

(No Model.)

D. C. STOVER.  
WIRE BARBING MACHINE.

No. 318,822.

Patented May 26, 1885.

Fig. 1.

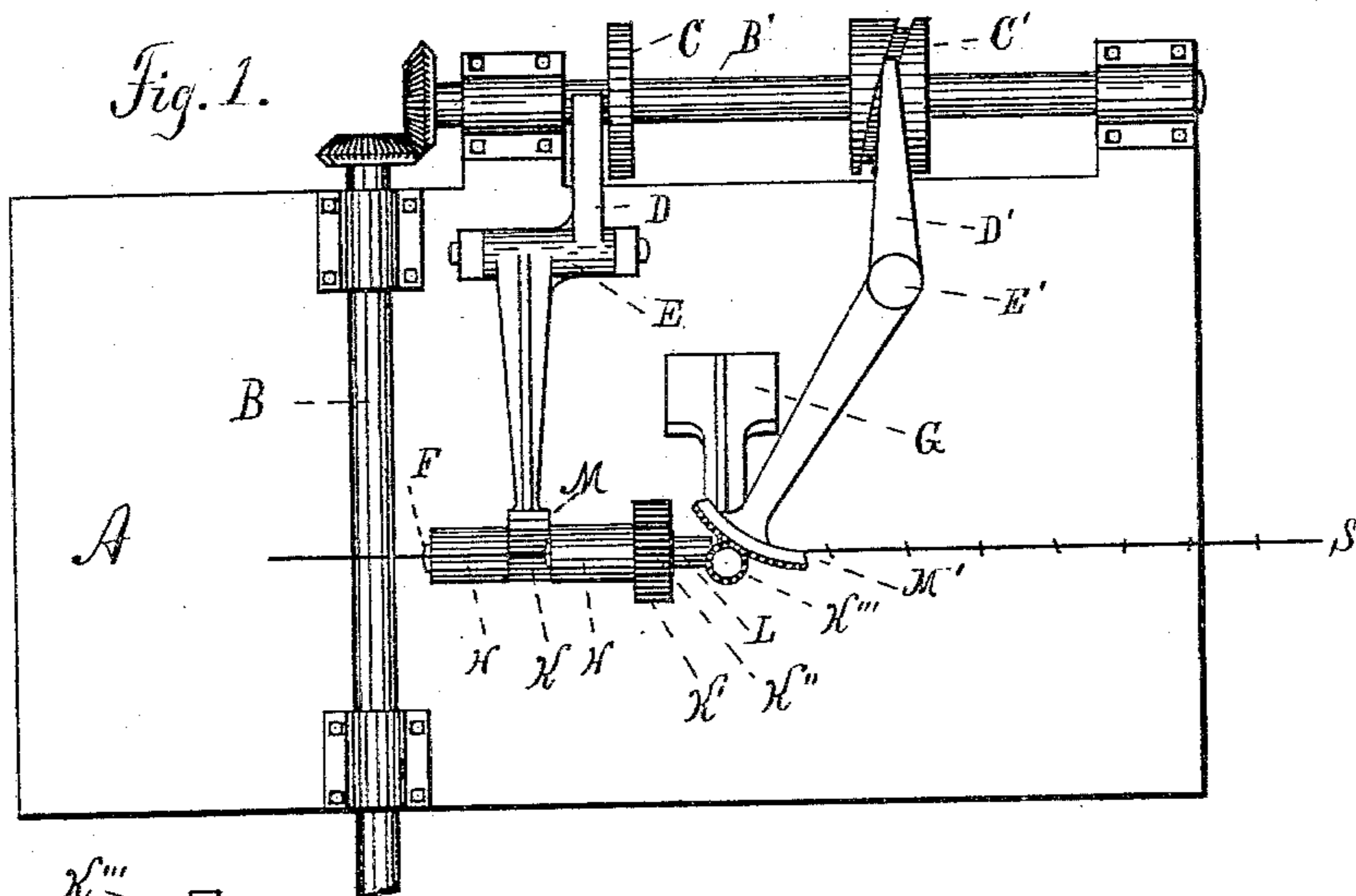


Fig. 2.

