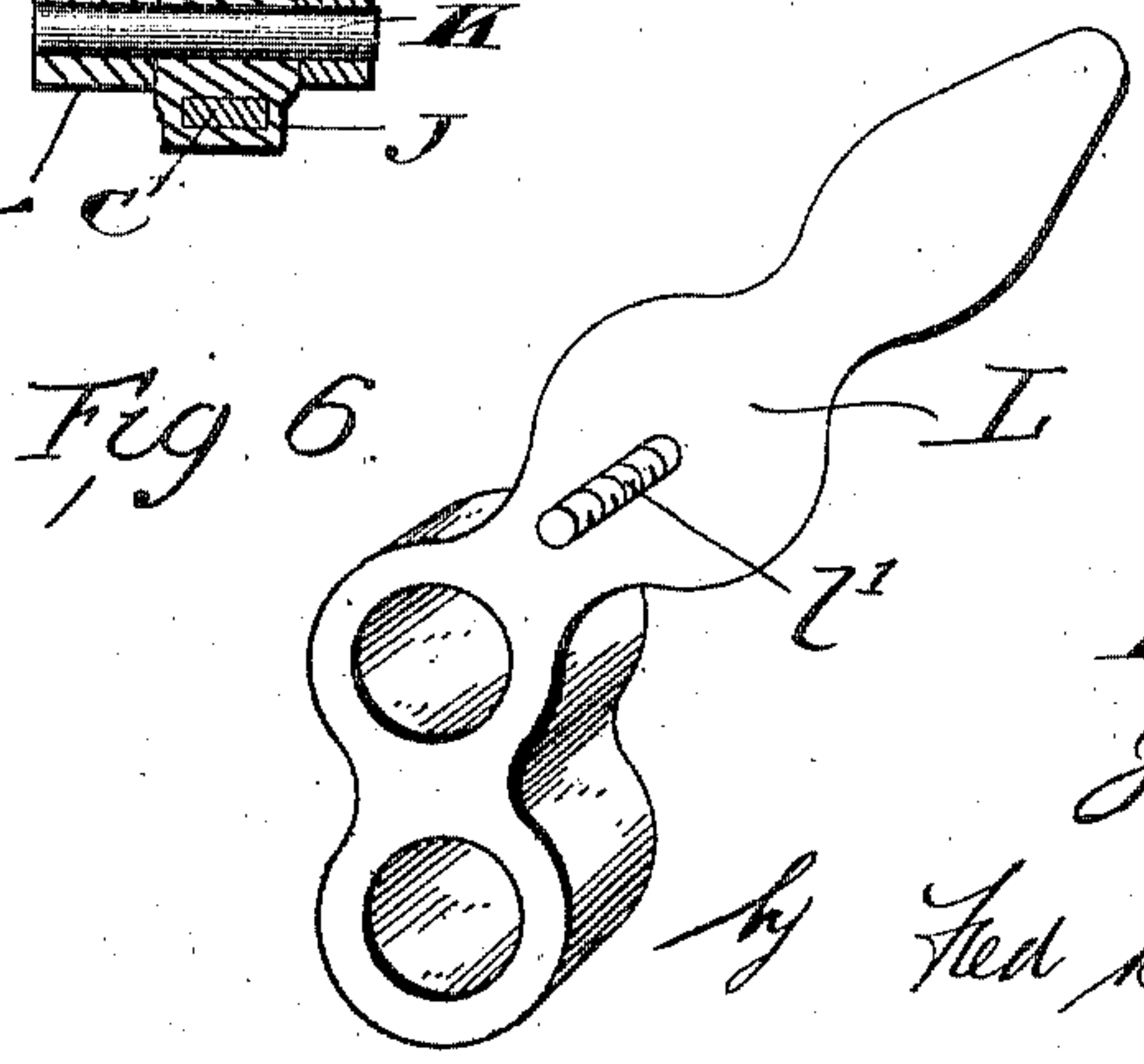
