

(No Model.)

2 Sheets—Sheet 1.

H. D. KLOTS.  
STOP MOTION FOR SILK DOUBLING MACHINES.

No. 541,666.

Patented June 25, 1895.

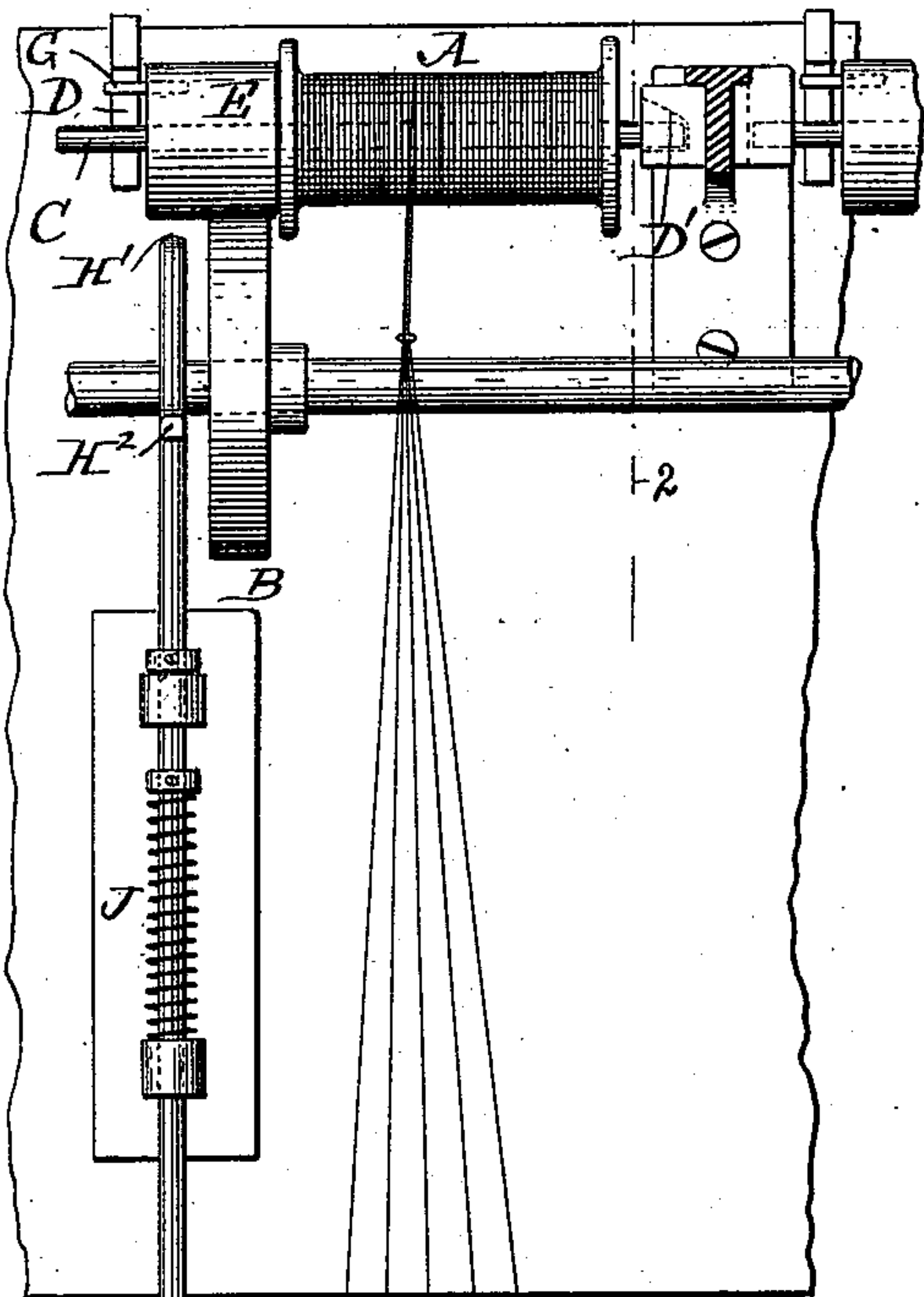
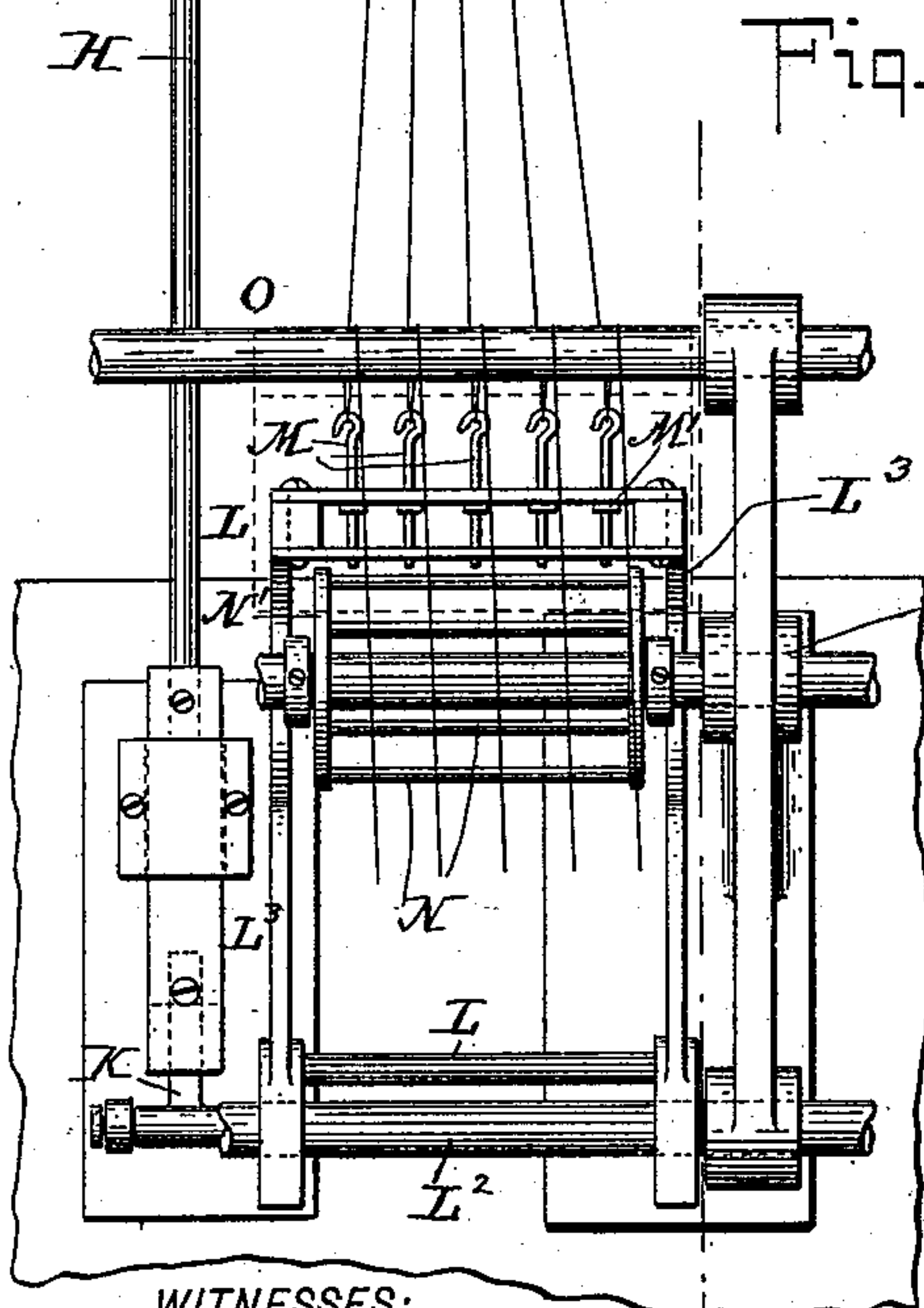


