

(No Model.)

D. C. STOVER.  
WIRE BARBING MACHINE.

No. 318,821.

Patented May 26, 1885.

Fig. 1.

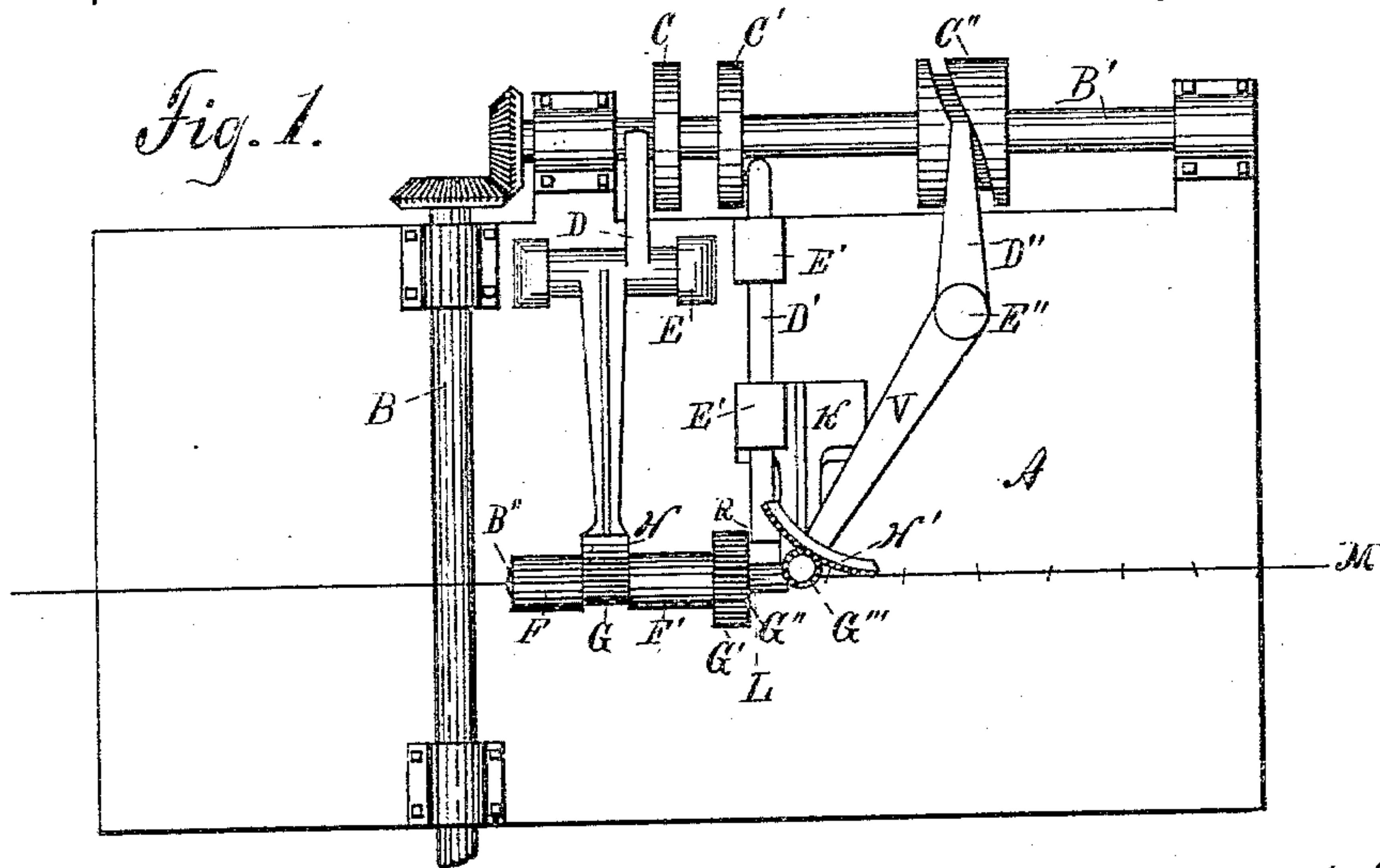


Fig. 2.