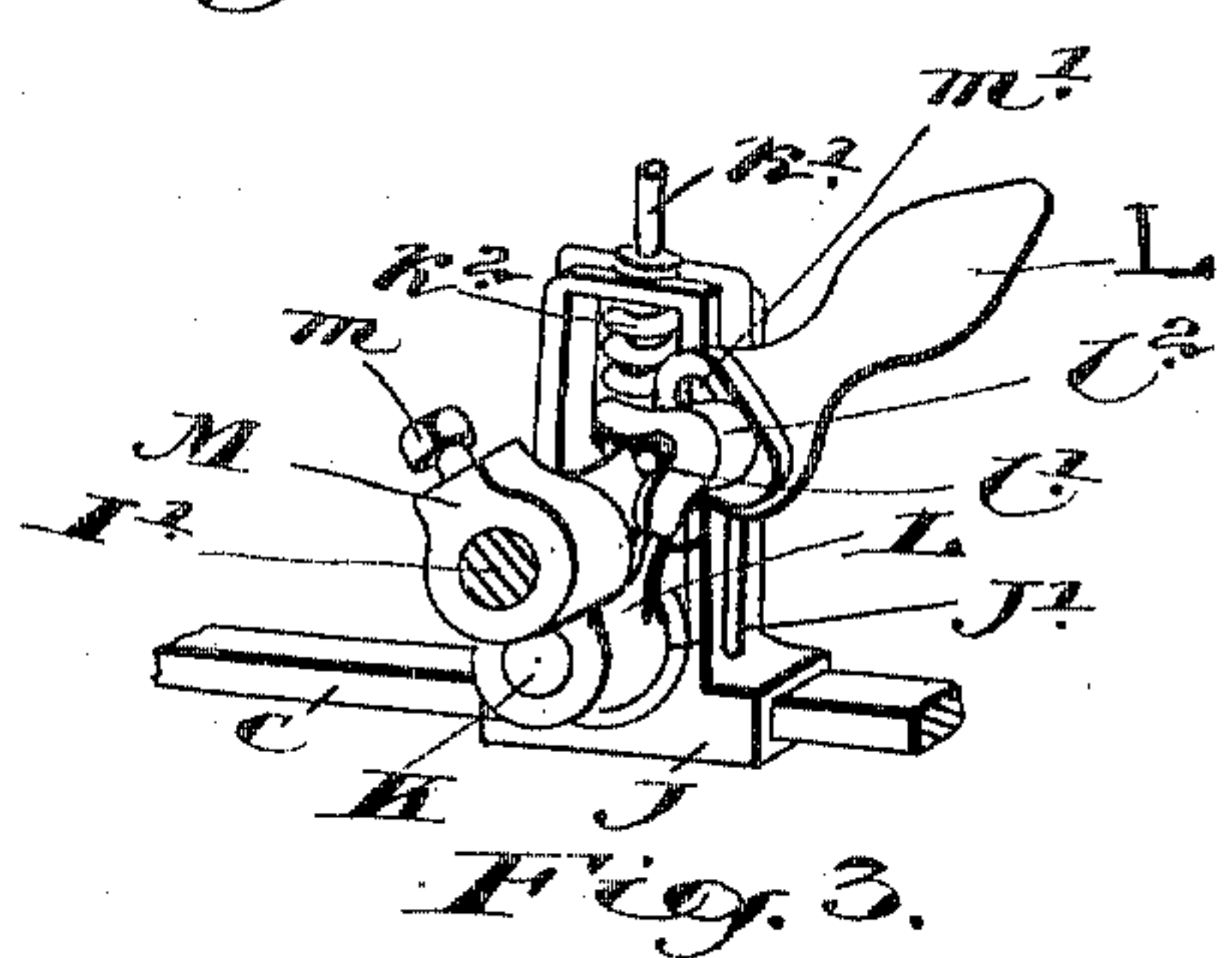
