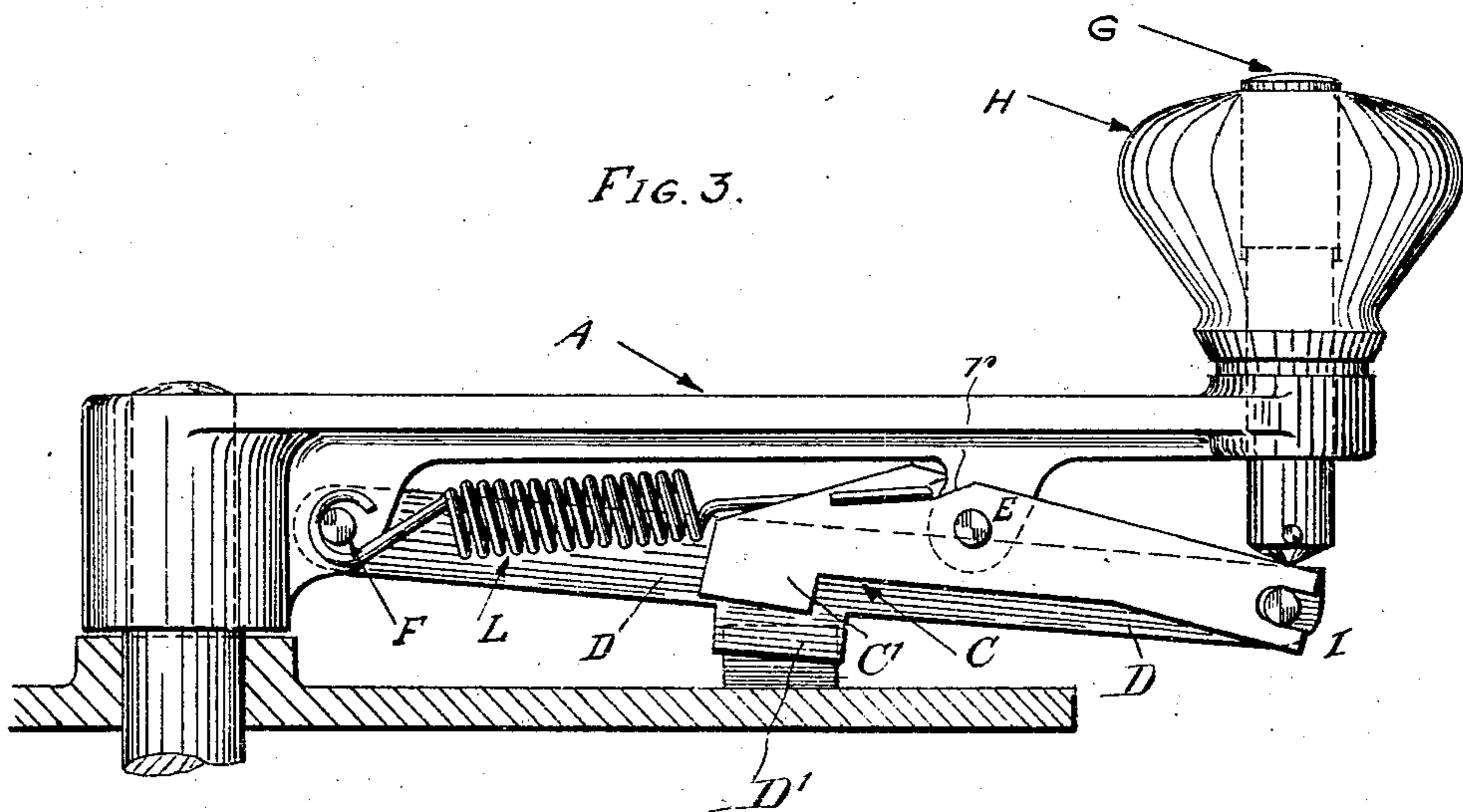