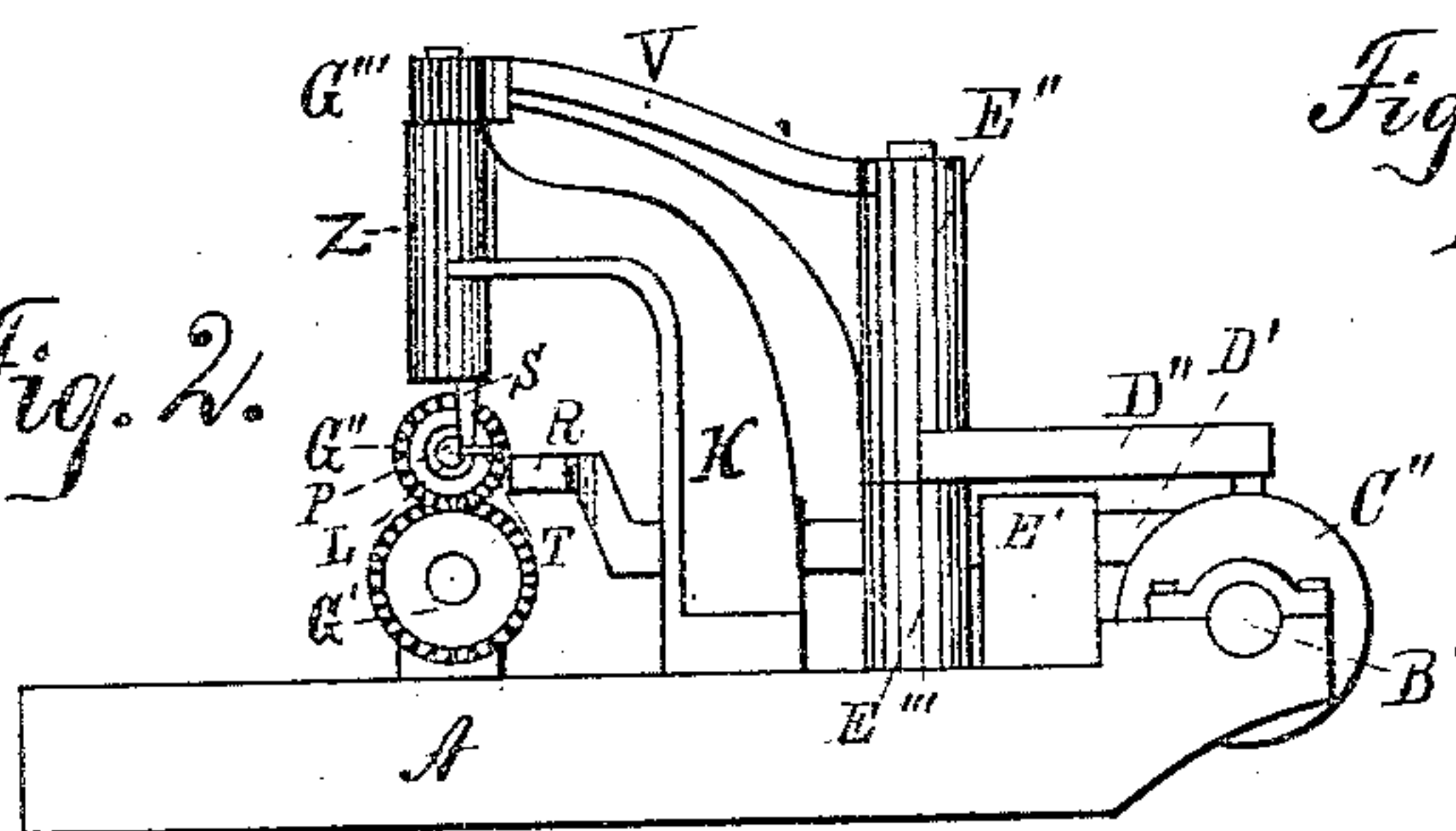


Fig. 3.

