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SECTION INSULATOR

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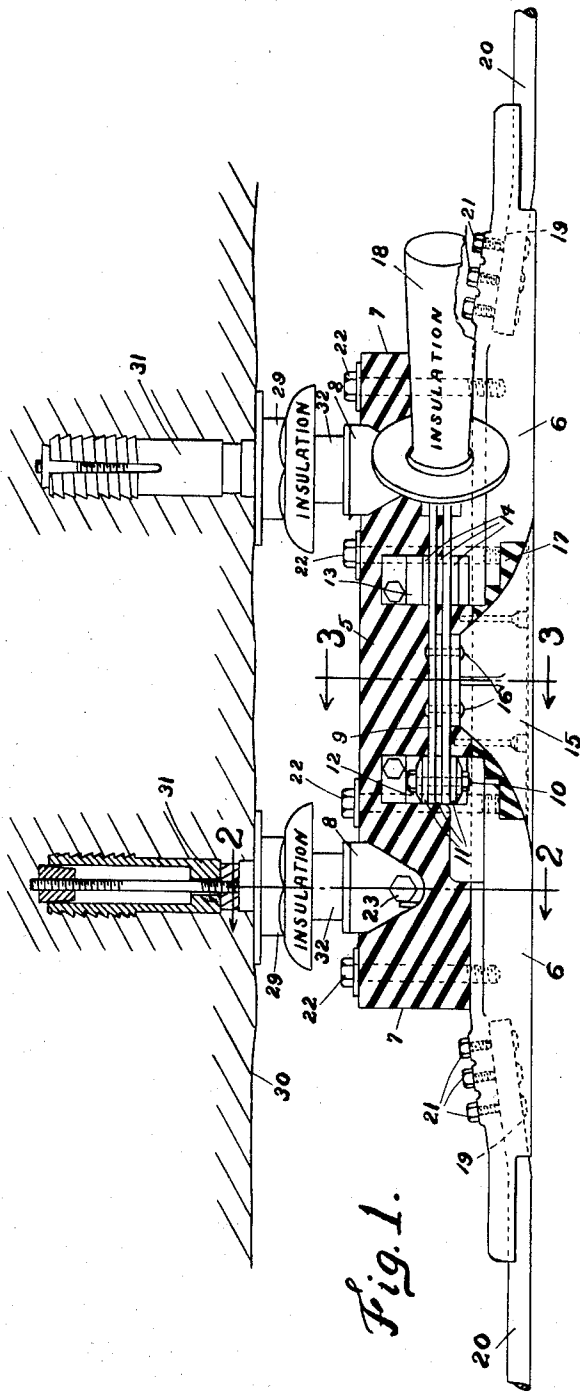


Fig. 1.

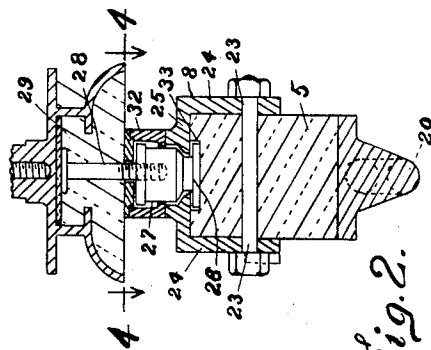


Fig. 2.

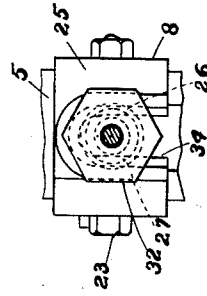


Fig. 3.

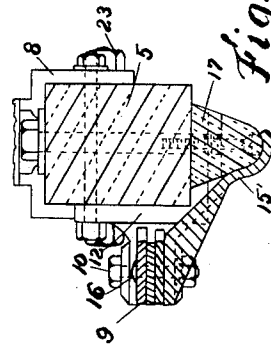


Fig. 4.

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SECTION INSULATOR

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5 Claims. (Cl. 191—39)

The present invention relates to improvements in a section insulator and has for an object the elimination of obstruction over the set screw heads which secure the trolley wires in the terminals; the provision for mounting closer to the mine roof; the reduction in space between hangers to overcome difficulties in roof irregularities and the complete insulation of the hangers from current carrying parts to insure greater safety to workmen.

Other objects of the invention are to effect economy of materials, to provide for adjustments in mounting arrangements without cutting off the electric current and to provide for the renewal of supporting members without dismantling of the balance of the insulator. Another object is to obtain a minimum over-all height of the device without cutting away the ends of the wood beam thereof.

These and other objects and advantages are attained by the means described herein and disclosed in the accompanying drawing, in which: Fig. 1 is a side elevational view of a device of the invention operatively mounted to a mine roof.

Fig. 2 is a view taken on line 2—2 of Fig. 1.

Fig. 3 is a view taken on line 3—3 of Fig. 1.

Fig. 4 is a view taken on line 4—4 of Fig. 2.

