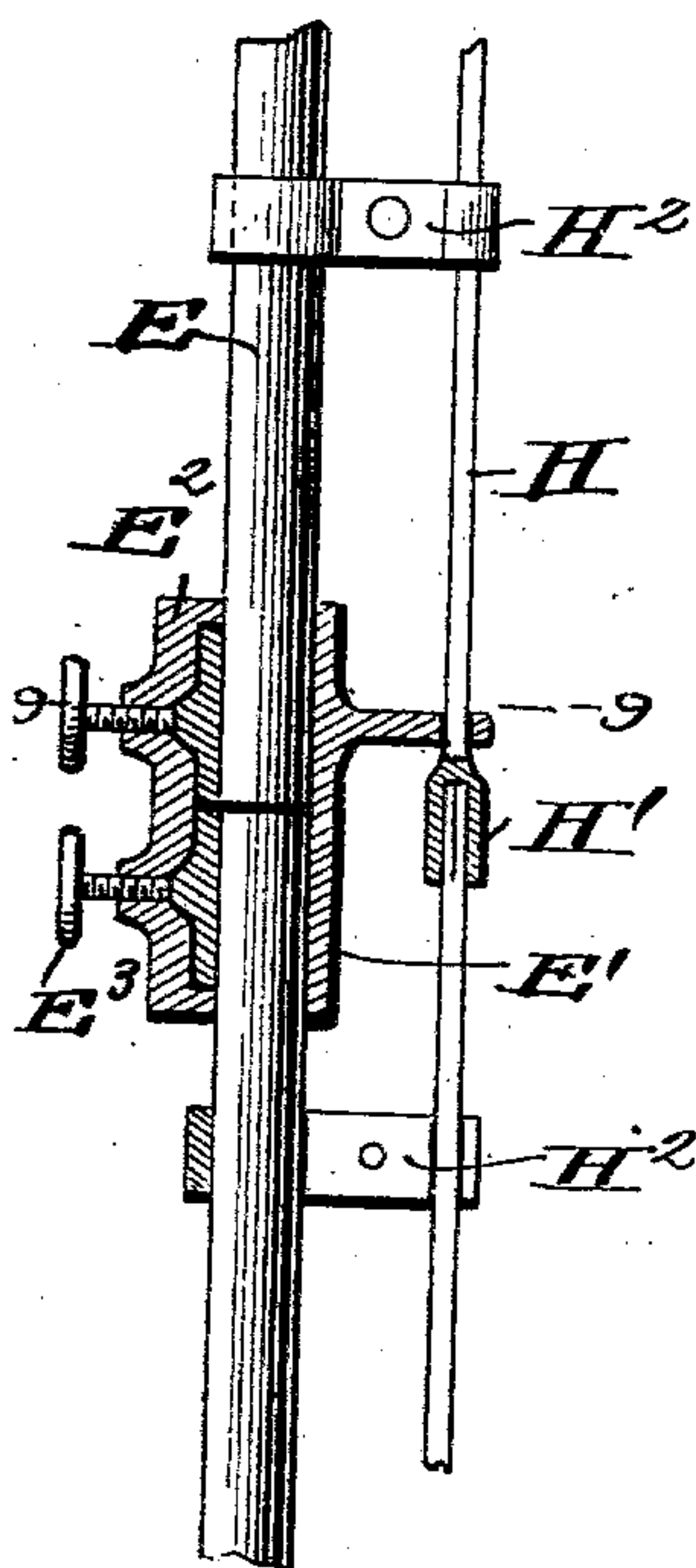
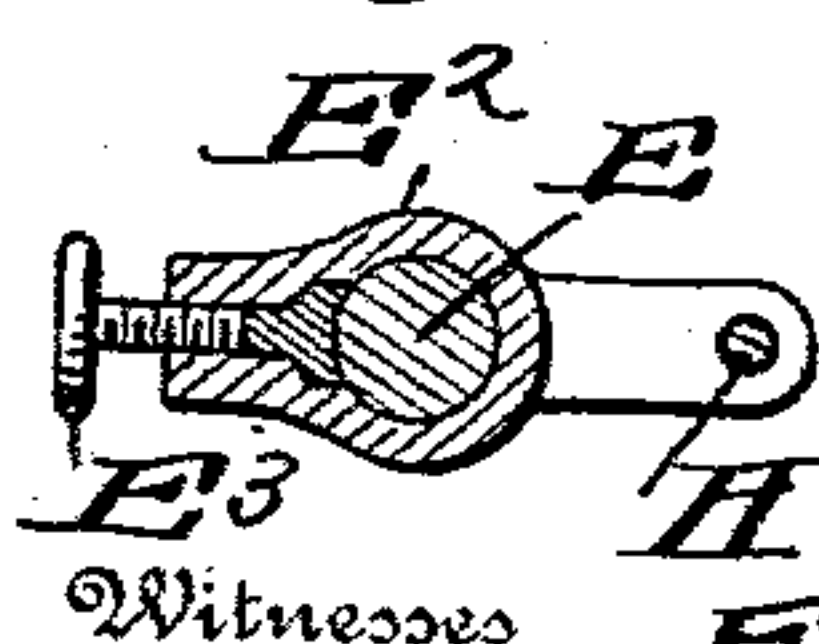


