MEANS FOR ANGULARLY MOUNTING VEHICLE ANTENNAS

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This invention relates to means for adjusting the angular position of an antenna on an automobile vehicle. Different makes of such vehicles have different body shapes or angularities, and therefore present a problem to providing a somewhat standardized mounting which will position the antenna in a manner conforming to the angularity of the body where it is desired to mount the radio antenna.

It is therefore the principal object of my invention to provide a mounting which is adaptable to many car or vehicle bodies, whereby the antenna may be positioned in such a manner that it will extend in a direction conforming to the slope or angularity of the adjacent parts of the body.

While attaining the principal object above set forth, it is a further object to provide a mounting for the antenna by which the angularity of the antenna may be adjusted from without the vehicle, but locked in position within the vehicle.

A further object is to provide means for adjusting the angularity of the antenna which is relatively simple and which can be manipulated very quickly from the exterior of the vehicle, and then locked in position by means within the vehicle.

A still further object is to provide means for making electrical connection to an adjustable antenna of the type heretofore outlined.

My improved type of mounting will be readily understood by a reading of the following specification taken in connection with the annexed drawing, wherein:

Figure 1 is a view on the line 1--1 of Figure 2, certain of the parts being shown in section and others in elevation.

Figure 2 is a view on the line 2--2 of Figure 1, with certain parts shown in full and others in section.

Figure 3 is a view on the line 3--3 of Figure 1, with the antenna section removed.

In the various views, I is a fragmentary portion of some part of the vehicle such as a portion of the cowl, on the outer surface of which is mounted an insulator 2. As shown in Figure 2, if the insulator 2 is rigid, then it is preferable to mount it on a soft rubber pad 3. However, the insulator 2 may be made all in one piece of insulating material whose edge, which engages the cowl 1, may be flexible enough to make a satisfactory joint therewith. If the insulator 2 is made of somewhat flexible material, it is preferable to use a threaded insert 4 in a reinforced portion 32, which has a groove 33 for the end of the pin or stud 22. The insert 4 is adapted to receive a mounting screw 5 which also acts to clamp a terminal 6 connected to a grounding cable 7. If the insulator 2 is of rigid material, the screw 5 may be of a type which will cut its own thread into the hole in the insulator 2.

A metal plate 8 is preferably used to contact with the inner surface of the cowl 1. A tubular stem 9 is attached thereto as by welding to 10 to provide an entrance port for an insulated cable 14. The conductor 12 of the cable is adapted to be attached, as by soldering, to a finger or projection 13 extending from an angle selector plate 14. The plate 14 is provided along its length with a plurality of positioning means which may be in the form of recesses or holes 15.

As shown in Figure 2, the plate 14 has lugs 16 extending downwardly and attached to a part of the insulator in any satisfactory manner as by drive screws 17, if the insulator is of the type which will take such screws. Preferably, the end of the plate 14 opposite the finger 13 has an engagement at the point 18, with the inner wall of the insulator 2. The lower portion or the lower section 19 of the antenna, if it is of the telescopic type, passes through the wall of the insulator 2 and extends within the hollow portion thereof so as to engage the angle selector plate 14. The extremity of the section 19 is provided with a bushing 20 held to the section 19 as by a pin or screw 21 and is provided with a stud 22 which is adapted to enter the recesses of the holes 15 in the plate 14. Fastened to the antenna section 19 is a clamp 23 which is insulated therefrom by a suitable insulator 24. The clamp 23 has ears or lugs 25, through which passes a binding stud 26 which is insulated from the lugs 25 by suitable insulators and bushings 27. The binding stud 26 passes through an adjusting bolt or stud 28, which in turn passes through a hole in the cowl and plate 8, and is locked in position by a lock nut 29 and lock washer 30.

When it is desired to adjust the angular position of the antenna section 19, the nut 29 may be loosened from the interior of the vehicle, thereby freeing the stud 28. The clearance holes through the cowl and other parts are such that the antenna part 19 may be raised from without the vehicle sufficiently to allow the positioning pin 22 to be moved out of the hole or depression 15 within which it is positioned, and then tilted or adjusted so the pin 22 may be caused to take a new position in another of the holes of depressions 15, as the antenna will swivel about the pin 26, after
which the nut 29 is tightened up to lock the antenna in its newly adjusted position. With the arrangement shown, I have been able to get approximately twenty degrees of angularity of the antenna, which I have found to be sufficient to allow the antenna to be adjusted to an angle which will conform to the shape of the body of the vehicle. Preferably, there is a hole 31 provided at the lower part of the insulator to allow any water which may come into the hollow portion thereof, through the antenna, to run out.