Fig. 1.



WITNESSES:

*P. B. Shepherd.*  
*J. B. Raper.*

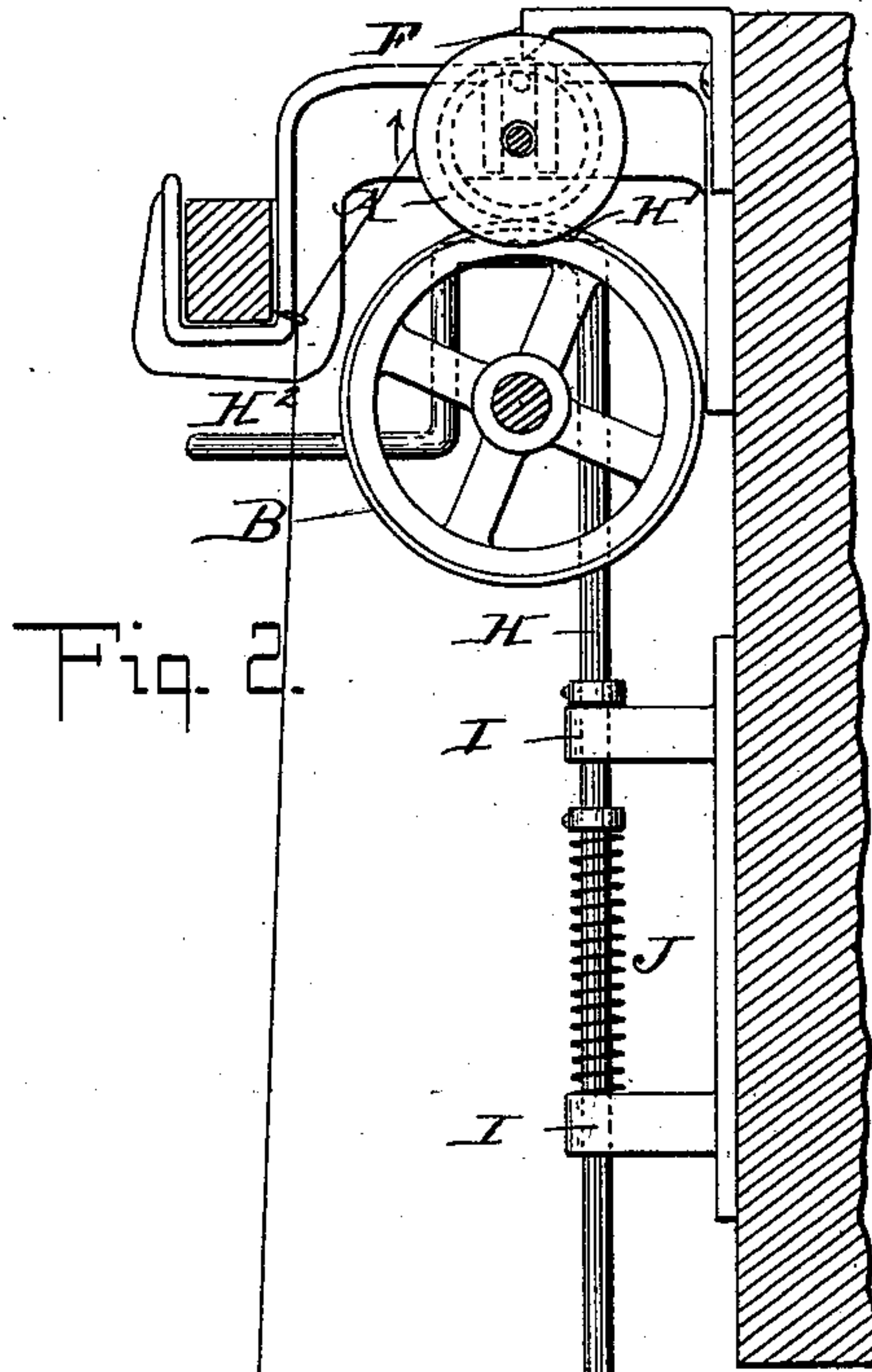
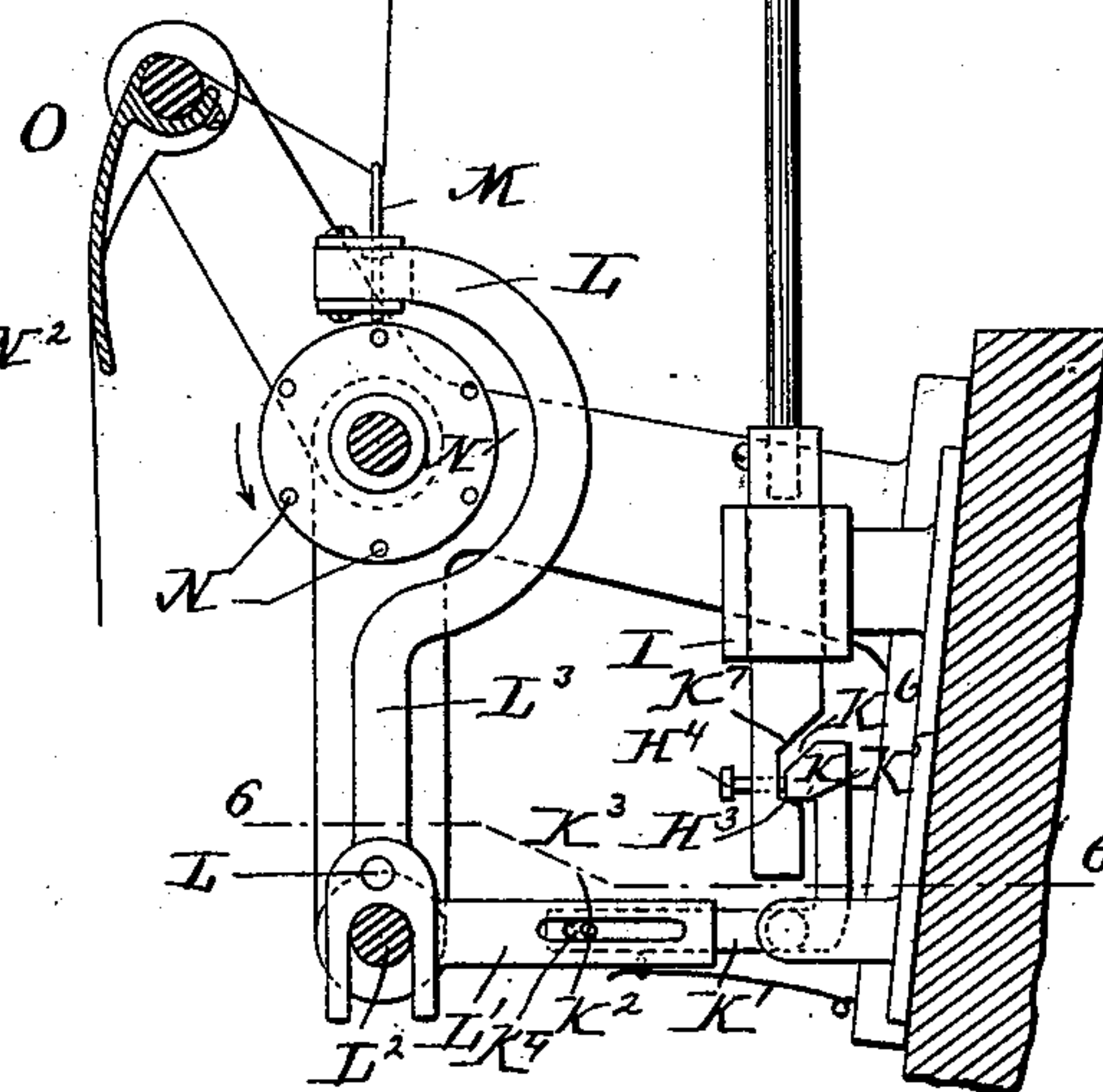


Fig. 2.