Fig. 9



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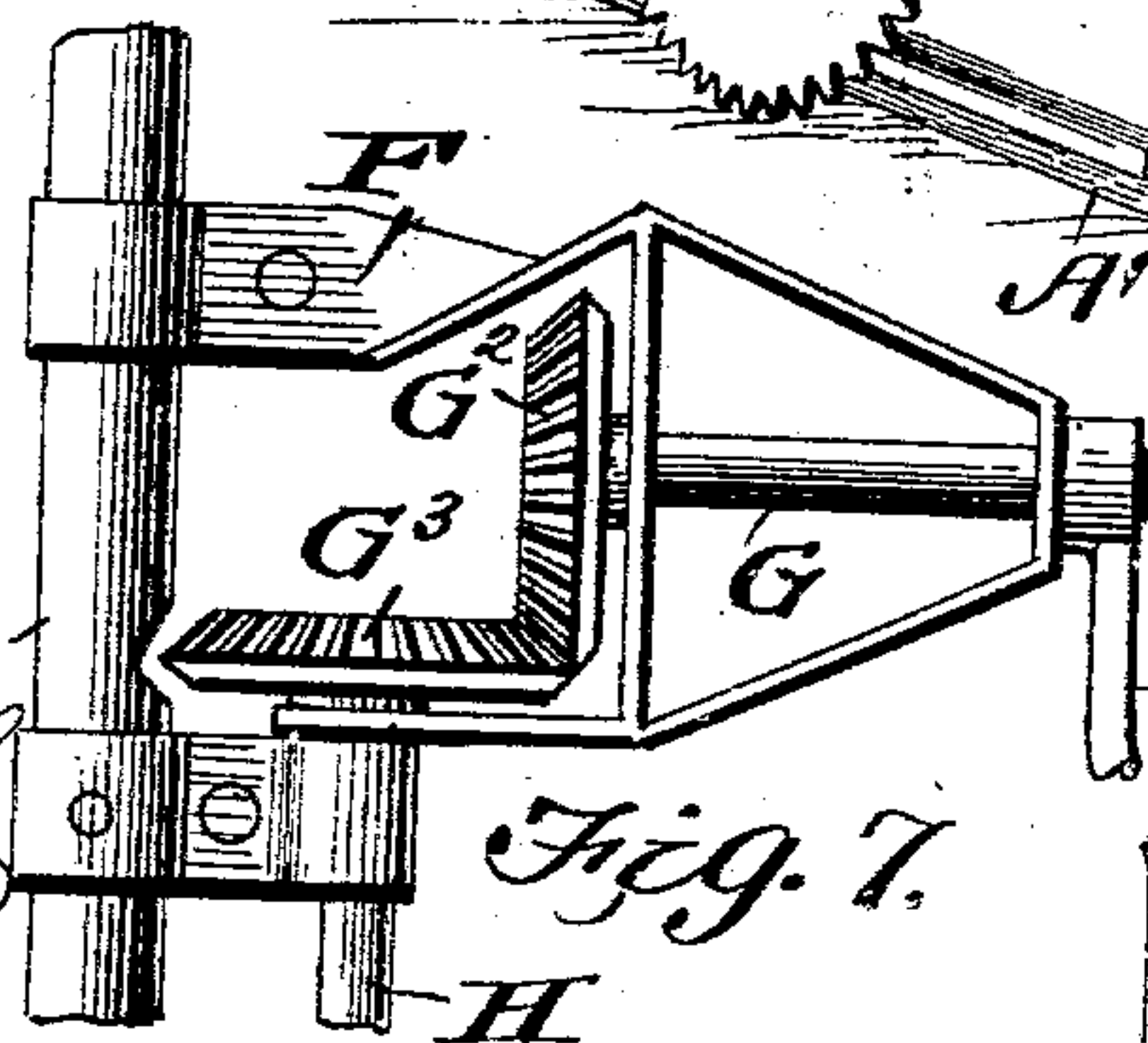


Fig. 7.

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2 Sheets—Sheet 2.

Fig. 2.

