

R. V. DUNBAR.
THIRD RAIL INSULATOR.
APPLICATION FILED NOV. 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1

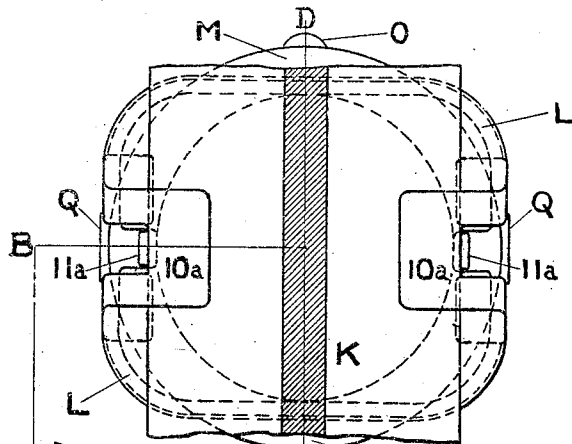


FIG. 2

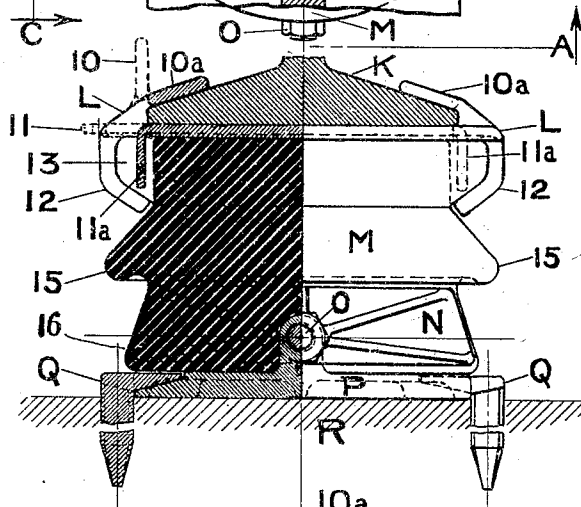
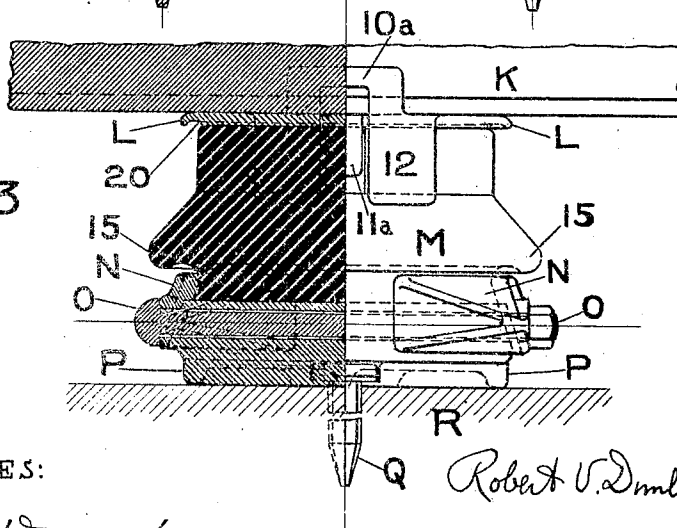


FIG. 3



WITNESSES:

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Robert V. Dunbar, INVENTOR

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ATTORNEY.

No. 770,960.

PATENTED SEPT. 27, 1904.

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2 SHEETS—SHEET 2.