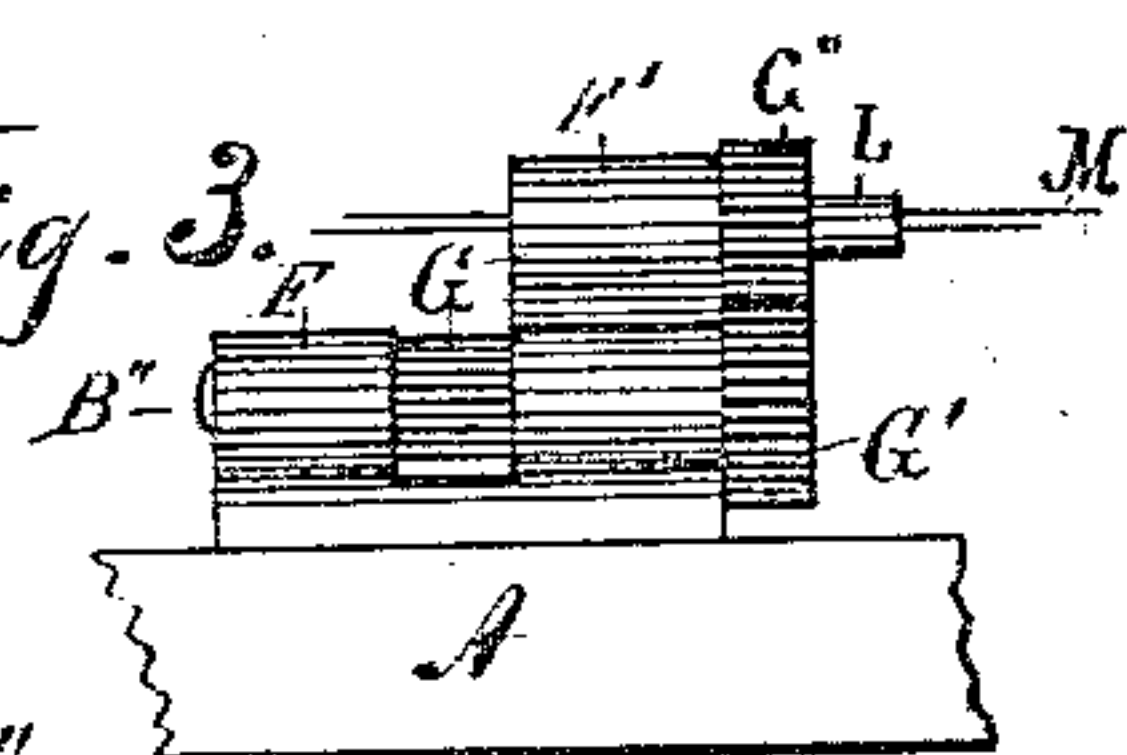


Fig. 4.

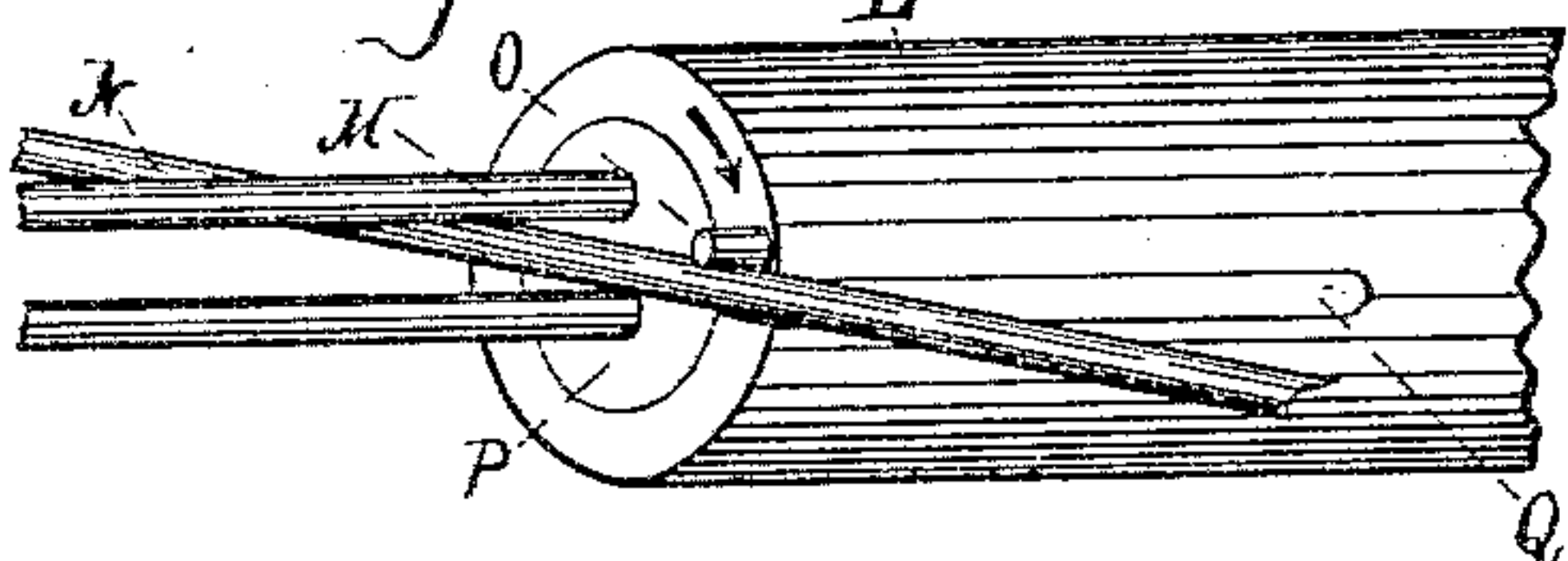


Fig. 5.

