

(No Model.)

J. S. GIBBS.  
VIBRATING ELECTRIC SWITCH.

No. 471,237.

Patented Mar. 22, 1892.

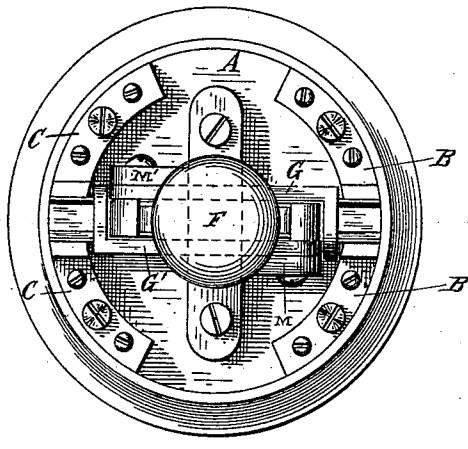


Fig. 1

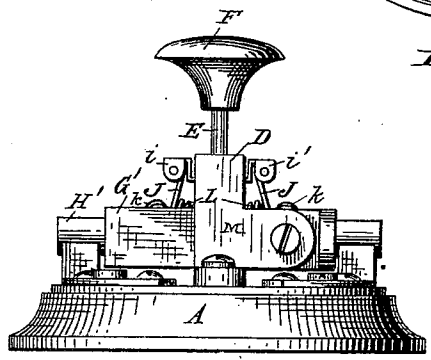


Fig. 2

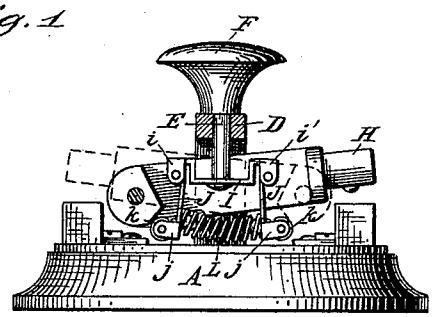


Fig. 3

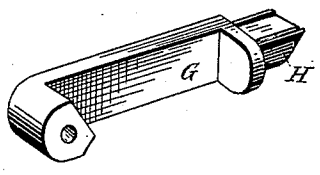


Fig. 4

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# UNITED STATES PATENT OFFICE.

JACOB S. GIBBS, OF HARTFORD, CONNECTICUT.

## VIBRATING ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 471,237, dated March 22, 1892.

Application filed July 3, 1891. Serial No. 398,989. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB S. GIBBS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Vibrating Snap-Switches, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to construct a switch in which the throw shall be great in comparison with the range of movement of the devices which cause the throw, and I desire, also, to simplify the construction of switches of this sort by means which will be fully described hereinafter.

For the details of my invention I refer to the accompanying drawings, in which—

Figure 1 is a top view of my switch. Fig. 2 is a side elevation of the same, showing the switch closed. Fig. 3 is a sectional view showing the switch open, the parts cut away being indicated in dotted lines; and Fig. 4 gives a detail view.

Referring to the drawings by letter, A is the base of my switch, and it is made of any good insulating material, preferably porcelain. On the base are secured angle-pieces B B and C C, which form the circuit-terminals or binding-posts of my switch. Also secured to the base is a bracket D, in the outer cross-piece of which is free to slide a reciprocating rod E, carrying a thumb-piece or button F.

On the inner end of the rod E is secured an angular cross-bar I, having lugs *i i* at each end. Within each pair of lugs is pivoted a lever J, and between the two levers is a spiral spring L, which tends to press them apart. The levers J have at their outer ends lugs *j j*, in which are mounted rollers *k k*. The parts last described are all connected with the reciprocating rod E and form part of the actuating mechanism of my switch.

The bracket D is provided, as shown in Fig. 1, with lateral arms M M', and to these arms are pivoted, respectively, the contact-levers G and G'. One of these contact-levers is shown in detail in Fig. 4. At its outer end it carries a metallic piece H, preferably of copper, for

making contact with the circuit-terminal on the base. The lever illustrated in Fig. 4 is the lever G. The other lever G' carries a similar contact-piece H'. It will be seen that the two levers pass by each other within the bracket and that the contact-pieces are secured to a portion of the lever which is formed on an extension of the same at right angles to the main longitudinal part thereof. This admits of the circuit-terminals being placed directly opposite each other on the base and simplifies the construction generally.

The hub of each of the contact-levers is formed on its inner side into an angle, as shown clearly in Fig. 4. In order to secure a quick break of the circuit, I make the angle on the lower side of the hub quite sharp, and to compensate for this I make the incline toward the upper side of the hub longer than that on the lower. This construction satisfies the requirements of a good switch and is found in practice to be advantageous.

The operation of the parts is simple. Referring to Fig. 3, it will be seen that the switch is open and the reciprocating rod E is pushed in. The rollers *k k* are pressed against the faces of the lower inclines on the hubs of the contact-levers near the extremities of the said inclines. To reverse the switch, it is necessary to pull outward on the button F, and so draw the whole actuating mechanism outward. By this means the rollers will be pulled up the incline and the spring L will be compressed until the highest point of the incline is reached on both sides. Any movement beyond this point will give spring L any opportunity to expand and throw down the outer ends of the contact-levers, so as to close the switch.

The operation of opening the switch after it has once been closed is the reverse of that just described.

It is clear that the construction above set forth will make it easy to secure a wide throw of the contacts with a small movement of the actuating parts, as I get the advantage of a long leverage at both ends of my switch. For this reason I can get more than twice the throw which I would secure by having the double system of spring-levers actuate the

contacts by an upward pull, as they would have to do in case both the contacts were attached to a single plug moving vertically in a guide.

5 I propose to use this switch for governing currents of high tension where the separation of the contacts needs to be made considerable. It is suited, however, for governing the ordinary currents as well.

10 Having now described my invention, I claim—

1. In an electric switch, a contact-lever with an angular hub and a reciprocating rod carrying spring devices, which pass over the angle  
15 in the said hub and press against the inclines on either side thereof for raising and lower-

ing the outer end of the said contact-lever, as and for the purpose set forth.

2. In an electric switch, a pair of contact-levers pivoted at opposite ends and having  
20 angular hubs and a reciprocating rod carrying spring devices, which pass over the angles in the hubs and press against the inclines on opposite sides thereof for raising and lowering the outer ends of the contact-levers, as  
25 and for the purpose set forth.

In testimony whereof I have hereunto set my hand this 1st day of July, 1891.

JACOB S. GIBBS.

Witnesses:

FREDERICK W. DAVIS,  
G. H. STOCKBRIDGE.