What I claim is:

1. Means for mounting a radio antenna on an automotive vehicle comprising, a hollow mounting insulator with means for fastening it to a part of the exterior of the vehicle, an antenna section extending into the interior of said insulator, an angle selector plate positioned within the insulator and extending transversely across the lower part of the hollow portion of the insulator and adapted to have a radio set antenna wire connected thereto, said plate having a plurality of positioning means along its length while the end of said antenna section has a cooperative positioning device to engage said positioning means, and an adjusting stud insulatingly fastened to the antenna section within the hollow insulator and extending within the vehicle and having locking means therewith, whereby the angle of inclination of the antenna may be locked from within the vehicle.

2. Means for mounting a radio antenna on an automotive vehicle comprising, a hollow mounting insulator with means for fastening it to a part of the exterior of the vehicle, an antenna section extending into the interior of said insulator, an angle selector and contact plate positioned within the insulator and extending across the same, a finger extending from the plate to receive an antenna wire from the vehicle radio set, the plate having a plurality of holes along its length, a metallic pin-type device at the lower end of the antenna section and adapted to be seated in one of said holes, and an adjusting stud insulatingly fastened to the antenna section within the hollow insulator and extending within the vehicle and having locking means therewith, whereby the angle of inclination of the antenna may be locked from within the vehicle.

3. Means for mounting a radio antenna on an automotive vehicle comprising, a hollow mounting insulator with means for fastening it to a part of the exterior of the vehicle, an antenna section extending into the interior of said insulator, an angle selector and contact plate positioned within the insulator and extending across the same, cooperative means on the end of the antenna section and said plate for positioning the antenna, means for making an electrical connection to the plate, and an adjusting stud insulatingly fastened to the antenna section within the hollow insulator and extending within the vehicle and having locking means therewith whereby the angle of inclination of the antenna may be locked from within the vehicle.

4. Means for mounting a radio antenna on the outside of an automotive vehicle comprising, a hollow shell-type insulator, a metallic grounding plate positioned against a part of the vehicle, a holding device going through the grounding plate and into the insulator, a tubular member carried by the grounding plate to receive a conductor cable coming from the radio set on the vehicle, an angle selector and contact plate carried by and within the insulator and fastened thereto and having a finger extending into said tubular member for completing a connection to said cable conductor, the said hollow insulator having a hole in its upper portion to receive an antenna section which extends into contact with said selector and contact plate, the end of the section and plate having cooperative means for positioning the section along its length within the insulator, and an adjusting stud insulatingly fastened to the antenna section within the hollow insulator and extending within the vehicle and having locking means therewith, whereby the angle of inclination of the antenna may be locked from within the vehicle.

5. Means for mounting a radio antenna on the outside of an automotive vehicle comprising, a single hollow insulator for receiving an antenna section extending therewithin, an angle selector plate mounted within the insulator and having means cooperative with means on the said section for positioning the end of the section, means for fastening the insulator to the vehicle including a stud pivotally attached to the antenna section and extending within the vehicle and having means on this inner end for locking the angle of the section with the body of the vehicle, and means for insulating the stud connection from the vehicle.

6. Means for mounting a radio antenna on the outside of an automotive vehicle comprising, an insulator having a section of the antenna extending therethrough, an angle selector means mounted in the insulator to receive a contacting end of said section to position the same, means for fastening the insulator to the vehicle including a stud attached to the antenna section and extending within the vehicle and having means on this inner end for locking the angle of the section with the body of the vehicle, and means for insulating the stud connection from the vehicle.

7. Means for mounting a radio antenna on the outside of an automotive vehicle comprising, a casing having a part of the antenna extending therethrough, means within the casing for permitting said antenna part to be positioned from outside the vehicle at a desired angle within a given range, means attached to said antenna part and extending within the vehicle for actuation therewithin for locking said part in its adjusted position, and means for insulating the antenna part from the vehicle.

8. Means for mounting a radio antenna on the outside of an automotive vehicle comprising a single insulator fastened to the vehicle and having a hole to pass the antenna therethrough, and also an angle setting device within the insulator to receive the inner end of the antenna and position the same, the angular setting of the antenna being from the exterior of the vehicle, and means engaging the antenna within the insulator and extending within the vehicle for actuation therewithin to lock the antenna in adjusted position.

9. Means for mounting a radio antenna on the outside of an automotive vehicle comprising a single hollow insulator fastened to the vehicle with the lower end of the antenna extending into the hollow part of the insulator and means engaging the hollow part of the insulator for supporting the antenna at two spaced points, one of said support means acting also for making an electrical connection to the antenna.

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