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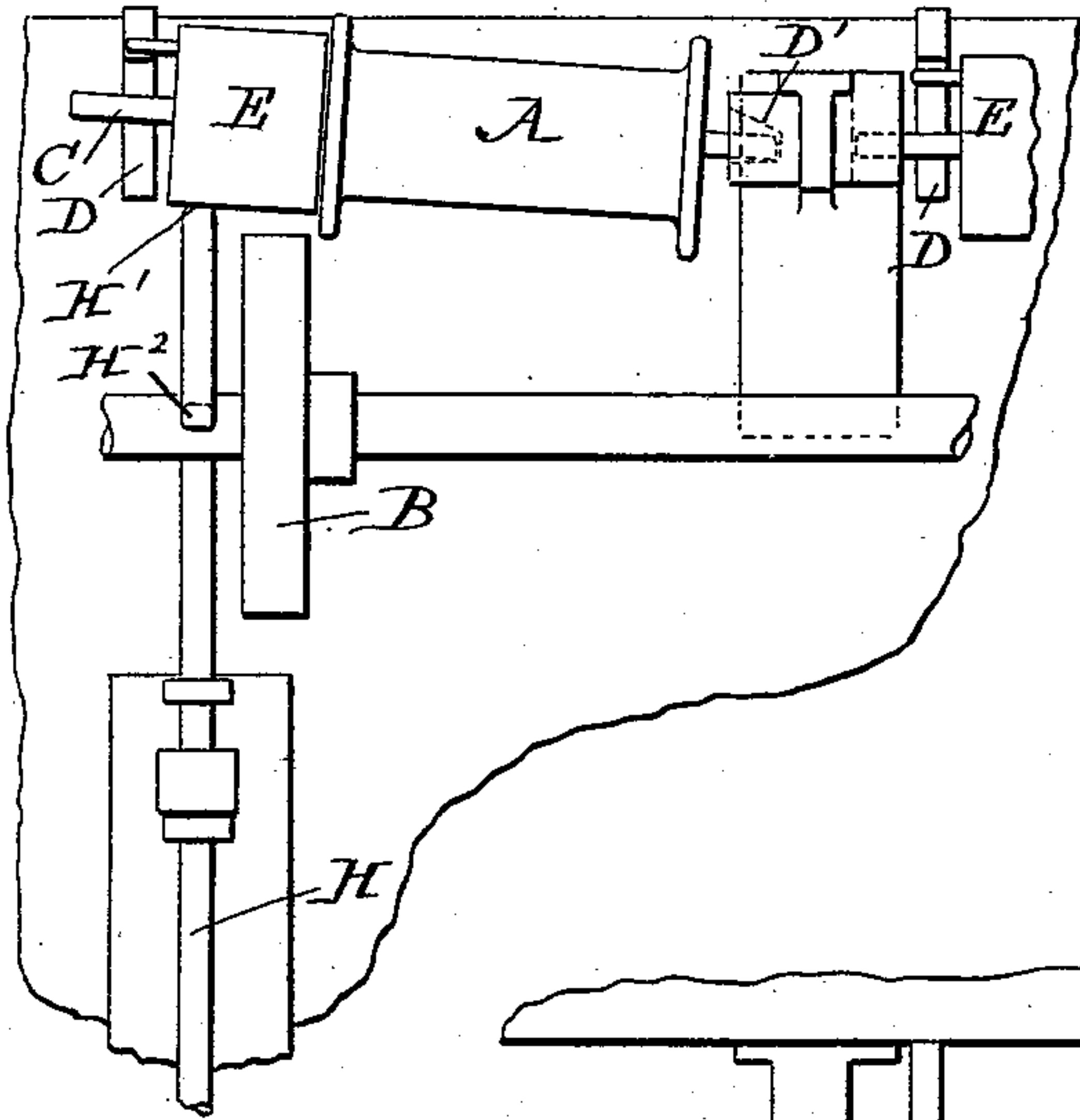


Fig. 4.

