Oct. 7, 1952 J. J. KOJIS 2,613,291

AUXILIARY CONTACT CONSTRUCTION FOR LOAD INTERRUPTER SWITCHES

Filed April 26, 1950 2 SHEETS—SHEET 1

Fig. 1

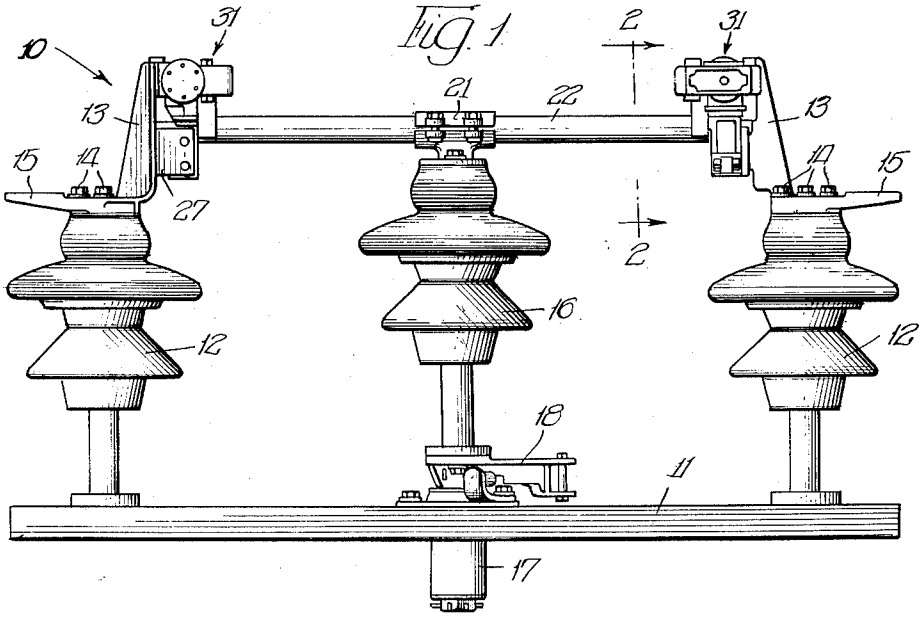
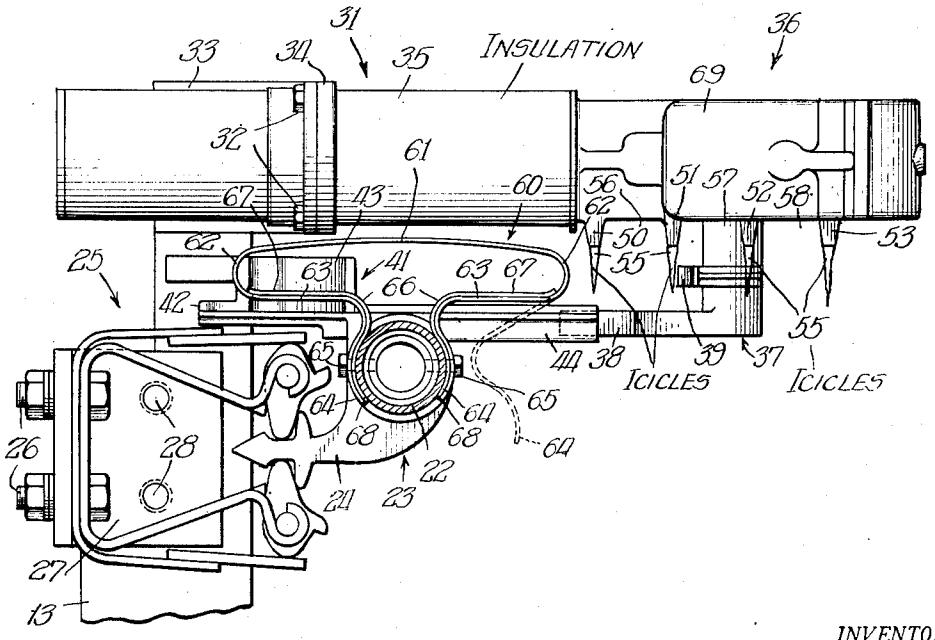


Fig. 2



INVENTOR.
John J. Kojis,
BY
Robert R. Lockwood
Atty.

