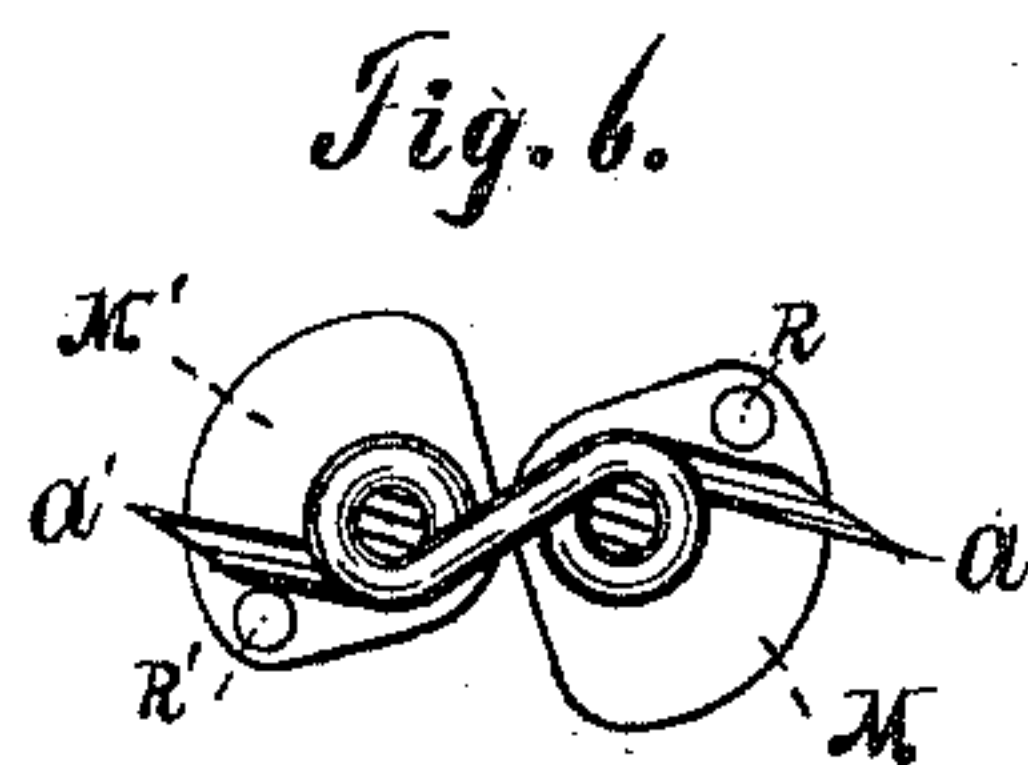
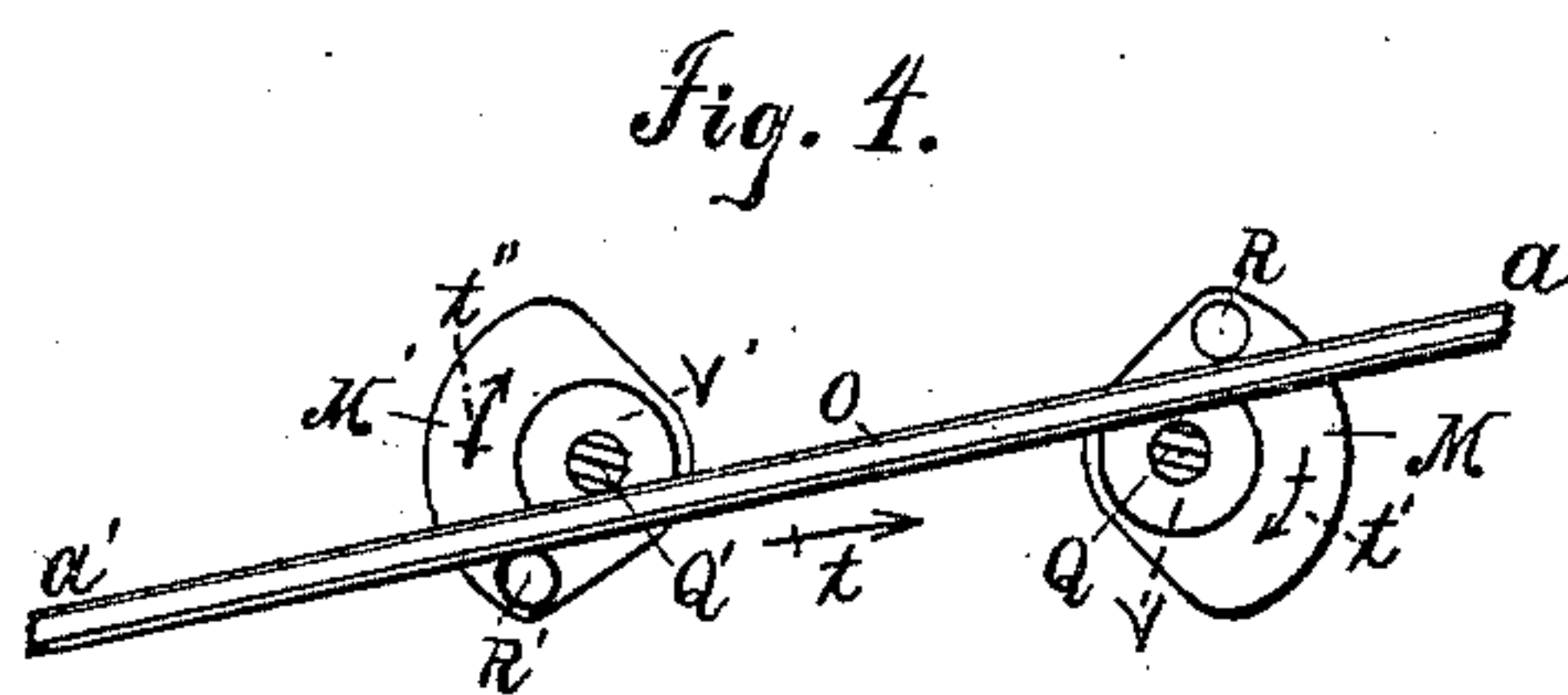