FIG. 5

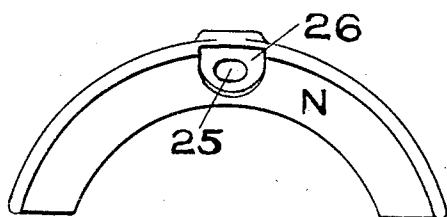
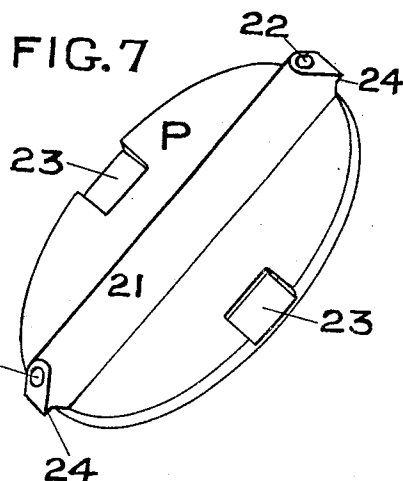
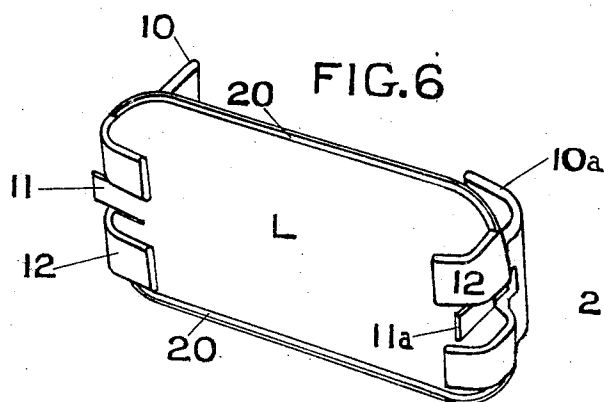
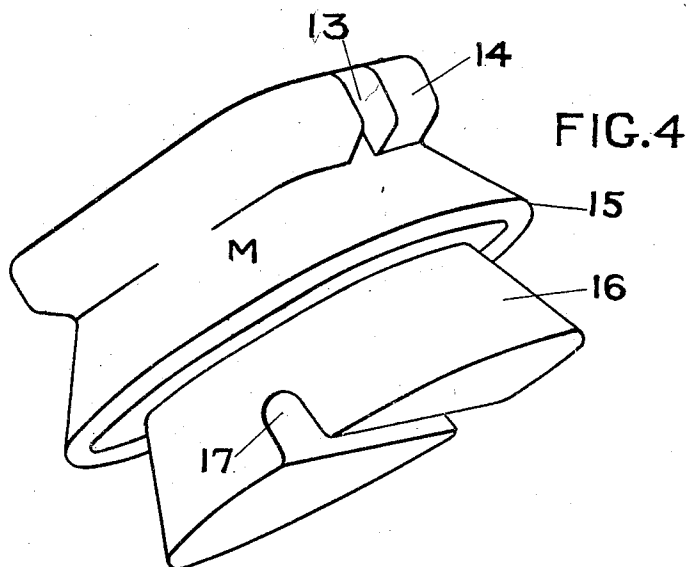
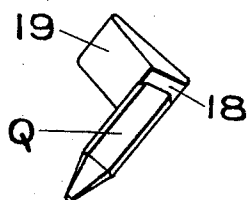


FIG. 8

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UNITED STATES PATENT OFFICE.

ROBERT V. DUNBAR, OF NEW YORK, N. Y.

THIRD-RAIL INSULATOR.

SPECIFICATION forming part of Letters Patent No. 770,960, dated September 27, 1904.

Application filed November 6, 1903. Serial No. 180,027. (No model.)

To all whom it may concern:

Be it known that I, ROBERT V. DUNBAR, a citizen of the United States, residing at 26 McDonough street, borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented a new and useful Third-Rail Insulator, of which the following is a specification.

My invention consists of a combination of parts constituting a third-rail insulator and holder so designed as to enable it to be easily and quickly removed from under an electrically-charged third rail without in any way disturbing the third rail or train service thereby. This is attained, as may be seen, by reference to the accompanying drawings, in which—