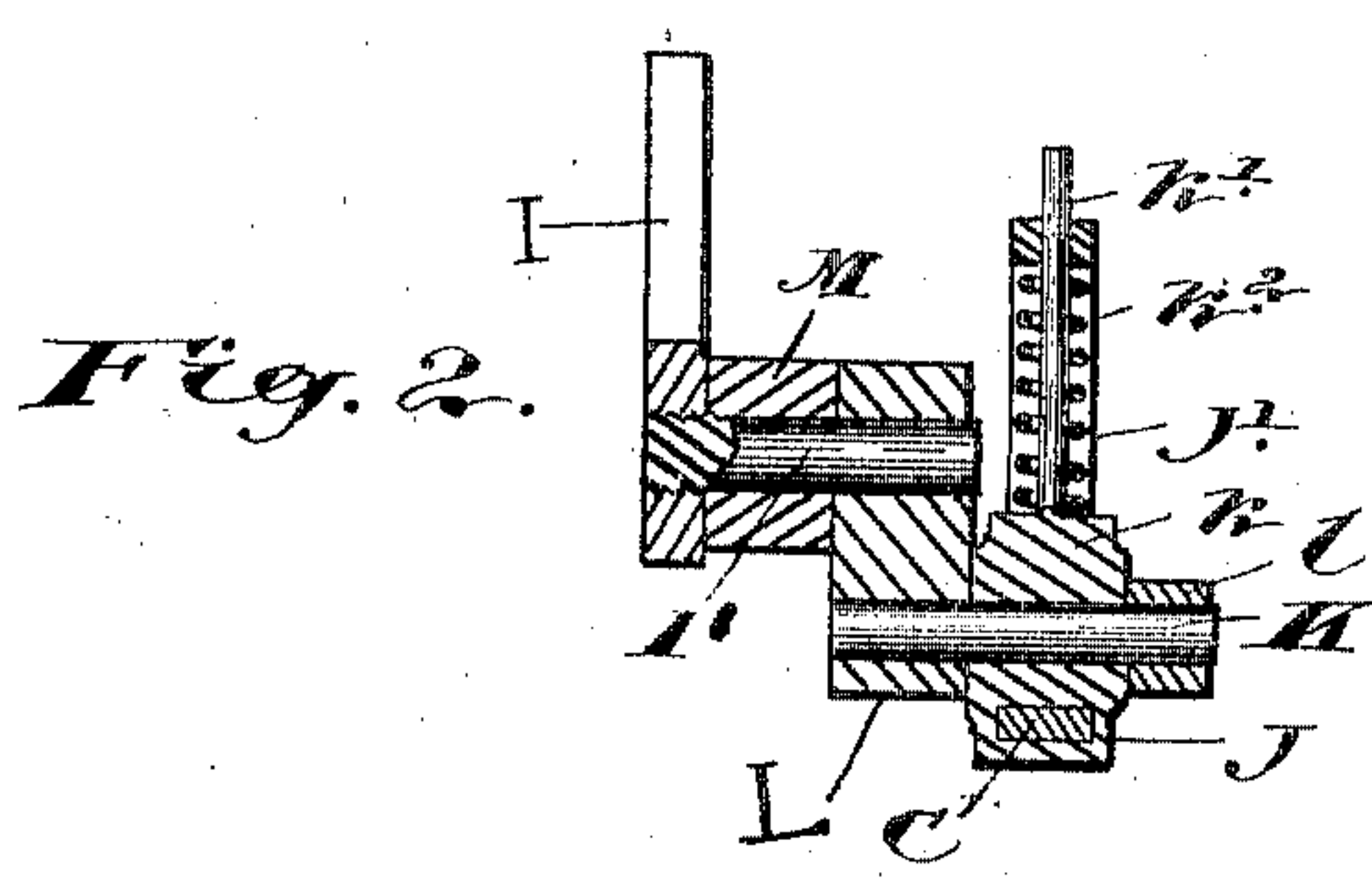