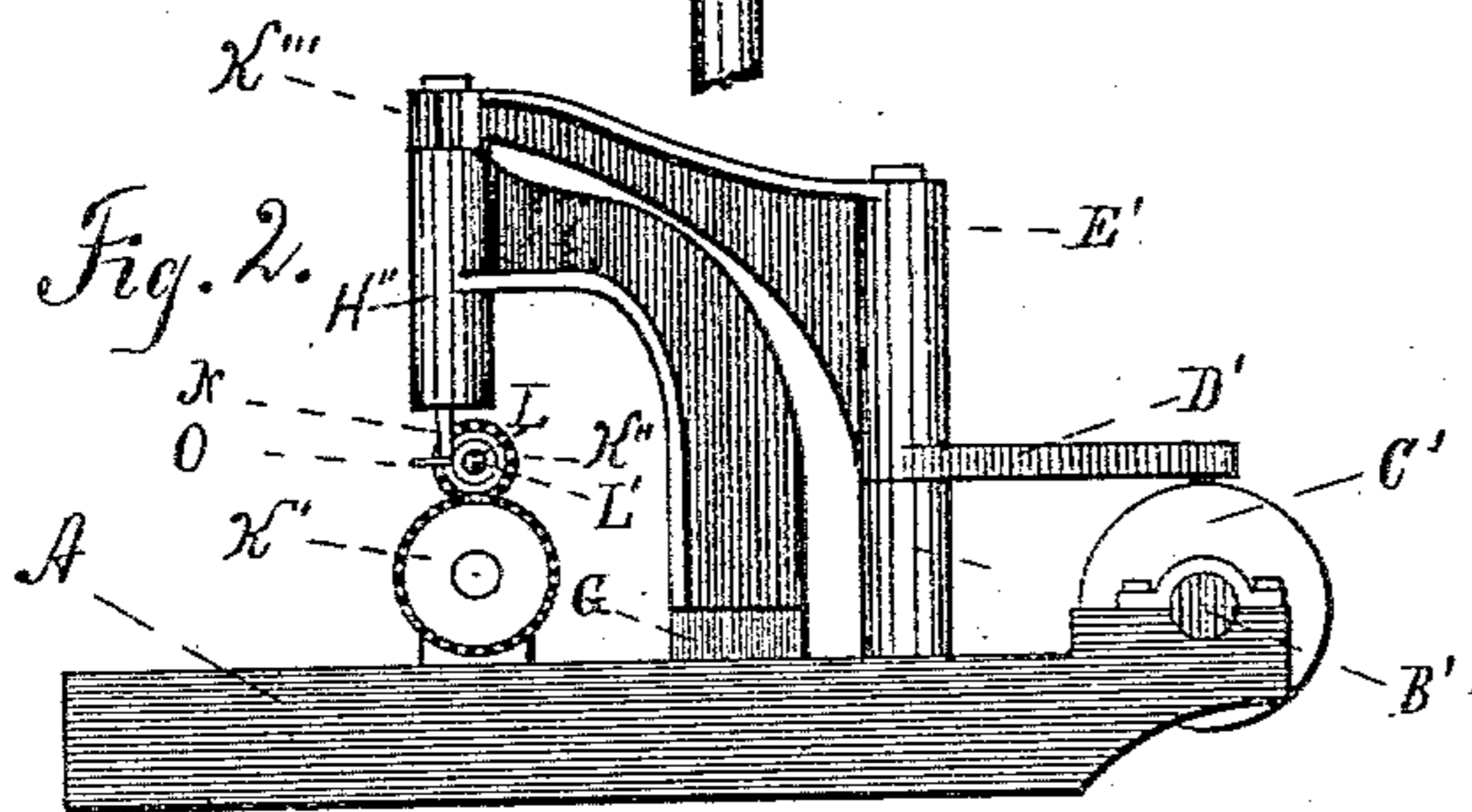


Fig. 3.

