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AERIAL

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AERIAL

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This invention relates to an aerial especially adapted for application to the roof of the body of motor vehicles and similar places of support.

An object of the present invention is to provide a very efficient aerial structure which will present a pleasing appearance, and to provide means for conveniently and effectively mounting such an aerial.

It is also an object to provide an insulating support for the aerial body, said support being constructed so as to adapt it for application to curved surfaces and providing securing means whereby the aerial body may be securely attached to the roof or top deck of a motor vehicle body without the necessity for puncturing or otherwise disfiguring the inner lining of the top.

A further object is to provide a lead-in from the aerial body to the radio receiver within the car body, said lead-in member extending forwardly and being supported by an insulator in a manner to assist in holding the aerial body in place and to also provide additional aerial area elevated above the top of the car body.

A further object is to provide means for attaching and supporting the aerial body upon the car roof whereby the support is firmly attached to and insulated from the metal roof by yieldable means extending through an opening in the roof so that, by means of a single attaching bolt, this yieldable projection may be expanded within the opening in the roof and thus firmly secure the aerial in place and thoroughly insulate it from the metal wall of the roof.

Another object is to provide an aerial antenna for supplementing the respective qualities of the aerial body and to provide an arrangement of such antenna whereby it may be quickly and conveniently attached to the aerial body.

It is also an object to provide certain other new and useful features in the construction, arrangement and combination of parts, all as hereinafter more fully set forth and shown in the accompanying drawing, wherein

Figure 1 is a view illustrative of the manner of applying and positioning the present aerial upon a motor vehicle body and showing the arrangement of a lead-in member for connecting the radio receiver with the aerial;

Fig. 2 is a similar view showing a modified arrangement;

Fig. 3 is an enlarged side elevation of an aerial body with portions broken away and in section to disclose the construction and also showing the support for the body upon the roof of the motor vehicle, said support being shown in sec-

tion and disclosing means whereby it is held in position upon the roof;

Fig. 4 is a transverse section substantially upon the line 4—4 of Fig. 3;

Fig. 5 is a sectional detail of a conical insulator for the support of a lead-in rod which is shown in position thereon;

Fig. 6 is a sectional detail disclosing the manner of securing the lower end of the lead-in rod to the cowl of the vehicle body forwardly of the windshield;

Fig. 7 is a sectional detail of the upper end portion of the insulator shown in Fig. 5 and disclosing a modified construction, and

Fig. 8 is a detail showing the application of an antenna member to the aerial body shown in Fig. 3.

The aerial body 1 which forms a member of the aerial system embodying the present invention, is preferably of somewhat oval shape in side elevation and plan view, it being round in cross section with the semi-circular front end and being tapered rearwardly and extended to a pointed and rounded rear end. This body is formed of sheet metal, preferably of non-ferrous metal, highly finished by chromium plating over the exposed portions and this body 1 is supported by a mounting member 2 formed of any suitable insulating material for mounting the body upon the sheet metal roof 3 of the motor vehicle body. The mounting member or bracket 2 is shaped at its upper end to provide a seat into which fits the lower side portion of the body 1 and the lower end of this bracket is preferably curved transversely as indicated at 4 and is also curved longitudinally to substantially conform to the curvature of the top wall 3 of the vehicle body. The body 1 is held seated upon the upper end of the bracket 2 by means of a bolt 5 the head 5' of which is seated within a suitable recess 6 in the upper wall of the body so that the head of the bolt is concealed from view and the upper surface of the body is smoothed to continue the streamlined configuration of the body. A slot 6' is formed in the lower side of the body 1 where it seats upon the upper end of the bracket 2 and the bracket is formed with an opening through which the bolt 5 extends.

