

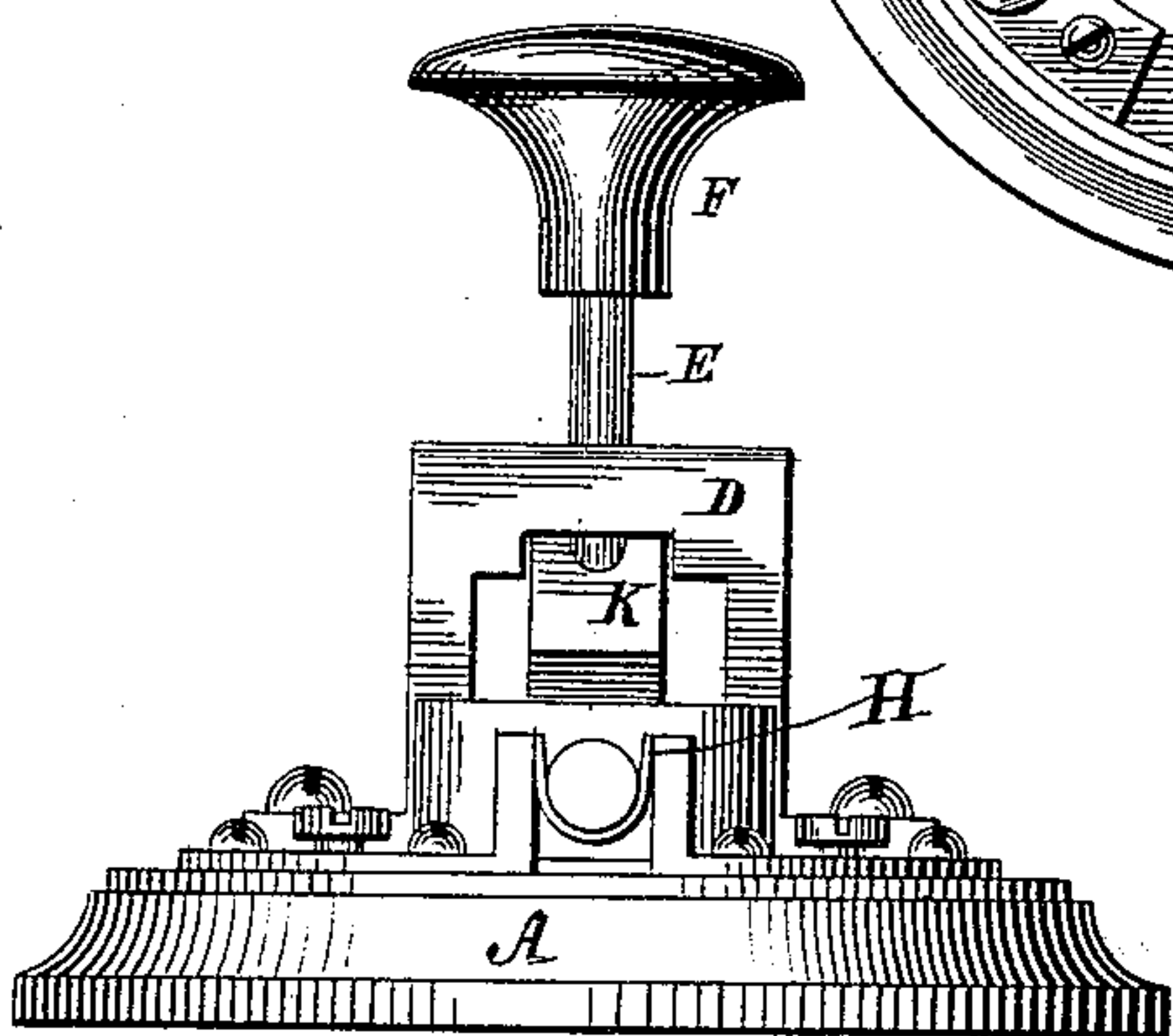
