

No. 846,625.

PATENTED MAR. 12, 1907.

H. SAWYER.  
ELECTRIC SWITCH.

APPLICATION FILED JULY 11, 1904.

Fig. 1.

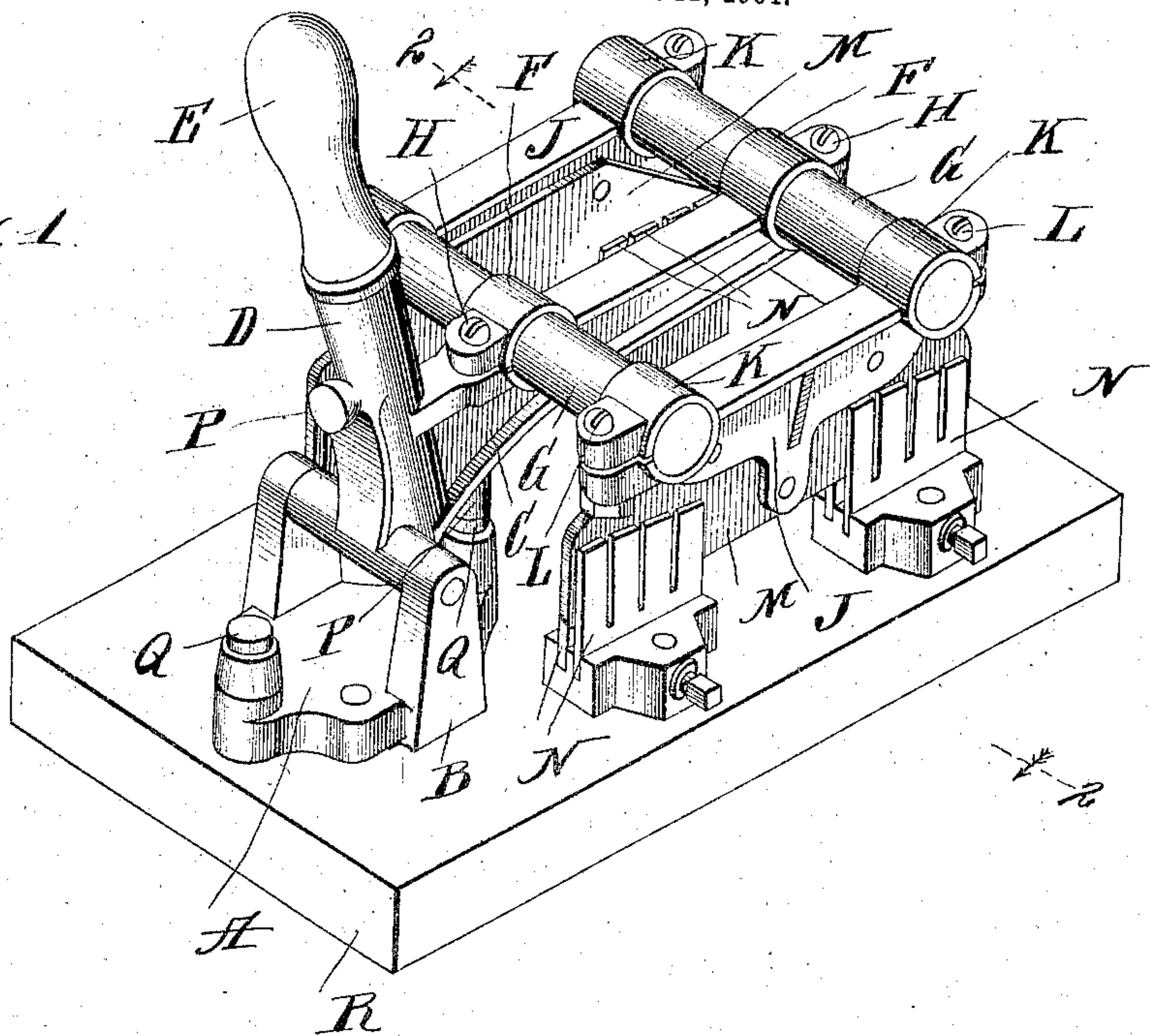
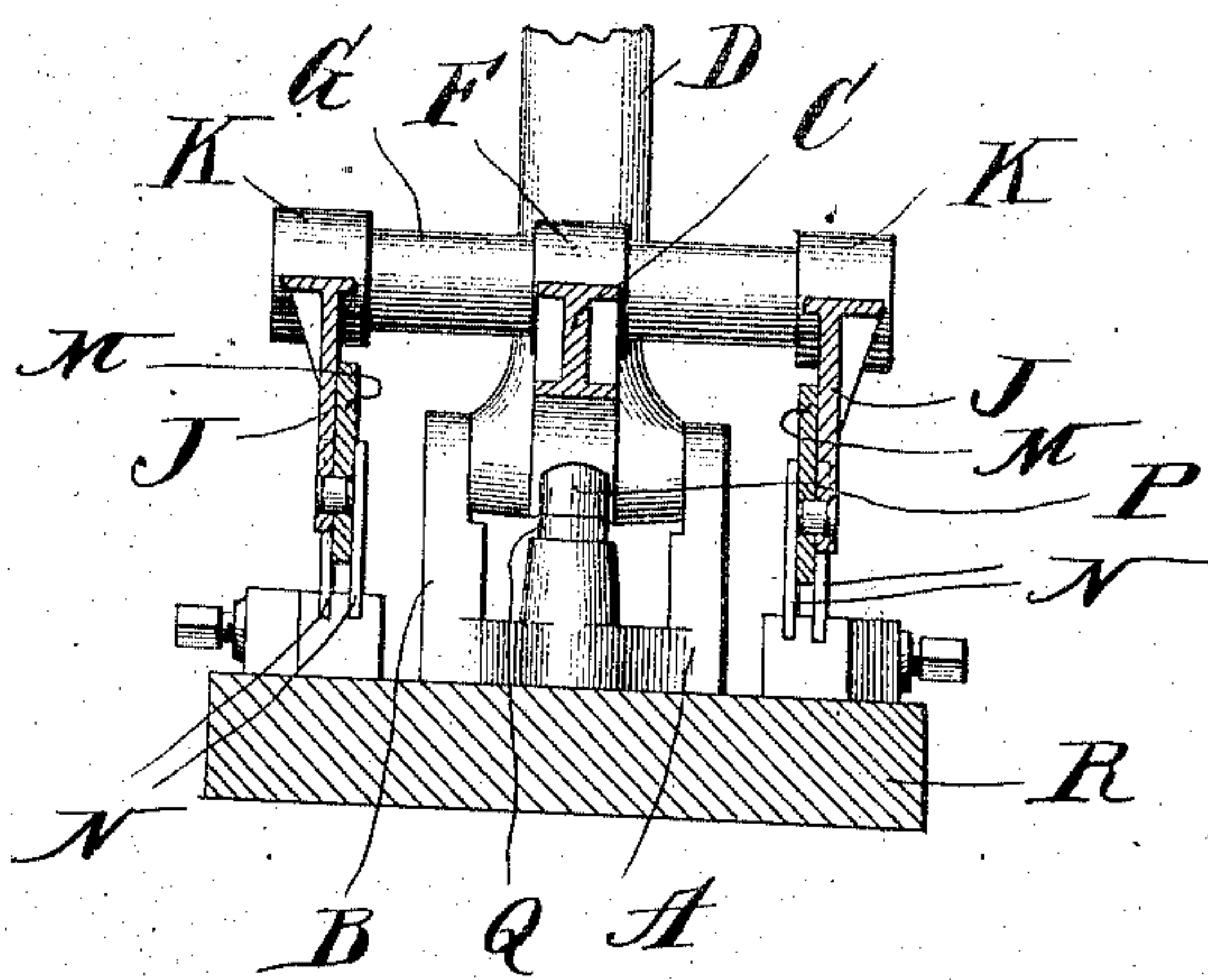