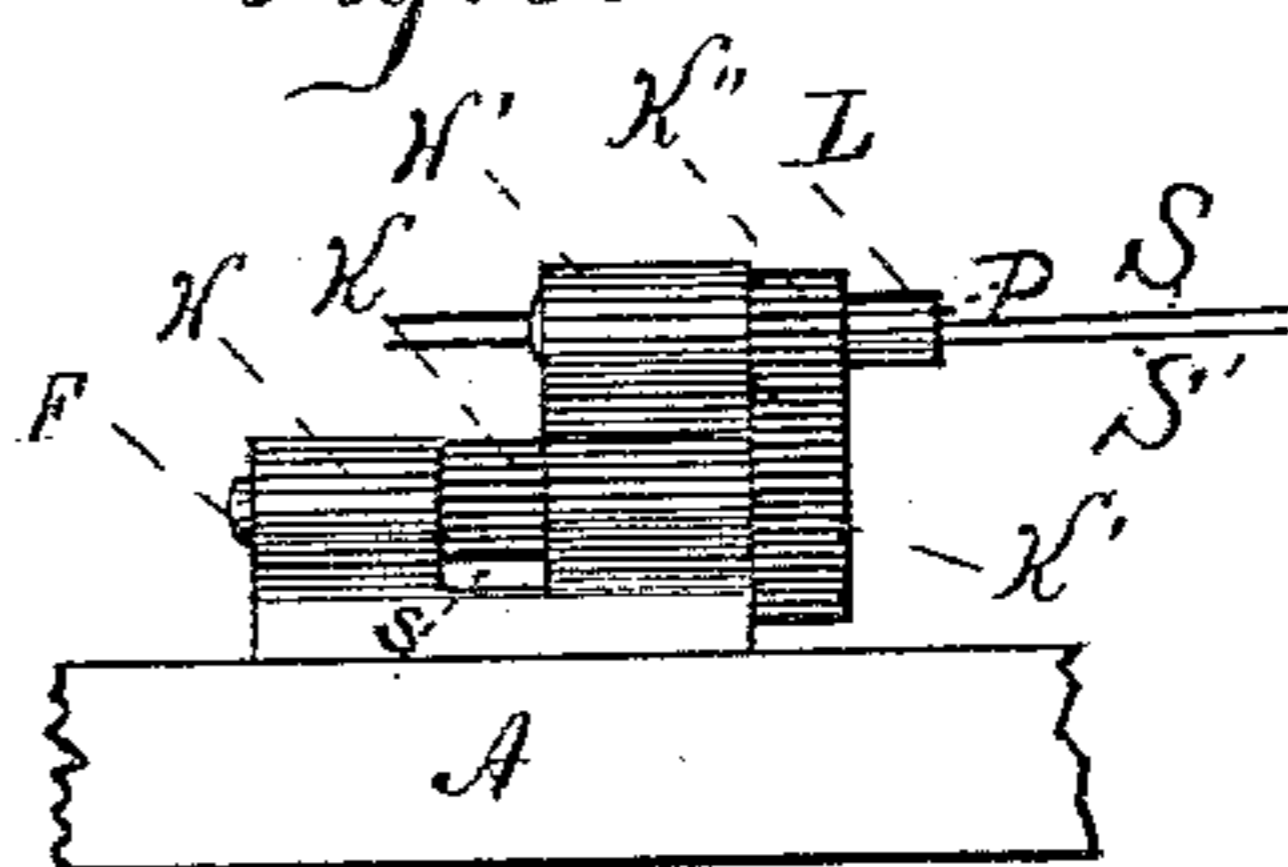


Fig. 4.

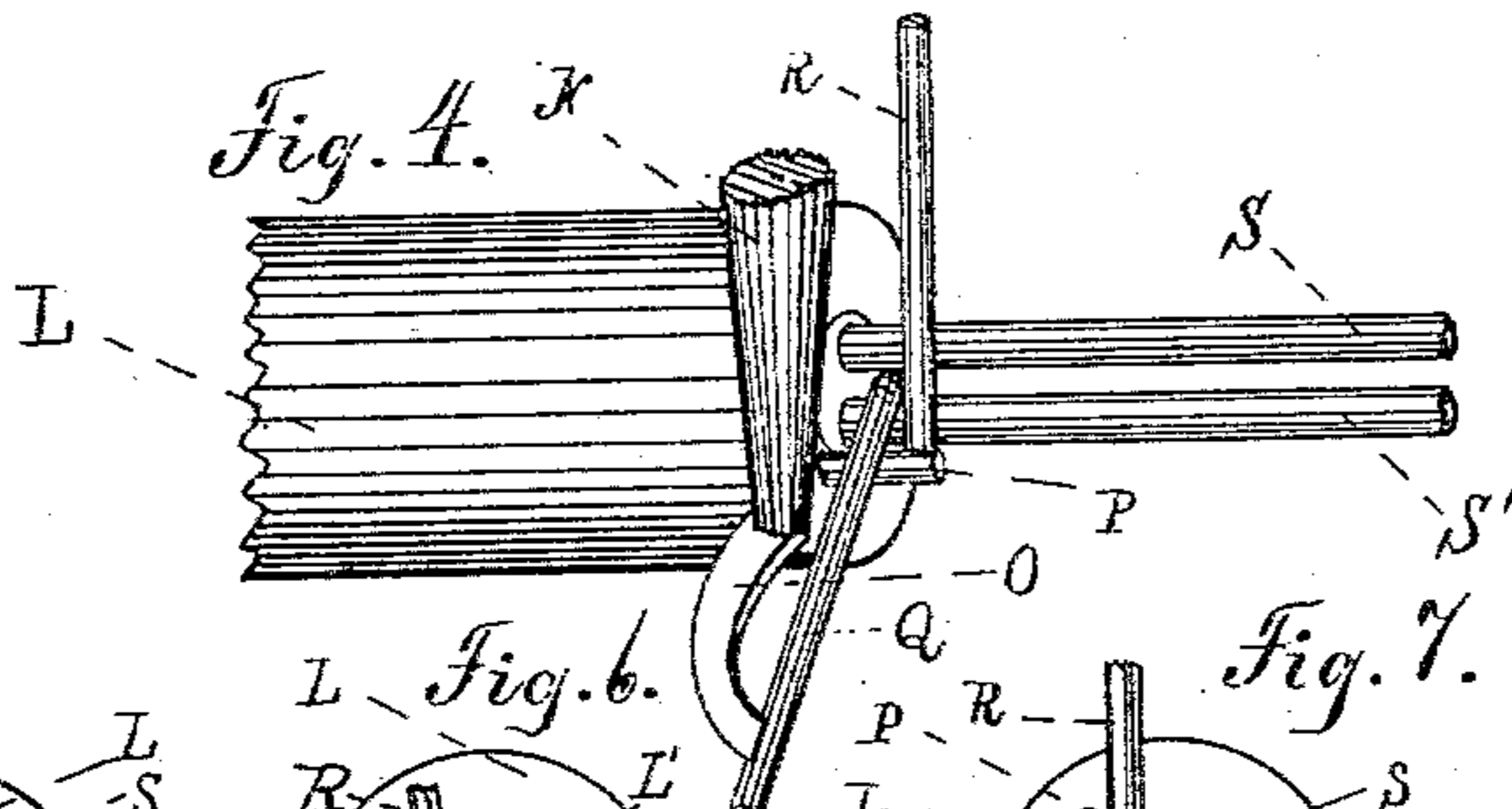


Fig. 5.