Oct. 7, 1952 J. J. KOJIS 2,613,291

AUXILIARY CONTACT CONSTRUCTION FOR LOAD INTERRUPTER SWITCHES

Filed April 26, 1950 2 SHEETS—SHEET 2

Fig. 3

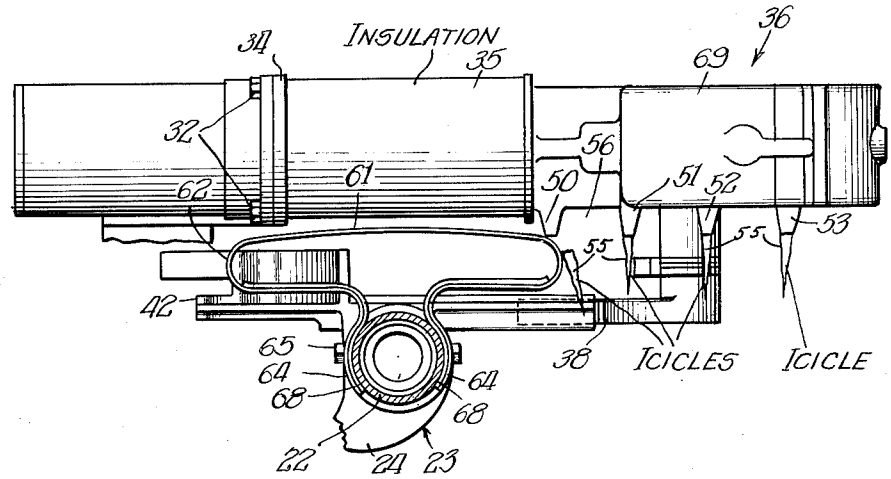
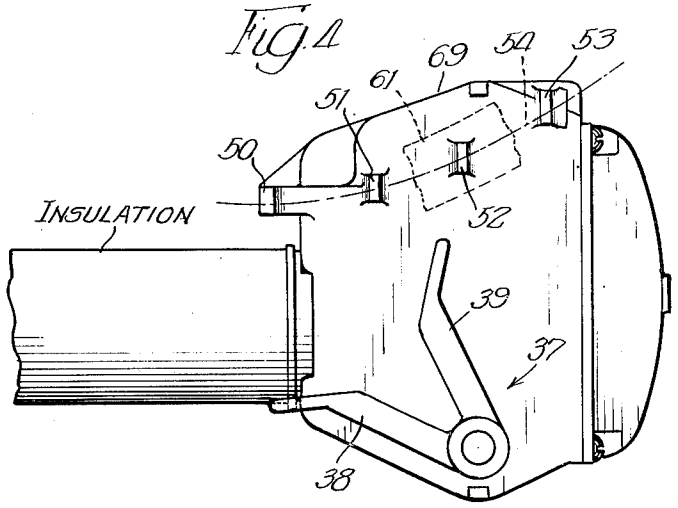


Fig. 4



INVENTOR.
John J. Kojis,
BY
Robert R. Lockwood
atty

Patented Oct. 7, 1952 2,613,291

UNITED STATES PATENT OFFICE

2,613,291

AUXILIARY CONTACT CONSTRUCTION FOR LOAD INTERRUPTER SWITCHES

John J. Kojis, Chicago, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware

Application April 26, 1950, Serial No. 158,246

14 Claims. (Cl. 200—48)

1

This invention relates, generally, to high voltage electric power load interrupter switches and it has particular relation to the construction of auxiliary contacts employed for maintaining a circuit through the load interrupter while it is interrupting the current flow in the circuit after the main contacts have been opened. However, the application of the present invention is not so limited. This invention constitutes an improvement over the switch construction disclosed in application Serial No. 41,597, filed July 30, 1948, and assigned to the assignee of this application.

Among the objects of this invention are: To overcome improper functioning of the auxiliary contacts resulting from the formation of ice on the engageable contact surfaces; to construct the stationary auxiliary contact so that if ice appears thereon, it will be in the form of icicles which can be broken or pushed off readily on engagement by the movable auxiliary contact; to provide the stationary auxiliary contacts with a plurality of depending projections on which the icicles readily form; to construct the movable auxiliary contact so that it will break or push off the icicles without its being permanently deformed while providing sufficient resiliency therein to maintain the required contact pressure with the aforesaid projections on the stationary auxiliary contact member; to employ a bow configuration for the movable auxiliary contact; and to reinforce the bow shaped auxiliary movable contact so that it is pretensioned and rigidified and one bow end is not moved upwardly when the opposite bow end is depressed on initial engagement with the first of said projections.