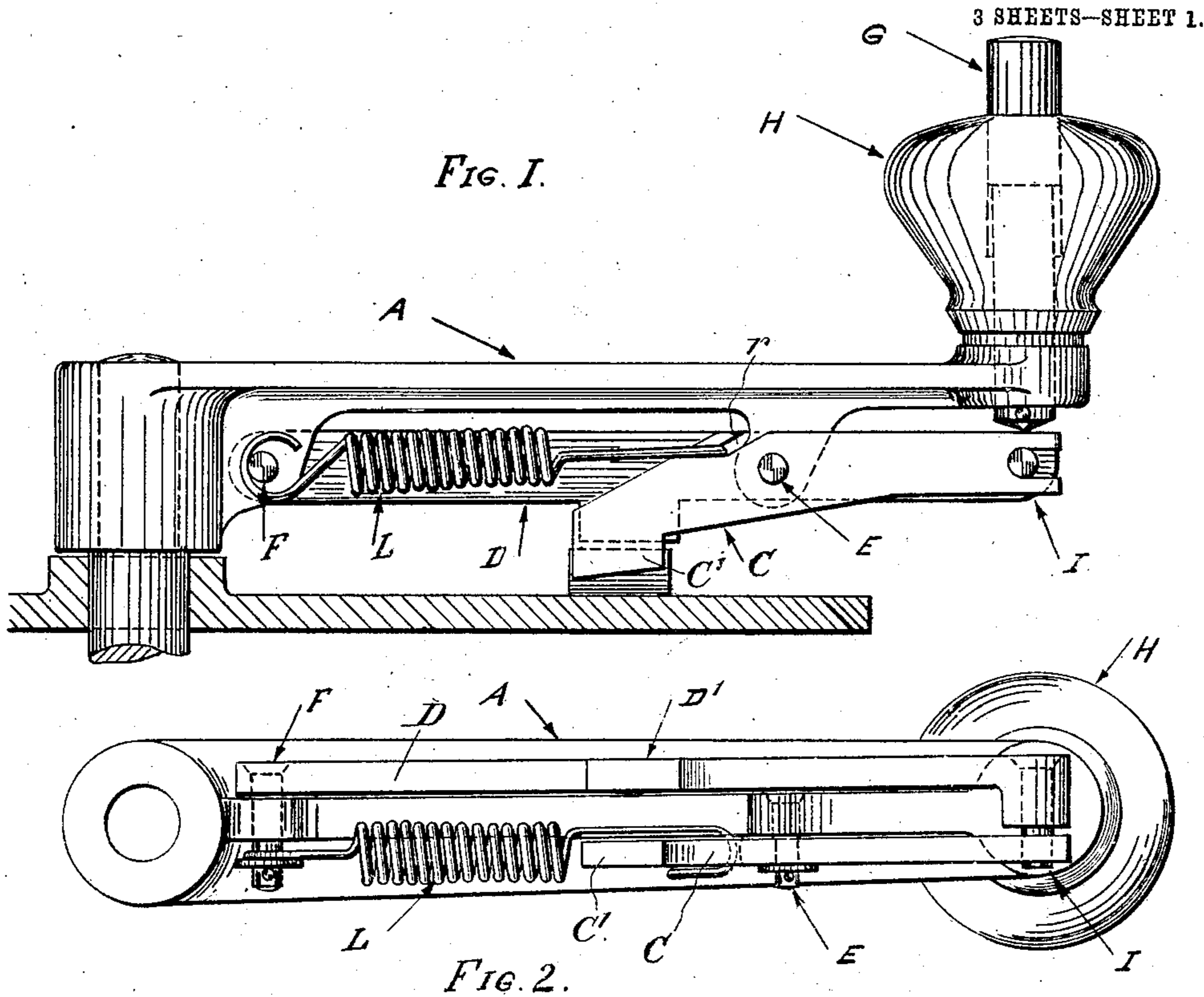