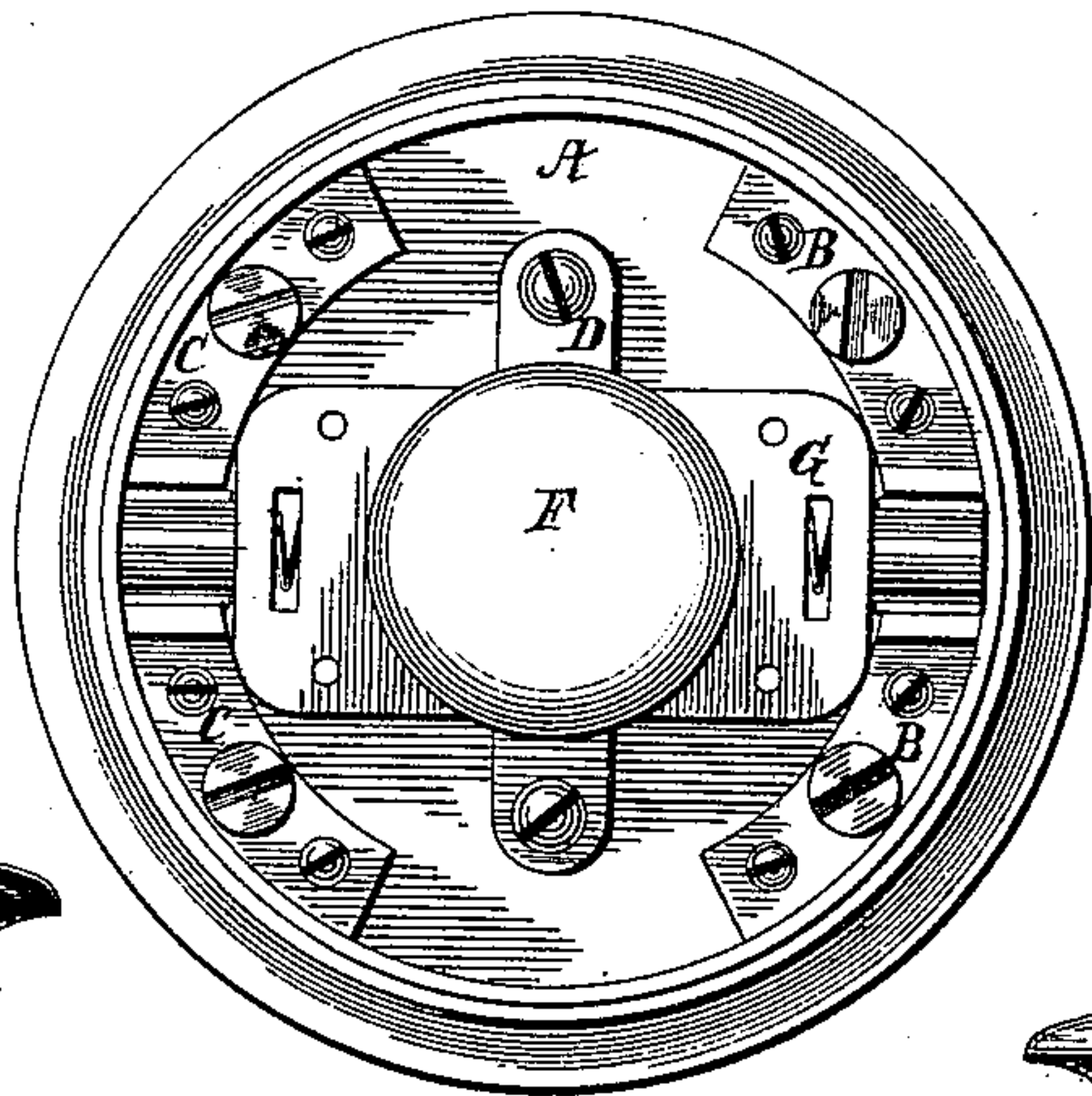
(No Model.)