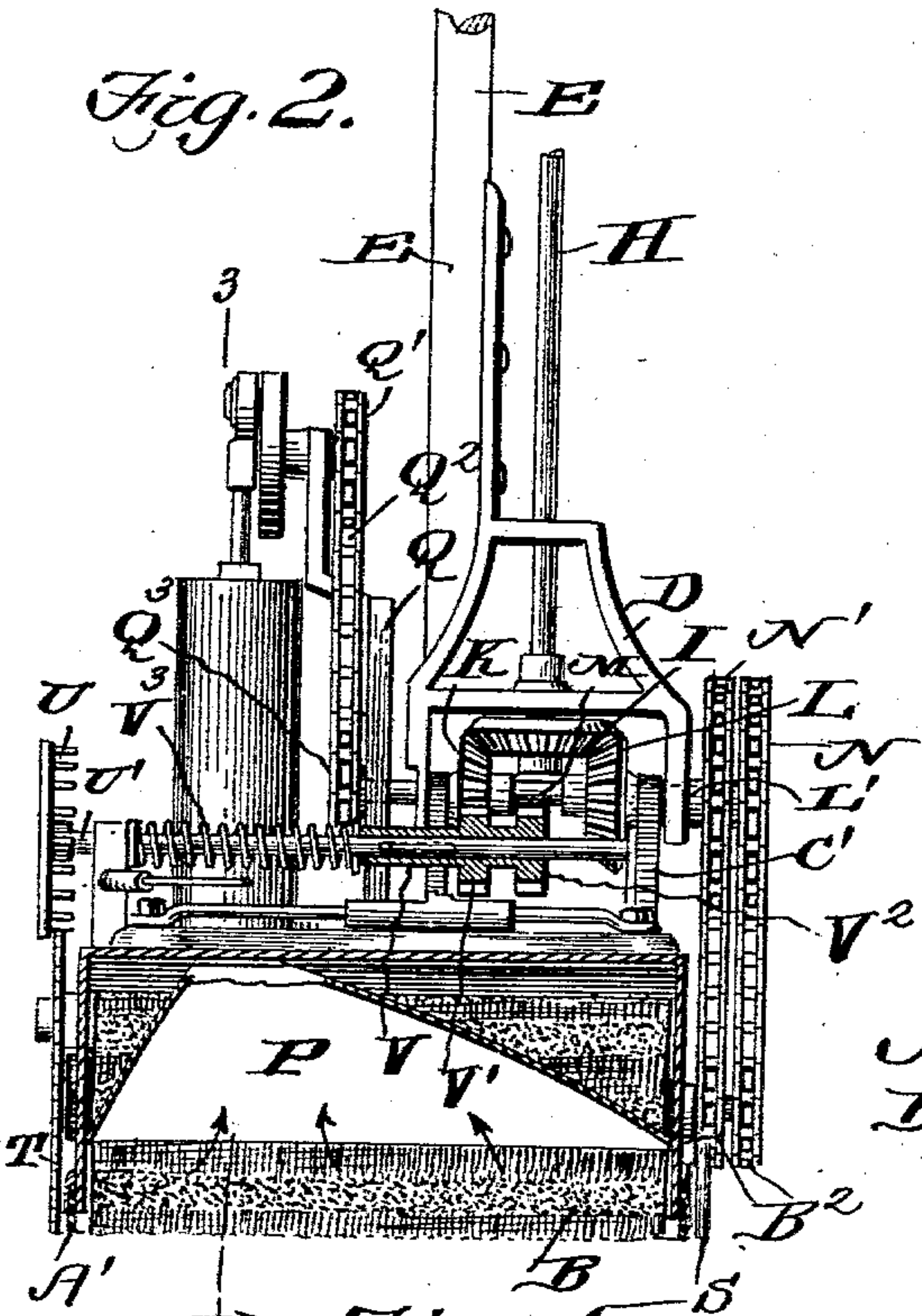


Fig. 3.