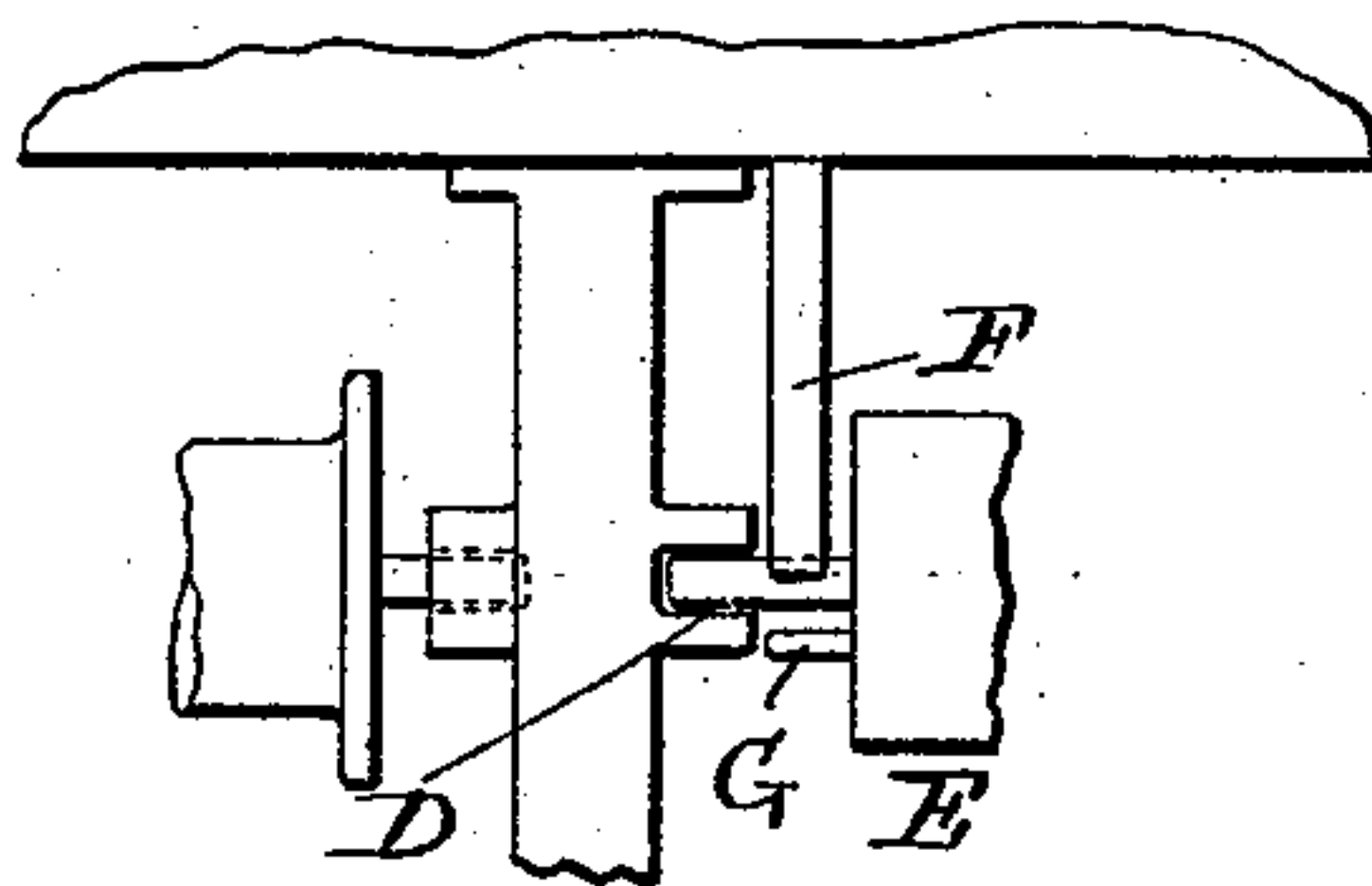


Fig. 5.

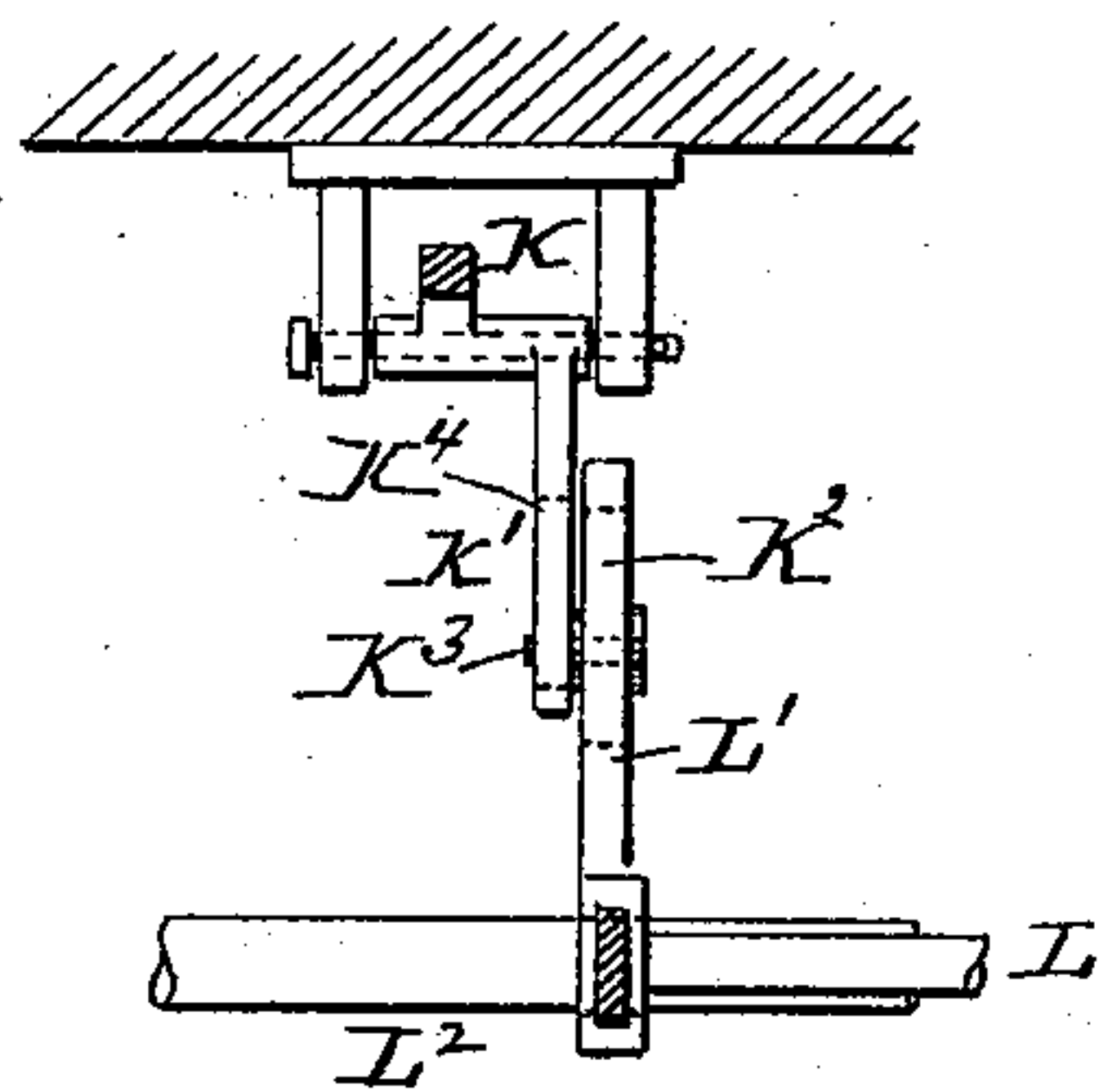


Fig. 6.