Figure 1 is a top view of the assembled insulator, showing the lower portion of a rail secured in place. Fig. 2 is a side view, partly in section, of the insulator, looking at it in the direction indicated by the arrow at A in Fig. 1 and shows a half-section taken through the insulator on the line A B. Fig. 3 is another side view, partly in section, of the insulator looking at it in the direction indicated by the arrow at C in Fig. 1 and shows a half-section taken through the insulator on the line C D. Fig. 4 is a perspective view of insulation-block M, showing its side and bottom surfaces and the distinctive features thereof. Fig. 5 is a perspective view of an insulator-retaining spike Q, showing its side and under-head surfaces. Fig. 6 is a perspective view of the insulator-cap L, showing its side and bottom surfaces and the distinctive features thereof. Fig. 7 is a perspective view of the insulator-base P, showing its top and side surfaces. Fig. 8 is a perspective view of one of the insulator clamp-collars N, showing its inside and bottom surfaces and the distinctive features thereof.

Similar characters refer to similar parts throughout the several views.

K in Figs. 1, 2, and 3 is the lower part of a rail and has been shown simply to indicate its position relative to the insulator.

The insulator-cap L, Figs. 1, 2, 3, and 6, is a malleable iron part or stamping, so designed

as to combine several features and perform several functions.

First. By means of the two clips 10 and 10^a, Figs. 1, 2, 3, and 6, which are strap-like projections from the top of cap L, one on each side, the third rail is secured to the insulator by simply bending the said clips 10 over into the position indicated at 10^a, Figs. 2 and 6. The clips 10^a thus prevent any lateral or upward movement of the rail. The clips 10 may be left in their vertical or bent into any intermediate position to allow for any amount of up-and-down movement of the rail desired.

Second. By means of the four clips 12, Figs. 2, 3, and 6, which are rigid claw-shaped projections from the under side of cap L, two on each side, the cap L is held rigidly to the insulation-block M.

Third. By means of the two flexible locking-keys 11, Figs. 1, 2, 3, and 6, which are strap-like projections from the side of cap L, one on each side between the clips 12, and which may be bent down and into the recesses 13 of the insulation-block M, Figs. 2 and 4, to the position indicated at 11^a, Figs. 1, 2, 3, and 6, the cap L is locked in position on top of the insulation-block M.

Fourth. By means of the petticoated or grooved edge 20, Figs. 3 and 6, which extend around and on the under side of cap L, the said cap presents a continuous dripping-surface between the electrically-charged rail K and the insulation-block M.

Fifth. By having cap L, as shown in Fig. 1, entirely covering the insulation-block M the insulator presents to the rail K an entirely metallic bearing, thus protecting the top of insulation-block M from wear, &c.

The insulation-block M, Figs. 1, 2, 3, and 4, is a solid block of any insulating material capable of being properly shaped and solidified and is so designed that all strains on the block are due to compression only. This is the ideal condition for an insulating material, and the choice of a large variety of insulating materials is thus given.

The insulation-block M is so designed as to combine several features and perform several functions.

First. By means of two projecting ridges or flanges 14, Fig. 4, one on each side, extending along its upper edge, sliding ways have been provided for the four claw-shaped clips 12 of the cap L, and the said cap is thus prevented from being lifted or twisted from its position on top of the block M.

Second. By means of the two recesses or slots 13, Figs. 2 and 4, one in the center of each of the ridges 14, keyways have been provided for the locking-keys 11, to be bent into the positions 11^a, and the cap L is thus prevented from sliding from its position on top of the block M.

Third. By means of a petticoated dripping edge or collar 15, Figs. 2, 3, and 4, extending entirely around the middle of the block M, dripping and surface leakage is amply insured against.

Fourth. By means of the tapered lower surface 16, Fig. 4, a bearing-surface is provided for the clamp-collars N, Figs. 2, 3, and 8, which prevent the insulation-block M from being lifted away from the base P, Figs. 2, 3, and 7, when the bolt O, Figs. 1, 2, and 3, has secured the clamp-collars N in place.

Fifth. By means of the smooth groove 17, Fig. 4, extending entirely across the center of the under side of block M, a slot is provided into which the ridge 21 of the base P sits, thus preventing the block M from turning or moving laterally upon the said base P.