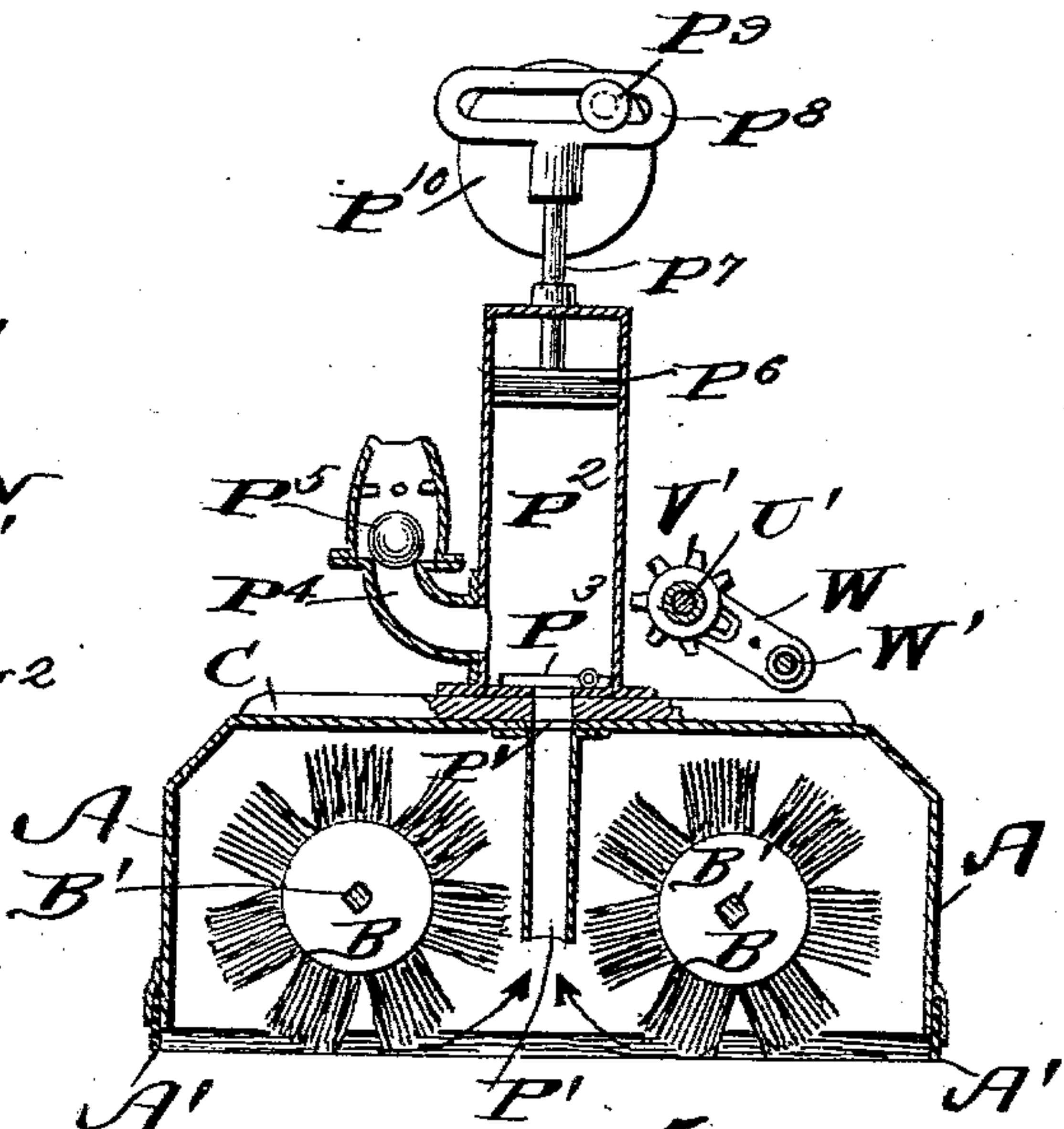


Fig. 4.