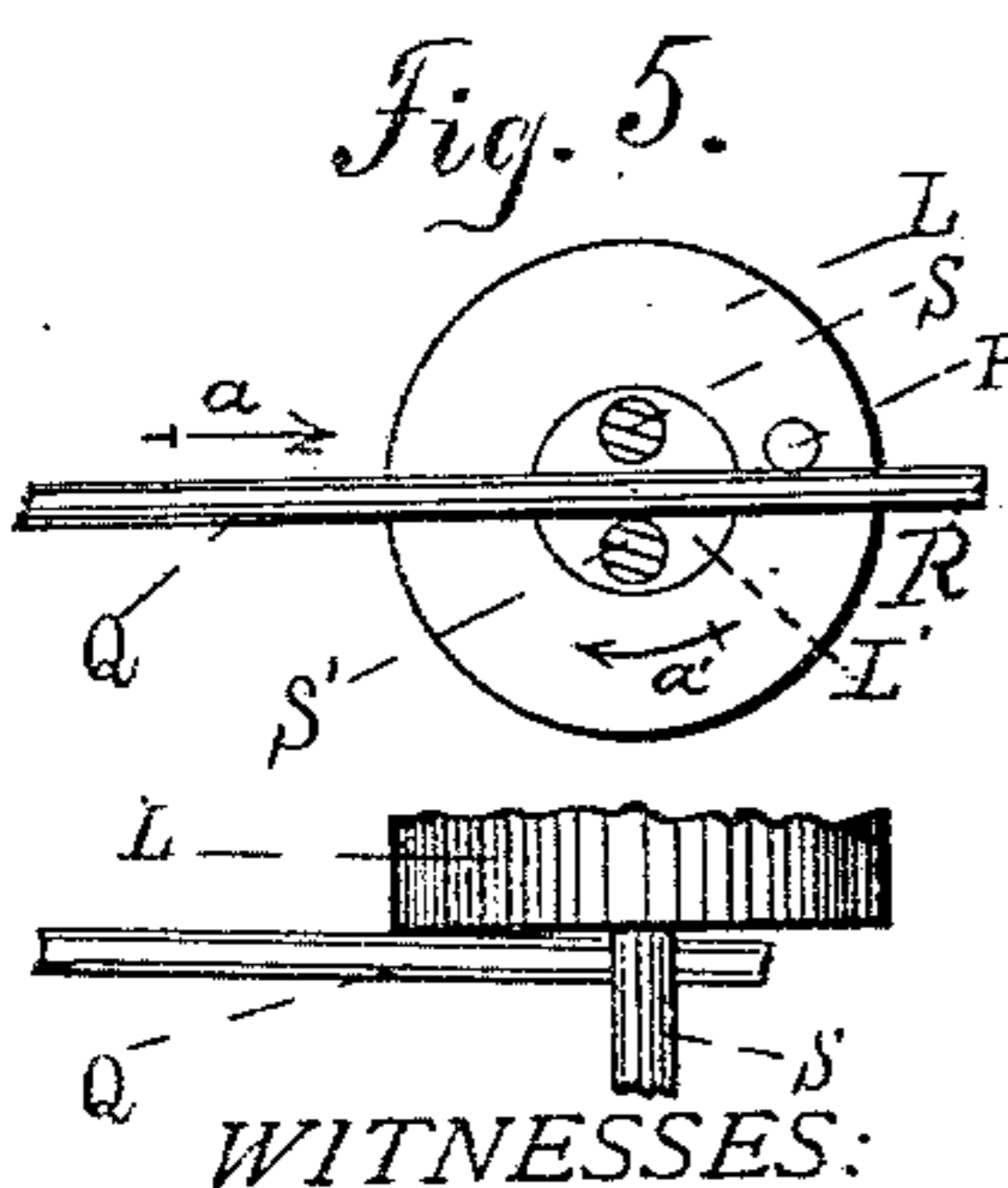


Fig. 6.

