

963,064.

Fig. 1.

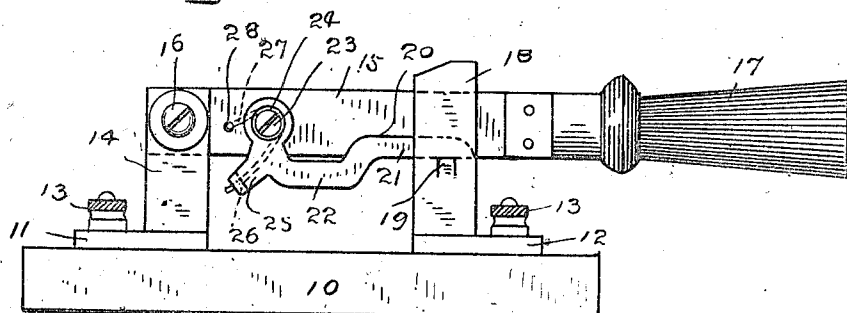


Fig. 2

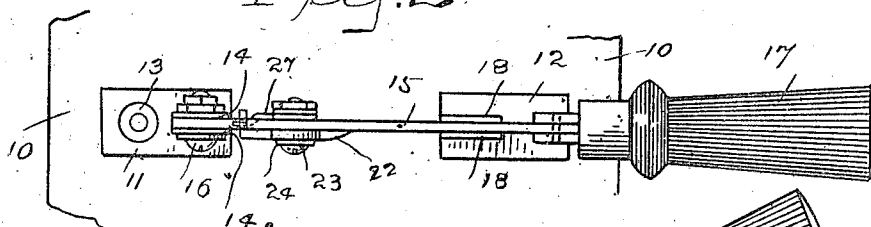
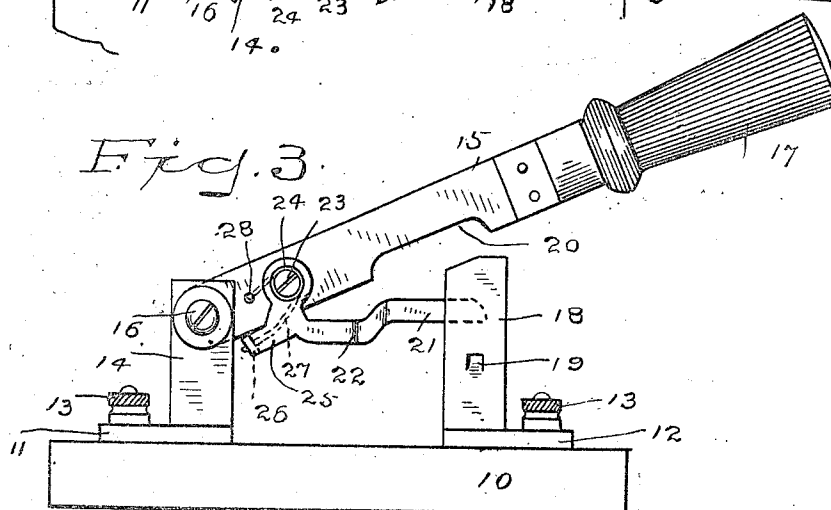


Fig. 3



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CLARENCE D. PLATT, OF BRIDGEPORT, CONNECTICUT.

QUICK-BREAK KNIFE-SWITCH.

963,064.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed March 1, 1909. Serial No. 480,605.

To all whom it may concern:

Be it known that I, CLARENCE D. PLATT, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Quick-Break Knife-Switch, of which the following is a specification.

This invention relates to the class of knife switches commonly known as quick break switches; that is, switches provided with means for automatically breaking the circuit in a quicker and more efficient manner than can be done with the ordinary form of knife switches in which the break is dependent upon movement of the hand only. The object in quick break switches is to prevent arcing between the contact parts which if excessive, as is frequently the case with ordinary switches, will quickly destroy the usefulness of the switch.

The object of the present invention is to provide an improved quick break switch which will meet all the mechanical and electrical requirements of the trade and the underwriters and which can be manufactured at a minimum cost. Switches of this type as ordinarily constructed require special parts and much fitting, which makes the cost prohibitive and prevents their general use, especially in the smaller sizes.

The present invention is especially adapted to the smaller sizes of switches where a quick break is most to be desired on account of their being more frequently operated by inexperienced persons having slight knowledge of their use. My novel switch differs from ordinary switches of this type in the construction of the blades only, the other parts of the switch being of ordinary construction, so that the invention enables me to manufacture all of the parts except the blades in the ordinary or any preferred manner and then to attach either a quick break or a regular blade as may be preferred, regular and quick break blades being interchangeable. I thus obviate the necessity of a special construction of switch and greatly reduce the cost of quick break switches. Furthermore, my novel quick break blades may be made from ordinary blades, a few simple operations preparing

the blades for the attachment of the auxiliary blades, the springs, etc.

With these and other objects in view I have devised the novel structure which I will now describe, referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts:

Figure 1 is an elevation of my novel switch in the closed position; Fig. 2 a plan view corresponding with Fig. 1; and Fig. 3 is an elevation illustrating the operation of the switch, the lever being partly raised as when breaking the circuit, the auxiliary blade being still in engagement with the jaws.

10 denotes the base which may be made of slate, porcelain or any suitable insulating material, and 11 and 12 plates rigidly secured thereto and each carrying a binding screw 13.

