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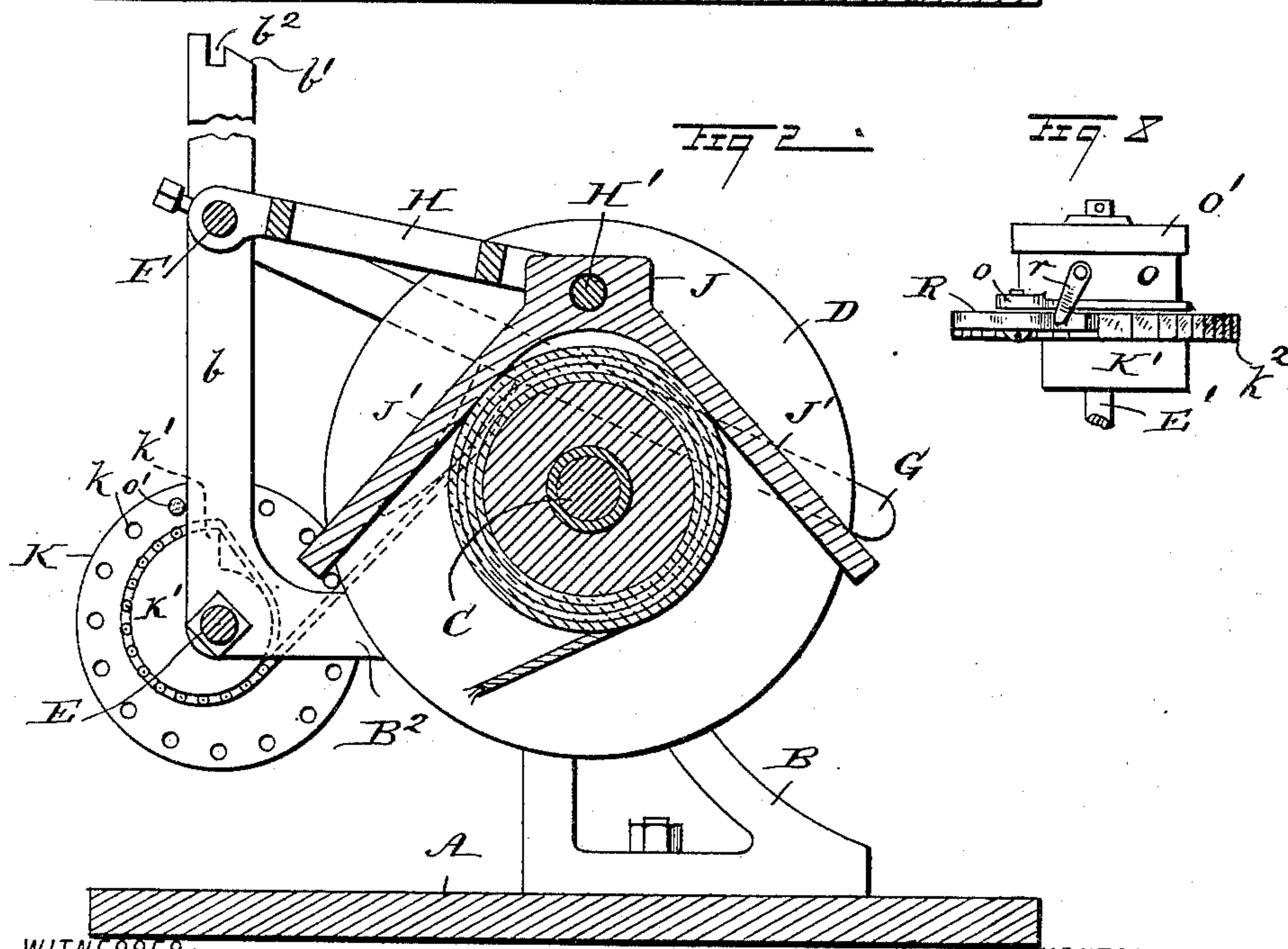