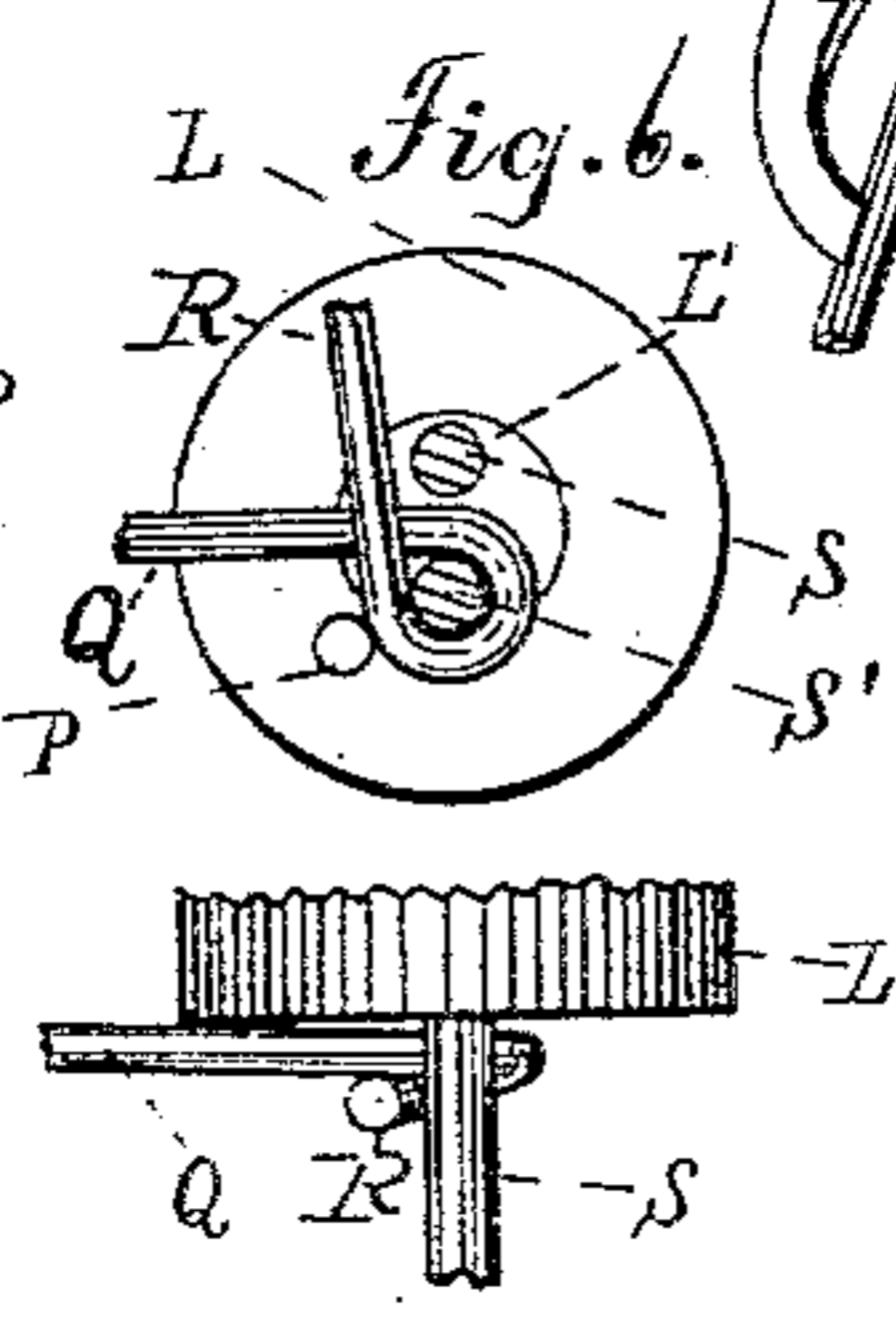


Fig. 7.