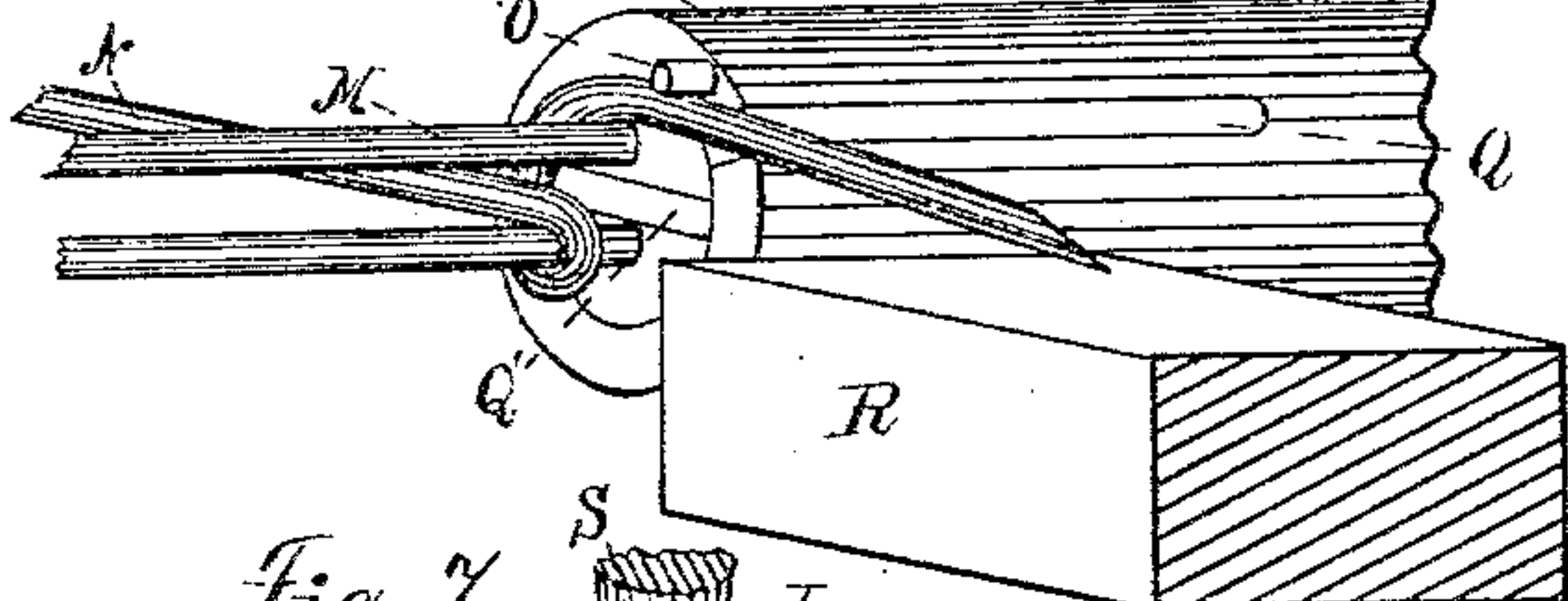


Fig. 6.