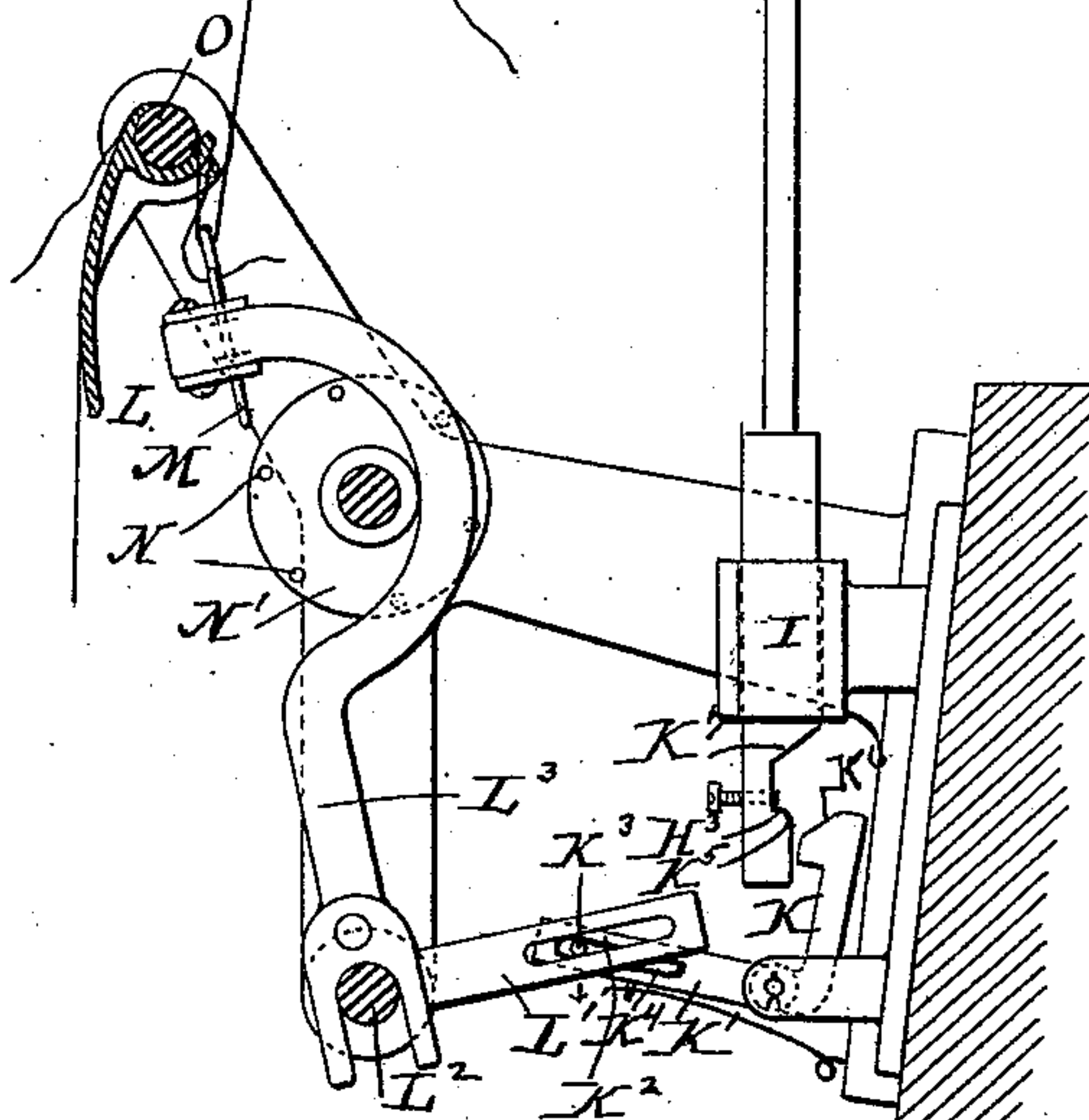
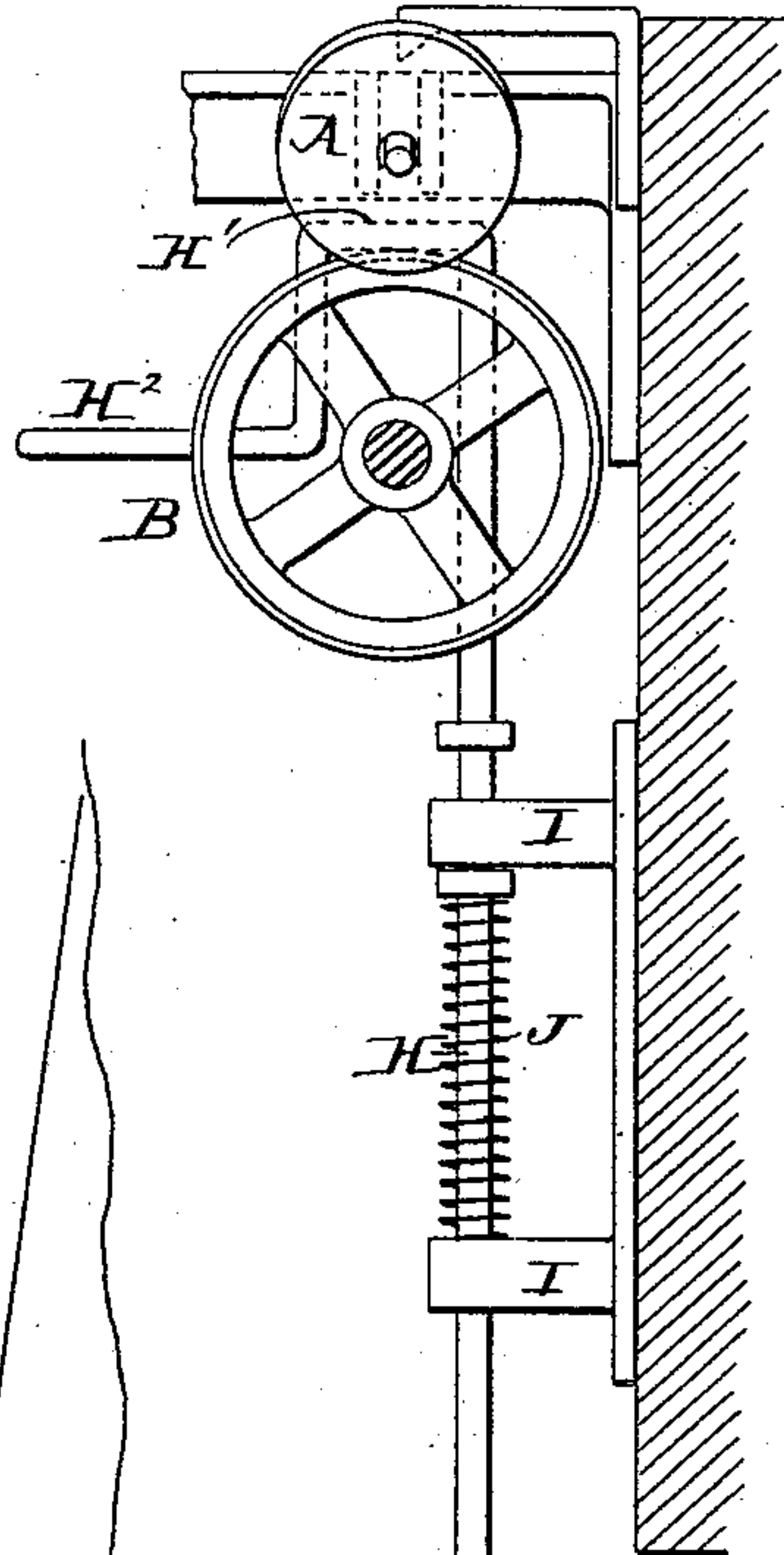