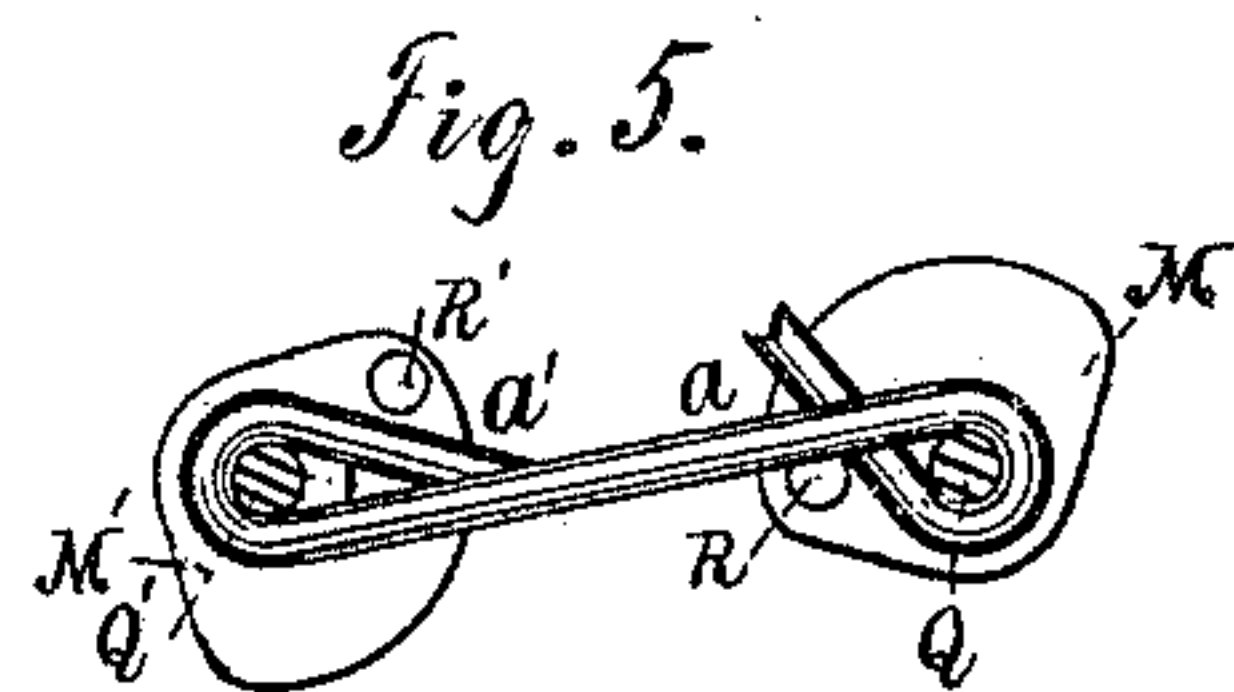