Other objects of this invention will, in part, be obvious and in part appear hereinafter.

This invention is disclosed in the embodiment thereof shown in the accompanying drawings and it comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

For a more complete understanding of the nature and scope of this invention, reference can be had to the following detailed description, taken together with the accompanying drawings, in which:

Figure 1 is a view, in side elevation, of a high voltage load interrupter type of disconnecting switch in which the present invention is embodied;

2

Figure 2 is a detail sectional view, at an enlarged scale, taken generally along the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2 but showing the relative positions of the stationary and movable auxiliary contact members during the initial movement of the latter to the switch open position, the main contact members shown in Figure 3 being omitted; and

Figure 4 is a bottom plan view of the housing shown in Figures 2 and 3 which constitutes the stationary auxiliary contact member, the position of the movable auxiliary contact member relative to ice forming projections thereon being shown by broken lines.

Referring now particularly to Figure 1 of the drawings it will be observed that the reference character 10 designates, generally, a load interrupter type of switch intended for operation in a circuit energized at a voltage of 34.5 kv. However, it will be understood that the present invention can be employed in conjunction with switches operating at higher or lower voltages, the specified voltages being for illustrative purposes only.

The switch 10 includes a channel base 11 having stationary insulators 12 at its ends extending upwardly. The insulators 12 carry terminal brackets 13 which are secured by bolts 14 to the upper ends of the insulators 12. Terminal pads 15, formed integrally with the brackets 13, provide for connection to the circuit in accordance with conventional practice. Midway between the stationary insulators 12 is a rotatable insulator 16. The insulator 16 is rotatable in a bearing construction 17, carried by the channel base 11 about a vertical axis. An operating arm 18 is provided for rotating the insulator 16 either individually or for gang operation with two other similar switches 10 making up a three phase installation.

At its upper end the insulator 16 has a clamp 21 for gripping a switch blade 22 that is arranged to be rotated in a horizontal plane. The switch blade 22 preferably is in the form of a copper tube. At each end it has a blade tip that is indicated, generally, at 23 and shown in detail in Figure 2 of the drawings. The blade tip 23 is a brass casting and includes a main contact arm 24 that is arranged to engage a stationary main contact member as indicated, generally, at 25. The main contact member 25 is secured by bolts 26 to an angle bracket 27 of good conducting material such as copper which, in turn, is secured by tap bolts 28 to the terminal bracket

13 associated therewith. It will be understood that the main contact arm 24, which constitutes an extension at each end of the switch blade 22, and the associated stationary main contact member 25 are arranged to carry the load current when the switch 10 is in the closed position as illustrated in Figures 1 and 2. The main contact arm 24 and stationary main contact member 25 may be constructed as disclosed in the copending application above referred to or in accordance with copending application Serial No. 159,025 filed April 29, 1950, now Patent No. 2,567,606 dated Sept. 11, 1951. Also it will be understood that other constructions of main contacts can be employed in practicing the present invention. Accordingly, a detailed description of the particular main contact arm 24 and stationary main contact member 25 will not be set forth herein.

It is not intended that an arc will be drawn between the main contact arm 24 and the stationary main contact member 25 when the switch is opened and they are separated. In order to interrupt the circuit in a satisfactory and efficient manner a load interrupter device, indicated generally at 31, is employed. The details of construction of the load interrupter device 31 are set forth in application Serial No. 41,597, filed June 30, 1948. Alternatively the load interrupter switch construction disclosed in United States Patent No. 2,351,826, issued June 20, 1944, and assigned to the assignee of this application, also can be used. Since the particular details of construction of the load interrupter device 31 form no part of the present invention, the same will not be set forth herein. Also it will be understood that other types of load interrupter devices can be employed in practicing this invention.