J. S. GIBBS & C. G. PERKINS.  
RECIPROCATING SNAP SWITCH.

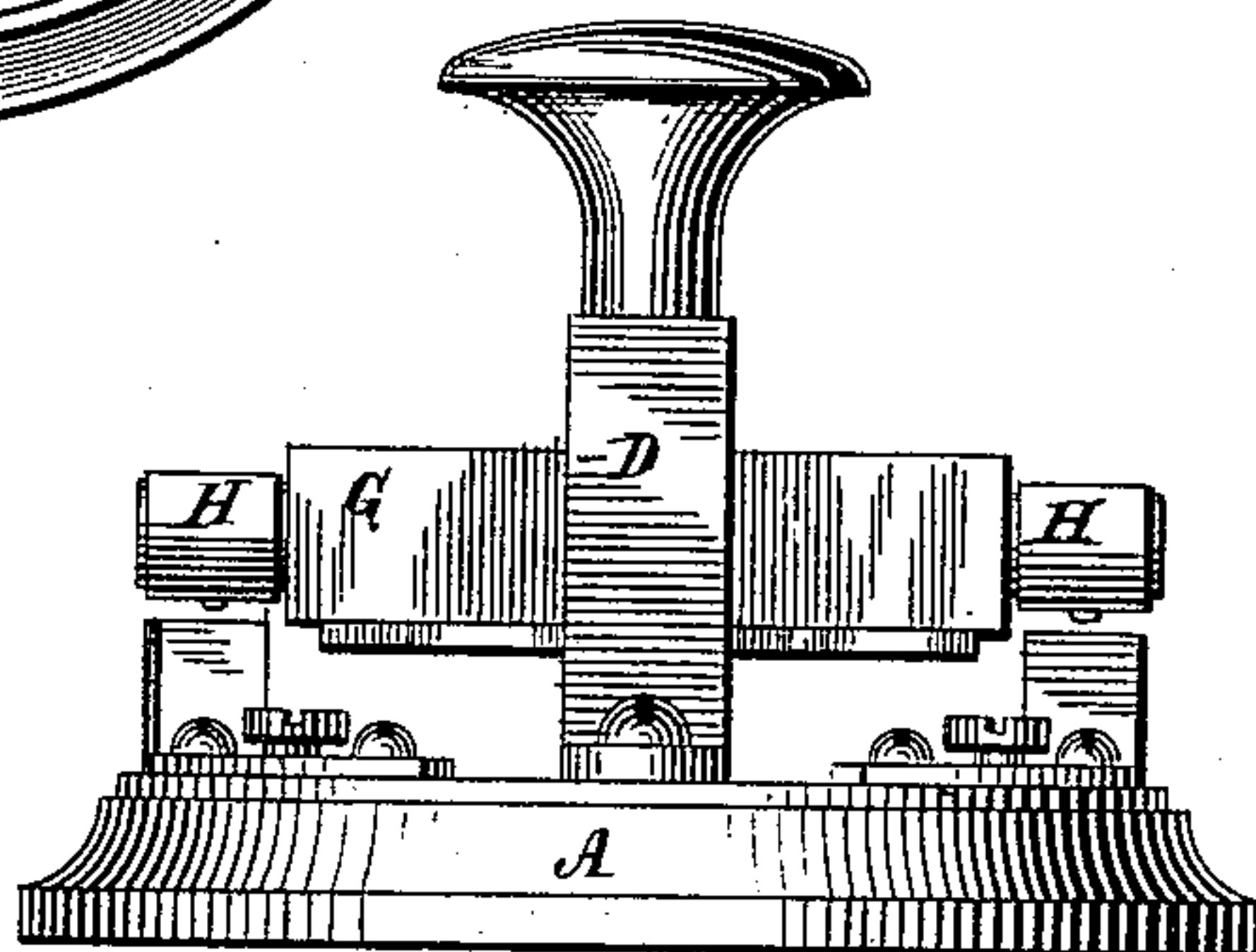
No. 436,080.

Patented Sept. 9, 1890.