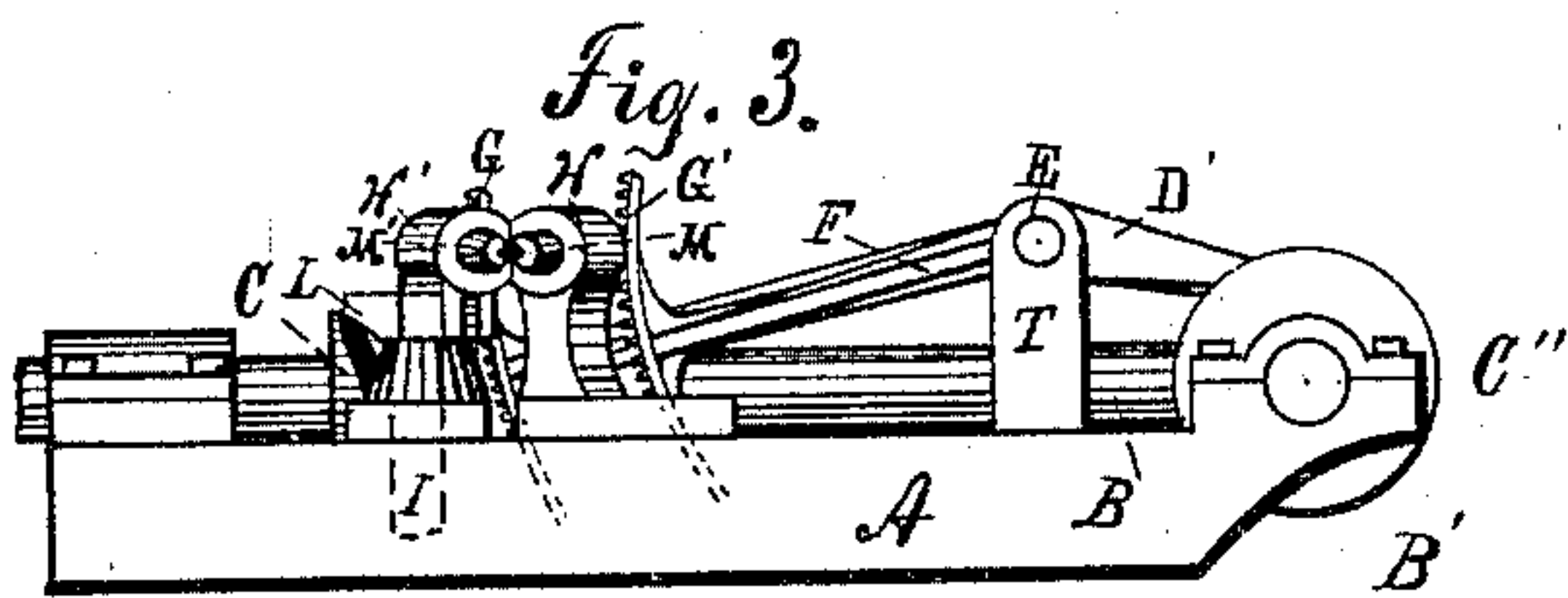
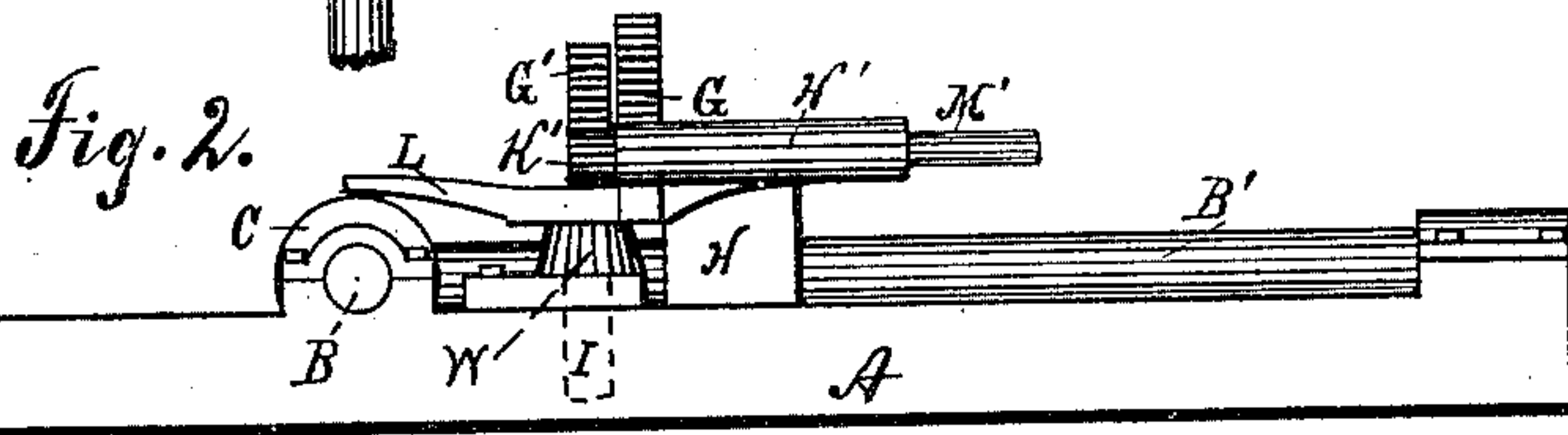