To secure the aerial body 1 in place upon the steel roof 3 of the body, an opening is made in this steel wall 3 and a boss or projection 7 is formed upon the lower end of the bracket 2 or may be in the form of a separate piece connected in any suitable manner to the bracket and adapted to project through the opening in the wall 3,

said boss or projection 7 being preferably of yieldable and expansible material, such as a rubber composition, so that when the bracket is placed upon the wall 3 with this projection 7 extending through the opening, and the bolt 5 extending through the bracket and also through this projection, the projection 7 may be expanded within the opening in the wall 3 by screwing the bolt inwardly through a nut 8 on its lower end with a suitable lock washer 9 interposed between the nut and the lower end of the projection 7. With this arrangement the aerial body and its supporting bracket may be securely attached to the wall 3 of the car body without the necessity for puncturing or otherwise disfiguring the inner lining 10 of fabric which is usually provided as an inner finish for the wall 3, a suitable packing 11 or other suitable material being interposed between the wall 3 and the lining 10 to deaden the sound caused by vibration set up in the wall 3 in the use of the car.

In applying the bracket 2 to the wall 3 of the car body, the bracket with the aerial body 1 seated thereon is properly positioned upon the wall 3 with the longitudinal axial line of said body in a horizontal plane and then by means of the bolt 5 the proper position for the opening in the wall 3 may be indicated by marking the wall by means of the sharpened lower end of the bolt and then a hole is formed in the wall 3 to receive the projection 7. The lower end of the bolt with the nut applied thereto and turned up sufficiently to hold the body 1 in place, is then inserted through the opening with the projection 7 slightly expanded to closely fit within the opening in the wall 3, and then the bolt 5 is screwed in, thus further expanding the projection 7 and firmly anchoring the bracket 2 and body 1 in proper position, and as the nut 8 is frictionally held against rotation after being inserted through the opening in the wall 3, the bolt 5 may be turned to further expand the projection 7 and firmly hold the bracket 2 and body 1 in the proper position.

The forward rounded end of the body 1 is provided with an opening within which is secured a suitable internally screwthreaded nipple 12 to receive the screwthreaded end of a lead-in rod 13 which rod, as shown in Figs. 1 and 2, extends forwardly from the forward end of the aerial body 1 with its lower end supported by a conical insulator 14 which is formed of any suitable insulating material and provided with a securing bolt 15 extending through an axial opening in the insulator and provided with a head 17 at its upper end formed with a transverse bore to receive the lower end of the lead-in rod 13.

The lower end of the insulator 14 is formed slightly concave so that its edge will seat firmly upon the outer surface of the wall 3 of the car body and formed integral with this lower end of the insulator is a central boss 18 which may be formed integral with the lower end of the insulator or may be a separate piece secured to said lower end, said member or boss 18 being preferably formed of rubber or other expansible material similar to the boss 7 so that the insulator may be securely fastened to the wall 3 by providing an opening in the wall to receive the expansible boss 18, and then by turning the nut or nuts 19 upon the lower end of the bolt 16, this boss 18 will be expanded within the opening in the wall 3 and firmly attach the insulator in place upon the car body wall. This bolt 16 may extend through the lining for the wall 3 and a

lead-in wire 20 may be attached to its inner end and led to the radio receiver located within the car body.

Where it is undesirable to have an exposed lead-in wire, such as the wire 20, a supplemental lead-in rod 21 may be provided to extend forwardly from the head 17 of the bolt 16 which supports the forward end of the lead-in rod 13, and this supplemental rod 21 may extend downwardly forward of the windshield of the car body and be attached at its lower end to the cowl or other convenient part of the car body, by means of a connector indicated as a whole by the numeral 22 in Fig. 6, this connector 22 including a ferrule or head 23 secured in any suitable manner to the rod 21 and adapted to engage the upper end of an insulating block 24 having an axial bore through which the lower end portion of the rod 21 extends, said block being seated over an opening in the wall 25 of the cowl or other part of the car body through which it is desired to extend the lead-in rod. An insulating washer 26 is provided to engage the inner surface of the wall 25 and cover the opening and a nut 27 on the lower end of the rod 21 is provided to clamp the block 24 and washer 26 firmly in place over the opening and rigidly hold the lower end of the lead-in rod 21. A lead-in wire 28 is attached to the inner end of the rod 21 and leads to the radio receiver within the car body.

To supplement the aerial body 1, an antenna wire 29 may be attached to the upper side of the body 1 to extend upwardly and rearwardly therefrom, said wire being secured to the body 1 in proper position relative thereto, by providing a socket member 30 on its forward end to fit closely within the socket 6 in the top wall of the body 1 and thus frictionally and securely attach the antenna wire 29 to the aerial body.