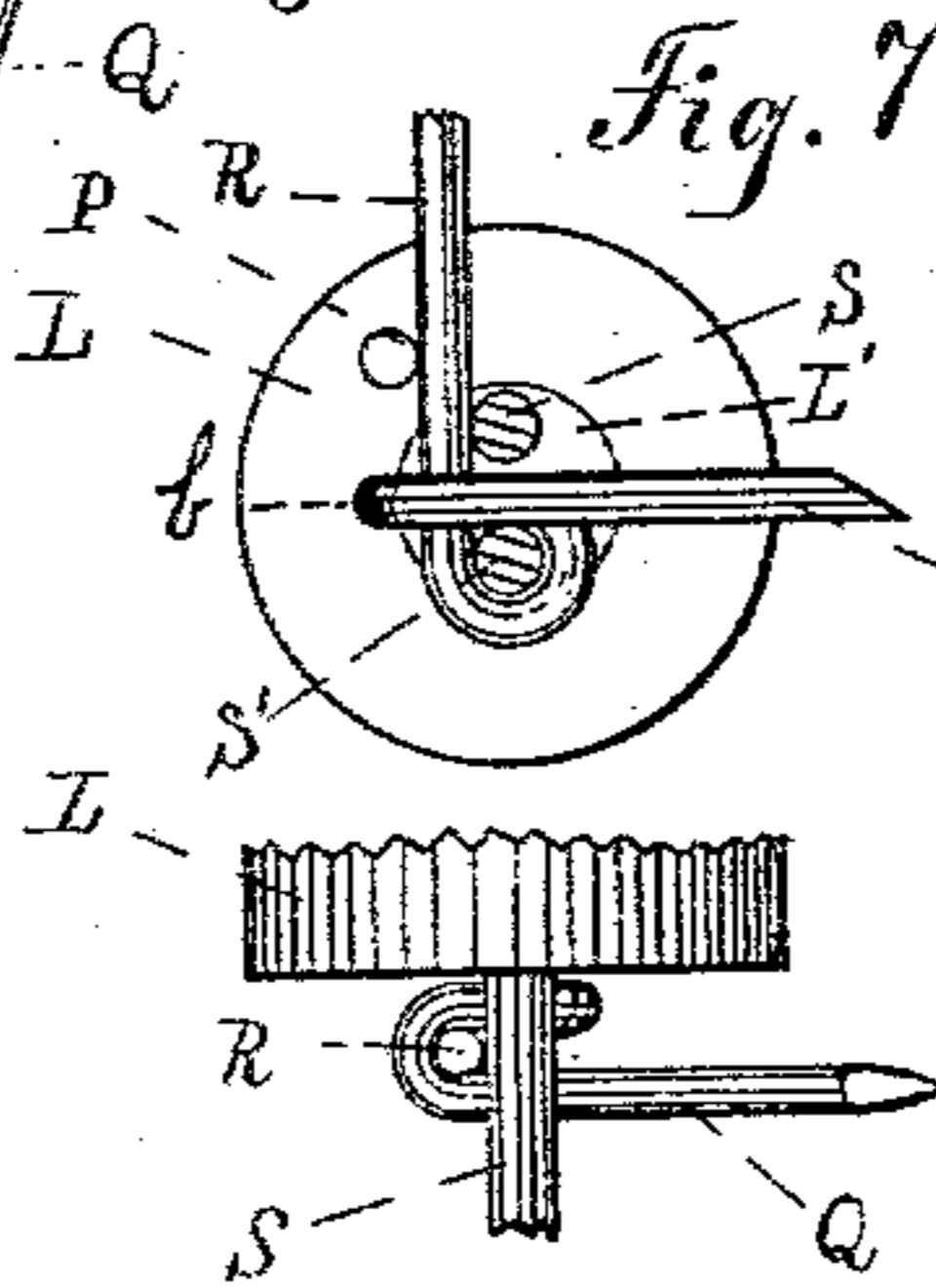
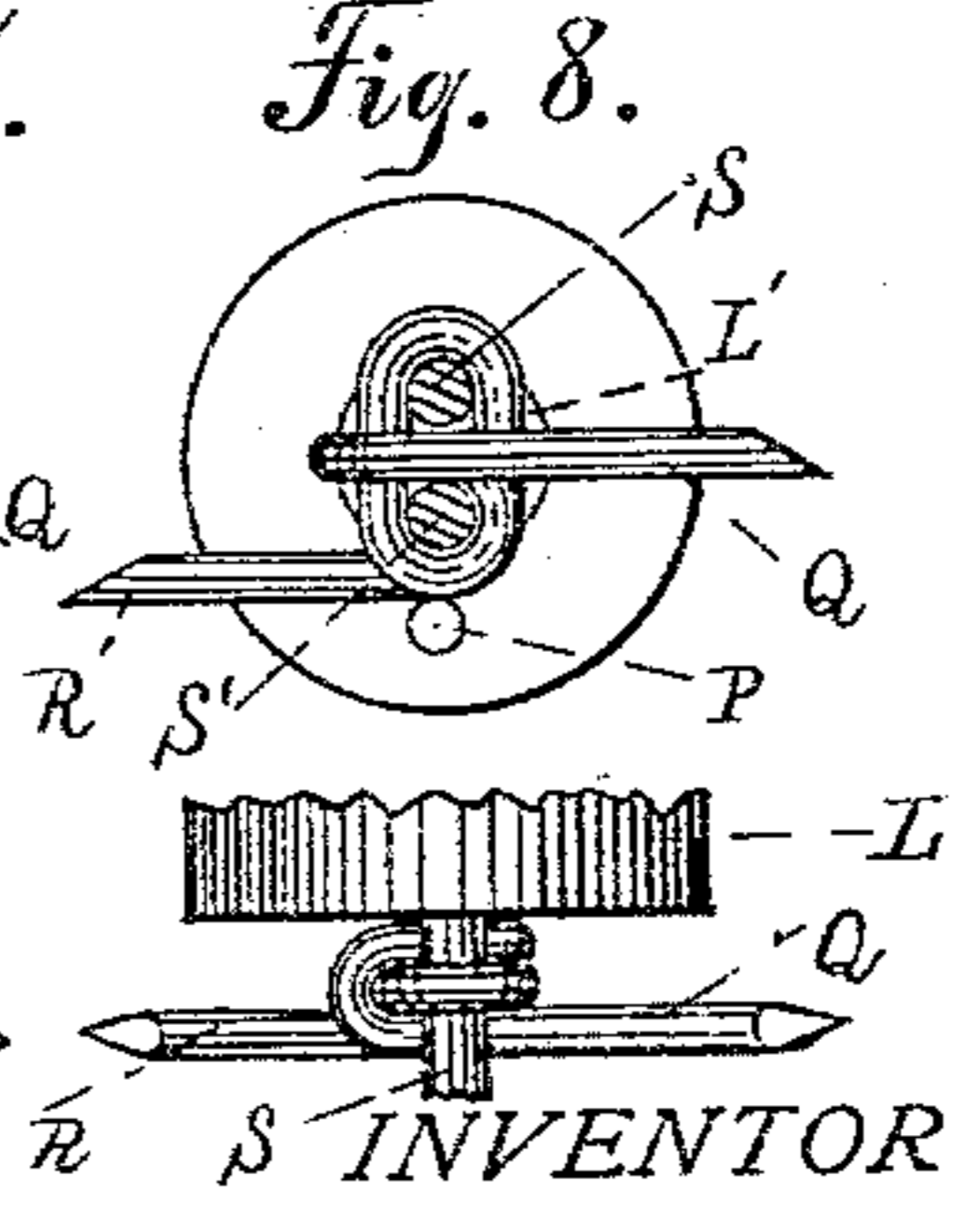