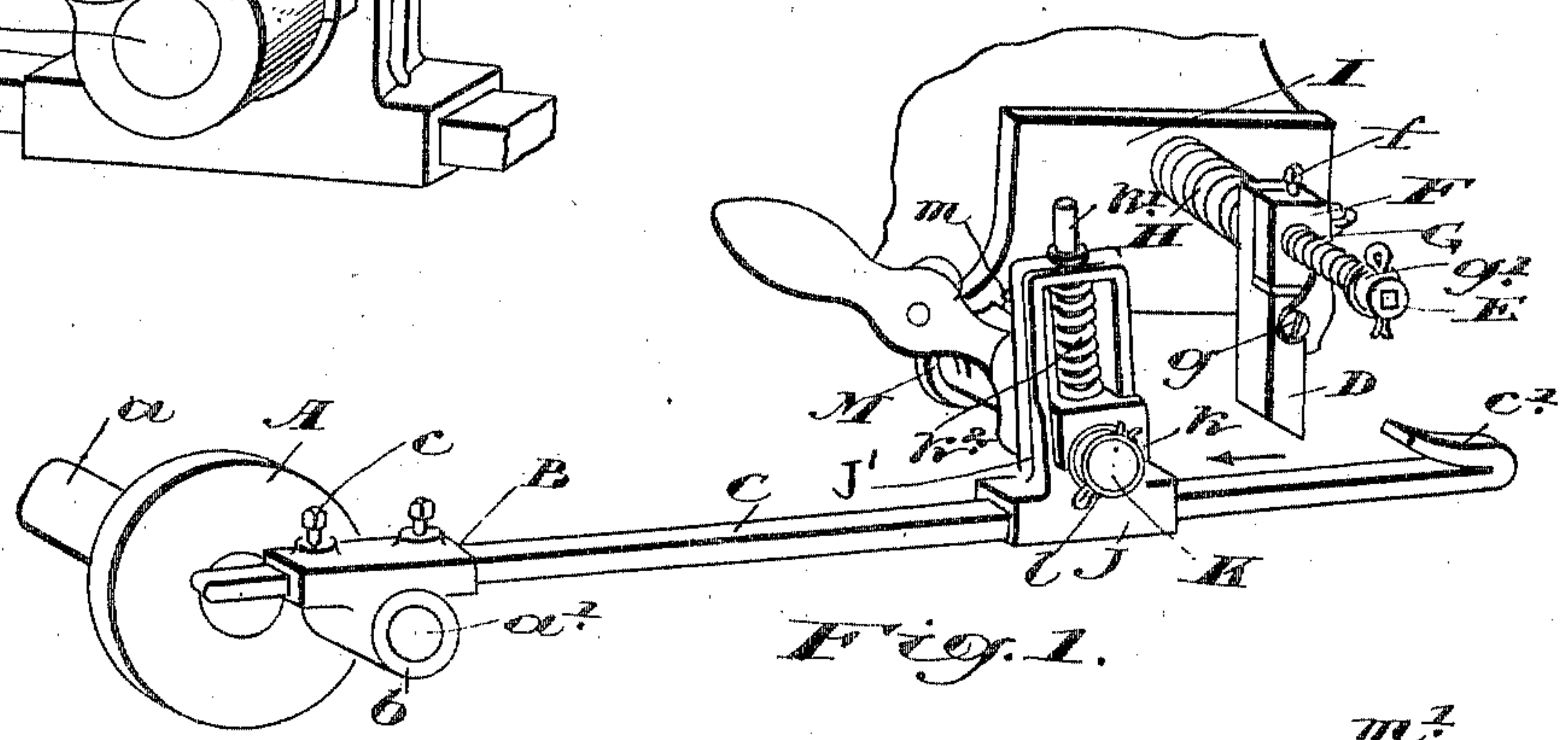