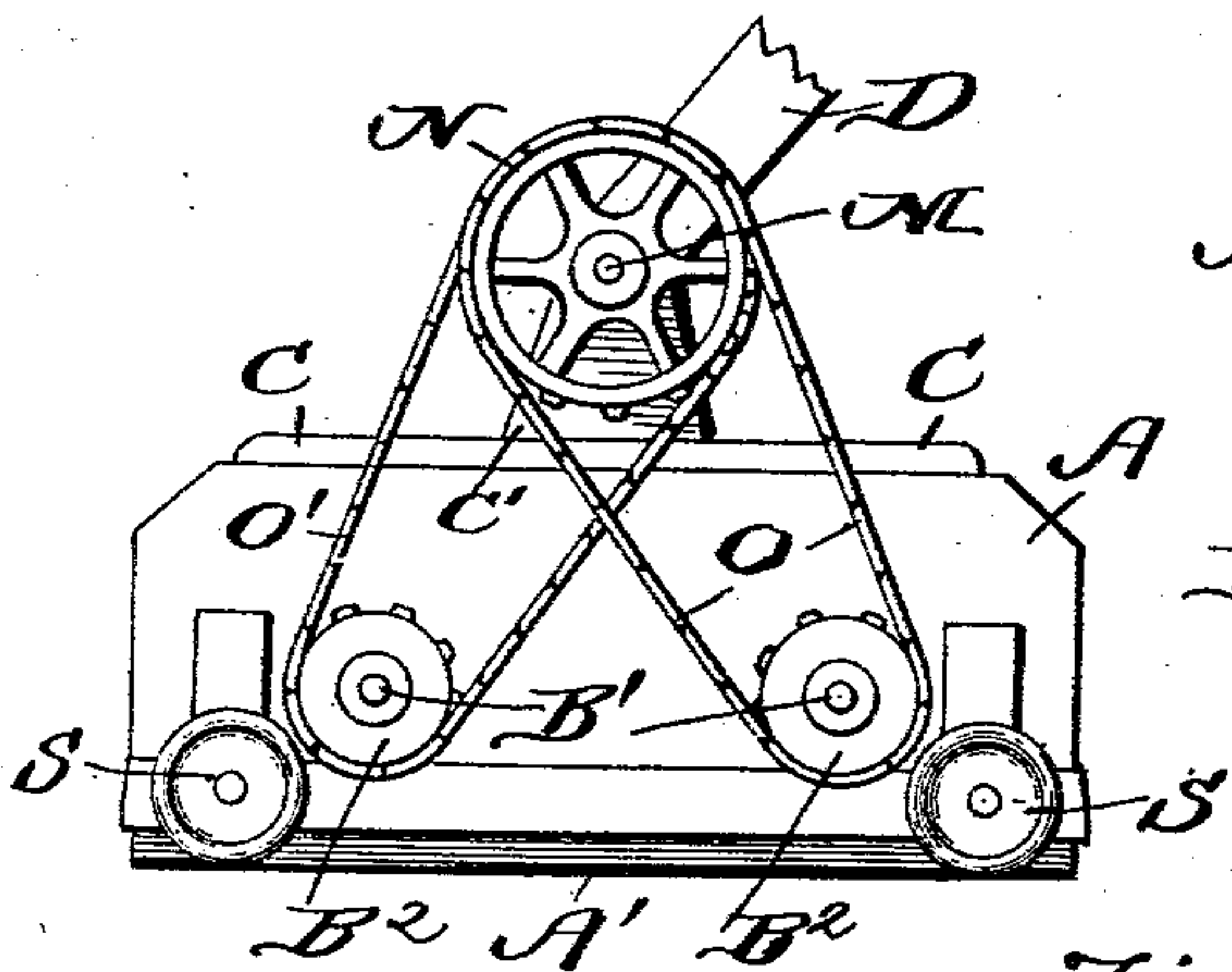


Fig. 5.