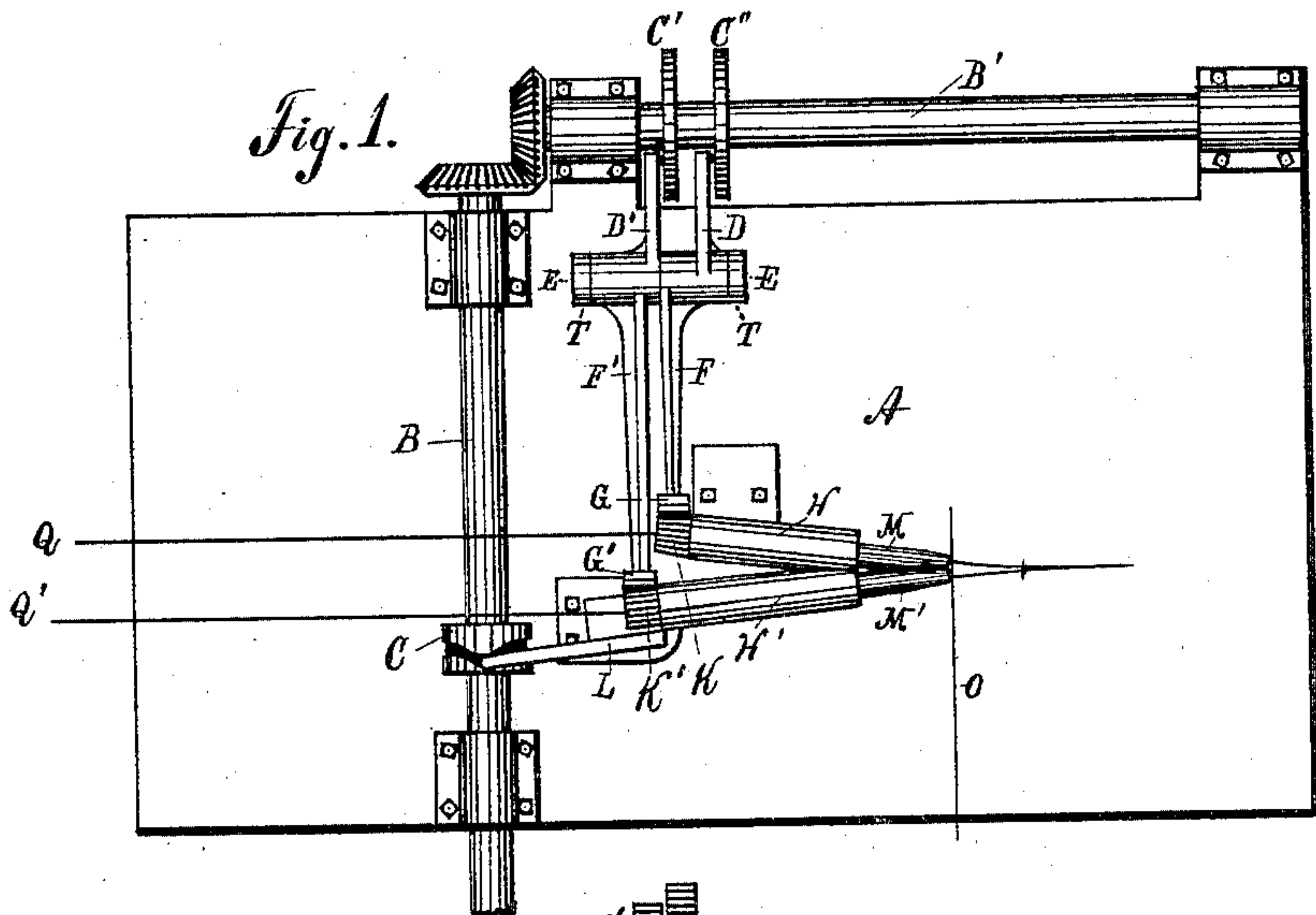