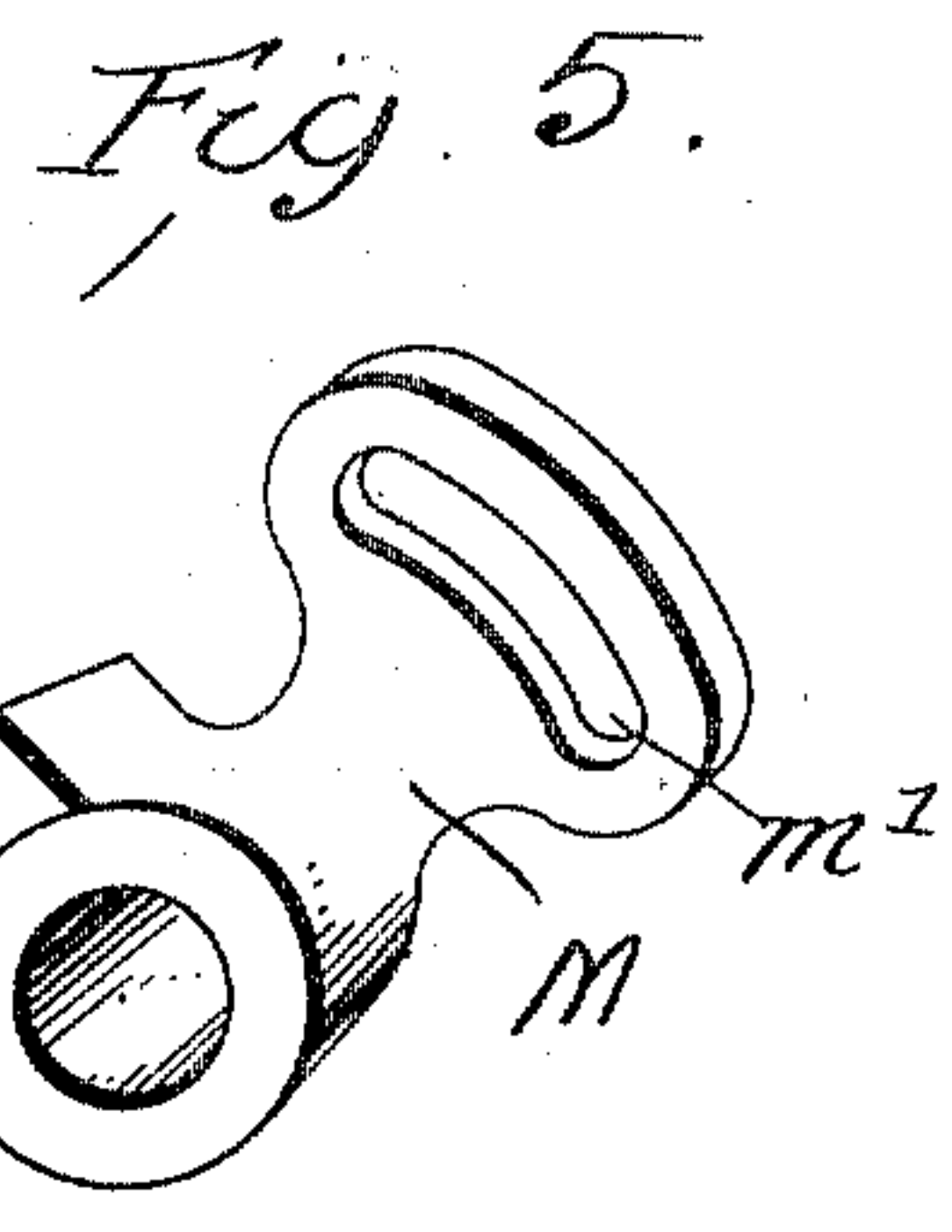