The load interrupter device 31 may be secured by bolts 32 to an angle bracket 33 of good conducting material such as copper. The angle bracket 33 is secured by suitable bolts (not shown) to the terminal bracket 13. There are two load interrupter devices 31 employed, one being located on each of the terminal brackets 13 at each end of the switch blade 22. The angle bracket 33 is bolted, as indicated, to one terminal 34 of the load interrupter device 31. This terminal is separated by an insulator 35 from a terminal housing, shown generally at 36, which may be formed of cast red brass. The terminal housing 36 is insulated by the insulator 35 from the terminal 34. Provision is made, as will be described presently, for maintaining contact engagement with the terminal housing 36 prior to disengagement of the main contact arm 24 from the stationary main contact member 25 and during the period after separation while the load interrupter device 31 is carrying the entire load current and is interrupting the same. When so employed the terminal housing 36 functions as a stationary contact member and is so referred to in the claims.

On the underside of the terminal housing 36 there is a bifurcated operating arm that is indicated, generally, in Figure 4 at 37. The operating arm 37 has branches 38 and 39 and is arranged to control the operation of the mechanism within the load interrupter device 31. The operating arm 37 of the load interrupter device 31 is arranged to be moved by an operator, shown generally at 41, which forms an integral part of the blade tip 23. As shown in Figure 2, the operator 41 includes flanges 42 and 43 that are arranged to cooperate respectively with the branches 38 and 39 for operating the load interrupter device 31 to and from the closed circuit position. A tail piece 44 constituting an extension of the flange 42 and formed integrally with the blade tip 23 cooperates with the branch 38 to lock the load interrupter device 31 in the closed position. For a more complete understanding of the manner in which the load interrupter device 31 is controlled and operated, reference can be had to the copending application Serial No. 41,597, filed July 30, 1948, mentioned hereinbefore.

It is intended that the load interrupter switch 10 shall be mounted in the position illustrated in Figure 1. As set forth hereinbefore the switch blade 22 swings in a horizontal plane about the vertical axis of the rotatable insulator 16 in moving from and to the switch closed position. The plane of swinging movement of the switch blade 22 is below the terminal housings 36 carried by the terminal brackets 13. In prior constructions a depending continuous flange has been provided on the underside of each terminal housing 36 to permit contact engagement therewith while the main contact arm 24 is separating from the stationary main contact member 25 and during the period that the load interrupted device 31 is operating to open the circuit. Under certain icing and sleet conditions, a layer of ice may form on such a depending flange and it constitutes an insulator which prevents the desired contact engagement with the housing 36 during the period just referred to.

With a view to overcoming such a difficulty, instead of employing a continuous flange with which contact engagement can be made, the terminal housing 36 is provided on its underside with integrally formed wedge shaped projections 50, 51, 52 and 53. For illustrative purposes it is pointed out that each of the wedge shaped projections 50 through 53 may be about ½ inch long, ⅜ inch wide and arranged to taper to a width of ⅛ inch at their lower ends. As illustrated in Figure 4, the wedge shaped projections 50 through 53 are spaced apart along an arc, illustrated by the broken line 54, whose center is the vertical axis of rotation of the rotatable insulator 16.

Under icing or sleet conditions icicles, shown at 55 in Figure 2, may form on the lower ends of the projections 50 through 53. Because of the spaces 56, 57, and 58 between the projections 50—51, 51—52, and 52—53, respectively, the ice will form as icicles 55, as described, rather than as a single sheet of ice as is the case when a continuous flange is employed instead of the spaced projections. It is unlikely that the sleet or icing conditions will be so severe as to fill the spaces 56, 57 and 58. Thus the ice is formed in discreet bodies or icicles 55 which may be pushed off or broken off readily leaving the lower ends of the projections 50, 51, 52 and 53 free of ice and capable of being contacted readily to complete the circuit through the load interrupter device 31 as is required for proper operation.

In accordance with this invention, contact engagement with the projections 50, 51, 52 and 53 is obtained through the use of a bow shaped resilient contact member that is indicated generally at 60. The bow shaped contact member 60 is formed preferably of good conducting resilient material such as Phosphor bronze. For illustrative purposes it is pointed out that it may initially have a length of $13\frac{13}{64}$ inches, a width of one inch and a thickness of .032 inch. Its

intermediate portion 61 is arranged to have sliding contact engagement with the lower ends of the wedge shaped projections 50, 51, 52 and 53. As illustrated, the contact member 60 extends upwardly from the switch blade 22 at each end at right angles thereto. Its bow ends 62 interconnect the intermediate contact portion 61 with straight end portions 63 that extend toward each other and have curved end portions 64 which extend downwardly around opposite sides of the switch blade 22. The curved end portions 64 are clamped to the switch blade 22 by bolts 65.