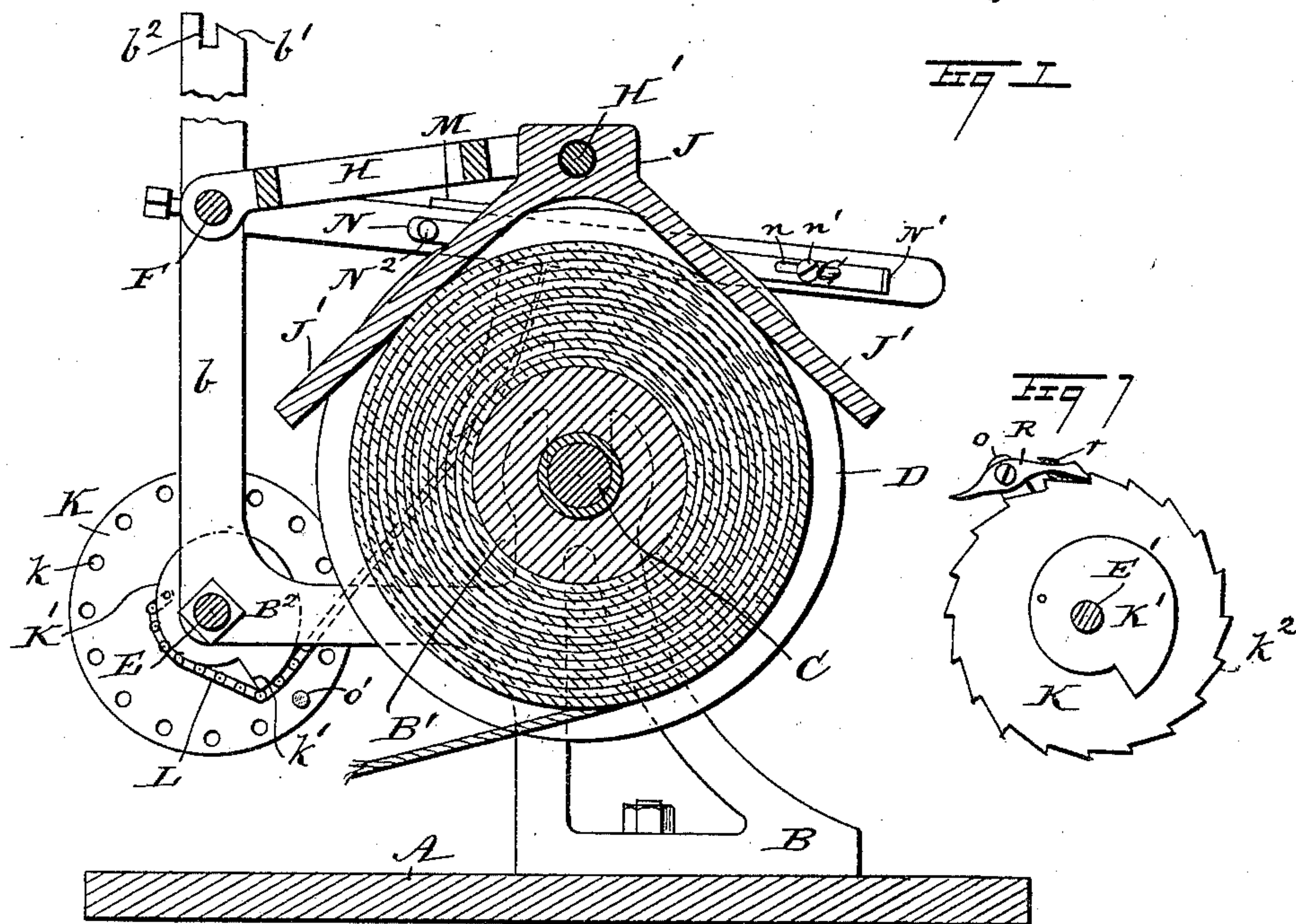
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E. E. BIEDERMAN.