(No Model.)

D. C. STOVER.
WIRE BARBING MACHINE.

No. 285,855.

Patented Oct. 2, 1883.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DANIEL C. STOVER, OF FREEPORT, ASSIGNOR TO I. L. ELLWOOD & CO., OF
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WIRE-BARBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 285,855, dated October 2, 1883.

Application filed June 4, 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 wrapping certain forms of barbs about the main wires of a two-strand fence-cable, the barbs to whose manufacture it is adapted being such as have their opposite ends wrapped about the respective strands of the cable and both their ends passed between the strands in forming the wraps.

The construction and operation of the machine are fully described and explained in the following specification, and its details are shown in the accompanying drawings, in which—

Figure 1 is a plan of the machine; Fig. 2, a side elevation thereof; Fig. 3, a front elevation thereof, and Figs. 4, 5, and 6 enlarged front elevations of successive positions of the wrapping and wire-supporting spindles in successive positions in the formation of a barb.

In these views, A is the bed of the machine, B the driving-shaft thereof, and B' a side shaft at right angles to the driving-shaft and connected with it by miter-gears. On the shaft B is rigidly mounted a cylindrical cam, C, formed with a groove in its periphery, whose office will be hereinafter explained, and on the shaft B' are rigidly mounted two cams, C' C'', formed with grooves in their side faces, which impart reciprocal vertical motion to two levers, D F, D' F', pivoted on a horizontal shaft, E, supported in stationary bearings T. The levers F F' are of unequal lengths, as shown, and carry at their inner ends the segmental gears G G', formed integrally with them, respectively. Near the middle of the bed is a stationary horizontal bearing, H, rigidly attached to the bed in a line slightly oblique to the line of the side shaft, B', the distance between the shaft and bearing being greatest at the front end of the bearing. The bearing H

is longitudinally bored for the reception of a horizontal spindle, M, which is longitudinally perforated for the passage of one of the main wires, and is provided with a pinion, K, rigidly mounted on it in the rear of the bearing H. The pinion K engages with the segmental gear G, and the reciprocal vertical motion of the segment produces reciprocal rotary motion of the pinion and of the spindle to which the pinion is attached. An ordinary wrapping-lug, R, is inserted in the face of the spindle, and a hardened-steel thimble, V, screwed into the end of the spindle, forms the bearing of the main wire immediately in rear of the point at which the barb is attached to it.

A boss or vertical bearing, W, is formed integrally with or rigidly attached to the bed of the machine at a point somewhat nearer to the shaft B than the pinion K, and somewhat farther from the side shaft, B', than said pinion, and is centrally bored for the reception of a vertical shaft or pivot, I. (Shown in dotted lines in Figs. 2 and 3.) The pivot I is formed integrally with a horizontal bearing, H', lying in the same horizontal plane with the bearing H, and longitudinally bored for the reception of a spindle, M', which is longitudinally perforated for the passage of one of the main wires, and provided with a wrapping-lug, R', and thimble V', similar in form and use to the lug R and thimble V, already mentioned. On the rear end of the spindle M', in rear of the bearing H' and in the vertical line of the axis of the pivot I, is mounted a pinion, K', which meshes with the segmental gear G', whose reciprocal vertical motion produces reciprocal rotary motion of the pinion and of the spindle M'. A lever, L, rigidly attached to the rear of the bearing H', extends backward to the driving-shaft B, and is provided with a pin or roller which runs in the groove in the periphery of the cam C, heretofore referred to. The rotation of the cam C thus produces reciprocal horizontal motion of the lever L and bearing H', and causes the front end of the spindle M' to alternately approach and recede from the spindle M. The pinion K', being immediately over the vertical pivot I, on which the lever and bearing move, is always in engagement with the segmental gear G', and the

are of vibration of the lever and segment is so short that the teeth of the pinion and segment work freely in all positions of the pinion.