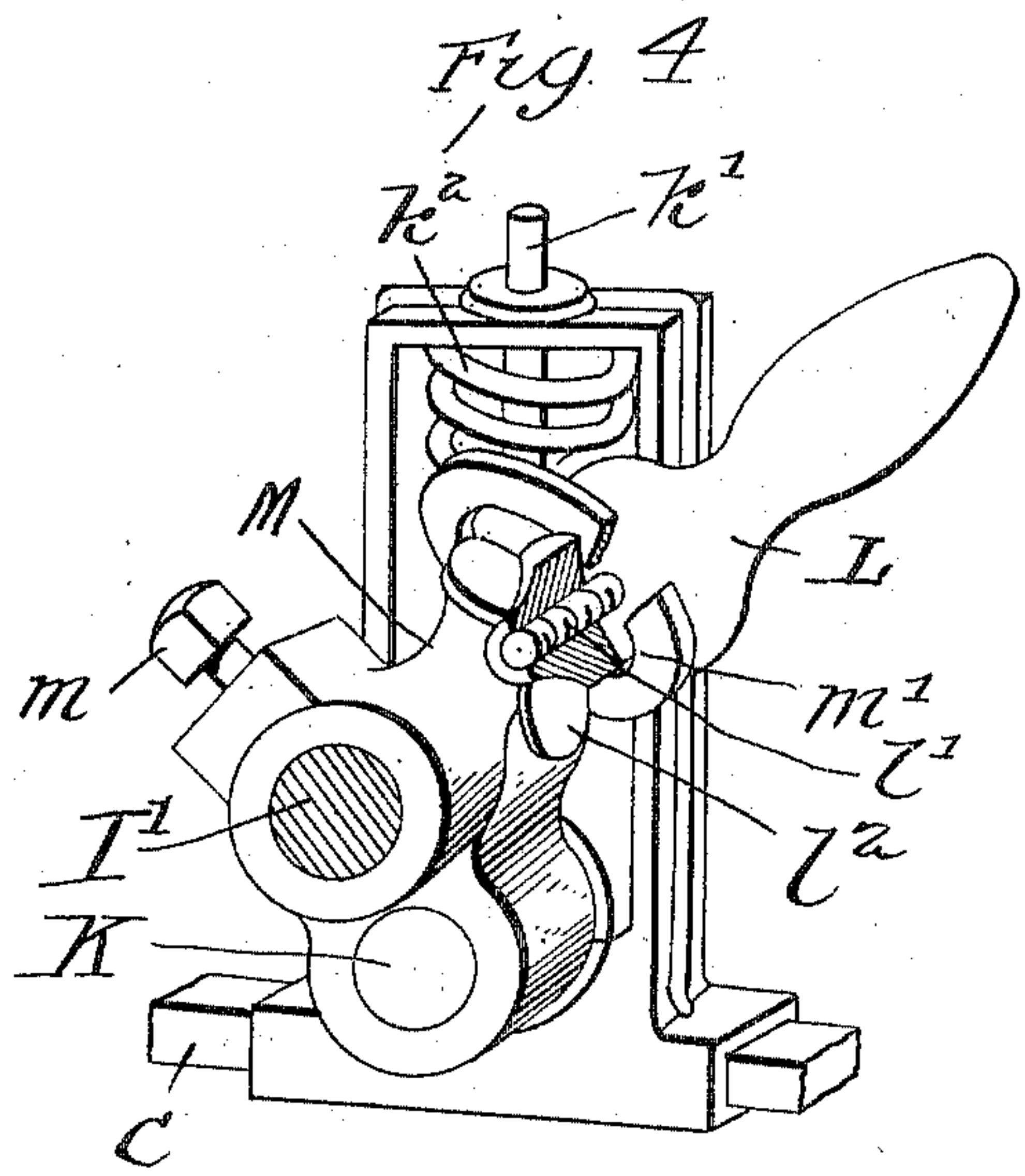