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

HARRY SAWYER, OF MUSKEGON, MICHIGAN.

## ELECTRIC SWITCH.

No. 846,625.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed July 11, 1904. Serial No. 215,985.

*To all whom it may concern:*

Be it known that I, HARRY SAWYER, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented a new and useful Improvement in Electric Switches, of which the following is a specification.

This invention relates to electric switches.

The object of the invention is to provide an electric switch which is economical in manufacture, simple, and substantial in construction.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawing, and finally pointed out in the appended claims.

Referring to the accompanying drawing, and to the various views and reference-signs appearing thereon, Figure 1 is a view in perspective of an electric switch embodying the principles of my invention. Fig. 2 is a view in section on the line 2 2 of Fig. 1 looking in the direction of the arrows.

In the accompanying drawing reference-sign A designates a bracket having upright arms B, forming journal-bearings for the hinge or pivot of a bell-crank lever, the arm C thereof carrying the contacts, as will hereinafter be more fully described, and the arm D being formed into a socket-piece, in which is received a handle E, by which the lever may be rocked. The arm C is preferably, though not necessarily, made of malleable iron and is provided with bosses F, suitably bored transversely to receive therethrough insulating-pins G, of hard wood or other suitable insulating material, and which pins may be clamped in the bore of bosses F in any convenient manner—as, for instance, by splitting said bosses to form the same into clamp-jaws—the screws H serving to clamp said jaws upon the insulating-pins G. At each end of the pins G are adjustably supported the conductor parts M of the switch. These conductor parts may be adjustably supported upon the insulating-pins in many different ways, and any convenient means may be employed to clamp the conductor parts in adjusted position. In the particular form shown, to which, however, my invention is not to be limited or restricted, I employ castings or members J, formed with bosses K

