Jan. 3, 1939. J. G. JACKSON 2,142,674

ELECTRIC SWITCH

Filed Feb. 23, 1935

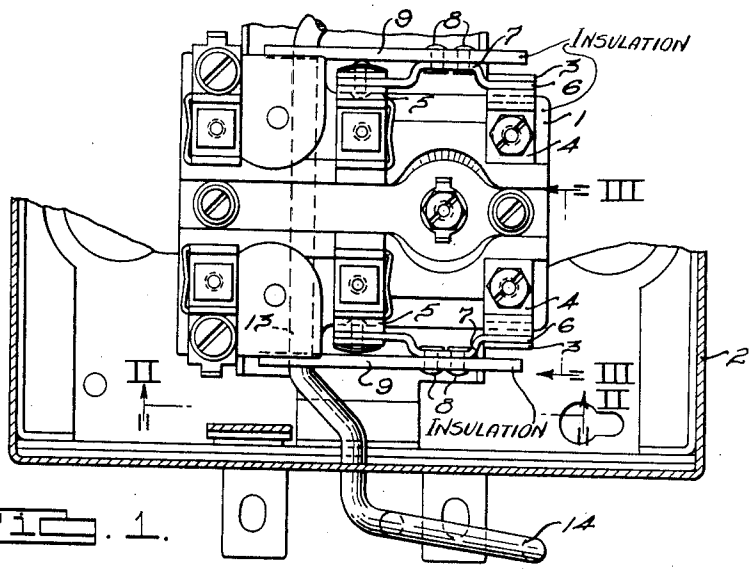


FIG. 1.

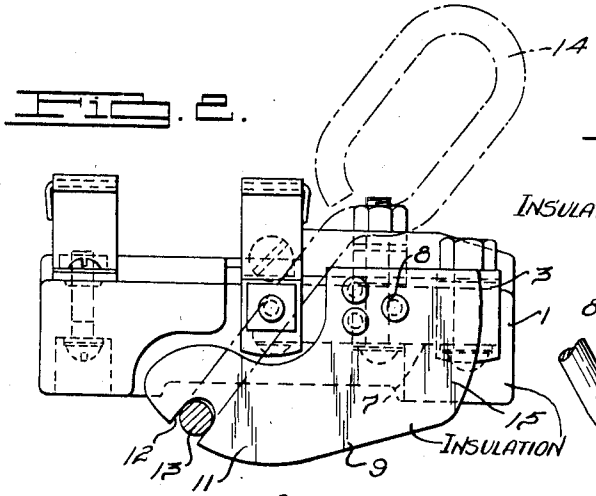


FIG. 2.

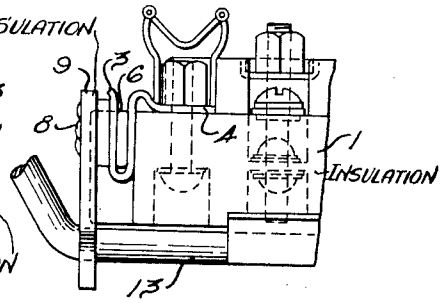


FIG. 3.

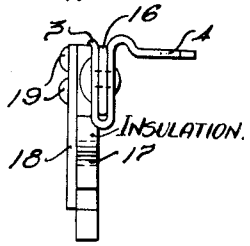


FIG. 4.

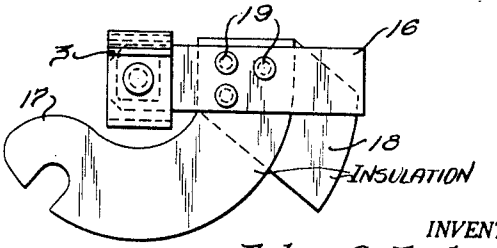


FIG. 5.

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ELECTRIC SWITCH

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Application February 23, 1935, Serial No. 7,745

12 Claims. (Cl. 200—144)

This invention relates to apparatus for making and breaking electric circuits and more particularly to electric switches.