Fig. 3.

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# UNITED STATES PATENT OFFICE.

HENRY D. KLOTS, OF NEW YORK, N. Y.

## STOP-MOTION FOR SILK-DOUBLING MACHINES.

SPECIFICATION forming part of Letters Patent No. 541,666, dated June 25, 1895.

Application filed August 25, 1894. Serial No. 521,278. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY D. KLOTS, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Stop-Motions for Silk-Doubling Machines, &c., of which the following is a specification.

My invention, though applicable to many other machines for winding, reeling, gathering or similarly manipulating silk and other filaments, is particularly designed for doubling or gathering machines, and has for its principal object to insure a more immediate stoppage of the drawing mechanism in case of thread-breakage, than has been accomplished with stop-motions heretofore in use.

My invention, by which I attain this and other important ends, comprises various novel combinations of parts and features of construction, and in order that my invention may be clearly ascertained, I shall first describe in detail the mode in which I practice the invention, and then point out its various features in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which the same parts are designated by like letters in all the figures.

Figure 1 represents, in front elevation, a stop-motion embodying my invention applied to a gathering machine. Fig. 2 is a sectional side elevation of the same on the line 2 2, Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing the machine stopped by the breaking of a thread. Figs. 4 and 5 are detail front and plan views, respectively, illustrating the operation of the arrester for the drawing mechanism. Fig. 6 is a detail view illustrating the connections between the arrester-detent and the detector-carrier.

A designates the drawing bobbin of a gathering machine and B the driver. For arresting the operation of this drawing mechanism, without stopping the driver, I prefer to mount one gudgeon C of the bobbin A in a vertical slot-bearing D and the other in a spreading bearing D', so that the former end only of the bobbin will rise, and I rest a hub E fixed on that end of the bobbin on the driver B, so that on raising said end of the bobbin it will cease to be driven. I prefer, in addition, to fix a stop F on the frame of the machine project-

ing normally immediately above the path of a pin or projection G fixed on the free end of the bobbin, so that the instant said end of the bobbin is raised and freed from the driver, its pin or projection G will strike the stop F and the rotation of the bobbin be thereby instantly stopped. For thus raising the free end of the bobbin I prefer to employ a shipper H mounted to slide in vertical guides I, beneath the free end of the bobbin, and formed with a horizontal bearing H' to engage the under side of the hub E and lift the free end of the bobbin.

To better secure instantaneous action of the shipper H, when set in operation by the devices hereinafter described, I prefer to provide it with a strong spring J tending to throw it upward and arrest the drawing mechanism as before described; also with a handle H<sup>2</sup>, formed by bending the rod downward and forward from the bearing portion H', for depressing the shipper and starting the machine, and with a catch-shoulder H<sup>3</sup> on its lower end to be engaged by a spring-actuated detent K so as to normally restrain the shipper against the pressure of the spring J and permit the operation of the drawing mechanism. I provide for regulating the degree of engagement of the detent K with the catch-shoulder H<sup>3</sup> by means of a set screw H<sup>4</sup>, as best shown in Fig. 2.

I pivot the detent K on the frame of the machine to swing away from the vertically sliding shipper H, and provide the detent with a releasing arm K', which I connect by an adjustable pin K<sup>3</sup>, and slots K<sup>2</sup>, K<sup>4</sup>, to the arm L' of a detector-carrier L, which is mounted to swing on a fixed pivot L<sup>2</sup>, so that when thus swung it will release the arrester-detent K and cause the drawing mechanism to be instantly stopped, as described.

I form the detector-carrier L with side arms L<sup>3</sup> having bifurcated bearings for the pivot L<sup>2</sup>, so as to be readily removable therefrom, said side arms L<sup>3</sup>, being connected and separated, as necessary, to accommodate the required number of detectors M, which I mount to slide or fall by gravity in vertical guides formed in the head of the carrier L normally vertically over the pivot L<sup>2</sup>, said detectors being provided with stops M' working in a horizontal slot or opening in the head of the car-



rier L to limit the vertical movement of said detectors in the carrier.