The section insulator of the present invention consists of a wood beam or insulating member of any other suitable material 5, a pair of conductor receiving terminals 6 secured thereto and preferably extending beyond the opposite ends 7 of the insulator 5, a pair of support members 8 on the top of the insulator 5 and disposed intermediate the ends 7 thereof and in electrically insulated relation to the terminals 6 and the other parts electrically connected with said terminals. A switch blade structure 9 is pivoted by means of a bolt 10 between lugs 11 which project from an extension 12 of one of the terminals 6. A somewhat similar extension 13 on the opposite terminal 6 carries contact jaws 14 for receiving the blade 9 for completing electrical connection between the terminals 6. A metal wing or under-run 15 is connected to the blade by rivets 16 and is movable therewith. When the blade 9 is seated in the contact jaws 14, the wing or under-run 15 provides a continuous smooth bearing and electrical contact with the terminals 6 for receiving a trolley wheel. An insulating insert 17 fills the gap between the adjacent ends of the terminals and provides a strong backing for the wing or under-run 15, and prevents the wheel from being thrown from wire or insulator in case the

switch is inadvertently left in open position during passage of the trolley wheel. An insulated handle 18 is provided on the free end of blade structure 9 to actuate the switch.

The terminals 6 have end bores 19 which receive the ends of conductor wires or trolley wires 20, their ends being secured in said bores by a plurality of set screws 21.

From the following it will be noted that the means for connecting the terminal 6 to the insulator 5, namely the bolts 22 extend transversely through the insulator in one direction, namely vertically, while the means which connect the support members 8 to the insulator, namely bolts 23 extend transversely through the insulator 5 in the opposite direction, namely horizontally, and in this way the support means 8 and all parts associated therewith are electrically insulated from the terminal 6 and all parts connected with them. Because of this arrangement it is possible to safely adjust or replace the supporting means 8 without in any wise dismantling or disconnecting the parts of the remainder of the device. This may be done with perfect safety.

The supporting means 8 comprises a depending U-shaped saddle with aligned perforations 23 in the legs 24 thereof. The top 25 of supporting means 8 has a swivel connection 26 with a clamping nut member 27 whereupon the supporting means is attached to the threaded stud 28 of hanger 29. The hangers are rigidly supported against the mine roof 30 by any of the usual expansion bolt members 31. The polygonal member 32 of the clamping nut structure 27 is readily accessible closely adjacent the top edge of the insulating member 5 and may be manipulated either for mounting or for tightening up the device upon the hangers 29. It should be noted that in the top face of the insulator 5 is provided a counter-bore 33 for receiving the depending swivel portion 26 upon the support member. The top 25 of the support member 8 has an elongated slot 34 to slidably receive the swivel member 26 of the clamping nut structure 27. This permits of longitudinal adjustment of the supporting means which is very desirable when the fixed roof hangers have been inaccurately spaced or centered.

In use it will be noted that the support means 8 may be mounted upon the roof hangers 29 whereupon the balance of the device may be assembled and the wires 20 inserted and clamped into the terminal 6 independently of the supporting means. The insulator 5 may then be inserted between the legs 24 of the support members 8

and bolts 23 inserted. During this period the clamping nut mechanism is left in an untightened condition so that longitudinal adjustment in the slot 34 may be readily made. When all parts are in properly adjusted positions the nuts 32 are tightened and the device is ready for use.

The supporting means 8, it should be noted, are entirely free and clear of the set screws 21 so that it is not necessary to work in a restricted space such as is found in previously used devices wherein the supporting means directly overhangs the set screws and is furthermore at all times in electrical connection with the trolley wire receiving terminals. The supporting means 8 being electrically insulated from one another and from the terminals as well, may be placed closer together than usual and difficulties occasioned by irregularities in the mine roof are minimized. All adjustments of the supporting elements can be made without cutting off the electric current. If one of the supporting members needs to be renewed, the removal of the old one and replacement thereof with the new may be made without disassembling the balance of the section insulator. The device requires a minimum of height without tapering off the ends of the insulator member or beam. It should be further noted that by having the supporting members 8 completely insulated the danger of arcing of the current onto the wet mine roof is eliminated.

The invention herein is not to be considered as being restricted to the exact structural details shown since they may be modified within the spirit of this invention and the scope of the appended claims.

What is claimed is:

1. In a section insulator the combination of an insulator beam, a pair of nonadjustably mounted support members disposed one adjacent each end thereof, said support members each having a longitudinal way in the top thereof, clamping and attaching nut structures adjustable longitudinally in the ways in the support members, means securing the support members to the beam in said

nonadjustable relation, and conductor receiving terminals projecting beyond the opposite ends of said beam and secured thereto in electrically insulated relation to the supporting members.

2. In a device of the class described the combination of an insulator beam, support members mounted on the top of the beam intermediate the ends thereof, said support members each comprising a saddle member embracing the insulator beam and having a longitudinally extending slot in its top and means adjustable in said slot for attachment to a suitable stud, and conductor receiving terminals insulated from the supporting members and from each other on said beam.

3. In a section insulator, an insulating beam, spaced terminals extending along the bottom of said beam and having conductor receiving sockets, means extending downwardly through the beam for mounting the terminals thereon, independently attachable supporting members comprising saddle members straddling the top of the insulator beam intermediate its ends and providing open ended slots, clamping and attaching nut mechanisms adjustable in said slots for suspending the saddle members from suitable hanger studs and clamping themselves in adjusted position on said saddle members.

4. The combination with an insulating beam of a support member therefor comprising a saddle-shaped body having in its top an open ended longitudinally extending slot and a swivel type clamping and attaching nut structure adjustable longitudinally in the slot in the saddle.

5. In combination an insulating beam, a saddle-shaped supporting member seating on top of said beam and embracing opposed adjacent side portions of the beam, a fastening member extending through said embracing portions and said beam, the top of the saddle and the adjacent portion of the beam being longitudinally slotted, for the adjustable mounting of a clamping nut and swivel structure.

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