

Aug. 30, 1927.

1,640,457

F. P. LAWLER

HIGH TENSION SWITCH

Original Filed July 9, 1924

Fig. 1.

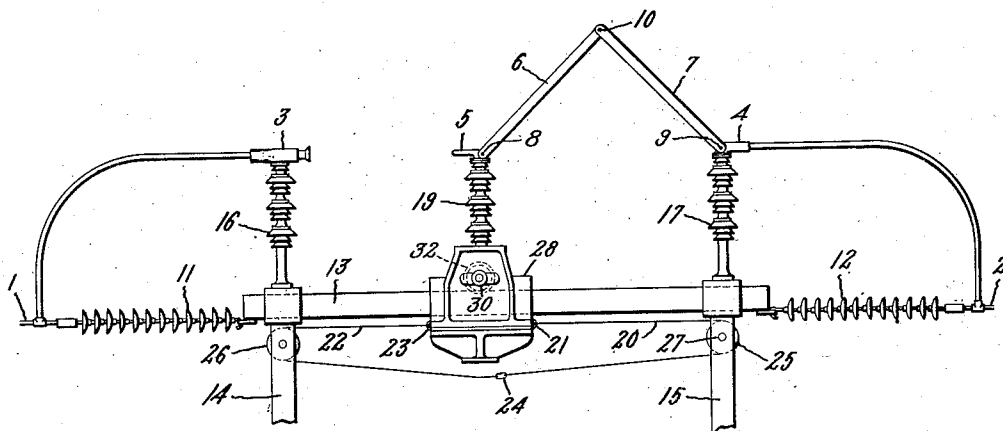


Fig. 2.

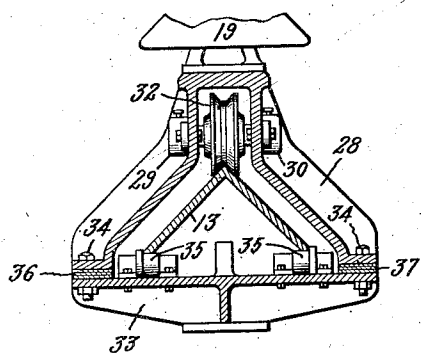
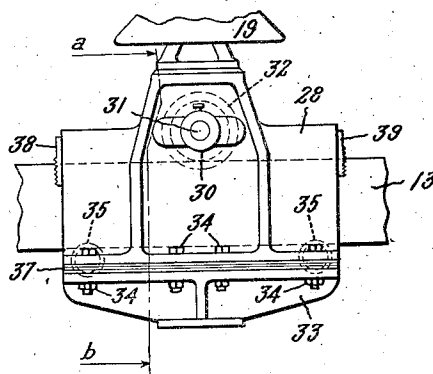


Fig. 3.



Inventor:
Frank P. Lawler,
by *Alexander S. Lane*
His Attorney

Patented Aug. 30, 1927.

1,640,457

UNITED STATES PATENT OFFICE.

FRANK P. LAWLER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

HIGH-TENSION SWITCH.

Application filed July 9, 1924, Serial No. 725,050. Renewed June 25, 1927.

My invention relates to high tension switch mechanisms of the general type disclosed in my Letters Patent No. 1,464,368, dated August 7, 1923, reissued May 13, 1924, No. 15,838, and in my copending application Serial No. 725,049, filed July 9, 1924.

The object of my invention is to provide an improved high tension circuit control mechanism or switch of the type disclosed by my Letters Patent, aforesaid, which is of simple construction and is designed for operation under conditions when it is exposed to sleet and ice.

My invention will be better understood on reference to the following description when considered in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

Referring to the drawings, Fig. 1 shows a circuit control mechanism or switch in which my invention has been embodied; and Figs. 2 and 3 show certain details of the carriage by means of which the movable contact of the apparatus is moved to and fro between its open and closed positions.

Fig. 1 shows line sections 1 and 2 arranged to be interconnected through line terminals 3 and 4, movable contact 5 and a yieldable connection comprising members 6 and 7, which are pivoted, at 8 and 9 respectively, and are hinged together at 10. Any other suitable form of yieldable connection may of course be used. Line sections 1 and 2 are supported through dead end insulators 11 and 12 respectively from opposite ends of a trackway 13 shown as made of an angle iron mounted on the supports 14 and 15. For the purpose of insulating and supporting the switch line terminals 3 and 4, insulators 16 and 17 are located at opposite ends of the trackway 13. The movable contact 5 is mounted on an insulating pillar 19 which is supported by a carriage arranged to move along the trackway 13. Means comprising sprocket chain 20 attached to the carriage at 21 and a wire or rope 22 attached to the carriage at 23 are provided for moving the carriage along the trackway. The sprocket chain 20 and rope 22 are attached together at 24 and are arranged to cooperate with sprocket gear 25 and idler pulley 26 respectively. Any convenient means may be provided for rotating the shaft 27 on which the sprocket gear 25 is mounted.