Vertically beneath all the detectors M, I arrange the detector-trippers N, which I prefer to make of a series of horizontal rods connecting the peripheries of two disks N', respectively beyond the extreme detectors M, and forming therewith a horizontal drum, which I mount in suitable bearings N<sup>2</sup> fixed on the frame of the machine and cause to be revolved, as from the driving mechanism of the machine, at a certain rate of speed determined partly by the distance between the trippers N. The trippers N normally revolve immediately beneath the lower ends of the detectors M, which are held in their uppermost position by the respective threads running through their eyes; for I lead the threads to the detectors over a guide O, placed above the detector eyes, and lead the threads from said eyes upward to the drawing mechanism.

When a thread breaks, the corresponding detector M falls instantly within the path of the first approaching tripper N, which instantly engages said detector, swings the detector-carrier L forward, releases the arrester-detent K, and stops the drawing, before the broken end of the thread has traveled any distance of import. The thread being pieced, the machine can be readily set in motion by depressing the shipper and causing it to be automatically engaged by the detent, as shown.

I, by preference, terminate the catch-shoulder H<sup>3</sup> of the shipper H in a bevel K<sup>5</sup>, which when the detent K is disengaged from the shoulder H<sup>3</sup>, as described, will act as a cam on said detent to throw it still further out of engagement, and thereby throw the detectors M more clearly out of range of the trippers N. I also form co-operating bevels K<sup>6</sup> and K<sup>7</sup> on the detent K and shipper H, respectively, so that on resetting the shipper, the quick depression thereof will, through said bevels K<sup>6</sup>, K<sup>7</sup> as cams, keep the detent pressed outward, and the detectors thus forward out of range of the trippers until the threads have retracted the detectors, when the shipper, being freed, will be engaged by the detent which is thrown forward by the spring shown in Fig. 2 attached to the arm K' into said engagement and throws the detectors into operative position.

For properly adjusting the tension on the threads and thus on the detectors, I prefer to form the guide O, which may be covered with any suitable material, in volute form, as shown, and pivot it on the frame, so that it can be turned to vary the extent of contact of the threads therewith, as desired.

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

1. The combination, with the drawing bobbin, its driver and the bobbin-bearing in which the bobbin can play vertically off its driver, of a bobbin-shipper mounted to slide verti-

cally, and having a bearing to engage and lift the bobbin off its driver and a catch-shoulder, a shipper-actuating spring, a detent normally engaging the catch-shoulder on the shipper and restraining the shipper, a pivotal detector-carrier connected with the shipper-detent, a detector on said carrier, and a detector-tripper traveling normally without range of the detector, but adapted to engage said detector when dropped and swing the detector-carrier so as to disengage the shipper-detent, substantially as described.

2. The combination, with the drawing bobbin, of a bobbin-shipper, a pivotal shipper-detent having an operating arm, a pivotal detector-carrier having an arm connected to the said detent arm, a detector, and a detector-tripper, substantially as described.

3. The combination, with the shipper and the shipper-detent having an operating arm, of a pivotal detector-carrier having side arms formed with bifurcated pivot bearings and an operating arm pivotally connected to the detent-operating arm, detectors carried by said carrier, a pivot to receive the bifurcated bearings of the carrier, and a detector-tripper moving normally out of range of the detectors, substantially as described.

4. The combination, with the drawing bobbin, of a bobbin-shipper formed with a catch-shoulder terminating in a cam K<sup>5</sup>, a shipper-detent engaging said catch-shoulder and to be operated by said cam and a pivotal detector-carrier connected to said detent and operated by said cam, substantially as described.

5. The combination, with the shipper having a cam K<sup>7</sup> and a catch-shoulder opposite said cam, of a detent adapted to engage with said catch-shoulder and having a part in the path of to be engaged by the cam K<sup>7</sup>, a detector-carrier connected to the detent, a detector, and a detector-tripper, substantially as described, whereby when the shipper is moved into and beyond engagement with the detent, the cam K<sup>7</sup> will throw and hold the detent outward and the detector-carrier out of range of the tripper, until the detector is uplifted, when the shipper may be returned to allow the detent to engage it, substantially as set forth.

6. The combination, with the drawing-bobbin, its driver, the bobbin-shipper, the shipper-detent, the detector-carrier and the detector-tripper, of a projection on the bobbin, and a fixed stop normally without the path of said projection, but to be struck thereby when the bobbin is shipped, substantially as described.

7. The combination, with the drawing-bobbin, its driver bearing on one end only of the bobbin, a bobbin-shipper to lift said end of the bobbin, and a shipper-operating detector, of a projection on said end of the bobbin, and a fixed stop normally out of range of said projection but to strike the same when said end of the bobbin is lifted, substantially as described.



8. The combination, with the drawing bobbin, fixed end bearings therefor, in one of which the bobbin can play vertically, and the driver, of a bobbin-shipper having a bearing to engage and lift the bobbin in said fixed play-bearing off its driver, a shipper-actuating spring, a shipper-detent, a detector-carrier connected to disengage the detent from the shipper and a detector-tripper, substantially as described.

9. The combination, with the drawing bobbin and its driver bearing on one end only of the bobbin, of a sliding bobbin shipper having a bearing to engage and lift said driver-borne end but not the other end of the bobbin, a shipper-actuating spring a shipper-detent, a detector-carrier connected to unlatch

the detent and a detector-tripper, substantially as described.

10. The combination, with the drawing-bobbin, of a shipper having a bearing to engage and lift the bobbin, a handle for depressing the shipper, and a catch-shoulder, a detent to engage said catch-shoulder, a detector-carrier connected to disengage the detent and a detector-tripper, substantially as described.

In testimony whereof I, the said HENRY D. KLOTS, have hereunto set my hand, in the city of New York, this 16th day of August, 1894.

HENRY D. KLOTS.

In presence of—

CLARENCE L. BURGER,  
J. B. PAIGE.