TENSION REGULATOR FOR TWINE BOBBINS.

No. 453,073.

Patented May 26, 1891.



WITNESSES:

H Walker
C. Sedgwick

INVENTOR:

E. E. Biederman

BY

Munn & Co

ATTORNEYS

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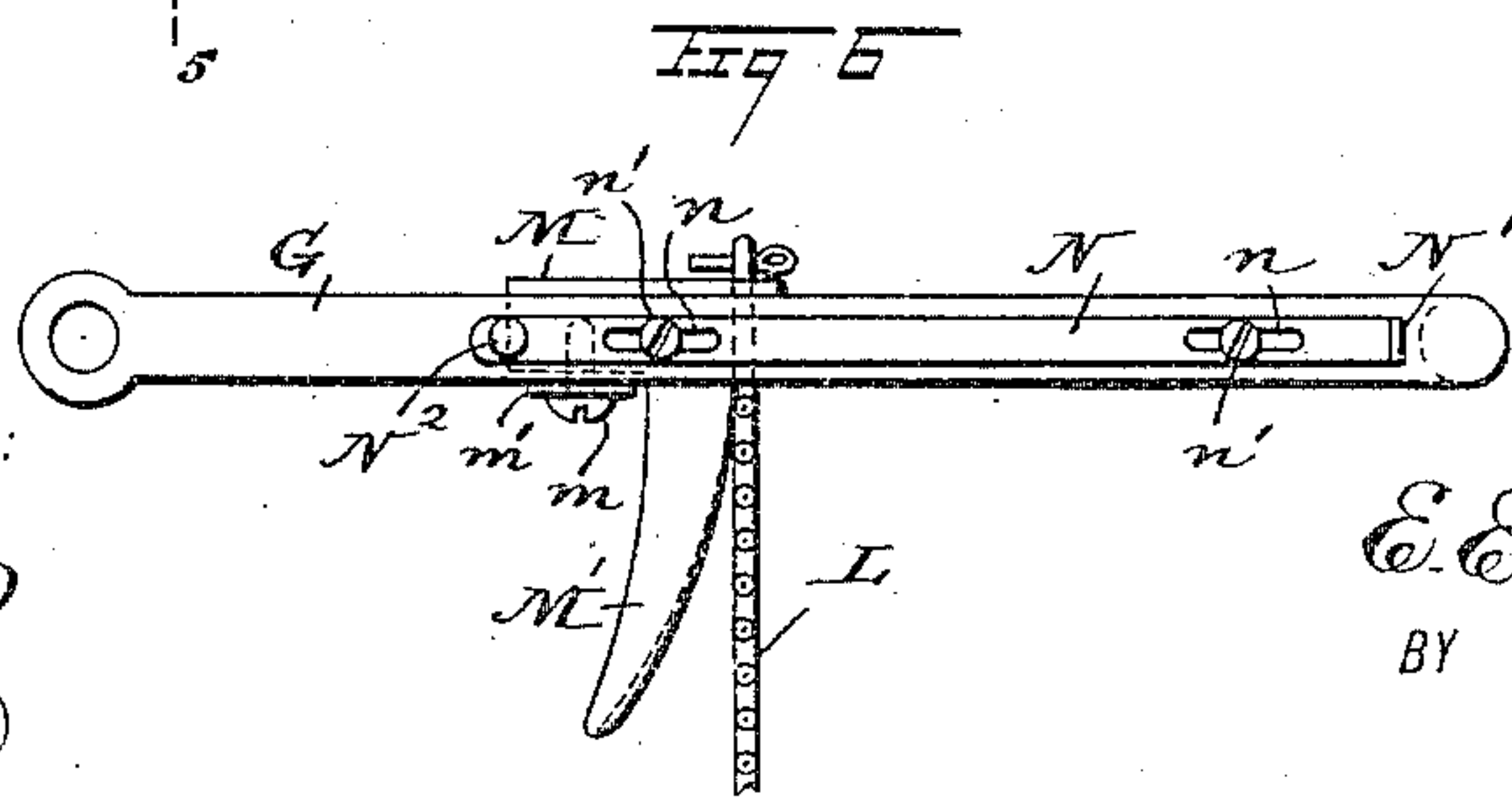
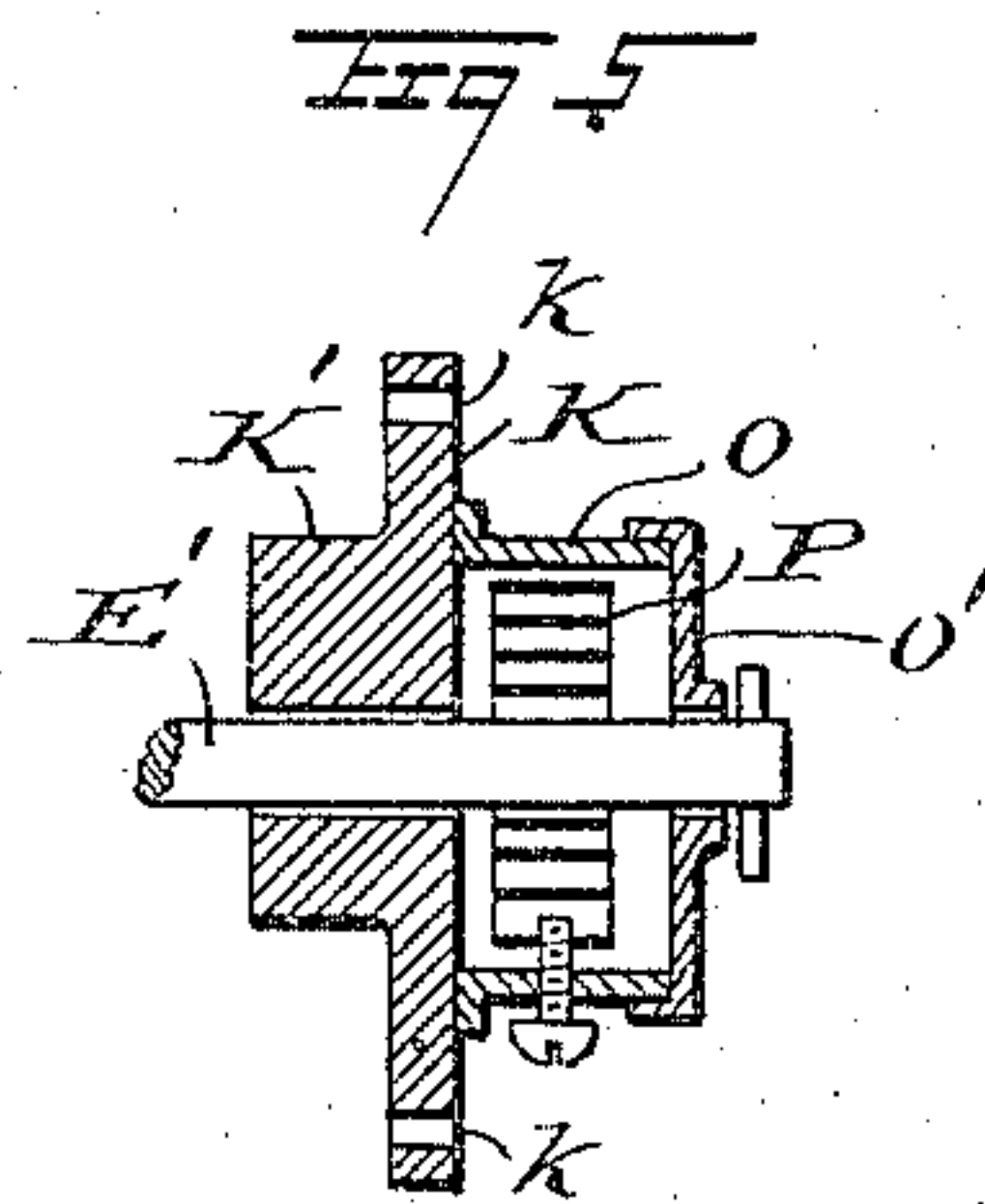
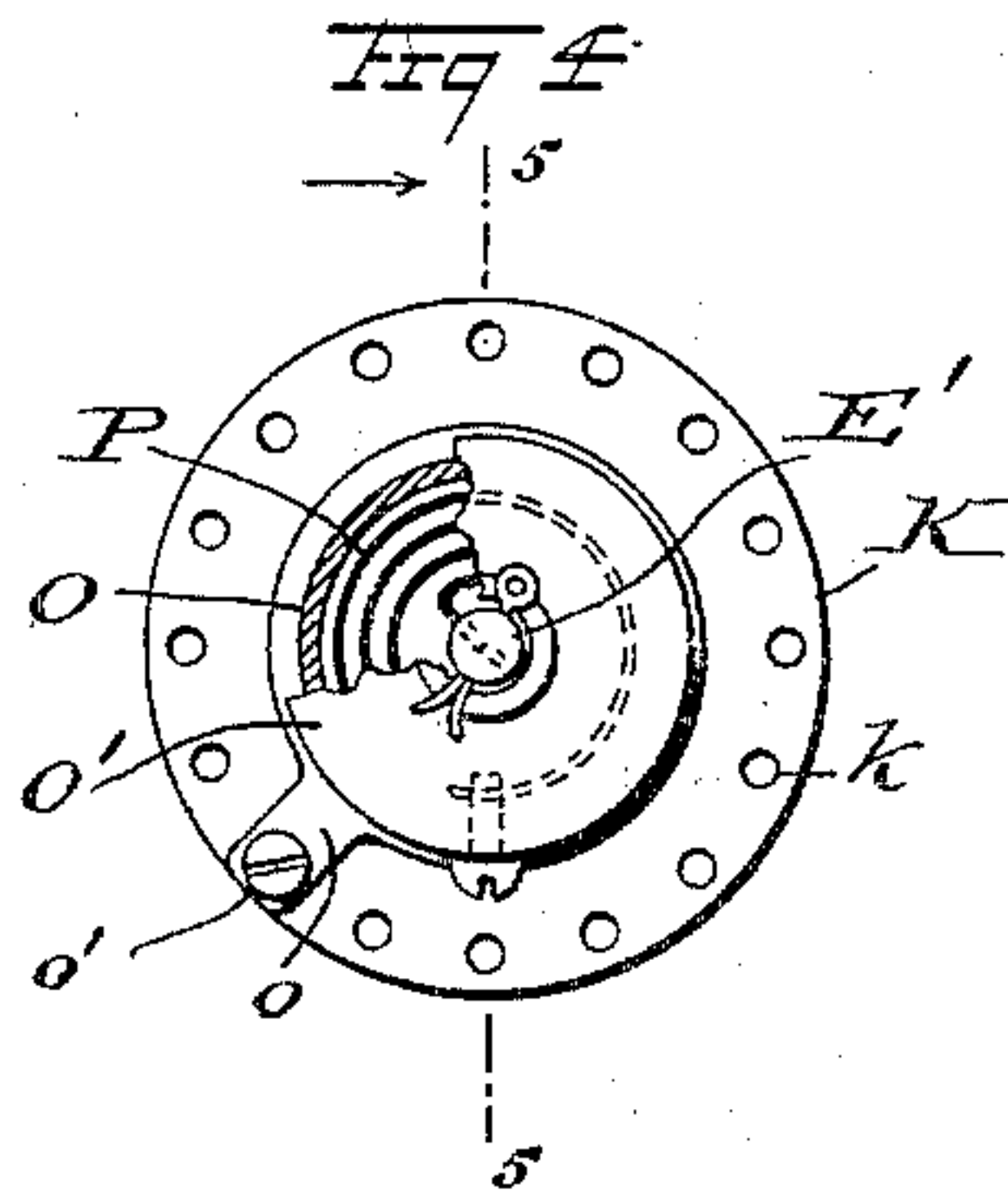