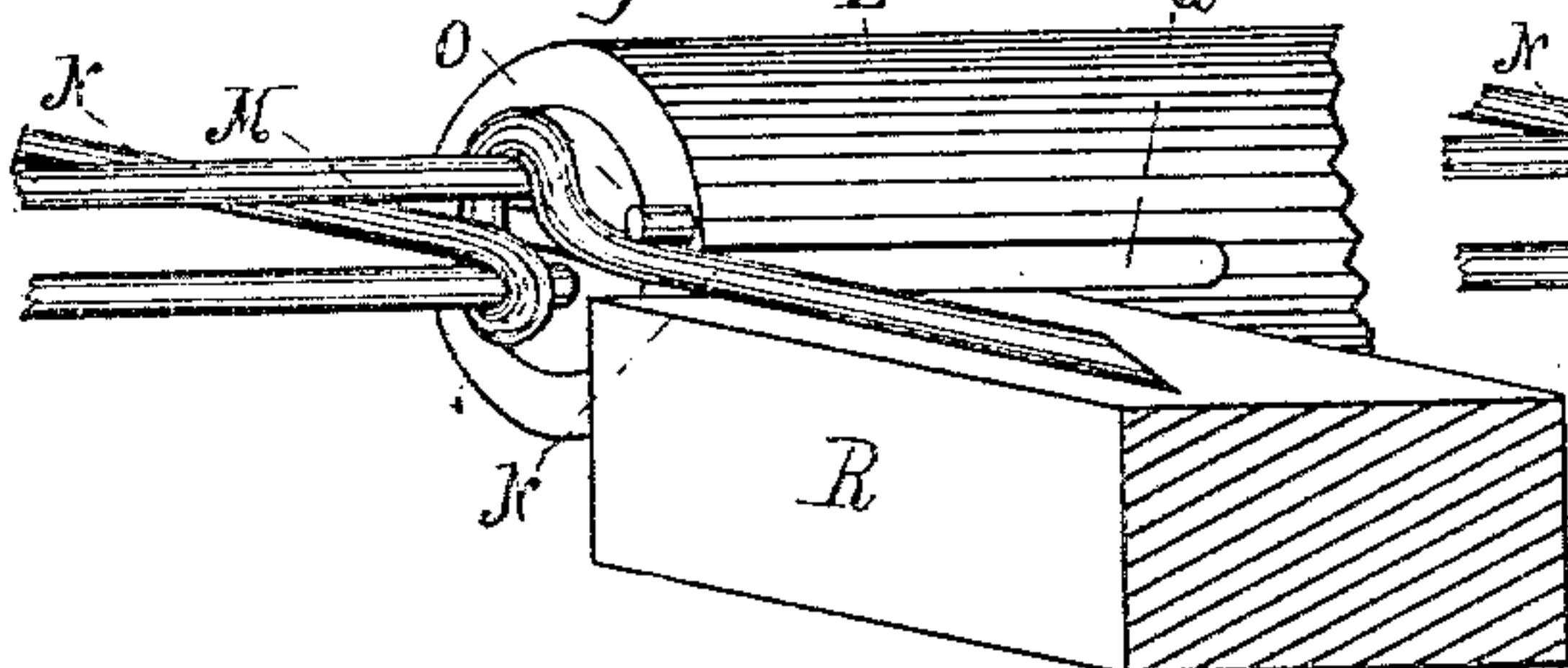


Fig. 7.