The base P, Figs. 2, 3, and 7, is so designed as to combine several features and perform several functions, as follows:

First. By means of the ridge 21, Fig. 7, on the top side of base P the insulation-block M is prevented from turning or moving laterally upon the base P when the ridge 21 is slid into the groove 17.

Second. By means of the hole 22, Fig. 7, which extends throughout the entire length of the ridge 21, the bolt O, Figs. 1, 2, and 3, may be inserted and attached to the base P.

Third. By means of the protruding ends 24, Fig. 7, of the ridge 21 the clamp-collars N, Figs. 2, 3, and 8, are prevented from turning in relation to the base P when the protruding ends 24 are inserted into the recesses 26, Fig. 8, provided on the inside of clamp-collars N.

Fourth. By means of the two recesses 23, Fig. 7, on the top of the base P, each on the edge and in the center of either side, the heads 19, Fig. 5, of the retaining-spikes Q, Figs. 1, 2, 3, and 5, may be inserted, so as to prevent the base P from moving in any direction upon the tie R, Figs. 2 and 3.

A clamp-collar N, Figs. 2, 3, and 8, is so designed as to combine several features and perform several functions.

First. By means of the recess 26, Fig. 8, which is on the inside of and at the bottom of the clamp-collar N, the said clamp-collar and the base P may be rigidly locked together by simply inserting the protruding end 24, Fig.

7, of the ridge 21 into the recess 26 of the clamp-collar N.

Second. By means of the hole 25, Fig. 8, which extends through the clamp-collar N in the center of the recess 26, Fig. 8, the bolt O, Figs. 1, 2, and 3, may readily be inserted, so as to draw the said clamp-collar N into place.

The steel spikes Q, Figs. 1, 2, 3, and 5, are so designed as to combine the several features and perform the several functions following:

First. By means of the projecting front part 19 of the tapered head, Figs. 2 and 5, the spikes Q secure themselves to the base P by being inserted into the recesses 23 of the base P.

Second. By means of the tapered under surface 18, Fig. 5, of the head a lifter may readily be inserted and the spike Q easily removed entirely or slightly lifted.

R indicates a railroad-tie on which the insulator is set and held securely in place and has been shown to indicate its relative position to the insulator.

To assemble the insulator, the operations are as follows:

First. The base P is set in its proper position on the tie R and the spikes Q are driven securely into the latter, so that the parts 19 of the heads of spikes Q fit into the recesses 23 on both sides of the base P, which is thus firmly held upon the tie R and prevented from being moved in any direction whatsoever. By lifting the spikes Q to sufficiently release the base P the insulator or any part thereof may be removed and replaced, the exact alinement being always maintained.

Second. The insulation-block M is placed on the base P by sliding the former onto the latter in such a manner that the ridge 21 of base P fits into the groove 17 on the under side of block M.

Third. The two clamp-collars N are now applied to the protruding ends 24 of the ridge 21, so that the said ends 24 fit into the recesses 26 on the inside of clamp-collars N. This interlocking of the clamp-collars N with the base P prevents the said clamp-collars from any tendency to turn in relation to the securely-fastened base P.

Fourth. The bolt O is now inserted through the holes 25 in the clamp-collars N and the hole 22 through the ridge 21 of the base P. It is then tightened by means of a wrench and the block M rigidly fastened to the base P and prevented from any movement thereon. It will now be seen that as the block M is at all times firmly clamped to the base P there can be no movement or loosening from the recess 23 of the head of the spike Q, which is held in between the top of base P and the bottom of block M. Thus we have a condition where the weight of insulator and third rail, together with the shocks due to the passing collector-shoes, &c., all tend to keep the retaining-spike

Q securely embedded in the tie R and in turn maintain the insulator rigidly in place.

Fifth. The cap L is now attached to the top of block M by letting the clips 12 slide over the projecting ridges or flanges 14 until the cap L is located centrally on the top of block M. The cap L is now prevented from being lifted or twisted from its position.

Sixth. The locking-keys 11 are next bent down and into the recesses or slots 13, and the cap L thus locked and prevented from sliding off the block M.