Fig. 8.



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DANIEL C. STOVER, OF FREEPORT, ILLINOIS.

## WIRE-BARBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,822, dated May 26, 1885.

Application filed August 9, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL C. STOVER, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Wire-Barbing 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.

My invention is an improved wire-barbing device, whose construction is fully described and explained in the following specification, and shown in the accompanying drawings, in which—

Figure 1 is a plan of the entire machine; Fig. 2, a front elevation thereof; Fig. 3, a side elevation of the wrapping-spindle and its gearing; Fig. 4, a side elevation of the wrapping-spindle and tucking-finger; and Figs. 5, 6, 7, and 8, detail views showing relative positions of the spindle and barb-wire in successive steps of the formation of the barb. Figs. 5, 6, 7, and 8 are double views—i. e., each of these figures shows a front elevation and a plan of one position of the spindle and barb.

In these figures, A is the bed of the machine; B, the driving-shaft, and B' the side shaft thereof, the shafts B B' being connected by miter-gears.

On the shaft B' are rigidly mounted two cams, C C', which are grooved in the side face and periphery, respectively. A segmental gear, M, pivoted on a horizontal shaft, E, receives reciprocal vertical motion from the cam C, while a second segmental gear, M', pivoted on a vertical shaft, E', receives reciprocal horizontal motion from the cam C'.

Near the center of the bed A, and in a line parallel to the shaft B', are two stationary bearings, H H', separated by a space, s, and rigidly attached to the bed. Both bearings are horizontally bored for the journaling of a shaft, F, on which are rigidly mounted two pinions, K K', the first being in the space s between the bearings, while the second is in front of the bearing H'. The bearing H' is provided with an integrally-formed horizontal spindle, L', above and parallel to the shaft F, and on

the spindle L' rotates freely a sleeve, L, whose front face is flush with that of the spindle, and is provided with a wrapping-lug, P, whose length is twice the diameter of the barb-wire. A pinion, K'', of a diameter half that of the pinion K', is mounted on the sleeve L in front of the bearing H', and meshes with the pinion K'. The pinion K meshes with the segmental gear M, so that the reciprocal motion of the segment produces reciprocal rotary motion of the sleeve L, the office of the intermediate gear, K', being simply to multiply the speed of rotation of the sleeve. The spindle L' and bearing H' are pierced through their entire length by two suitable horizontal perforations for the passage of two main wires, S S', to be barbed.

In front of the spindle L', and at the side of the axis thereof, is a stationary vertical bearing, H'', formed integrally with a suitable bracket, G, which is rigidly attached to the table A. The bearing H'' is longitudinally bored for a vertical shaft, which rotates freely with it, and which is provided with a pinion, K''', at its upper end, and a vertical rod, N, projecting downward from its lower face, both pinion and rod being rigidly attached to the shaft. The pinion K''' meshes with the segmental gear M', and the reciprocal horizontal motion of the latter causes reciprocal motion of the former and of the shaft to which it is attached, and the rod N, attached to said shaft.

At the lower end of the rod N is a finger, O, formed integrally with said rod, and lying in the horizontal plane of the space between the wires S S'. This finger is of such length and is so curved that the partial rotation of the rod N passes it from the position shown in Figs. 2 and 4 through the space between the main wires.

From the foregoing description it is apparent that the rotation of the shaft B', with its cams C C', produces reciprocal motion of the segments M M', that the reciprocal motion of the segment M produces reciprocal rotation of the sleeve L with its wrapping-lug P, and that the reciprocal motion of the segment M' alternately throws the finger O through the space between the main wires, and withdraws

it again to the position shown in Fig. 4. It is also evident that the cams C C' may be so formed and "timed" as to produce these motions of the barb-forming parts in any desired order.