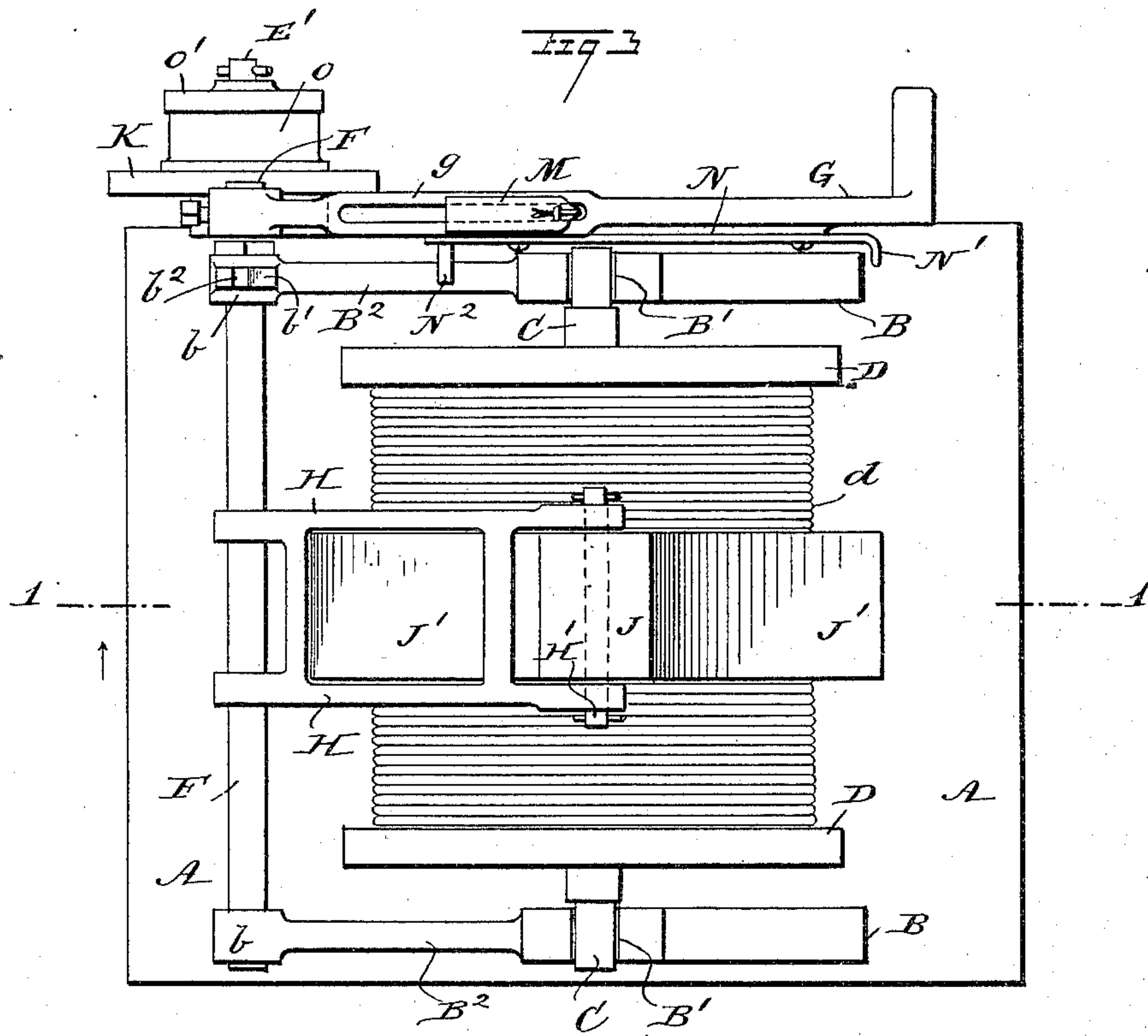
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UNITED STATES PATENT OFFICE.