No. 845,679.

PATENTED FEB. 26, 1907.

E. BECK.
OPERATING HANDLE.
APPLICATION FILED MAR. 21, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

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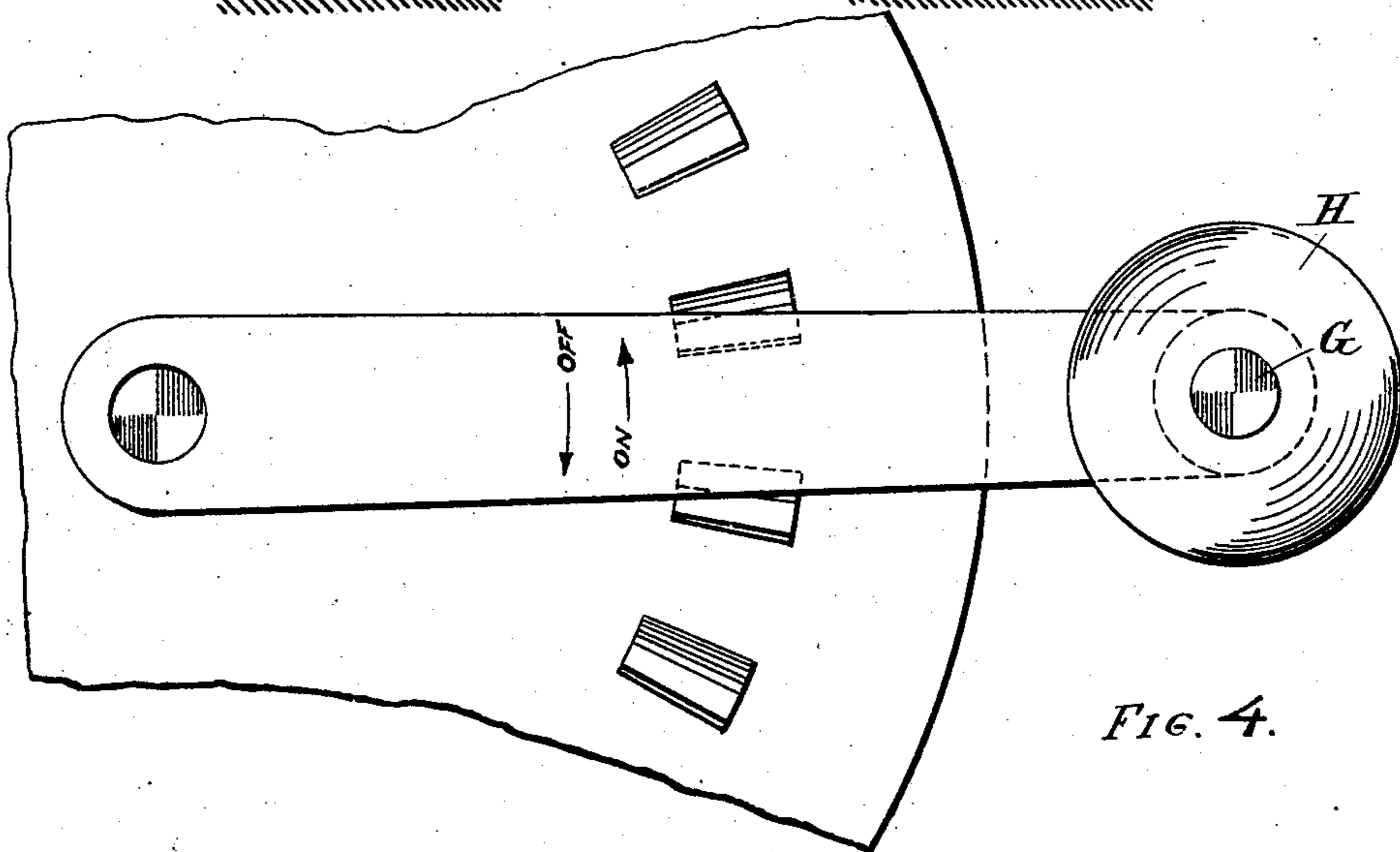
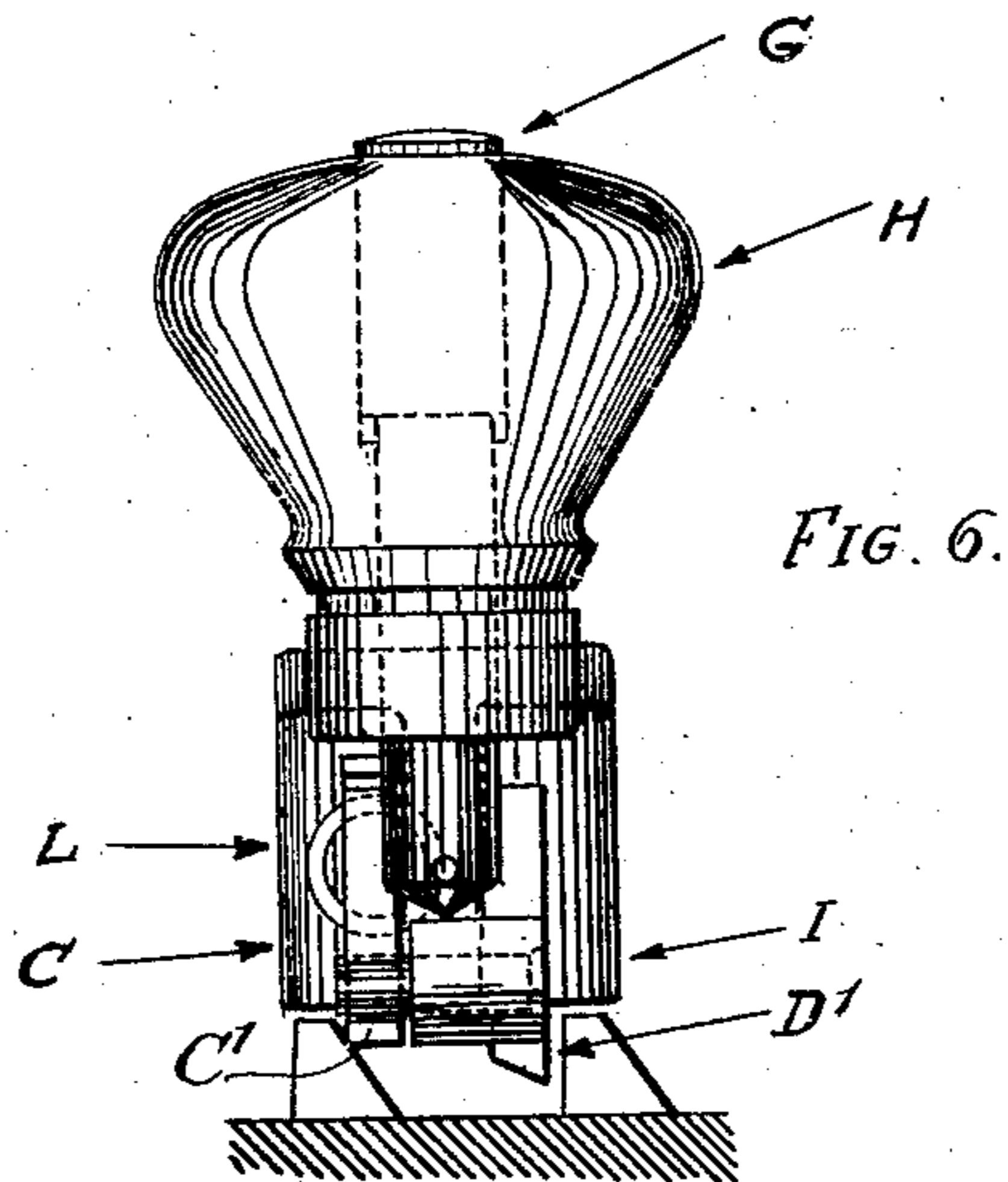
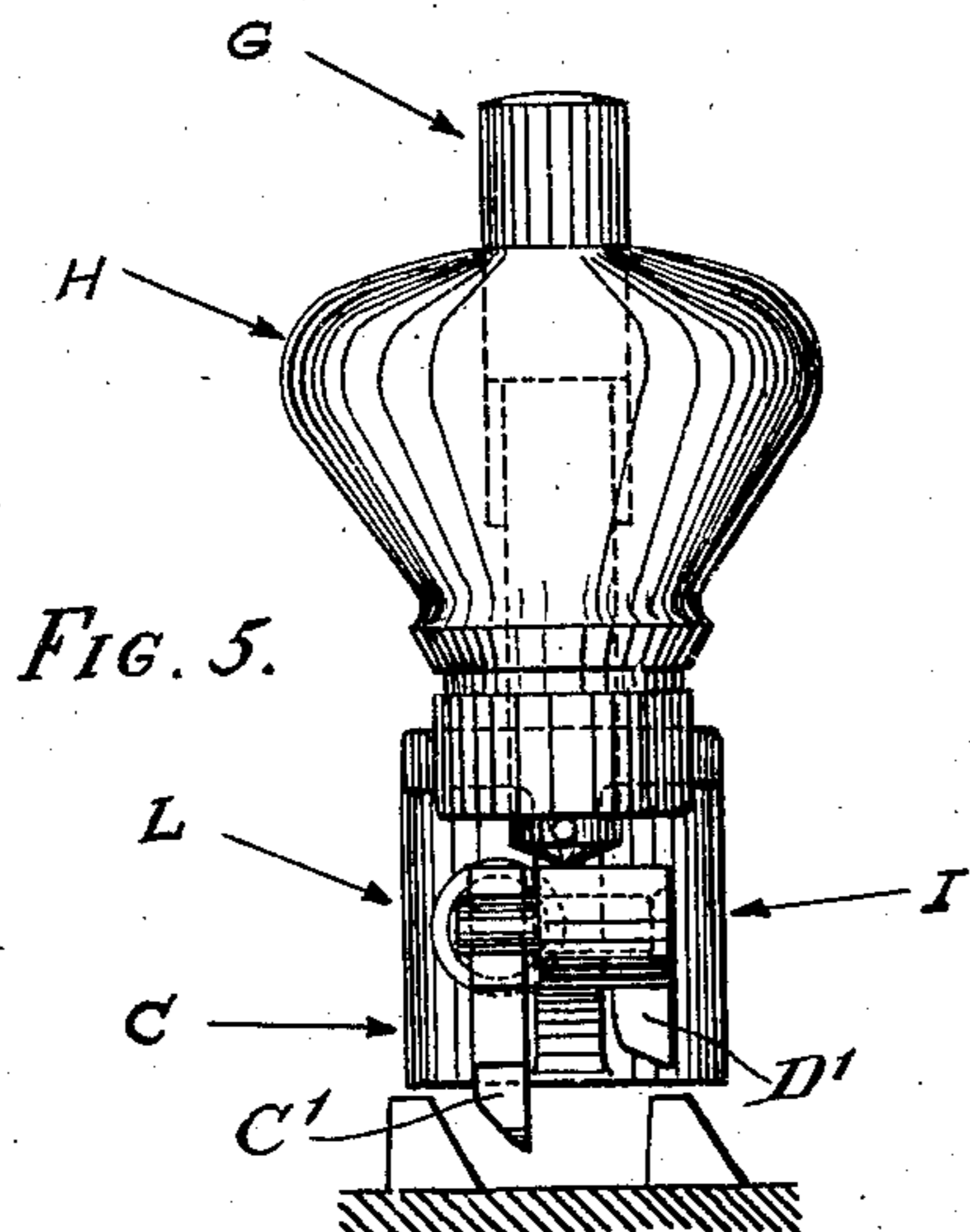
Erich Beck.