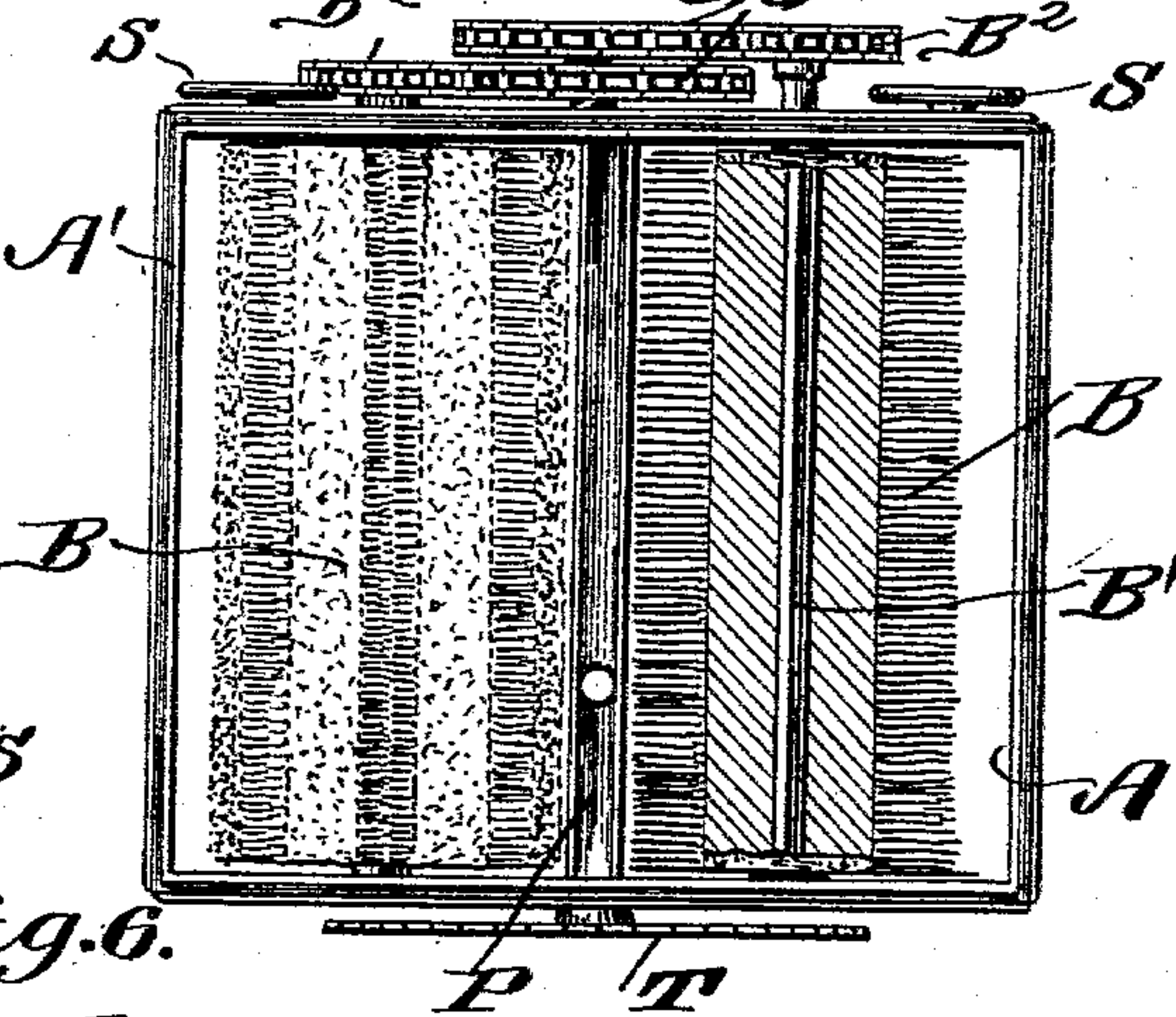
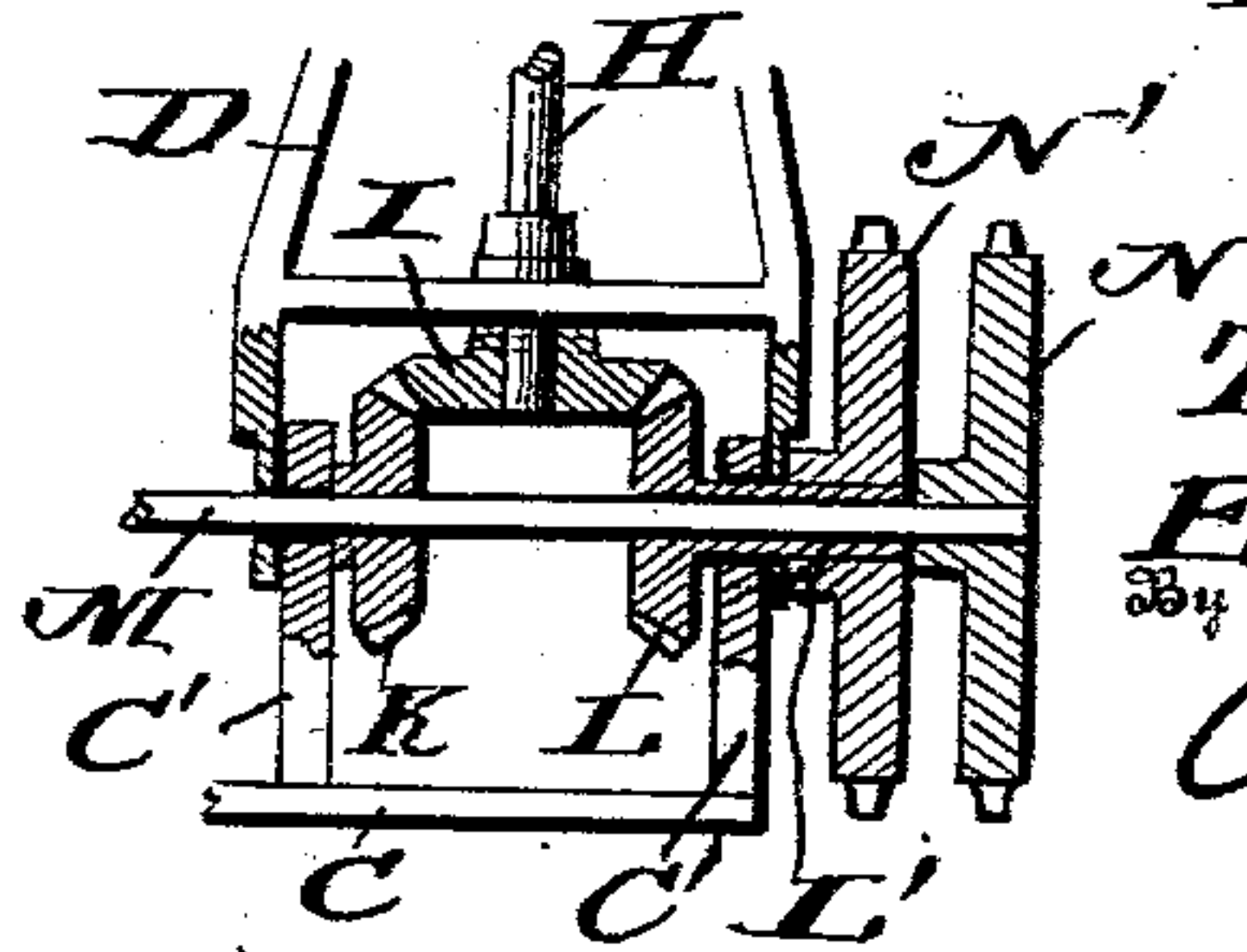


Fig. 6.



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# UNITED STATES PATENT OFFICE.

THOMAS S. MURRAY AND EDWIN E. JACKSON, OF ARKANSAS CITY, KANSAS.

## CISTERN, TANK, OR RESERVOIR CLEANER.

SPECIFICATION forming part of Letters Patent No. 715,408, dated December 9, 1902.

Application filed July 19, 1902. Serial No. 116,201. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS S. MURRAY and EDWIN E. JACKSON, citizens of the United States, residing at Arkansas City, in the county of Cowley and State of Kansas, have invented a new and useful Cistern, Tank, or Reservoir Cleaner, of which the following is a specification.