at the ends thereof, similar to the bosses F of casting C and similarly bored to receive the ends of the insulating-pins G. The bosses K in order to afford means of clamping the same to the ends of the insulator-pins G, may be suitably split and screws L employed to serve as clamp-screws for clamping said bosses, and hence also the castings, upon the insulating-pins G. The conductor part of the switch is in the form of hard rolled copper plates M and are riveted, bolted, or otherwise secured upon the sides of the depending portions of the castings or members J and in position to be received edge-wise between the contact parts N of circuit-terminals. Where the insulating-pins G are of wood, I prefer to employ hard wood and to treat the same with a non-absorbent insulating preparation. The movable member of the switch, constructed as above described, may be rocked or swung about the journal-bearings of the hinge or pivot thereof in standards B by suitably manipulating the handle E. From this description it will be seen that the conductor parts of the switch may be readily adjusted along the insulating supporting-rods G and clamped in adjusted position. This is an advantageous feature, for thereby the conductor blades or parts M may be brought into proper position and relation with respect to the contacts N without the necessity of accurate work in constructing said blades and contacts. Moreover, a conductor part or blade may be readily removed and renewed when necessary or desired and the new part brought readily into proper relation with respect to the contacts by merely loosening the clamp-screws L and shifting the blade or conductor part to the desired position and then clamping up again.

The contact or conductor members M of the switch are adjustable to and held in proper and suitable relation to effect circuit connection with the circuit-terminal contacts N and in such relation as to make an effective circuit connection. It will also be seen that efficient insulation is maintained of the conducting parts of the switch. If desired, and in order to cushion or limit the rocking or swinging movement of the movable part of the switch, I may provide such part with stop or limit lugs P, arranged to come in contact with similar stop or limit lugs Q, formed on the bracket A.



It is obvious that a switch embodying the above construction may be used in any situation or relation where switches are desired. I have shown the apparatus mounted upon a base slab or slate K: but,

Having now set forth the object and nature of my invention and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. An electric switch including a pivoted lever, insulator-pins carried by said lever, members supported by said insulator-pins, and conductor-sections carried by said members.
2. In an electric switch, a pivoted lever having bosses, insulator-pins carried by said bosses, members supported upon the ends of said pins, and conductor-pieces secured to said members.
3. In an electric switch, a pivoted lever, insulator-pins clamped to said lever, members having clamp devices at the ends thereof to receive the ends of said insulator-pins, and conducting parts carried by said members.
4. In an electric switch, a pivoted lever having clamp devices, insulator-pins received and held by said clamp devices, members having a transversely-bored split boss at each end thereof to receive the ends of said insulating-pins, clamp-screws for clamping said split bosses upon said pins, and conductor members carried by the first said members.
5. In an electric switch, a pivotally-mounted lever, an insulator-pin rigidly clamped to said lever, a member rigidly clamped upon the end of said pin, and a conductor member connected to the first said member.
6. In an electric switch, a pivotally-mounted lever, an insulating-pin rigidly clamped intermediate its ends to said lever, a member rigidly clamped upon each end of said pin, and a conductor member carried by each of the first said members.
7. In an electric switch, a bracket having standards, a lever pivotally mounted in said standards and having a handle connection, insulating-pins clamped to said lever, members clamped upon the ends of said pins, and conductor members carried by the first said members.
8. In an electric switch, a bracket having

standards, a lever pivotally mounted in said standards, insulator-pins clamped upon said lever, members clamped upon said insulator-pins, conductor members carried by the first said members, and limit-stops for limiting the rocking or swinging movement of said lever.

9. An electric switch including a pivotally-mounted bell-crank lever, insulator-pins carried by one arm of said lever, and conductor-sections carried by said insulator-pins, the other arm of said lever forming means of attachment of an operating-handle.

10. An electric switch, including a pivotally-mounted bell-crank lever, an insulating-pin rigidly carried by one arm of said lever, and a conductor portion adjustably mounted upon said pin, the other arm of said lever forming means of attachment of an operating-handle.

11. An electric switch including a pivotally-mounted lever, a rigid insulator-pin extending transversely across and adjustably clamped to said lever, and a conductor portion carried by said pin.

12. An electric switch including a pivotally-mounted lever, a rigid insulator-pin adjustably mounted on said lever, a conductor-section adjustably mounted on said pin, and means for rigidly clamping said conductor-section to said pin in adjusted position.

13. In an electric switch, the combination of a pivotally-mounted lever carrying a clamp, a rigid insulator-pin adjustably secured in said clamp, and a conductor portion rigidly carried by said pin.

14. An electric switch including a pivoted lever, spaced rigid insulator-pins carried by said lever, a conductor-section and means for rigidly securing said section to the pins.

15. In an electric switch, a pivoted lever, transverse rigid insulator-pins adjustably secured to the lever and spaced from each other, a conductor member and means operatively related to the member for adjustably and rigidly securing said member to the pins.

In witness whereof I have hereunto set my hand, this 2d day of July, 1904, in the presence of the subscribing witnesses.

HARRY SAWYER.

Witnesses:

OTTO ALBERT,  
J. G. EMERY, Jr.