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3 SHEETS—SHEET 2.



WITNESSES:

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3 SHEETS—SHEET 3.

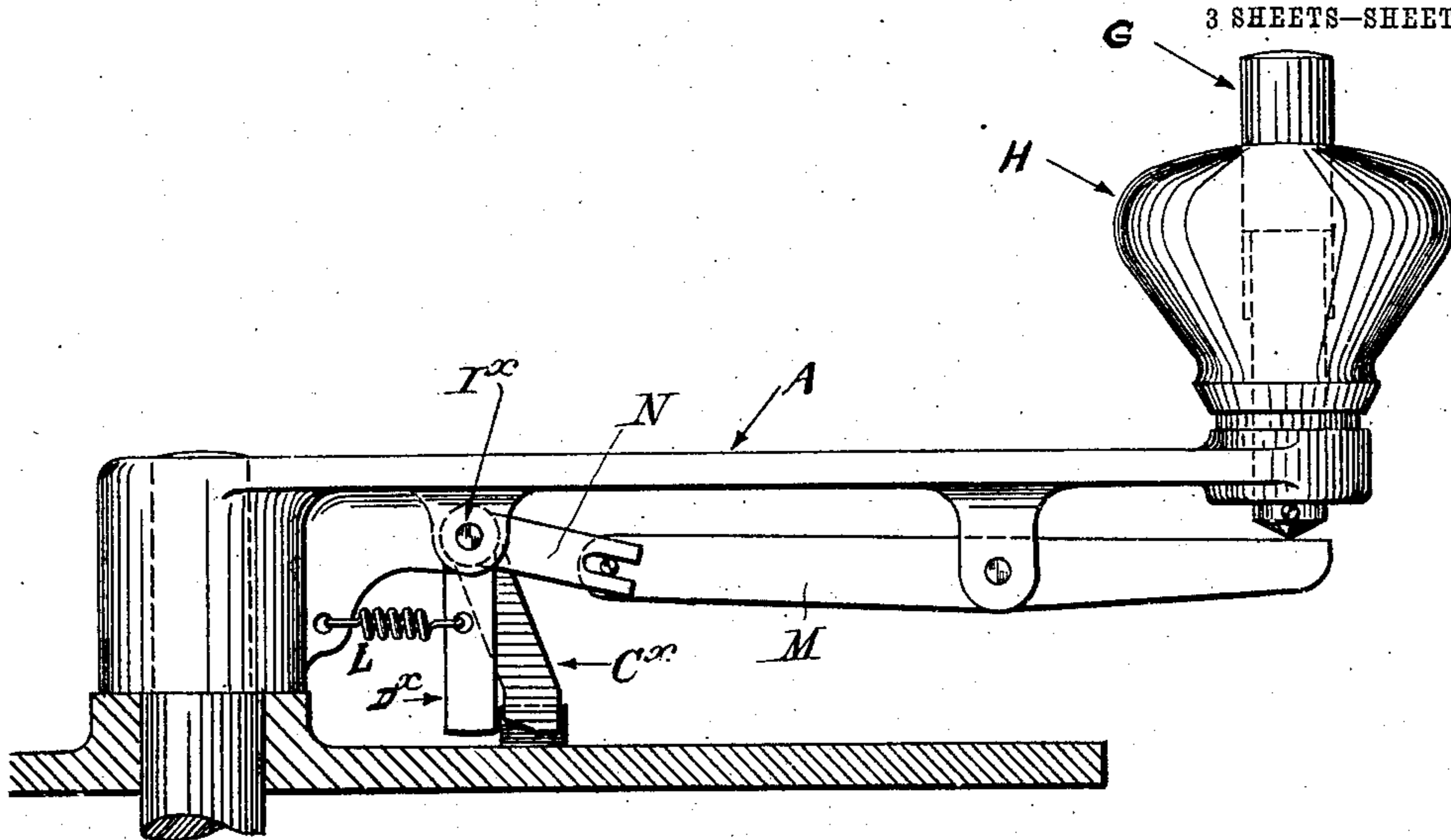


FIG. 7.