The front ends of the spindles M M' are cut away, as shown in Figs. 4, 5, and 6, in order that they may approach more nearly to each other, as without this the main wires would be too widely separated when the barb is completed.

From the drawings and the foregoing description it is seen that the rotation of the shaft B and cam C imparts reciprocal horizontal movement to the lever L, bearing H', and spindle M', causing the front end of the spindle to alternately approach and recede from the spindle M, and that the rotation of the shaft B' with its cams C' C'' produces reciprocal rotary motion of the spindles M M'.

The operation of the machine in forming the barb shown in Figs. 4, 5, and 6 is as follows: The spindles M M' being in the position of greatest separation, as shown in Fig. 4, the barb-wire O is fed by suitable feeding device in the direction indicated by the arrow *t* in Fig. 4, passing under the wire Q' and over the wire Q. When in this position, the barb-wire lies above the wrapping-lug R' and below the lug R. The spindle M is then rotated in the direction indicated by the arrow *t'*, carrying with it the free end *a* of the barb-wire until the latter passes between the main wires and reaches the position shown in Fig. 5. The end *a'* of the barb is next severed by suitable cutting mechanism between the main wire Q' and the feeding mechanism. The spindle M' is then rotated in the same direction as the spindle M has been, and in the direction indicated by the arrow *t''*, until the end *a'* of the barb passes between the wires and reaches the position shown in Fig. 5. From this position both spindles are rotated in the same direction as that of their former motion, and at the same time the front end of the spindle M' approaches the spindle M at such a rate that all that portion of the wrap on both the main wires which is made after the end *a'* passes between them is taken from the middle portion of the barb-wire, or that part which is shown between the main-wires in Fig. 5. The approach of the spindle M' to the spindle M is regulated entirely by the form and rotation of the cam C, and is therefore positive, and its rate is such as to keep pace exactly with the wrapping of the middle part of the barb upon the main wires, so that the positions of the spindles with reference to each other offer no resistance to the formation of such wrap.

No means for feeding the main wires or the barb-wire, or for severing the barb-wire, are shown, as the devices used for these purposes are the same that are in common use on other machines, and are well known in the art of making barbed wire.

Having now described my invention 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 a horizontal stationary bearing, a spindle rotating freely therein, longitudinally perforated for the passage of one of the strands of a two-strand cable, and provided with a wrapping-lug in its end face, a horizontal bearing rigid as to vertical motion, but having oscillatory motion upon a vertical pivot, a similarly-perforated spindle rotating in said bearing, and provided with a wrapping-lug in its end face, means for feeding a barb-wire across and between the main wires supported by said spindles, means for rotating said spindles in the same direction, and means whereby the end of said oscillating spindle is made to approach said stationary spindle during the wrapping of a barb about said main wires, substantially as shown and described, and for the purpose set forth.

2. The combination of the bearing H', rigid as to vertical motion, but having oscillatory motion about the vertical pivot I, the perforated spindle M', rotating in said bearing, the pinion K', rigidly mounted on said spindle in the axial line of the pivot I, the lever L, rigidly attached to said bearing H', and means, substantially as shown and described, for imparting reciprocal rotary motion to said pinion K', and for imparting reciprocal horizontal motion to said lever L.

3. The combination of the bearing H', the pivot I, and lever L, formed integrally therewith, the shaft B, the cam C, mounted rigidly on said shaft, and adapted by its rotation to impart reciprocal horizontal motion to the lever L, the spindle M', rotating freely in the bearing H', and means, substantially as shown and described, for rotating the shaft B, and for rotating the spindle M', all constructed and combined substantially as described, and for the purpose set forth.

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

DANIEL C. STOVER.

Witnesses:

R. H. WILES,
OSCAR TAYLOR.