No. 816,990.

PATENTED APR. 3, 1906.

J. C. McLACHLAN.
SPARKING IGNITER FOR GASOLENE ENGINES.
APPLICATION FILED OCT. 31, 1904.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN CAMPBELL McLACHLAN, OF TORONTO, CANADA.

SPARKING IGNITER FOR GASOLENE-ENGINES.

No. 816,990.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed October 31, 1904. Serial No. 230,871.

To all whom it may concern:

Be it known that I, JOHN CAMPBELL McLACHLAN, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Sparking Igniters for Gasolene-Engines, of which the following is a specification.

My invention relates to improvements in electric igniters for gasolene-engines; and the object of the invention is to produce an igniter which may be readily adjusted so as to explode at any point of the stroke and at the same time make provision to take up the wear and to prevent the breaking of the mechanism of the movable electrode in case of a back stroke or explosion; and it consists, essentially, of a sleeve journaled on the pin of the crank-wheel and through which the sparker-operating bar extends, a supplemental sleeve through which the sparker-operating bar extends resiliently supported on a pin connected to the plate through which the movable electrode extends, and a lever journaled on said pin and pivotally connected to the sleeve and adjustably held to a slotted arm by a pin extending from the lever through the slot and provided with a thumb-nut, the parts being arranged and constructed in detail as hereinafter more particularly explained.

Figure 1 is a perspective view showing the parts involved in my invention. Fig. 2 is a section through the supplemental sleeve-pin and adjusting-lever. Fig. 3 is a view of the supplemental sleeve, showing the adjusting-lever and means from the inside. Fig. 4 is a view similar to Fig. 3 with parts broken away and parts in section. Figs. 5 and 6 are detail perspective views.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the crank-wheel, which is secured on a spindle *a*, which derives movement from the engine in any suitable manner.

a' is a crank-pin.

B is a sleeve, being preferably rectangular in form and journaled on the crank-pin *a'* by means of the hollow boss *b*, formed underneath the sleeve.

C is a sparker-operating bar, which is adjustably held in the sleeve B by means of the set-screws *c*. It will thus be seen that the bar C may be adjusted longitudinally, so as to take up the wear on the operating hooked end

c' and on the arm D. The arm D is located loosely on the end of the stem E of the movable electrode, and F is a stop-block, which is securely fastened on the movable electrode by a set-screw *f*.

G is the spiral spring, fastened at one end to a screw *g* on the movable arm D and at the opposite end to the collar *g'*, secured on the end of the stem E.

H is a spiral spring encircling the stem and secured at one end to the plate I and at the opposite end to the stop-block F.

It will thus be seen that the arm D is free to move in the direction indicated by arrow, but will not move in the opposite direction; but as this is the ordinary construction of a movable turning electrode I need not further describe the construction thereof.

J is a sleeve through which the sparker-bar C extends. The sleeve J is provided with an upwardly-extending guide-bracket *J'*, and the upper side of the sleeve within the guide-bracket forms one half of the bearing for the pin K, the upper half of the bearing being formed by the bearing-block *k*, suitably formed and held in a guide-bracket *J'*. The block *k* has an upwardly-extending stem *k'*, which projects through a hole in the upper end of the bracket and is encircled by a spiral spring *k²* between the upper end of the bracket and the block *k*.

L is a lever pivoted on the inner end of the pin K, and *l* is a collar secured on the outer end of the pin K.

M is an arm secured on a pin *I'*, projecting out from the plate I, by the set-screw *m*. The outer end of the arm is enlarged and provided with a slot *m'*.

l' is a pin which extends inwardly from the lever L through the slot *m'* and is provided with a thumb-nut *l²*, whereby the lever may be clamped into any position to which it may be adjusted, limited, of course, by the length of the slot *m'*.