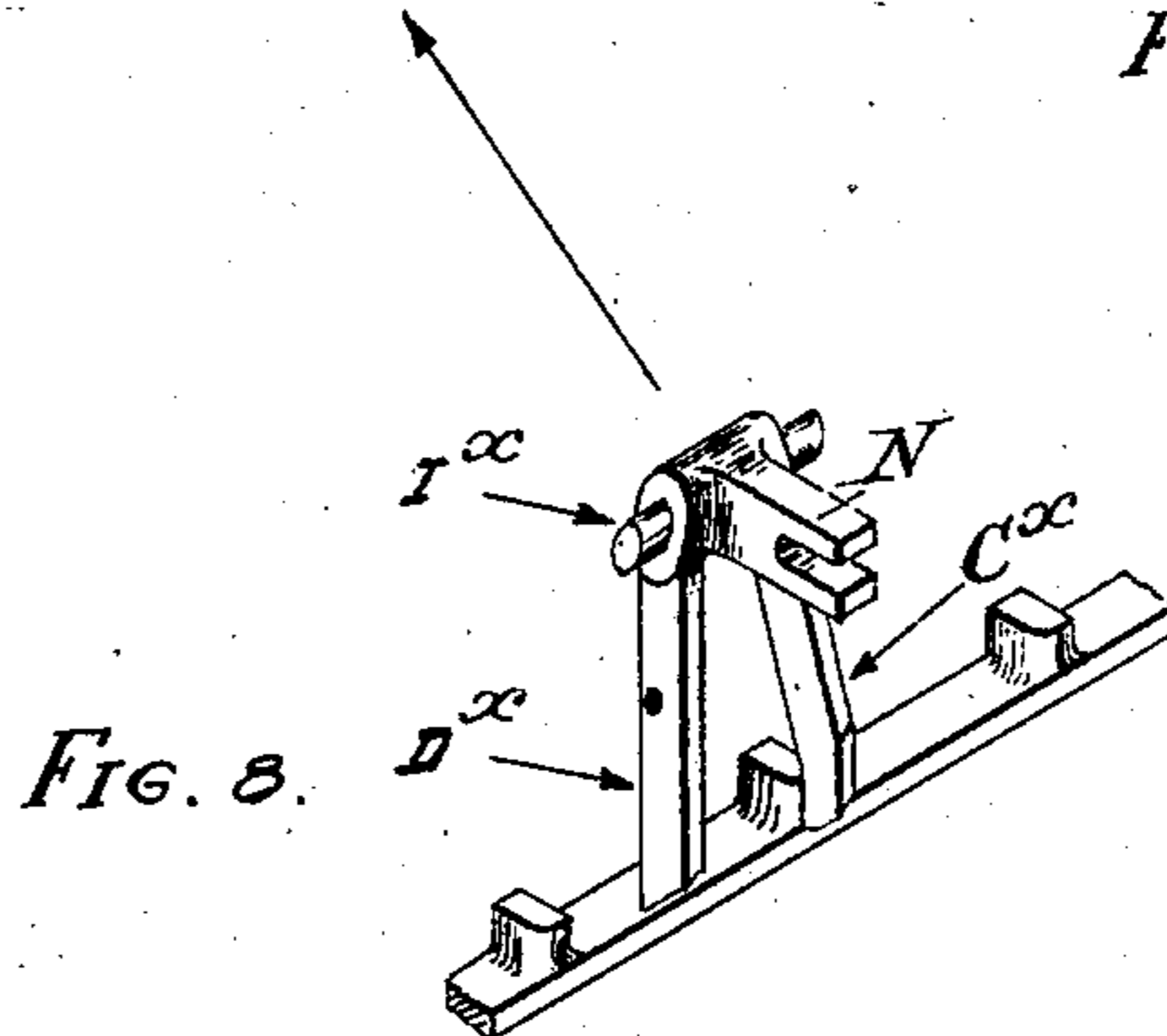


FIG. 8.

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UNITED STATES PATENT OFFICE.