EDWIN E. BIEDERMAN, OF BROOKLYN, NEW YORK.

TENSION-REGULATOR FOR TWINE-BOBBINS.

SPECIFICATION forming part of Letters Patent No. 453,073, dated May 26, 1891.

Application filed November 15, 1890. Serial No. 371,528. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. BIEDERMAN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Tension-Regulator for Twine-Bobbins, of which the following is a full, clear, and exact description.

The ordinary balls of binding-twine are wound from bobbins carrying a large quantity of twine, and in order that hard evenly-wound balls may be produced it is necessary to maintain a constant tension on the twine; and the object of my invention is to provide means for regulating the tension of the twine and also to regulate it in such a manner that the tension will be practically the same whether the ball is wound from a full bobbin or from one which has but little twine thereon.

To this end my invention consists in certain features of construction and combinations of parts which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical cross-section of the machine embodying my invention on the line 1 1 of Fig. 3, showing the bobbin nearly full of twine. Fig. 2 is the same section, but with the bobbin nearly exhausted. Fig. 3 is a plan of the machine. Fig. 4 is a broken side elevation of the spring-casing and the disk to which it is attached. Fig. 5 is a vertical cross-section on the line 5 5 of Fig. 4. Fig. 6 is a detail side elevation of the handle for adjusting the weighted angle-piece which rests upon the twine-bobbin; and Figs. 7 and 8 are detail views showing in side elevation and plan, respectively, a modified means of changing the tension of the spring-casing.

The machine comprises the flat base A, which is adapted to rest upon any suitable support, and mounted on the base near the ends are two similar brackets B, which are slotted at their upper ends, as shown at B', and which carry a shaft C, on which the bobbin D is mounted in the ordinary way. The twine *d*, which is wound upon the bobbin, extends from the rear of the machine, and the balls are wound in the ordinary way. The brackets B have rearwardly-extending

arms B², the rear portions *b* of which are made to extend vertically, and one of the arms is prolonged and provided at its upper end with an inclined top surface *b'* and a vertical slot *b*². A rod E extends through the elbows of the arms B², one end E' of the rod being prolonged and reduced to carry the spring case and eccentric, as hereinafter described, and a rod F extends through the upper ends of the vertical portions *b* of the arms, said upper rod being extended beyond one of the arms and having a handle G fixed to the end thereof, by means of which the rod may be turned. An open frame H is fixed centrally to the rod F and extends forward over the bobbin D, the free end of the frame terminating above the central portion of the bobbin, and pivoted on a cross-rod H' of the frame is an inverted-V-shaped weight J, the diverging arms J' of which rest upon the twine *d* on the bobbin D. A disk K is pivoted on the prolonged end E' of the rod E, said disk having transverse holes *k* extending through it near its outer edge and having on its inner side an eccentric hub K', one side of which has a projecting point *k'* thereon. A chain L is fixed to the eccentric hub K' at the point nearest the prolonged end E' of the rod E, the chain being adapted to be wound upon the hub, and the opposite end of the chain extends over a depending curved arm M' on the slide M, which is mounted in the slideway *g* of the handle G, the end of the chain being fixed to the upper portion of the slide. The curved arm serves as a guide for the chain and also serves to maintain an even pressure on the handle and on the bobbin. The slide M is secured at a desired point in the handle G by means of the screw *m*, which extends into the under side of the slide, and the washer *m'*, which is inserted between the screw-head and handle, and by adjusting the position of the slide the amount of pressure on the handle may be changed. A latch N is secured to the inner side of the handle G, the latch having at its outer end a bent portion N', by means of which it may be operated, and having at its inner end a projecting pin N², and the latch has also longitudinal slots *n* near each end, through which extend the screws *n'*, by means of which the latch is fastened to the handle, and the screws are left sufficiently

loose for the latch to slide on the handle, the movement being limited by the length of the slots n . It will thus be seen that when the handle G is raised it will tilt the rod F and raise the frame H and weight J from the bobbin, thus allowing the bobbin to be removed and a new one inserted in the machine in its place, and when the handle is brought into a vertical position the pin N^2 of the latch will slide up the inclined portion b' of the arm b which is next the handle, the pin finally dropping into the slot b^2 , thus holding the handle and the connected parts in place, and when the handle is to be swung down so that the weight J will again rest upon the bobbin the latch N is raised so as to release the pin N^2 from the slot.