The movement of the sparker-bar C is in the direction indicated by arrow to operate on the arm D, and consequently produce the required movement of the electrode. It is of course necessary to vary the height of the end *c'* so as to time the spark accurately to any desired point of the stroke, and this is effected by means of the lever L, hereinbefore described, which it will be seen may be swung so as to move the sleeve longitudinally on the bar C, and consequently raise or lower the free

end of the same, and thereby cause the end to contact with more or less of the end of the arm D.

The lever L may be, as hereinbefore described, held in any position to which it may be adjusted by means of the thumb-nut l^2 , which will hold the lever stationary.

Should the engine take a back stroke, the tendency of the end c' , if it is located at starting at the inner end of the arm D, would be to break the arm D or its connection to the stem of the electrode, and this is avoided by the two halves of the bearing of the pin K being resiliently held together by the spring k^2 , which allows the upper block k to move away from the sleeve J, and consequently the bar to fall and the end c' to pass underneath the arm D, and thereby avoid any danger of breakage.

What I claim as my invention is—

1. In an electric igniter, the combination with the movable electrode having the actuating-arm adapted to have free movement in one way, of the sparker-bar provided with a contacting end adapted to engage with the arm, the crank-wheel suitably driven and connected to the sparker-bar, a supplemental sleeve through which the sparker-bar extends provided with a guiding-bracket, a bearing-block located in the guiding-bracket and provided with an upwardly-extending stem projecting through the top of the same, a spring between the bearing-block and the upper end of the bracket, a pin extending between the bearing-block and the sleeve and means for supporting the pin as and for the purpose specified.

2. In an electric igniter, the combination with the movable electrode having the actuating-arm adapted to have free movement in one way, of the sparker-bar provided with a contacting end adapted to engage with the arm, the crank-wheel suitably driven and connected to the sparker-bar, a supplemental sleeve through which the sparker-bar extends provided with a guiding-bracket, a bearing-block located in the guiding-bracket and provided with an upwardly-extending stem projecting through the top of the same, a spring between the bearing-block and the upper end of the bracket, a pin extending between the bearing-block and the sleeve, a pin projecting outwardly from the cylinder end, a slotted arm secured on the pin, a lever connected to the stud or pin extending between

the bearing-block and sleeve and pivoted on the aforesaid pin which projects from the cylinder and a pin on the lever extending through the slot in the arm and a thumb-nut secured on the end of the last-mentioned pin as and for the purpose specified.

3. The combination with the sparker-bar and means for imparting a longitudinal movement to the same and the electrode having an arm adapted to have free movement in one way, of the supplemental sleeve through which the sparker-bar extends having an upwardly-extending guiding-bracket, a bearing-block located within the guiding-bracket, a pin extending between the bearing-block and the bearing on the sleeve and means for adjusting such pin as and for the purpose specified.

4. The combination with the sparker-bar and means for imparting a longitudinal movement to the same and the electrode having an arm adapted to have free movement in one way, of the supplemental sleeve through which the sparker-bar extends having an upwardly-extending guiding-bracket, a bearing-block located within the guiding-bracket, a pin extending between the bearing-block and the bearing on the sleeve, a lever for supporting the pin, a pin suitably supported on which the lever is fulcrumed and means for holding the lever in any position to which it may be swung as and for the purpose specified.

5. The combination with the sparker-bar and means for imparting a longitudinal movement to the same and the electrode having an arm adapted to have free movement in one way, of the supplemental sleeve through which the sparker-bar extends having an upwardly-extending guiding-bracket, a bearing-block located within the guiding-bracket, a pin extending between the bearing-block and the bearing on the sleeve, a lever for supporting the pin, a pin suitably supported on which the lever is fulcrumed and an arm secured on the main supporting-pin and provided with a slotted end and a pin extending from the lever through the slotted end and a thumb-nut on the pin as and for the purpose specified.

JOHN CAMPBELL McLACHLAN.

Witnesses:

B. BOYD,

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