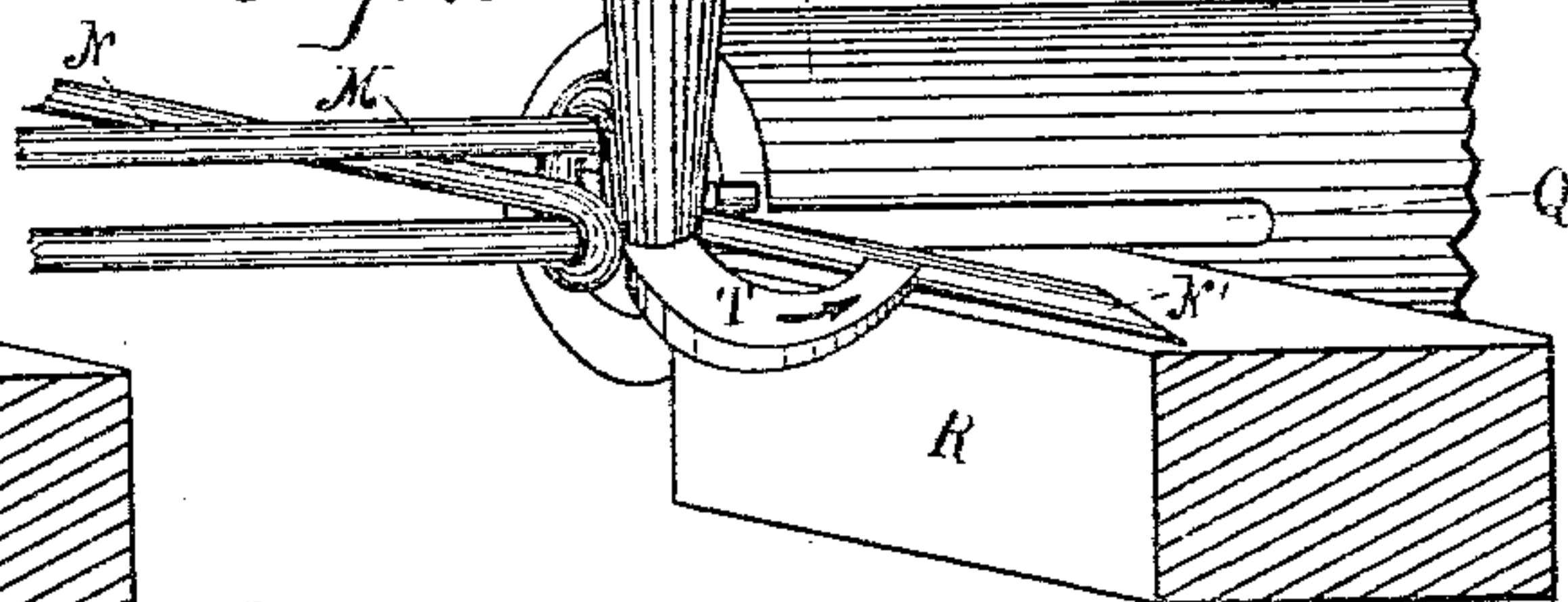
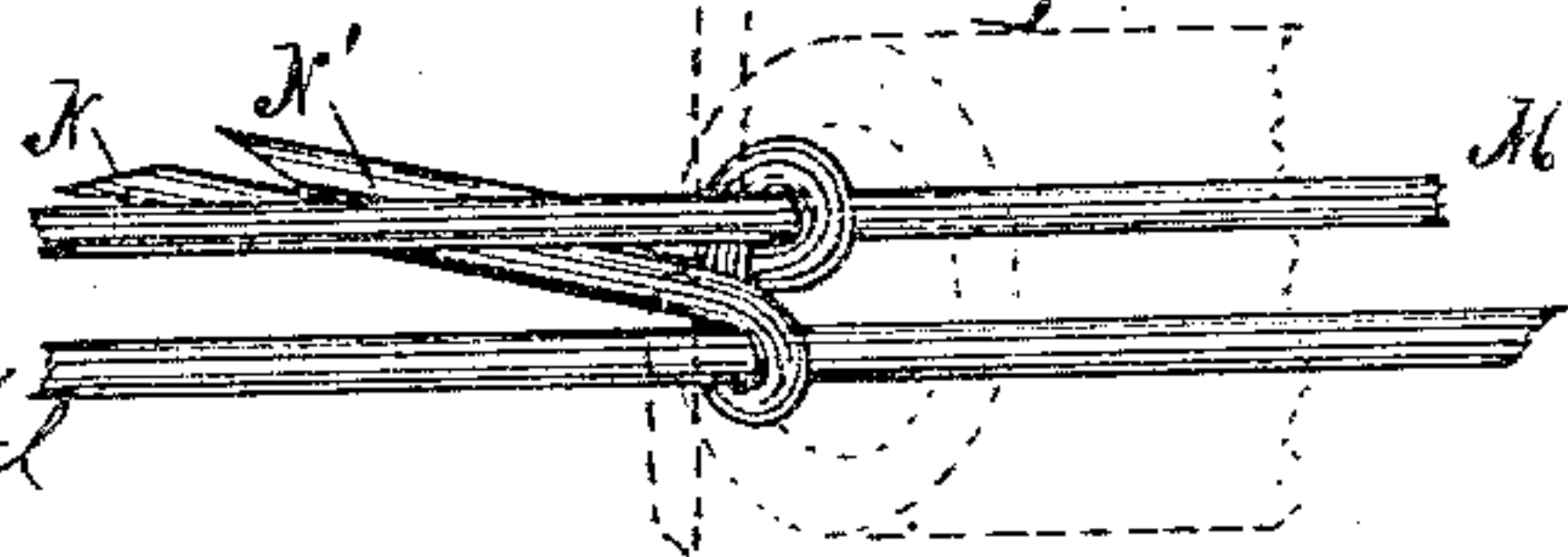


Fig. 8.

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# UNITED STATES PATENT OFFICE.

DANIEL C. STOVER, OF FREEPORT, ILLINOIS.

