

C. D. PLATT.
ELECTRIC SWITCH.
APPLICATION FILED MAY 31, 1910.

980,559.

Patented Jan. 3, 1911.

Fig. 1.

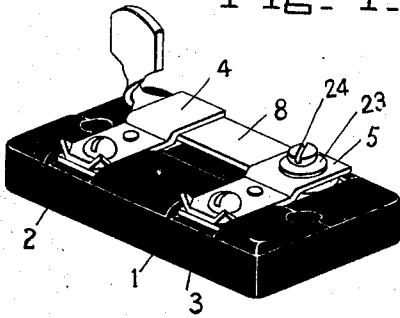


Fig. 4.

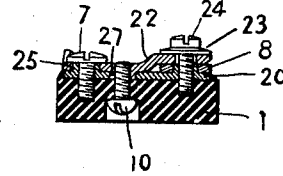


Fig. 5.

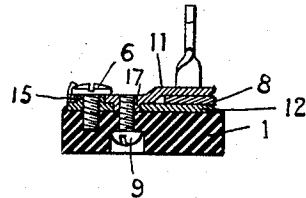


Fig. 2.

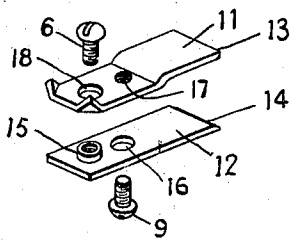


Fig. 3.

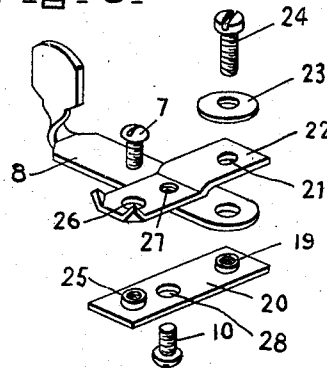


Fig. 6.

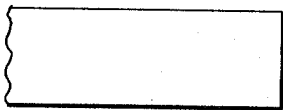


Fig. 7.

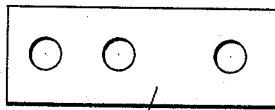
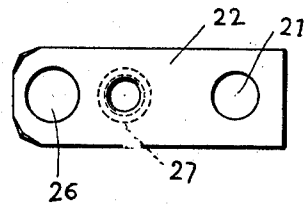


Fig. 8.



WITNESSES

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ELECTRIC SWITCH.

980,559.

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To all whom it may concern:

Be it known that I, CLARENCE D. PLATT, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Electric Switches, of which the following is a description.

The invention relates to electric switches and more particularly to a simple form of switch wherein thin metal parts are used for the contact clips which cooperate with the blade of a switch of the knife-type. However, the invention is not limited to a light structure of this character as obviously, from the description hereinafter given, it is equally applicable to switches of a heavy type. As shown herein, it is illustrated in connection with a very simple and light type of switch commonly known as a "battery" switch.

The objects of the invention are to provide a very simple structure which may be manufactured at a minimum cost and which will give a maximum efficiency as to strength, durability and simplicity.

A further object is to provide a means of providing a simple switch wherein very light gage metal may be used, at the same time providing adequate strength for resisting severe strains.

A further object is to secure a device, of the character defined, in which there is no liability of the parts working loose and wherein a fixed bushing is provided, as a pivot for the blade, formed integral with the cooperating jaw parts.

A still further object is to provide reinforcing and interlocking parts between the metallic members of the switch contacts to preclude the possibility of disarrangement.

Referring to the drawings: Figure 1 is a perspective view of the switch embodying the invention. Fig. 2 is a perspective view of the parts of one of the stationary contacts, the parts being shown preparatory to assembling. Fig. 3 is a similar view of the parts of a stationary contact member which provide the pivot for the movable contact blade. Fig. 4 is a sectional view through the contact member and base and pivoted blade. Fig. 5 is a sectional view through the base and cooperating contact member illustrated in Fig. 2 with the blade in place. Fig. 6 is a view illustrating the character of metal employed. Fig. 7 shows the punch-

ings through said metal preparatory to cupping. Fig. 8 illustrates the metal after it is cupped.

In switches of the character herein described, it has not been uncommon for the several parts to be clamped down to a base-part by screws or screws and nuts, relying upon said screws or similar devices for holding the switch parts in alinement and binding them to the base.

As will be seen from the following description, the present device contemplates an arrangement of parts so associated that the screws and binding attachments serve to hold and lock the parts together while the parts themselves are so formed as to insure alinement and stability.

In the accompanying drawings, the numeral 1, denotes a base-piece of insulating material of any desired character, shown herein as embodied in a simple form of battery switch and of substantially rectangular form, having grooves 2, 3, in its upper face to receive the connector terminals 4, 5. The switch is of the general form known as a knife-blade switch and the terminal connections are effected through binding screws 6, 7, threaded into the contact members 4, 5, which are of bifurcated or split form. The contact member 5, serves as a hinge or pivot joint for the switch blade 8, while the contact member 4, is adapted to receive said blade 8, to effect completion of the circuit.

The simplest form of switch is herein illustrated and obviously, the same advantages hereinafter described might be applied to a single pole, double pole or multipolar switch.

Both the contact member 4, and contact member 5, are formed of two plates, one over-lying the other and these plates are perforated to receive the binding screws 6, and 7, and the clamping screws 9, and 10. They are similar in construction.