ERICH BECK, OF SCHENECTADY, NEW YORK.

OPERATING-HANDLE.

No. 845,679.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed March 21, 1906. Serial No. 307,266.

To all whom it may concern:

Be it known that I, ERICH BECK, a citizen of the Empire of Austria, residing in Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Operating-Handles, of which the following is a specification.

This invention relates to operating-handles, and more particularly to handles of the lever type, such as used upon controllers and rheostats of different types. In devices of this class a slow starting movement of the operating-handle is necessary; and the object of the present invention is to provide an operating-handle which is so constructed that it is impossible for the handle to be shifted quickly in the starting direction, the handle having a slow step-by-step starting movement. In devices of this class it is desirable that a quick return movement of the handle be possible, and this object is also attained by the present invention.

The invention resides in an operating-handle the novel features of which will be hereinafter described and finally recited in the claims.

In the accompanying drawings, in which the same reference characters denote the same parts throughout the several views, Figure 1 is a side elevation of an operating-handle constructed in accordance with the invention, such handle being shown as associated with a controller of which the cap-plate is shown. Fig. 2 is a bottom plan view of the handle. Fig. 3 is a view similar to Fig. 1, but showing the parts in a different position. Fig. 4 is a top plan view of the handle, also showing the teeth upon the cap-plate of the controller. Fig. 5 is an end elevation of the operating-handle in the position shown in Fig. 1. Fig. 6 is an end elevation of the handle as shown in Fig. 3. Fig. 7 is a side elevation of a modified construction, and Fig. 8 is a detail perspective view of the mechanism shown in Fig. 7.

Referring to the drawings, A denotes the handle proper, which is secured to the shaft of a controller or any other starting apparatus. At a point adjacent the connection of the handle A with its shaft a transverse pin F passes through the handle, and to said pin is pivoted a lever D, which extends beneath the handle completely to the outer end thereof. Said lever carries intermediately of its length a pawl D', which extends downwardly

into coöperation with the upwardly-projecting teeth of the cap-plate. The pawl-carrying lever D is supported at its outer end by being connected, through the medium of a pin I, with a second pawl-carrying lever C, which is pivoted intermediately of its length to a downwardly-projecting lug on the handle A, as shown at E, said lug being located well toward the outer end of the handle A. The lever C carries at its inner end a depending pawl C', which is parallel to the pawl D' and likewise designed to coact with the teeth of the cap-plate, said pawls being spaced apart in the line in which said teeth extend. A helical spring L is attached at one end to the pin F and at the opposite end is caught in a recess r in the lever C. Said recess is preferably located adjacent the pivot connection E, as shown. The action of the spring L is such as to normally hold the outer end of the lever C in approximately horizontal position, as shown in Fig. 1, whereby, through the connection between the levers C and D, the latter lever is also maintained in approximately horizontal position. In this position of the parts, as shown in Fig. 1, the pawl C' of the lever C extends downwardly in such a manner as to engage with the teeth of the cap-plate, the inner end of said lever having a downward slant, as shown in Fig. 1.

The handle A is provided at its outer end with a knob H. This knob is of the usual construction, except that it is provided with an upright bore in which operates a pin G. Said pin extends completely through said knob and downwardly through the handle in such a manner as to rest upon the lever D adjacent its pivotal connection with the lever C. The pin G normally extends above the knob H. It may be readily depressed by the movement of the hand in grasping the knob, and its depression into the position shown in Fig. 3 causes the downward movement of the lever D, upon which it impinges, and also of the lever C. Said levers then assume the positions shown in Fig. 3, in which the pawl D' of the lever D is engaged with one of the teeth of the cap-plate, while the pawl C' is drawn in upward direction out of the path of said teeth. When the pin G is released, the parts immediately return to the position shown in Fig. 1 owing to the action of the spring L, which normally maintains them in the position shown in said figure.

The operation of this form of operating-handle is substantially as follows: When the

parts are in the position shown in Fig. 1 and it is desired to shift the handle in the starting direction, the pin G is depressed and the pawl C' is withdrawn from engagement with the adjacent tooth of the cap-plate. The handle may then be shifted to the extent of one tooth, the next tooth by abutting against the pawl D' preventing a further movement of the handle. In order to obtain a still further starting movement of the handle, it is necessary to release the pin G, so that the parts again take the position shown in Fig. 1. The handle may then be shifted to the extent of another tooth, as will be understood. Thus a complete starting movement of the handle may only be obtained by alternately depressing and releasing the pin G, by which the pawls D' and C' are alternately brought into action. This actuation of the pin G necessitates a slow movement of the handle. In order to produce a quick return movement of the handle, the pawls C' and D' are beveled, as shown in Figs. 5 and 6, so that when the handle is returned to its initial position said pawls slide freely over the teeth of the cap-plate, said teeth for this purpose being also beveled, as shown.