## WIRE-BARBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,821, dated May 26, 1885.

Application filed April 27, 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 machine for applying to two-strand fence-cables certain forms of barbs whose completion requires the formation of a bend or shoulder in one of the ends of the barb and the tucking between the cable-strands of the end so shouldered. The details of the machine are fully described and its operation 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 of the same; Fig. 3, a side elevation of the bearings and gearing of the barbing spindle and sleeve, and Figs. 4, 5, 6, 7, and 8 perspective views showing the position of the barb-forming parts in the successive steps of the formation of a barb.

In these views, A is the bed of the machine; B, the driving-shaft, and B' a side shaft at right angles to the driving-shaft, to which it is connected by bevel-gears. On the shaft B' are rigidly mounted three cams, C C' C'', the first of which, C, imparts reciprocal rotary motion in a vertical plane to the segmental gear H, while the second cam, C', imparts longitudinal reciprocal motion to a bar, D', which slides in bearings E', and is provided at its inner end with an anvil, R, formed integrally with it, and the third cam, C'', produces reciprocal rotary motion in a horizontal plane of the segmental gear H'. The pivots about which the segments H H' rotate, and the bearings in which the pivots are journaled, are evident from the drawings. The cams C C' actuate the segment H and bar D', respectively, by means of pins or rollers attached to the lever D and bar D', which pins work in grooves in the side faces of the cams, while the cam C'' actuates the segment H' by means of a pin or roller in the lever D'', moving in the groove in the periphery of the cam.

Near the center of the bed, and parallel with the shaft B', stand two posts, F F', in which is journaled, near the surface of the bed, a horizontal shaft, B'', on which is rigidly mounted, in the space between the posts, a pinion, G, which engages with the segmental gear H. On the same shaft, B'', is rigidly mounted, in front of the post F', a larger pinion, G', and immediately above the pinion G' is a small pinion, G'', which engages with it. The pinion G'' is mounted on a horizontal spindle, P, and is formed integrally with a sleeve, L, which surrounds and turns freely upon the spindle. The spindle P is formed integrally with the post or rigidly attached to it, and the post and spindle are longitudinally perforated for the passage of the two main wires to be barbed. The front faces of the sleeve and spindle are flush, and the sleeve is provided with an ordinary wrapping-lug, O.

Between the perforations in the spindle is a diametrical slot, Q', of a width equal to the diameter of the barb-wire, and a depth sufficient to permit the tucking through it of one of the ends of the barb, as hereinafter set forth. The sleeve is also slotted at Q.

Above and in front of the sleeve and spindle is a vertical bearing, Z, supported by a suitable post or support, K, and in this bearing rotates freely a spindle, which carries at its upper end a rigidly-mounted pinion, G''', engaging with the segmental gear H'.

To the lower end of the vertical spindle is rigidly attached a vertical rod, S, which carries an integrally-formed curved horizontal finger, T, which lies in the plane of the slot Q' in the horizontal spindle P.

At the side of the sleeve and spindle is the horizontal bar D', whose reciprocal motion has already been described. The inner end of the bar is provided with an anvil, R, whose upper surface is practically in the same plane as the lower face of the slot Q', while its front face is slightly in front of the front face of the sleeve and spindle. The office of this anvil is to assist in forming a bend or shoulder in one of the ends of the barb preparatory to tucking the same through the slot Q', as hereinafter explained, and its reciprocal motion is imparted to it for the purpose of permitting the partial wrapping of the barb while the an-



vil is withdrawn from the spindle, and afterward completing the wrap with the anvil in such position that the end of the barb must strike and rest upon it. As shown, the bar  
5 and anvil are bent vertically and laterally to bring the faces of the anvil to the required positions without interfering with the other working parts of the machine; but it is evident that the form of these members is acci-  
10 dental, and may be varied to suit different machines, or even in the same machine.

It is evident from the drawings and the foregoing description that the rotation of the shaft B', with its cams C C' C'', will impart re-  
15 ciprocally rotary motion to the sleeve L, reciprocal longitudinal motion to the bar D' and anvil R, and reciprocal rotary motion to the vertical spindle which carries the rod S, and that the rotation of the vertical spindle will  
20 carry the finger T through the slot Q'. It is equally plain that the cams may be so timed as to perform these operations in any desired order.