Not only does the bow shaped contact member 60 have to provide a current carrying path between the terminal housing 36 and the switch blade 22 but also it must function to break or push off the icicles 55 from the lower ends of the wedge shaped projections 50, 51, 52 and 53, should they be present. Also it is desirable that the lower ends of these projections be engaged with a relatively high contact pressure in order to provide a low resistance current conducting path and to avoid external arcing. For this purpose the bow shaped member 60 is constructed, as described, and has a relatively initial high degree of resiliency. Prior to their being applied to the switch blade 22 the end portions 63 and 64 occupy the position illustrated by the broken lines in Figure 2.

With a view to holding the bow shaped contact member 60 in the position shown by full lines in Figure 2 where it is prestressed and in order to rigidify the same and further to prevent one bow end 62 from being raised upwardly when the other bow end 62 engages the first of the projections 50, 51, 52, and 53, from either direction of movement, brace members 66 are employed and, as shown in Figure 2, are nested with the end portions 63 and 64 of the bow shaped contact member 60. Each brace member 66 is formed preferably of Phosphor bronze and initially each has a length of $3\frac{7}{64}$ inches. Each has a width of one inch, the same as the width of the bow shaped contact member 60 and a thickness of .064 inch. Each brace member 66 has a straight end portion 67 which overlies the straight end portion 63 at each end of the bow shaped contact member 60. Also each brace member 66 has a curved end portion 68 which is interposed between the corresponding curved end portion 64 of the bow shaped contact member 60 and the surface of the switch blade 62. The bolts 65 act to clamp the curved end portions 64 of the bow shaped contact member and the curved end portion 68 of the brace member 66 securely in position as shown in Figure 2.

When the switch blade 22 is swung toward the switch closed position, the main contact arm 24 starts to move out of engagement with the stationary main contact member 25. Before disengagement therebetween takes place, the bow shaped resilient contact member 60 engages the wedge shaped projection 50 as illustrated in Figure 3. In the event that an icicle 55 should have been formed on this projection, it is broken or pushed off as here illustrated. Likewise, as the switch blade 22 continues to move to the open position, icicles 55 on the succeeding projections 51, 52, and 53 are broken or brushed off. Because of the presence of the brace member 66, the bow end 62 engaging the projection 50 is rigidified and possesses sufficient strength to break or brush off the icicle 55. In the absence of the brace member 66, there would be a tendency for the other bow end 62 to rise when the bow end 62 engages the projection 50. However, the presence of the brace members 66 prevents this and, since two of them are used, such undesired movement of the bow ends 62 is prevented for either direction of movement of the switch blade 22. At the same time the intermediate contact portion 61 is thrust upwardly with a biasing action sufficient to provide good contact engagement with the lower ends of the projections 50, 51, 52, and 53.

In the drawings the projections 50, 51, 52 and 53 are shown extending from the underside of the housing 36. Where the load interrupter device 31 is otherwise mounted, the housing 36 is modified so that projections, corresponding to the projections 50, 51, 52, and 53, extend downwardly, as for example from the side 69 where it constitutes the underside of the housing 36.

Since certain further changes can be made in the foregoing construction and different embodiments of the invention can be made without departing from the spirit and scope thereof, it is intended that all matter shown in the accompanying drawings and described hereinbefore shall be interpreted as illustrative and not in a limiting sense.