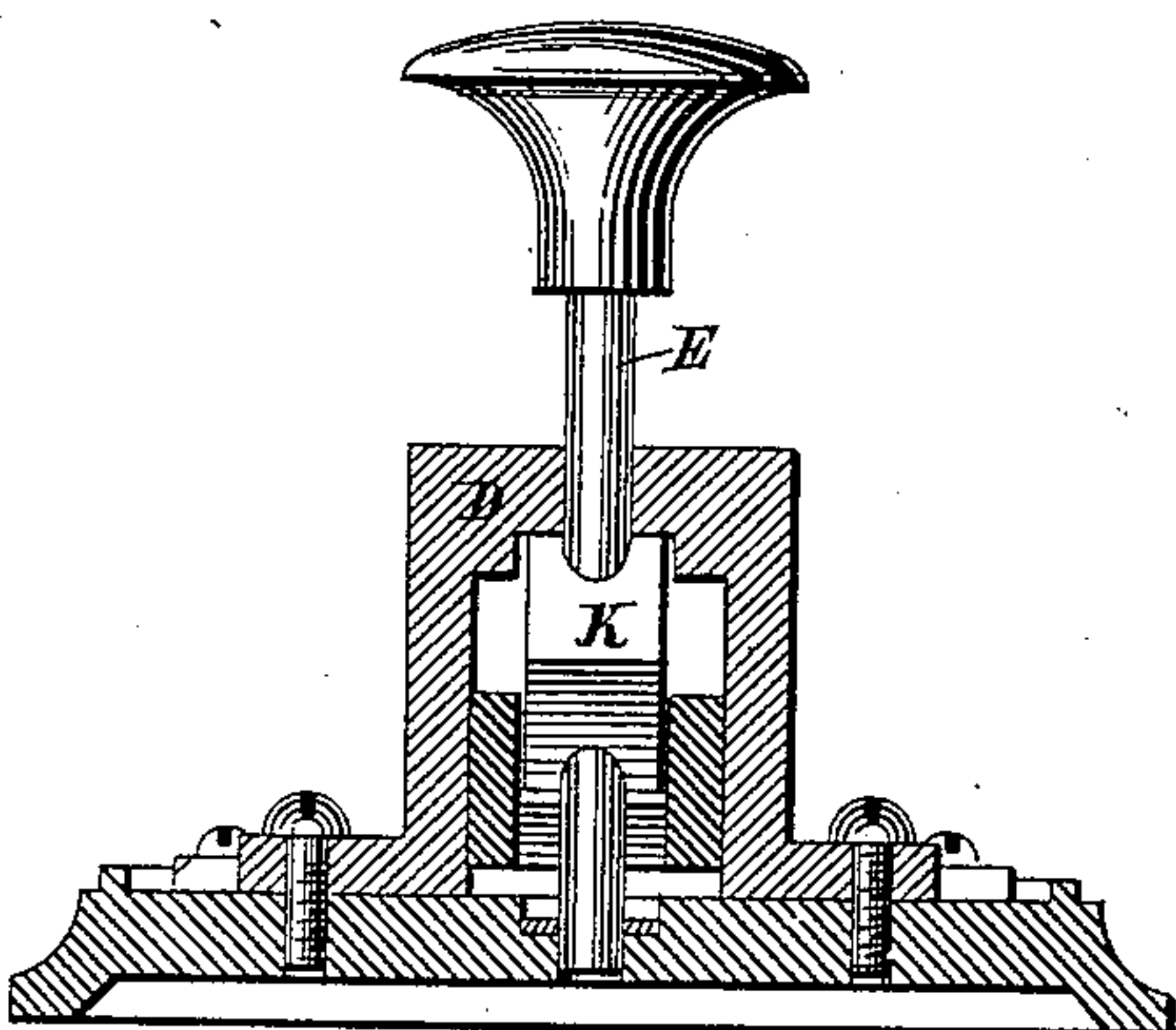
*Fig. 1.*



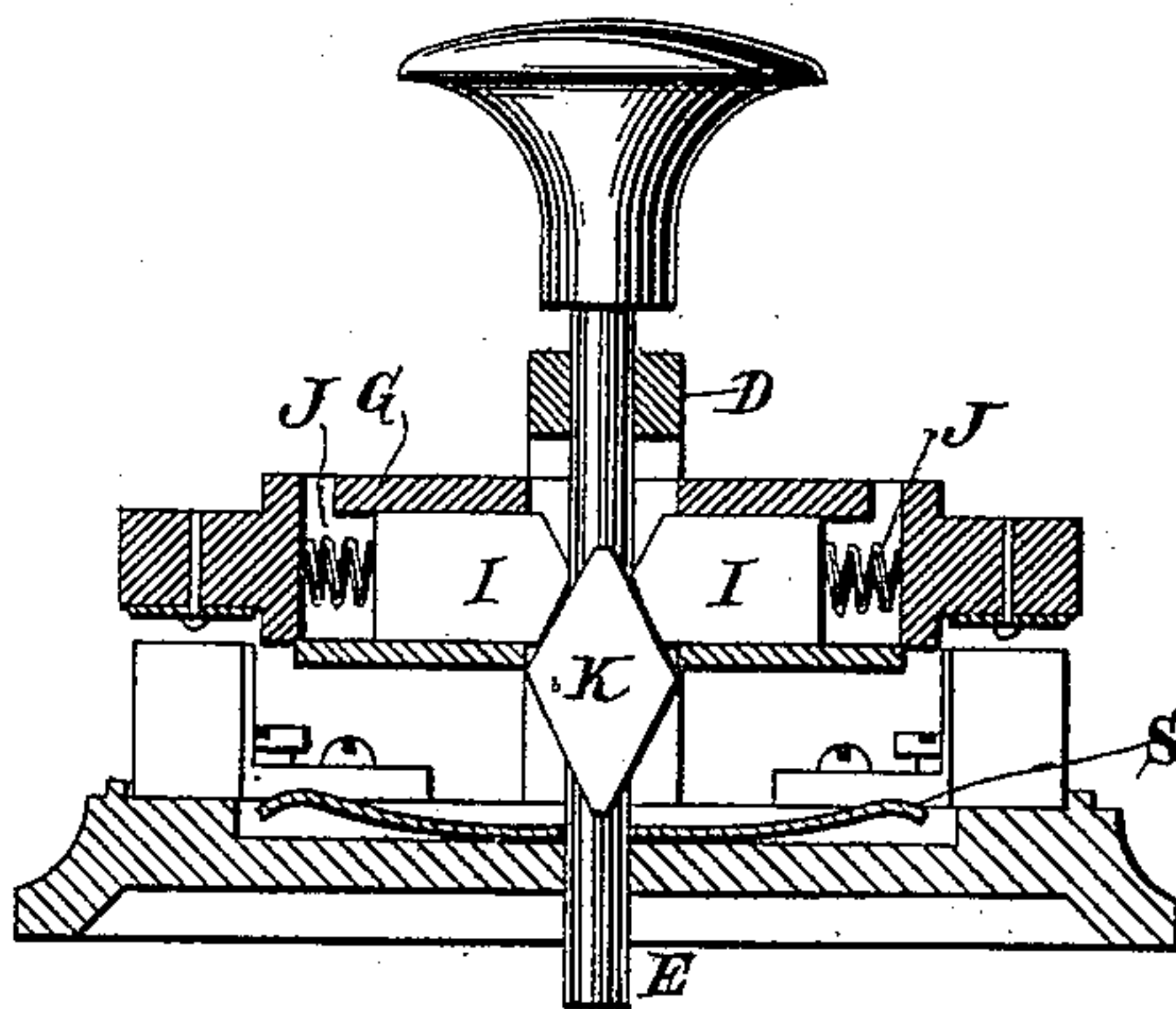
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Fig. 5.*

WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## RECIPROCATING SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 436,080, dated September 9, 1890.

Application filed March 3, 1890. Serial No. 342,463. (No model.)

*To all whom it may concern:*

Be it known that we, JACOB S. GIBBS and CHARLES G. PERKINS, citizens of the United States, residing, respectively, at Manchester and Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Reciprocating Snap-Switches; and we 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 appertains to make and use the same.

Our invention relates to improvements in electric switches, and especially to snap-switches, in which the making and breaking of the circuit is accomplished by a quick movement. Rotary switches of this class are not uncommon, several switches of that character being the invention of one of the present applicants; and we are also aware that it is not new to operate snap-switches by reciprocating movements.

Our present invention is concerned with improving reciprocating snap-switches; and it consists in various details of construction which will be fully described in the specification which follows.

We have illustrated our invention in the accompanying drawings, in which—

Figure 1 is a top view of our switch. Figs. 2 and 3 are side elevations of the same, taken at right angles to each other, and Figs. 4 and 5 are vertical sections of our switch, also taken at right angles to each other.

In the drawings the same letters refer to the same parts throughout.