The operation of the barb-forming parts in  
25 the wrapping of a barb is as follows: The sleeve and spindle being in the position shown in Fig. 4, with the slots Q Q', the former in the sleeve and the latter in the spindle, being in the same plane, the barb-wire N is fed for-  
30 ward by suitable means, passing between the main wires M and under the wrapping-pin O. The sleeve L is then rotated in the direction indicated by the arrow in Fig. 4 through an angular space of about two hundred and  
35 seventy degrees to the position shown in Fig. 5, when the anvil R is thrust forward to a position almost in contact with the sleeve. The rotation of the sleeve is then continued in the same direction until it has completed an en-  
40 tire revolution of three hundred and sixty degrees, when it reaches the position shown in Fig. 6, forming a bend in the barb-wire near the main wires, and bringing the free portion of the barb-wire into contact with the  
45 upper surface of the anvil R and into the plane of the slots Q Q'. In Fig. 7 the sleeve and spindle are in the position shown in Fig. 6; but the vertical rod S and finger T are shown in position to tuck the free end of the barb  
50 through the slot. From the position shown in Fig. 7 the rod S is rotated one hundred and eighty degrees in the direction indicated by the arrow. The finger T is carried through the slot and thrusts the end of the barb through  
55 before it to the position shown in Fig. 8. The barb is then severed by suitable means between the feed-rolls and the main wire, and the ends N N' are wrapped in opposite directions by any suitable device. The end N  
60 may be carried either upward or downward into a vertical plane, the end N' being, of course, carried in the opposite direction in either case, so that two distinct forms of barbs may be made from the blank shown in Fig. 8.  
65 I have found it best in practice to provide the anvil R with means substantially as shown for

moving it in and out with relation to the sleeve and spindle; but if it be so formed as to project in front of the face of the sleeve a distance equal to the diameter of the barb-wire it may  
70 be stationary, and still permit the wrapping of the barb shown in these drawings. It is plain that if so formed the barb-wire, when fed forward to the position shown in Fig. 4, would lie wholly in front of the face of the  
75 anvil, and the first half of the wrap could be made without hinderance from the anvil, while the end of the barb during the last half of the wrap would lie above the end of the anvil, and would strike on its upper surface, as  
80 shown. There are, however, many barbs which cannot be formed without the use of a movable anvil, and I have therefore shown and described it as movable.

I am aware that the combination of a slot-  
85 ted sleeve and spindle with means adapted to tuck the end of a barb through the same is not new, that mechanism having been invented by Frank W. Brainerd, and being fully shown and described in Letters Patent No.  
90 277,451, issued to said Brainerd May 15, 1883. Neither do I claim any novelty for the devices used to actuate the barb-forming parts of this machine, as the cams and segments shown are well-known devices in wire-barb-  
95 ing machinery.

In a pending application of my own filed August 9, 1883, and having the Serial No. 103,223, I have shown and described a tuck-  
100 ing-finger adapted to pass between the main wires and to tuck between said wires the end of a barb-wire. In the mechanism shown and described in said application No. 103,223, however, the finger is so arranged as to rotate forward instead of backward, as in the  
105 machine shown herein, and the point of the finger, instead of passing through a slot in the spindle, passes across and in front of the face of the spindle.

Having, however, described my invention  
110 and explained its operation, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wire-barbing machine, the combination of means for supporting the main wires  
115 to be barbed, means for wrapping the barb about said main wires, an anvil adapted to form a bend or shoulder in one of the ends of said barb, substantially as shown, and means for tucking such shouldered end between the main  
120 wires, substantially as shown and described, and for the purpose set forth.

2. In a wire-barbing machine, the combination of means for supporting the main wires  
125 to be barbed, means for wrapping the barb about said main wires, a movable anvil adapted to permit the partial wrapping of the barb without obstruction, and to interpose during the completion of the wrap and form a bend or shoulder in one of the ends of the barb, means  
130 for imparting reciprocal motion to said anvil, and means for tucking the shouldered end of



the barb between the main wires, substantially as shown and described, and for the purpose set forth.

3. The combination of the perforated and  
5 slotted spindle P, the slotted sleeve L, rotating on said spindle and provided with a wrapping-lug in its end face, means for imparting reciprocal rotary motion to said sleeve, the reciprocating anvil R, having its upper face in  
10 the plane of the lower face of the slots Q Q', means for actuating said anvil, and means for

tucking the end of the barb through the slots Q Q', substantially as shown and described, and for the purpose set forth.

In testimony whereof I have signed this 15 specification in the presence of two subscribing witnesses.

DANIEL C. STOVER.

Witnesses:

R. H. WILES,  
OSCAR TAYLOR.