The contact element 4, is composed of an upper plate 11, and a lower plate 12, of substantially similar construction and with the outer ends 13, 14, slightly opened to permit the insertion of the knife-blade 8. These plates 11, and 12, are of somewhat peculiar construction and are formed by a method as illustrated in the drawings from a ribbon or strip of thin metal. As illustrated herein, the lower plate 12, is punched and drawn up to form a boss 15, and has an aperture 16, of a diameter sufficient to re-

ceive a boss 17, drawn out from the plate 13. The plate 13, has a perforation 18, adapted to receive the boss 15, of the plate 12. Of course, it is understood that the bosses 15, and 17, are perforated and are interiorly threaded to receive the binding screw 6, and the clamping screw 9. The latter is inserted from below the base and serves to clamp the contact member 4, composed of the two plates 11, and 12, firmly in place in the groove 2.

It will be seen from the above description that when the two plates 11, and 12, are alined, the bosses 15, and 17, will project into the corresponding openings 18, and 16, and thus the plates will be held against relative displacement. As the binding screw 6, is threaded and may be screwed tightly into the boss 15, it will not only serve to clamp the terminal wire but will clamp the two plates together. This, in conjunction with the screw 9, which is inserted from the bottom side of the base and engages the threaded opening of the boss 17, securely locks the two plates together and to the base-piece 1. The advantages of this arrangement are apparent. Very thin metal may be used and by striking up or punching up the bosses 15, and 17, a comparatively long and secure hold is given to the respective screws 6, and 9. At the same time, their function as a locking means for preventing relative displacement of the plates is secured. The method of forming these plates is hereinafter described.

The contact member 5, is similar in construction to that of the contact member 4, just described. It consists of two plates having the same relative arrangement as to the bosses and binding and clamping screws 7, and 10. It has an additional feature in that a boss 19, is thrown up from one of the plates as for instance, the lower plate 20, and is arranged to project into a perforation 21, in the upper plate. This boss 19, serves as a hub or pivot upon which the blade 8, may be moved. Surmounting the upper surface of the upper plate 22, there is arranged a spring washer of cone form 23, and the pivot screw 24, projects through this spring washer and into the boss 19, of the plate 20.

The perforated and threaded boss 25, of the lower plate 20, projects into the perforation 26, of the upper plate and the threaded boss 27, of the upper plate projects into the perforation 28, of the lower plate.

Obviously, when the clamping screw 10, is set up, the three bosses 25, 27, and 19, will engage their respective openings of the opposed plate and the two plates 20, and 22, will be positively and firmly held against relative displacement and in firm contact with the base 1. An additional binding effect is secured by the screw 7, which is set

down after the terminal wire is connected. With such an arrangement of parts, there is no liability of the movement of the switch-blade 8, loosening the screw 24, inasmuch as the bearing of the blade is upon the hub or boss 19, and when the screw 24, is firmly set down over the spring washer 23, there is little liability of its becoming loosened from any cause. However, should the screw be removed or accidentally loosened, the blade 8, would still be effective and would be properly pivoted on the boss 19.

As illustrated in the drawings, the method of forming these contact members or the parts thereof is very simple and most effective. A ribbon or strip of metal of proper size may be fed under dies which will punch the necessary holes and cut off the strips at the desired length. They may then be passed under a second die which will cup up and form the bosses at the desired punched openings. The bosses are then threaded to receive the binding and clamping screws.

The advantages of the parts so arranged are apparent. The contact parts are all made from flat metal and the thinnest metal adequate to carry current may be utilized, inasmuch as the cupping and formation of the bosses give an additional thickness, where the screws are used, to provide an extremely strong and effective clamping action. There is no liability of stripping the threads as is the case where thin metal is used, and but one or two threads are available. In fact, the threading is equal to double the thickness of the metal used and thus affords a very substantial structure. Furthermore, the parts cannot be disarranged or turned one upon the other, when once in place and altogether the device is most economical as to its constructive and manufacturing features and effective in operation.

Obviously, the exact arrangement of bossings and punchings and screws need not be adhered to and these may be varied to suit the exigencies of any particular type of switch.

What I claim as my invention and desire to secure by Letters Patent is:

1. An electric switch having a movable contact part, stationary contacts coöperating therewith, said contacts provided with a plurality of oppositely disposed interengaging bosses and perforations forming interengaging parts and binding screws passing through said interengaging parts.

2. An electric switch having a movable contact member and stationary contact members, one of said stationary members comprising two plates having oppositely disposed interengaging bosses and perforations, an integral hub upon one of said plates forming a pivot for the movable contact member and binding means for holding said plates in locked position.

3. A switch provided with contacts formed of sheet metal, said contacts having opposed plates, a plurality of interengaging projections and perforations in said plates and binding means cooperating with said projections.

4. In combination with an electric switch, a base of insulating material, stationary contact members mounted thereon and each comprising an upper and lower plate, interengaging parts intermediate the plates, binding screws and clamping screws extending through said interengaging members and a movable contact pivoted to one of said members.

5. An electric switch, a pivoted blade, a contact member cooperating therewith and provided with a hub formed integral therewith, a perforated plate cooperating with

the first-named member, means for clamping said plates together against separation and relative movement and a clamping means engaging said hub.

6. An electric switch having a movable contact member and stationary contact members, said stationary members comprising two substantially parallel plates with oppositely disposed perforations and bosses struck from the material of said plates and affording interlocking means for preventing relative movement thereof, and binding and clamping screws cooperating with said perforations and bosses.

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