Figs. 7 and 8 illustrate a modified form of the handle, in which the teeth-engaging pawls C^x D^x are offset from one another radially of the cap-plate, though located in parallel planes, as before described. Said pawls are made in one piece, as shown, and formed with a common pivot I^x at their upper ends. Connection between said pawls and the pin G is made through a lever M, which is pivoted to the lower part of the handle, as shown in Fig. 7. This lever is pivoted at its inner end to an arm N, which is made integral with the hub of the two pawls. When the parts are in the position shown in Fig. 7, the pawl D^x is disposed vertically and out of the path of the cap-plate teeth. The pawl C^x is inclined downwardly into said path. The spring L connects the pawl D^x with the handle in the manner shown. The operation of this modified form of operating-handle is substantially the same as that heretofore described, the pawls being alternately moved into and out of the path of the cap-plate teeth by the alternate depression and release of the knob-pin G.

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

1. The combination, with a cap-plate having a series of teeth, of an operating-handle movable over said teeth, two members mounted on said handle and movable in different directions to alternately coact with said teeth to cause a slow starting movement of said handle, and means for operating said members.

2. The combination, with a cap-plate having a series of teeth, of an operating-handle,

movable members mounted on said handle and each carrying a pawl, and means for actuating said members to alternately throw said pawls into the line of said cap-plate teeth.

3. The combination, with a cap-plate having a series of teeth, of an operating-handle movable over said teeth, levers pivoted to said handle and carrying pawls, means acting upon said levers to normally hold one pawl in the line of said teeth and the other out of said line, and means acting in opposition to said last-named means for reversing the relation of said pawls with respect to said teeth.

4. The combination, with a cap-plate having a series of teeth, of a handle movable over said teeth, interconnected levers pivoted to said handle and each carrying a pawl to coact with said teeth, and means acting upon said levers to throw one pawl into the line of said teeth and the other out of said line.

5. The combination, with a cap-plate having a series of teeth, of a handle movable over said teeth, pivoted interconnected levers each carrying a pawl to coact with said teeth, means for normally holding said levers in such a position that one of the pawls is in the line of said teeth and the other out of said line, and means to shift said levers in opposition to said last-named means to reverse the relation of the pawls with respect to said teeth.

6. The combination, with a cap-plate having a series of teeth, of a handle movable over said teeth, levers pivoted to said handle, a pawl carried by each lever, means for connecting said levers at their ends, a spring connected to one of said levers and normally holding one of said pawls in the line of said teeth and the other out of said line, and means to shift said levers in opposition to said spring.

7. The combination, with a cap-plate having a series of teeth, of a handle movable over said teeth, levers pivoted to said handle in parallel planes, a pawl carried by each of said levers, means for connecting said levers, means for normally holding said levers in such a position that one pawl is in the line of said teeth and the other out of said line, and means to shift said levers.

8. The combination, with a cap-plate having a series of teeth, of a handle movable over said teeth, interconnected levers pivoted to said handle at the under portion thereof and arranged in parallel planes, a pawl carried by each lever, said pawls being spaced apart in the line of the cap-plate teeth, means for shifting said levers so that one pawl is thrown into the line of said teeth and the other out of said line, and means acting upon the release of said first-named means to reverse the relation of said pawls with respect to said teeth.

9. In an operating-handle, in combination, a cap-plate having a series of projecting

teeth, a handle movable over said cap-plate, a pawl-carrying lever pivoted to one end of said handle and extending beneath the same throughout the length thereof, a second pawl-carrying lever pivoted to said handle immediately of the length of the latter and connected to said first-named lever, the pawls of said levers being spaced apart in the line of the cap-plate teeth, means to hold one of said pawls downwardly and the other upwardly and means for shifting said pawls in opposition to said means.

10. In combination, with a cap-plate having a series of projecting teeth, a pivoted operating-handle, a lever pivoted to said handle and carrying a pawl designed to extend

into the line of said cap-plate teeth, a second lever pivoted to said operating-handle and carrying a pawl spaced from said first-named pawl in the line of the cap-plate teeth, a connection between the ends of said two levers, a spring connected to one of said levers and maintaining its pawl in the line of the cap-plate teeth and the pawl of the other lever out of said line, a knob mounted on said handle, and a pin slidable vertically in said knob and resting upon one of said levers.

ERICH BECK.

Witnesses:

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G. BUECHMER.