14 denotes a double standard extending upward from plate 11, and 15 a blade the forward end of which is pivoted to the standard as at 16. The rear end of the blade is provided with an insulating handle 17.

18 denotes the jaws which extend upward from plate 12 and have an inward spring action, that is toward each other. One of the jaws is provided with a lug 19 struck inward from the metal thereof which serves as a stop to limit the downward movement in the circuit closing position.

20 denotes a recess in the under edge of the blade, which receives a portion 21 of an auxiliary blade which lies in horizontal alinement therewith.

The auxiliary blade has a shank portion 22 below the plane of the lower edge of the blade 15 which is offset laterally so that while the portion 21 normally rests in the recess 20 and in alinement with the main blade so as to just fit said recess, the auxiliary blade as a whole can be pivotally connected to one side of the main blade, as by a bolt 23. A spring, in the present instance a spring washer 24 under the head of the bolt, acts to retain the shank of the auxiliary blade in close contact, that is in electrical contact, with the blade.

25 denotes an arm extending from the shank and having at its end a head 26 which is adapted to engage the under side of the blade, in the opening movement, and acts as a stop to limit the separation of the blades, as will be more fully explained, and to which one arm of a spring 27 is secured, said spring being coiled about the bolt and the end of the other arm being bent inward to engage a hole 28 in the blade. This spring acts to normally retain the auxiliary blade closely in recess 20 in the blade. The closing movement is to swing the blade downward in the usual manner, forcing the auxiliary blade and the blade between the jaws until the downward movement is stopped by the engagement of the auxiliary blade with stop lug 19, as in Fig. 1.

In Fig. 3 I have shown the position of the parts just before the circuit is broken. The blade has been raised out of engagement with the jaws but the auxiliary blade is retarded and is still retained between the jaws by the pressure of the jaws thereon. This pressure is sufficient to retain the auxiliary blade between the jaws keeping the circuit closed until the head of arm 25 engages the under side of the blade. After the engagement of the head with the blade, the separation of the jaws is stopped and continued upward movement of the blade will lift the auxiliary blade upward also until the latter is released from the tension of the jaws. The instant this release takes place, the spring will return the auxiliary blade to its normal position with a snap. This snap of the auxiliary blade into engagement with the blade takes place so quickly and the auxiliary blade is so widely separated from the jaws when it does take place that arcing is rendered practically impossible.

It will now be understood that the structure as a whole is simple and of low cost, requiring no special construction of base or standard and jaws. For instance, supposing the blade 15 were of uniform width, having no recess and no auxiliary blade, the whole would constitute an ordinary blade switch. By simply punching or otherwise forming the recess 20 and a bolt hole and the hole 28, it is ready to have the auxiliary blade and spring washer 24 and spring 27 attached, thus converting it into a quick break switch. Consequently if the manufacturer has on hand a quantity of ordinary blade switches, he can quickly, to fill an order, convert them into quick break switches. The recessing of the blade 15 at 20 avoids the necessity of making any change in the jaws 18 or stop 19, and the offsetting of the auxiliary blade enables one portion of it to fit that recess while another portion extends along and up against one side of the main blade and is pivoted there-

to so as to bear flat against the main blade to insure good electrical contact.

It will of course be obvious that the special details of construction are not of the essence of the invention but that these details may be greatly varied, without departing from the principle of the invention.

I claim:—

1. A switch of the character described comprising a pivoted main blade having a portion of one edge cut away to form a recess, an auxiliary blade pivoted to said main blade and offset to form a body portion adapted to fill said recess, and a spring for normally holding said auxiliary blade in said recess, said auxiliary blade being also provided with an extension to engage the under side of said main blade to limit the separation of the blades.

2. A switch of the character described comprising a main blade having a portion of one edge cut away to form a recess, an auxiliary blade of the same thickness as said main blade and provided with a body portion adapted to fill said recess, said auxiliary blade being pivotally mounted on said main blade and provided with an extension to engage the underside of the main blade to limit the separation of the blades, and a spring for normally holding said auxiliary blade in said recess.

3. A switch of the character described comprising a main blade having a portion of one edge cut away to form a recess, an auxiliary blade of the same thickness as said main blade and provided with a body portion adapted to fill said recess, a bolt carried by said main blade and pivotally supporting said auxiliary blade, and a spring encircling said bolt and having arms engaging both blades, and contacts adapted to be engaged by both blades, the said auxiliary blade being provided with an extension to engage the underside of the main blade to limit the separation of said blades.

4. A switch of the character described comprising a main blade having a portion of one edge cut away to form a recess, an auxiliary blade of same thickness as said main blade and pivotally mounted on one side of the latter, one end of said auxiliary blade being offset to form a body adapted to fill said recess, the other end being provided with an extension to form a stop for limiting the separation of said blades, and a spring acting to hold the body of said auxiliary blade within said recess.

5. A switch of the character described comprising a pivoted blade having a recess in its under edge, an auxiliary blade having a portion normally occupying said recess and having an offset shank portion which is provided with an arm having a head adapted to engage the under side of the

blade in the opening movement, said shank
portion overlapping one side of the main
blade and pivoted thereto, a spring acting to
normally retain the auxiliary blade in the
5 recess, and spring jaws acting to retain the
blades in the closing position, the auxiliary
blade being retarded by the jaws until the
head engages the blade and the spring acting

to return the auxiliary blade to its normal
position with a snap when released.

In testimony whereof I affix my signature,
in presence of two witnesses.

CLARENCE D. PLATT

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.