What is claimed as new is:

1. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside on the lower ends of which icicles may form, a switch blade movable underneath said projections, a bow shaped resilient contact member extending from said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member being secured to said switch blade, and brace means cooperating with said ends of said bow shaped contact member to pretension and rigidity the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

2. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside on the lower ends of which icicles may form, a switch blade movable underneath said projections, a bow shaped resilient contact member extending upwardly from said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member extending toward each other and being secured to said switch blade, and a pair of brace members nested with said ends of said bow shaped contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

3. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside offset from each other along a circular arc on the lower ends of which icicles may form, a switch blade rotatable about the center of said arc underneath said projections, a bow shaped resilient contact member extending from said switch blade for sequentially engaging the lower ends of said projections to

make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member being secured to said switch blade, and brace means cooperating with said ends of said bow shaped contact member to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

4. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside offset from each other along a circular arc on the lower ends of which icicles may form, a switch blade rotatable about the center of said arc in a plane underneath said projections, a bow shaped resilient contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member extending downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

5. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside offset from each other along a circular arc on the lower ends of which icicles may form, a switch blade rotatable about the center of said arc in a plane underneath said projections, a bow shaped resilient contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member being secured to said switch blade, and a pair of brace members nested with said ends of said bow shaped contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel at one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

6. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside offset from each other along a circular arc on the lower ends of which icicles may form, a switch blade rotatable about the center of said arc underneath said projections, a bow shaped resilient contact member extending from said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member extending toward each other and downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

7. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending wedge shaped projections on its underside offset from each other along a circular arc on the lower ends of which icicles may form, a switch blade rotatable about the center of said arc in a plane underneath said projections, a bow shaped resilient contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon, the ends of said bow shaped contact member extending toward each other and downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped contact member inside thereof around said switch blade and extending in opposite directions to pretension said bow shaped contact member and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

8. A high voltage load interrupter switch construction comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of projections depending from the underside of said housing offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, a bow shaped resilient auxiliary contact member extending from said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon, the ends of said bow shaped auxiliary contact member being secured to said switch blade, and brace means cooperating with said ends of said bow shaped auxiliary contact member to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

9. A high voltage load interrupter switch construction comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of projections depending from the underside of said housing

offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, a bow shaped resilient auxiliary contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon, the ends of said bow shaped auxiliary contact member extending downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped auxiliary contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

10. A high voltage load interrupter switch construction comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of projections depending from the underside of said housing offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, a bow shaped resilient auxiliary contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon, the ends of said bow shaped auxiliary contact member being secured to said switch blade, and a pair of brace members nested with said ends of said bow shaped auxiliary contact member extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

11. A high voltage load interrupter switch construction comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of projections depending from the underside of said housing offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, a bow shaped resilient auxiliary contact member extending from said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon, the ends of said bow shaped auxiliary contact member extending toward each other and downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped auxiliary contact member and extending in opposite directions to pretension and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

12. A high voltage load interrupter switch construction, comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of wedge shaped projections depending from the underside of said housing offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, a bow shaped resilient auxiliary contact member extending upwardly from and at right angles to said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon, the ends of said bow shaped auxiliary contact member extending toward each other and downwardly around the sides of said switch blade and being secured thereto, and a pair of brace members nested with said ends of said bow shaped auxiliary contact member inside thereof around said switch blade and extending in opposite directions to pretension said bow shaped auxiliary contact member and rigidify the same and prevent upward travel of one bow end when the opposite bow end is depressed on initial engagement with the first of said projections.

13. A switch construction for outdoor mounting comprising, in combination, a stationary contact member having a plurality of depending projections on its underside on the lower ends of which icicles may form, and a switch blade movable relative to said contact member for sequentially engaging the lower ends of said projections to make electrical contact therewith and to break off any icicles formed thereon.

14. A high voltage load interrupter switch construction comprising, in combination, a switch blade rotatable about a vertical axis, a stationary main contact member arranged to be engaged and disengaged by said switch blade, a load interrupter device connected to said main contact member for interrupting the current flow through said switch on separation of said switch blade from said main contact member, said load interrupter device including a housing disposed above the plane of rotation of said switch blade; and means for interconnecting said switch blade and said housing to maintain the circuit through said

load interrupter device after said switch blade disengages said main contact member while said device is interrupting the current flow through said switch including a plurality of projections depending from the underside of said housing offset from each other along an arc whose center is said vertical axis and on the lower ends of which icicles may form, and a contact member carried by said switch blade for sequentially engaging the lower ends of said projections to make electrical contact therewith for maintaining said circuit and to break off any icicles formed thereon.

JOHN J. KOJIS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,264,797	Honold	Apr. 30, 1918
2,351,826	Lindell et al.	June 20, 1944