One object of this invention is to provide an electric switch with an improved form of arc barrier.

Another object of this invention is to provide a switch with an improved form of arc barrier and suppressor.

Another object of this invention is to provide a switch blade with a barrier plate movable therewith and shaped to extend alongside the contact break.

Another object of this invention is to provide an improved form of switch blade having an integral insulating hook and arc barrier.

Another object of this invention is to provide an electric switch having a knife blade, insulating hook and barrier plate rigidly mounted together.

Further objects and features of the invention will be readily apparent to those skilled in the art from the following specification and the appended drawing illustrating certain embodiments of the invention.

This application is a continuation in part of my copending application Serial Number 755,265, filed November 30, 1934.

In the drawing:

Figure 1 is a front view of the inside of the switch box with cover removed and parts broken away.

Figure 2 is an enlarged detail sectional view on line II—II of Figure 1.

Figure 3 is an enlarged detail view taken on line III—III of Figure 1.

Figure 4 is an end view of a contact jaw and a modified form of contact blade.

Figure 5 is a side view of the contact blade shown in Figure 4.

Referring to the form of my invention shown in Figures 1 to 3 inclusive, an insulating base 1 is mounted in an enclosing structure 2, this base and its mounting in the enclosing structure being more specifically described in the aforesaid co-pending application.

Mounted on this insulating base on opposite sides thereof are stationary contact jaws 3, 3 having conducting straps 4, 4 integral with one leg thereof and rigidly securing the jaws to the base. Pivot jaw members 5, 5 are mounted on the sides of the base in a similar manner and pivotally support contact blades 6, 6. Each of these contact blades 6 has an offset portion 7 intermediate its ends to which portion is rigidly secured as by means of rivets 8, an insulating blade hook 9 having a portion 11 extending in a general arcuate direction around the pivot point of the blade and being equipped near its end with a slot 12 for the reception of an operating bar 13 having a handle portion 14 integral therewith and extending outside of the enclosing structure as more fully described in the co-pending application.

The hook 9 has a portion 15 extending alongside of and below the contact portion of blade 6 as is more clearly shown in Figure 2. When the contacts are separated this portion 15 will be opposite the break and functions as a barrier and in some degree as a suppressor for the arc. The portion 15 extends alongside of the stationary contact jaw 3 when the contacts are engaged and is spaced from the adjacent leg of the jaw by means of the offset 7 to provide clearance.

A modified form of the invention is shown in Figures 4 and 5. Here the blade 16 is straight and has an arcuate insulating blade hook 17 rigidly secured thereto. An auxiliary plate 18 is also rigidly secured to the blade and hook by the common rivets 19. This plate extends beyond the contact portion of the knife blade in the direction of engagement of the contacts in the same manner as portion 15 of the hook 9. Here the plate 18 which serves as an arc barrier and suppressor in a similar manner to portion 15 is spaced from the contact portion of knife blade 16 by means of the thickness of the blade hook 17 and the necessary clearance is thus provided without the necessity of offsetting the blade and a straight knife blade may be used for the movable contact.

The pivot points for the operating rod and the blade, and the hook slot and point of attachment of the hook to the blade are so arranged that a smooth arcuate movement of the knife blade is secured by movement of the handle 14.

These two forms of movable barrier plate, while more readily adapting themselves to the type of under-slung contact specifically disclosed herein, can obviously be used with any other type of contacts where the necessary clearance space can be secured.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. A switch contact comprising a blade, an insulating blade hook attached to said blade, said insulating hook having a portion extending below the contact portion of the blade and in spaced parallel relation to said contact portion to provide clearance for a cooperating contact jaw while being positioned alongside the blade and jaw and alongside any arc which may be drawn therebetween.

2. A switch contact comprising a blade having an offset portion, an insulating blade hook attached to the offset portion, said insulating hook having a portion extending below the contact portion of the blade and spaced therefrom by means of said offset portion to provide clearance for a cooperating contact jaw while being positioned alongside the blade and jaw and alongside any arc which may be drawn therebetween.