The aerial body 1 provides a very effective aerial presenting an attractive appearance upon the car and as this aerial body is stream-lined it offers little resistance to the forward movement of the car. Further, by providing the bracket 2 for supporting this body 1, and forming this bracket to conform to the curvature of the upper surface of the car body wall, the aerial body may be firmly secured in seated position upon the body wall and held in proper position, the same being readily attachable to the wall 3 without disturbing the lining of this body and thus disfiguring its appearance, by means of the expansible projection 7 which is expanded within the opening in the wall 3 by the attaching bolt 5 to firmly anchor the bracket 2 and aerial body 1 in place. In like manner the insulator 14 may be attached to the wall 3 by means of the expansible projection thereon extending through the opening in said wall and where the lead-in rod 21 is not employed, as shown in Fig. 2, the transverse bore of the head 17 is closed at its forward end by means of a headed rivet 31 as shown in Fig. 7, the end of the rod 13 and said rivet being secured within the bore of the head 17 by means of a set screw 32.

Obviously other changes may be made in the construction and arrangement of parts without departing from the spirit of the invention and I do not therefore wish to limit myself to the particular construction shown.

Having thus fully described my invention what I claim is:

1. An aerial including a hollow sheet metal body, an insulating bracket formed at its upper end to provide a seat for said body and formed

at its lower end to seat upon a sheet metal wall of a car body having an opening, said lower end being saucer-shaped with an expansible insulating member projecting centrally therefrom into said opening, a bolt extending through said aerial body, bracket and projecting member, and means on the lower end of said bolt to engage the lower end of said projecting member to draw said bracket closer to said wall and cause said projecting member to be expanded upon turning movement of said bolt.

2. An aerial for attachment to the roof wall of a car body, said aerial including a hollow sheet metal body, a bracket curved at its upper end to conform to the curvature of the lower side of said aerial body, said bracket being saucer-shaped at its lower end, a member extending through said hollow body and bracket and through an opening in said wall, and expansible means on said bracket through which said member extends for being expanded by said member within the opening in the wall of the car body to secure said aerial body and bracket in place upon said wall of said car body, said bracket being drawn closer to said wall by the collapsing of said saucer-shaped end thereof.

3. An aerial as characterized in claim 2 and including a lead-in rod attached to the forward end of said aerial body at one end and anchored at its opposite end to the car body, and a lead-in wire secured to said anchoring means.

4. An aerial as characterized in claim 2 and including a lead-in rod attached at one end to the forward end of said body, an insulating member to which the forward end of said lead-in rod is connected, and conducting means extending through said insulator for attaching said insulator to the car body and forming a conductor leading from the forward end of said lead-in rod.

5. An aerial as characterized in claim 2 and a lead-in rod attached at one end to the forward end of said hollow body and extending forwardly

therefrom, means for supporting the forward end of said lead-in rod and insulating the same from said wall of the car body, and a second lead-in rod connected to the forward end of said first named lead-in rod and supported at its rear end by said insulating support.

6. An aerial for attachment to the roof wall of a car body, said roof wall having an opening therein, a hollow body, a bracket for supporting said hollow body upon said roof wall, said hollow body having a socket in its upper side, a bolt having a head seated within said socket and passing downwardly through said aerial body and through said bracket, and an expansible member insertable within said opening in said roof wall from the exterior of said wall and through which said bolt extends, said bolt having a nut on its lower end to engage the lower end of said expansible member and adapted for being tightened from without said wall to expand said member within said opening in said roof wall to secure said aerial body and bracket to said roof wall.

7. An aerial as characterized in claim 6 and a lead-in rod attached to the forward end of said aerial body and extending forwardly therefrom, an insulating member secured to the wall of the car body forwardly of said aerial body and to which the forward end of said lead-in rod is secured for anchoring said forward end to the car body and preventing rotation of said aerial body upon its supporting bracket.

8. An aerial as characterized in claim 6 and including a lead-in rod attached to the forward end of said aerial body and extending forwardly therefrom, and means for anchoring the forward end of said lead-in rod to said car body forwardly of said aerial body, said anchoring means being insulated from said car body and having a member extending through the wall thereof and connected at its upper end to the forward end of said lead-in rod.

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