This invention is an improved device for cleaning cisterns, tanks, and reservoirs, the object being to provide a simple appliance which can be easily manipulated for the purpose of removing all sediments from the bottom of a cistern, tank, or reservoir without removing any considerable quantity of water therefrom and also without agitating the water to a considerable extent.

Another object of the invention is to provide a device which can be quickly and easily rolled or moved upon the bottom of the cistern or tank, so that the entire bottom surface of the cistern or tank can be cleaned.

Another object of the invention is to provide a pump mechanism in connection with the cleaning mechanism, whereby the sediment can be pumped up from the cistern and discharged at any point.

With these objects in view the invention consists in the novel features of construction, combination, and arrangement, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view of a sediment-cleaner constructed in accordance with our invention. Fig. 2 is a transverse section, partly in elevation. Fig. 3 is a longitudinal section on the line 3 3 of Fig. 2. Fig. 4 is a side elevation. Fig. 5 is an inverted plan view. Fig. 6 is a detail sectional view illustrating the gearing device for operating the brushes and propelling mechanism. Fig. 7 is a detail view illustrating the driving mechanism. Fig. 8 is a detail sectional view showing the manner of connecting the sections of an extension-handle, and Fig. 9 is a section on the line 9 9 of Fig. 8.

In carrying out our invention we employ a box A, having rubber strips A' at the lower edges, said rubber strips permitting the box to be moved over the bottom of the cistern or tank without seriously disturbing the sedi-

ment collected thereon, and these rubber strips also permit the cleaning operations to be carried on within the box without materially disturbing the water surrounding the box and adjacent thereto. This box has two cleaning-brushes B journaled therein, the shafts B' of said brushes projecting through one end of the box and are provided with sprocket-wheels B<sup>2</sup>. A casting-plate C is fastened to the top of the box, said casting-plate having the journaled brackets C', to which is pivoted a yoke D, said yoke having a handle or staff E rigidly connected thereto.

In case the cistern or tank is very deep and it is necessary to employ two sections of handle or staff E we connect them by means of a coupling E', consisting of a sleeve E<sup>2</sup>, into which the ends of the sections of the handle or staff are inserted and secured by means of set-screws bearing upon the binding-plates arranged within the sleeve E<sup>2</sup>.

A yoke F is secured to the handle or staff E adjacent to the upper end thereof, and a shaft G is journaled in said yoke, having a crank-handle G' connected to one end and the beveled gear G<sup>2</sup> connected to the opposite end, said beveled gear meshing with the beveled gear G<sup>3</sup>, carried upon the upper end of the shaft H, the lower end of said shaft being journaled in the yoke D and carrying a beveled gear I, which in turn meshes with the beveled gears K and L. The beveled gear K is mounted upon a shaft M, and the beveled gear L is journaled in one of the journaled brackets C' and has a tubular hub L', through which the shaft M passes.

A sprocket N is mounted upon the end of the shaft M, and a sprocket N' is mounted upon the tubular hub L'. Thus it will be seen that as the shaft H is rotated it imparts motion to the gears K and L, and said gears in turn impart motion in opposite directions to the sprockets N and N'. Passing over these sprockets are the chains O and O', respectively, said chains also passing around the sprockets B<sup>2</sup>, thus rotating the brushes in opposite directions and toward each other, as most clearly shown in Fig. 3.

Whenever a sectional handle is employed, a sectional shaft H is employed, and the joint H' is usually made adjacent to the joint in the handle. Suitable guides H<sup>2</sup> are usually con-



nected to the handle or staff for the purpose  
 of steadying the rotary shaft H, the said shaft  
 turning freely within the said guides. Thus  
 it will be seen that after the box is lowered  
 5 into the cistern, tank, or reservoir and per-  
 mitted to rest upon the bottom the sediment  
 can be cleaned by rotating the crank-handle,  
 which in turn operates the brushes and cleans  
 the bottom of the cistern, tank, or reservoir,  
 10 and in order to carry off the sediment so  
 brushed up we arrange a tube P' between the  
 brushes, said tube communicating with an  
 opening P, produced in the top of the box  
 and over which is arranged a pump-cylinder  
 15 P<sup>2</sup>, having a valve P<sup>3</sup> at the lower end, and a  
 lateral discharge-pipe P<sup>4</sup>, having a check-  
 valve P<sup>5</sup> arranged therein. Piston P<sup>6</sup> has a  
 rod P<sup>7</sup> connected thereto, said rod having a  
 slotted head P<sup>8</sup>, in which works the crank-  
 20 pin P<sup>9</sup>, carried by the disk P<sup>10</sup>, which is mount-  
 ed upon the end of a shaft journaled in an  
 upright Q, having a sprocket Q' upon the op-  
 posite end of the shaft, said sprocket being  
 driven by a chain Q<sup>2</sup>, which receives its mo-  
 25 tion from a sprocket Q<sup>3</sup>, mounted upon the  
 end of the shaft M, so that simultaneously  
 with the brushing operation the pumping op-  
 eration is carried on, and the sediment is dis-  
 charged through the hose R, connected to the  
 30 lateral branch of the pump.