3. A switch contact comprising a blade, an insulating blade hook attached to said blade, and an auxiliary insulating plate mounted over said hook and extending below the contact surface of the blade in laterally spaced, parallel relation to provide clearance for a cooperating contact jaw while being positioned alongside the blade and jaw and alongside any arc which may be drawn therebetween.

4. In an electric switch, an insulating base, a contact having a supporting strap secured to the base and a jaw extending along the side of the base, a pivoted contact blade cooperating with said jaw to open and close the circuit, and an arc barrier movable with said blade and extending parallel thereto and below the portion thereof cooperating with said jaw and positioned alongside any arc which may be drawn between said blade and jaw.

5. In an electric switch, an insulating base, a contact having a supporting strap secured to the base and a jaw extending along the side of the base, a pivoted contact blade cooperating with said jaw to open and close the circuit, and an arc barrier movable with said blade and extending parallel thereto and below the portion thereof cooperating with said jaw, said barrier being spaced from said blade to clear the cooperating leg of the jaw.

6. In an electric switch, a stationary contact jaw, a pivoted contact blade cooperating therewith, an operating rod, a mechanical connection between said rod and blade, and a plate-like insulating member movable with said blade and extending below the portion of said blade cooperating with said jaw in a plane parallel to and laterally spaced from the plane of said blade portion, and positioned alongside any arc which may be drawn between said blade and jaw.

7. In an electric switch, a base, a contact jaw alongside said base, means rigidly connecting one leg of said jaw to said base, a pivoted contact blade cooperating with said jaw, and a barrier plate mounted on said blade and laterally spaced from the contact portion thereof to clear the other leg of said jaw, said barrier extending beyond said portion in the direction of engagement of said contacts so as to be positioned alongside any arc which may be drawn between said blade and jaw.

8. In an electric switch, a base, a contact jaw alongside said base, means rigidly connecting one leg of said jaw to said base, a pivoted contact blade cooperating with said jaw, and a barrier plate mounted on said blade and laterally spaced from the contact portion thereof to clear the other leg of said jaw, said barrier extending beyond said contact portion in the direction of engagement of said contacts, said barrier having a portion extending around the blade pivot and having means for connection to an operating member.

9. In an electric switch, a base, a contact jaw mounted on said base with a free space alongside of and below the contact portion thereof, a contact blade pivoted on said base, means for oscillating said blade, and an insulating barrier movable with said blade and extending alongside of and below said jaw into said free space when the contacts are engaged and positionable alongside any arc drawn by movement of the blade out of engagement with the jaw.

10. In an electric switch, a stationary contact, a pivoted contact cooperating therewith, an operating rod, an arcuate insulating member secured to said pivoted contact and having slotted connection with said rod, and an insulating plate movable with said arcuate member and pivoted contact and extending alongside of and below said stationary contact when said contacts are engaged, whereby on separation of said contacts the plate will function as an arc barrier and suppressor by its position closely adjacent the path of any arc formed.

11. In an electric switch, a stationary contact, a pivoted contact cooperating therewith, an operating rod, an arcuate insulating member secured to said pivoted contact and having slotted connection with said rod, and an insulating plate movable with said arcuate member and pivoted contact and extending alongside of and below said stationary contact when said contacts are engaged, whereby on separation of said contacts the plate will function as an arc barrier and suppressor, said plate, arcuate member and pivoted contact being rigidly connected, said plate being spaced from the pivoted contact by the thickness of the arcuate member.

12. In an electric switch, a stationary contact jaw, a movable blade contact associated therewith, an operating rod, an insulating plate rigidly secured to said blade and having a slot receiving said rod, said plate having a portion extending alongside of and below the portion of said blade engaging said jaw and serving as an arc barrier and suppressor, said blade having an offset portion to which the plate is attached to allow clearance for a leg of the contact jaw.

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