Seventh. The clips 10 may now be turned over into the position 10^a onto the flange of the rail K, and the latter thus prevented from lifting, sliding, or turning away from its position on top of the insulator.

To take the insulator apart, the method is reversed.

While I have my insulator in connection with the third rail, it will be apparent that my device can be adapted to support a cable or similar conductor by modifications which would readily suggest themselves to those skilled in the art.

Having fully described and illustrated my invention, what I desire to claim is—

1. An insulator having an insulating-block, and a removable base adapted to rigidly engage the said insulating-block and readily detachable from either side thereof.

2. In a third-rail insulator, the combination of an insulating-block, a removable base adapted to engage the said insulating-block, and a slidably-removable cap adapted to engage the said insulating-block and to support the third rail, said cap being removable from either side of said insulating-block.

3. In a third-rail insulator, the combination of an insulating-block, a removable base adapted to engage the said insulating-block, and a cap slidably removable from either side of said insulating-block and adapted to engage the insulating-block on its exterior surface only and to engage and support the third rail.

4. In a third-rail insulator, the combination of an insulating-block, a base adapted to engage the said insulating-block and removable sidewise therefrom, a cap removable from either side of said insulating-block and adapted to engage the said insulating-block and to engage and support the third rail, and means for locking the said cap upon the said insulating-block by engaging the exterior surface thereof.

5. In a third-rail insulator, the combination of an insulating-block having a rectilinear groove in its under side, the base having a ridge adapted to fit into the said groove, and clamps to hold the said insulating-block to the said base.

6. In a third-rail insulator, the combination of an insulating-block having projecting flanges at its upper extremity, and a cap having claw-shaped clips adapted to engage the

said projecting flanges, and flexible clips for retaining said cap in position by engaging the exterior surface of said insulating-block.

7. In a third-rail insulator, the combination of an insulating-block, a removable base adapted to support the said insulating-block and having recesses in the sides thereof, and spikes having heads adapted to fit into the said recesses and to rigidly secure the said base.

8. In a third-rail insulator, the combination of an insulating-block, a base adapted to engage the said insulating-block and removable from either side thereof, and a removable cap adapted to engage the said insulating-block on its exterior surface only and to support the third rail, and removable sidewise from the said insulating-block.

9. In a third-rail insulator, the combination of an insulating-block, a removable base adapted to engage the said insulating-block, and a self-securing one-piece cap adapted to engage the said insulating-block and detachable horizontally from either side thereof.

10. The combination of an electrical conductor, an insulating-block, a cap having clips for engaging the said insulating-block on its exterior surface only and flexible clips for retaining it in position upon the insulating-block by engaging the exterior surface thereof, and a removable base for supporting the said insulating-block.

11. The combination of an electric conductor, an insulating-block, removable means for attaching the said conductor to the said insulating-block, a base for supporting the said insulating-block and detachably connected thereto, and independent retaining members situated beneath the said insulating-block and engaging the said base, and adapted to retain the said base in position upon the support thereof.

12. The combination of an electrical conductor, an insulator for the said conductor, a base for the said insulator, independent retaining members for retaining the said base in position, and means for preventing the said retaining members from becoming disengaged.

13. The combination of an electrical conductor, an insulator for said conductor, and retaining members for retaining the said insulator in position, the said insulator being removable from either side without the removal of the said retaining members.

14. The combination of an electrical conductor, an insulating-block, and a base for supporting the said insulating-block, the said insulating-block being attachable or detachable from either side of the said base without disturbing the said conductor and the said base.

15. An insulator having an insulating-block rigidly attachable to a support, and a bolted connection for attaching the said block to the said support.

16. In an insulator of the kind described, a

base under and entirely within the footing limits of the insulation-block, and retaining members adapted to secure the said base.

17. An insulator having an insulating-block,
5 a removable base, and independent clamps for attaching the said insulating-block to the said base.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT V. DUNBAR.

Witnesses:

ABRAHAM B. Cox, Jr.,
J. G. DUNBAR.