On the outer side of the disk K is secured a casing O , which is covered on the outside by a suitable cap O' , and which has on its inner edge a laterally-projecting ear o , which may be secured by means of a screw o' in any one of the holes k of the disk K . A spring P is coiled within the casing around the prolonged end E' of the rod E , one end of the spring being secured to the rod and the opposite end to the casing, so that the pressure of the spring will have a tendency to turn the casing and the disk connected therewith, and by changing the position of the ear o the amount of pressure on the casing and disk may be regulated. It will be seen that the weight J will of itself exert a certain amount of pressure upon the bobbin D ; but this pressure is augmented by the pressure of the spring P . As the spring has a tendency to turn the disk K , and as the disk is connected by the chain L with the handle G , the pressure of the spring will be transmitted to the handle and so to the weight J . It will be observed by reference to Figs. 1 and 2 that when the bobbin is nearly full the chain L will extend from the projecting point k' of the eccentric hub K' , so that the handle G and weight J will receive less pressure from the spring than at any other point; but as the bobbin grows smaller and the weight descends it is necessary to increase the pressure in order to maintain an even tension, and it will be seen that the chain is brought gradually nearer the prolonged end E' of the rod E , so that a constant and even pressure is maintained on the bobbin.

In Figs. 7 and 8 I have shown a modification of the means for adjusting the spring-casing O in relation to the disk K . The disk instead of the holes has teeth k^2 around its edge, and a pawl R is pivoted to the ear o , which is made to project beyond the edge of the disk, the pawl being held in engagement with the teeth by a spring r , which is fastened to the casing and bears upon the pawl. The casing is held from sliding off the shaft by a pin, and it may be turned into the desired position, and the pawl will prevent it from turning back.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A tension-regulator for twine-bobbins, comprising supports for the bobbin, a rod pivoted in the rear of the supports and provided with a handle and with a projecting frame carrying a weight adapted to rest upon the bobbin, and a spring-pressed revoluble eccentric having a chain connecting it with the handle, substantially as described.

2. A tension-regulator for twine-bobbins, comprising supports for the bobbin, a rod pivoted in the rear of the bobbin and provided at one end with a handle, a frame fixed to the rod so as to extend over the bobbin, an angular weight pivoted in the end of the frame and adapted to rest upon the bobbin, and a spring-pressed eccentric pivoted below the rod and provided with a chain connecting it with the handle, substantially as described.

3. A tension-regulator for twine-bobbins, comprising supports for the bobbin, a rod pivoted in the rear of the bobbin-supports and provided at one end with a handle, a frame fixed to the rod so as to extend over the bobbin, an angular weight pivoted in the free end of the frame and adapted to rest on the bobbin, a spring-pressed eccentric pivoted beneath the rod, and a chain having one end fixed to the eccentric and the other end adjustably secured to the handle, substantially as described.

4. The combination, with the pivoted rod F , a laterally-extending weight thereon, as described, and the handle secured to the rod, of a slide mounted in the handle and provided with a depending arm, a spring-pressed eccentric pivoted beneath the handle, and a chain secured at one end to the eccentric and passing over the depending arm and secured at its other end to the slide, substantially as described.

5. The combination, with the bent arms, one of which is slotted, and the rod pivoted in said arms and carrying a laterally-extending weight, as described, of a handle fixed to the rod, and a latch slidably secured to the handle and provided at its inner end with a projecting pin to engage the slot in the arm, substantially as described.

6. The combination, with the pivoted rod carrying a weight, as shown, and a handle secured to the rod, of a disk pivoted beneath the handle and provided on one side with an eccentric hub, a chain connecting the hub and the handle, and a spring-case secured to disk and adapted to turn the same, substantially as described.

7. The combination, with the pivoted disk having an eccentric hub adapted to connect with the machine-handle, as described, said disk having teeth upon its edge, as shown, of a spring-case pivoted at one side of the disk, said case having a projecting pawl adapted to engage the teeth of the disk, substantially as described.

8. A tension-regulator for twine-bobbins,

comprising supports for the bobbin, a rod pivoted in the rear of the supports and provided at one end with a handle, a frame fixed to the rod so as to extend over the bobbin, an
5 inverted-V-shaped weight pivoted in the frame and adapted to rest upon the bobbin, a disk pivoted beneath the handle and provided on its inner side with an eccentric hub, a chain having one end attached to the hub and the opposite end adjustably secured to the handle, and a spring-pressed casing adjustably secured to the outer side of the disk, substantially as described. 10

EDWIN E. BIEDERMAN.

Witnesses:

WARREN B. HUTCHINSON,
C. SEDGWICK.