Certain details of the carriage are shown

in Fig. 3 and in Fig. 2 which is a sectional view taken on the line *a-b* of Fig. 3. These figures show a yoke member 28 provided with bearings 29 and 30 adapted to receive opposite ends of a shaft 31 upon which is mounted a wheel 32. The wheel 32 is arranged to support the carriage and to roll along the upper edge of the angle member 13 as the carriage is moved from one position to another. The insulator 19 is supported at the top of the member 28. The bottom part of the carriage is formed by a base member 33 which is attached to the lower edges of the yoke 28 by means of the bolts 34. It will be observed that the member 33 is adapted to have an insulator mounted on its lower surface. Rollers 35 arranged to engage the lower edges of the angle member 13 are mounted on the upper surface of the member 33. Shims 36 and 37 may be interposed between the members 28 and 33 to maintain the wheel 32 and the rollers 35 in close contact with the edges of the trackway 13.

The member 28 forms a cover by which the wheel 32 and rollers 35 are protected from the weather. The trackway 13, however, is uncovered. It is therefore desirable to provide some means for removing accumulations of ice and snow which would interfere with the operation of the carriage. Any suitable brushing or scraping means operable in response to movement of the car may be provided for this purpose. In Fig. 3, I have shown scrapers 38 and 39 attached to opposite ends of the member 28 and arranged to clear a pathway for the wheel 32.

Similar scrapers may be provided if necessary for removing the ice depending on the lower edges of the member 13. A sufficient clearance may be provided between the sides of the framework 28 and the surfaces of the member 13 so that it will be unnecessary to remove ordinary accumulations of sleet or snow from the member 13 except at the top along which wheel 32 moves and in some cases at the bottom edges. The arrangement shown in Figs. 2 and 3 is well adapted for systems of moderately high tension, but where the system is to operate at voltages in the neighborhood of 200,000, the provision of an angle member 13 of moderate size will not provide a sufficiently stable mounting for the movable insulator which may be 6 ft. or more in height. It is obvious, however, that the angle member 13 may be re-

placed by a fabricated triangular structure comprising an angle member at the top of the triangle and rails at the bottom sides of the triangle. In this way the support may be readily made of a size to give sufficient stability to the carriage which carries the insulator.

While I have indicated the insulator 19 as carried at the top of the carriage, it is apparent that this insulator may be mounted on the bottom of the carriage upon a flat surface provided for that purpose. This arrangement is desirable where the switch line terminals and the contacts are located below instead of above the trackways.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A circuit control mechanism wherein a line terminal is connected to a fixed contact and wherein a movable contact operable to open and closed positions is arranged to engage said fixed contact in its closed position, comprising an angle member, and a carriage having a wheel arranged to roll along the corner of said angle member for supporting said movable contact.

2. In a mechanism for controlling a circuit through an electric power line, the combination of an angle member, stationary insulators located at opposite ends of said angle member, switch line terminals mounted on said insulators, a fixed contact associated with one of said terminals, and means for interconnecting said terminals including a carriage provided with a wheel arranged to roll upon the corner of said angle member, an insulating pillar supported by said carriage and a contact mounted on said pillar.

3. A circuit control mechanism wherein a line terminal is connected to a fixed contact

and wherein a movable contact operable to open and closed positions is arranged to engage said fixed contact in its closed position, comprising an angle member, a carriage including a wheel adapted to roll along the corner of said angle member, and rollers arranged to contact with the edges of said angle member.

4. A circuit control mechanism wherein a line terminal is connected to a fixed contact and wherein a movable contact operable to open and closed positions is arranged to engage said fixed contact in its closed position, comprising a trackway formed of an angle member, a carriage including a wheel adapted to rotate along the corner of said angle member, a yoke member arranged to support said movable contact and to form a bearing for said wheel, a base member attached to the edges of said yoke member, and rollers mounted upon said base member to roll along the edges of said angle member for maintaining said movable contact in alinement with said fixed contact.

5. A circuit control mechanism wherein a line terminal is connected to a fixed contact and wherein a movable contact operable to open and closed positions is arranged to engage said fixed contact in its closed position, comprising an angle member forming a trackway exposed to the weather, a carriage for moving said movable contact including a wheel adapted to roll along the corner of said angle member, and means operable in response to movement of said carriage for clearing a pathway for said wheel.

In witness whereof, I have hereunto set my hand this 27th day of June, 1924.

FRANK P. LAWLER.