A is the base of our switch, the same being made of wood or vegetable fiber or other good insulating material. On the base are suitable angle-pieces B B and C C, which in pairs form the circuit-terminals or binding-posts of our switch. Each of the angle-pieces is provided with a screw *a*, by means of which the line-wires may be attached. The above constitute the stationary parts of our switch, or at least the chief stationary parts. To them may be added a bracket or frame D, which is secured to the base rigidly, and in which, together with the base, is mounted a push-rod E, having a thumb-piece or button

F. The frame or bracket D serves also as a guide for a movable contact-plug G, through which the rod E passes. This contact-plug is reduced at opposite ends and receives at those points metallic pieces H H, preferably of copper, for making contact with the line-terminals of the switch.

By reference to Fig. 2 it will be seen that the copper piece H on the end of the contact-plug is secured in such a manner that its ends press against opposite faces of the binding-terminals so as to make good electrical contact. This is when the plug is in its innermost position next to the base. In that position the circuit through the switch is closed. The contact-plug has, however, a reversed position, (shown in Figs. 3 and 5,) in which the contact is broken, as will be plainly seen. The reversal of the positions of the contact-plug is accomplished by means of devices which will now be described.

The plug itself is hollow and contains two blocks or slides I I, which are pressed toward each other and toward the center of the plug by springs J J. The inner faces of these blocks I I are made angular, as clearly shown in Fig. 5.

On the rod E is mounted a diamond-shaped piece K, the faces of which correspond to the inner faces of the slides I I.

The operation of the parts is as follows: Assume that the position of the contact-plug is that shown in Fig. 5, and that it is desired to close the electric circuit by reversing the position of the said plug. In that case it is only necessary to pull out on the push-rod E, when the diamond-shaped piece on the said push-rod will force apart the slides I I until the widest portion of the diamond has reached the points of the slides. If now the outward motion of the rod be continued, the tendency of the springs J J will be to force the slides inward along the inclined surfaces of the diamond. This will result in the entire plug being forced inward by a quick movement, thereby preventing sparking when contact is made. In breaking the circuit the action is quite similar, except that the rod is pushed inward instead of being pulled outward. The play of the rod and the diamond-shaped piece



attached to it is such that the movement thereof to extreme position is just enough in either direction to make the operating-points of the diamond pass just beyond the points  
5 of the slides. Both the making and the breaking of the circuit are accomplished with a quick or snap motion.

On the base of the apparatus we locate a spring S to assist in starting the plug from its  
10 innermost position. Otherwise the plug might bind, owing to the contact-pieces H H being held between the standards of the circuit-terminals B B and C C. The spring S serves as a starting-spring. It does not ordinarily follow  
15 the plug to the limit of its movement, the "throw" of the spring being generally considerably shorter than the movements of the plug.

Having now described our invention, we  
20 claim—

1. A reciprocating snap-switch having a movable contact-plug carrying spring-slides, and a reciprocating rod carrying an angular  
25 piece co-operating with the said spring-slides for reversing the position of the plug, as set forth.

2. A reciprocating snap-switch having a push-rod carrying an angular piece, and a contact-plug loosely mounted on said push-rod,  
30 the said contact-plug being provided with

spring-slides co-operating with the said angular piece, as and for the purpose set forth.

3. In a reciprocating snap-switch, a reversible contact-plug and means for causing it to reciprocate back and forth, in combination  
35 with a spring for assisting in starting it from one of its extreme positions, the said spring having a throw considerably shorter than the limit of movement of the plug, as and for the purpose set forth.

4. In a reciprocating snap-switch, a reciprocating contact-plug and circuit-terminals co-operating therewith, the said circuit-terminals and the contacts of the said plug having spring contact with each other in one of  
45 the extreme positions of the plug, in combination with a separate spring, as S, tending to throw the plug out of contact with the circuit-terminals, the said spring having a throw considerably shorter than the limit of  
50 movement of the plug, as and for the purpose set forth.

In testimony whereof we have signed our names, in the presence of two witnesses, this 26th day of February, A. D. 1890.

JACOB S. GIBBS.

CHARLES G. PERKINS.

Witnesses:

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ANNIE B. MILLER.