Two wheels S are arranged upon one side  
 of the box, and upon which the box is caused  
 to roll. Upon the opposite side of the box is  
 35 mounted a wheel T, having a toothed periph-  
 ery T', which is adapted to engage the bot-  
 tom surface of the tank and serve as a trac-  
 tion or propelling wheel for moving the box  
 back and forth upon the bottom of the cis-  
 tern or tank, and in order to operate the wheel  
 40 T we employ a pin-gear U, mounted upon  
 the ends of a shaft U', and sliding upon said  
 shaft and movable therewith is a sleeve V,  
 carrying the gears V<sup>1</sup> and V<sup>2</sup>. A spring V<sup>3</sup>  
 surrounds the shaft U' and bears against the  
 45 sleeve V, so that the gear V<sup>2</sup> is normally held  
 in engagement with the beveled gear L. A  
 shifting arm W, sliding upon the rod W' and  
 operated by a cord W<sup>2</sup>, shifts the sleeve V  
 upon the shaft U', so as to bring the gear V'  
 50 into engagement with the beveled gear K, and  
 thus reverse the motion of the cleaner, it be-  
 ing understood that when the gear V' or V<sup>2</sup> is  
 in engagement with either the beveled gear K  
 or L the machine is being moved in one direc-  
 55 tion or the other through the medium of the  
 shaft U' and pin-gear U, which meshes with  
 the toothed periphery F' of the traction-wheel  
 T, and moves the box along the bottom sur-  
 face of the cistern, tank, or reservoir. Thus  
 60 it will be seen that by a continuous motion of  
 the crank-shaft G we are enabled to brush the  
 sediments from the bottom of the cistern,  
 tank, or reservoir, pump up and discharge the  
 sediment so brushed up, and can also move  
 65 the cleaner back and forth upon the bottom  
 of the cistern or tank without changing the  
 motion of the operating-crank G.

Having thus fully described our invention,  
 what we claim as new, and desire to secure by  
 Letters Patent of the United States, is— 70

1. The combination with a box, of brushes  
 arranged therein, a tube arranged within the  
 box and between the brushes, a pump in  
 communication with the said tube, a dis-  
 charge pipe or hose connected with the pump, 75  
 and means arranged upon the box for rotat-  
 ing the brushes, and operating the pump, as  
 specified.

2. The combination with a box having rub-  
 ber strips around its lower edges, of brushes 80  
 journaled within the box, a funnel-shaped  
 tube arranged between the brushes, the pump  
 arranged upon the box and in communica-  
 tion with the tube, the supporting-wheels ar-  
 ranged at one side of the box, the support- 85  
 ing and traction wheel arranged at the op-  
 posite side of the box, a handle or shaft piv-  
 otally connected with the top of the box, and  
 means arranged upon the handle or shaft,  
 and upon the box, for the purpose of rotat- 90  
 ing the brushes operating the pump and pro-  
 pelling the traction-wheel, as specified.

3. The combination with a box having the  
 rubber strips at its lower edges, of the brushes  
 journaled therein, a casting-plate arranged 95  
 upon the top of the box and having jour-  
 naled brackets and an upright integral there-  
 with, shafts journaled in the brackets and  
 upright, a yoke pivotally connected to one  
 shaft, a handle rigidly connected to the yoke, 100  
 a shaft journaled in the yoke, the yoke car-  
 ried by the handle, gearing devices arranged  
 in the yoke carried by the handle for the pur-  
 pose of operating the shaft, gearing devices  
 operatively connected with the lower end of 105  
 the shaft, a pump arranged upon the top of  
 the box, a tube arranged within the box and  
 communicating with the pump, a traction-  
 wheel arranged at one side of the box, a gear-  
 ing device operatively connected with the 110  
 lower end of the rotary shaft whereby the  
 brushes are revolved and the pump operated  
 and the traction-wheel propelled, as specified.

4. The combination with the box having the  
 rotary brushes, tube and pump, of the casting- 115  
 plate having journaled brackets, the shafts  
 M and U' journaled therein, the yoke pivot-  
 ally connected with the top of the box and  
 carrying a shaft H, the beveled gear I, and  
 the beveled gears K and L operating the 120  
 sprockets N and N', the traction-wheel, the  
 gear meshing therewith, the spring-actuated  
 sliding sleeve having beveled gears connected  
 therewith, means for operating the said slid-  
 ing sleeve, together with the operative con- 125  
 nections between the brushes and sprocket-  
 wheels and also between the shaft N, and  
 the pump, as and for the purpose specified.

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