The operation of the parts in the formation of a barb is as follows: The sleeve and spindle being in the position shown in Fig. 5, the barb-wire is fed by suitable means in the direction indicated by the arrow  $\alpha$  through the space between the main wires, the free end R of the barb-wire lying under the wrapping-lug P. The sleeve L is then rotated about one-half of a revolution, or one hundred and eighty degrees, in the direction indicated by the arrow  $\alpha'$ , until it reaches the position shown in Figs. 4 and 6, the free end R of the barb-wire being practically vertical. The barb is then severed by suitable cutting mechanism between the main wires and the feeding mechanism, leaving the end Q of the barb free. The finger O is then rotated forward about one hundred and eighty degrees, carrying the end Q of the barb between the main wires and in front of the portion of the wrap already formed, the position of the barb-wire after the end Q is passed between the main wires being shown in Fig. 7. At the time when the end Q is passed through the space between the main wires the wrapping-lug P is in the position shown in Fig. 6; but immediately after the completion of the tucking through of the end Q the sleeve L is rotated in the same direction as before, the lug P passes around the bend b, Fig. 7, and strikes the end R of the barb, as shown in Fig. 7. From this position the rotation of the sleeve is continued until the lug P reaches the position shown in Fig. 8, when the end R of the barb has been wrapped entirely around both main wires and is parallel to the end Q. In the movement of the lug P from the position shown in Fig. 7 to that shown in Fig. 8 it passes inside the end Q of the barb without striking it, the end Q being separated from the face of the sleeve and spindle by a space equal to twice the diameter of the barb-wire, and the length of the lug being also twice the diameter of the barb-wire. It is necessary that the lug have this length in order to reach the end R of the barb, (see plan, Fig. 6,) while if it were longer it would strike the end Q in the latter part of its revolution.

The device here shown for tucking the end of the barb between the main wires evidently may be applied to the formation of other barbs than the one shown, and I do not therefore limit its application to the machine described above.

No feeding or cutting mechanism is shown or described, as the devices used for this purpose are those common to various wire-barbing machines now in use.

I am aware that it is not broadly new to tuck between the strands of a two-strand cable the end of a barb-wire, a part of which is wrapped about said strands. Such tucking

has, however, been accomplished in two ways, both substantially different from that shown and described herein. One of said methods consists in wrapping the barb about the main wires, severing the barb-wire, moving the main wires forward one barb-space, (thus carrying forward the lately-severed barb,) and, lastly, tucking the end of the severed barb, while in its new position, one barb-space in advance of the position at which it was wrapped. The other method consists, in substance, in tucking the end of the barb backward through a slot in the main-wire-supporting spindle, such slot being between the main wires supported by said spindle. The means by which this is accomplished are fully shown and described in the patent of Frank W. Brainerd, No. 277,451, dated May 15, 1883, and are also shown in a pending application filed by me April 27, 1883, and having the Serial No. 93,144. In the machine shown in this application, however, the end of the partly-wrapped barb is tucked forward between the main wires, the barb during the tucking operation being in contact with the face of the wire-supporting spindle. The form of this machine and the method in which it operates thus differ materially from both the prior constructions above referred to.

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

1. In a wire-barbing machine, the combination of suitable means for supporting two main wires to be barbed, means, substantially as shown and described, for wrapping about the main wires the end of a barb-wire passed between said main wires, and means, substantially as shown and described, for tucking the end of said barb-wire forward between said main wires, the main wires being stationary during the operations of wrapping and tucking.

2. In a wire-barbing machine, the combination of a supporting-spindle longitudinally perforated for the passage of the two main wires of a fence-cable, a shell rotating on said spindle and provided with a wrapping-lug in its end face, a finger lying in a plane at right angles to the plane of the main wires supported by said spindle, and adapted to be rotated in its own plane through the space between said main wires in front of said shell and spindle, and means, substantially as shown and described, for rotating said finger between said main wires.

3. The combination of the sleeve and spindle L L', rod N, finger O, rigidly attached thereto, means for rotating said sleeve, and means for rotating said rod N forward, and thus passing its point across and in front of the face of said sleeve and spindle, substantially as shown and described, and for the purpose set forth.

4. The combination of the sleeve and spindle L L', the wrapping-lug P, attached to the

face of the sleeve and having a length equal  
to twice the diameter of the barb-wire, the  
rod and finger N O, means for rotating said  
sleeve, and means for rotating said rod and  
5 finger forward, and thus passing the point of  
said finger across and in front of the face of  
said sleeve and spindle, substantially as shown  
and described, and for the purpose set forth.

In testimony whereof I have signed this  
specification in the presence of two subscrib- 10  
ing witnesses.

DANIEL C. STOVER.

Witnesses:

R. H. WILES,  
OSCAR TAYLOR.