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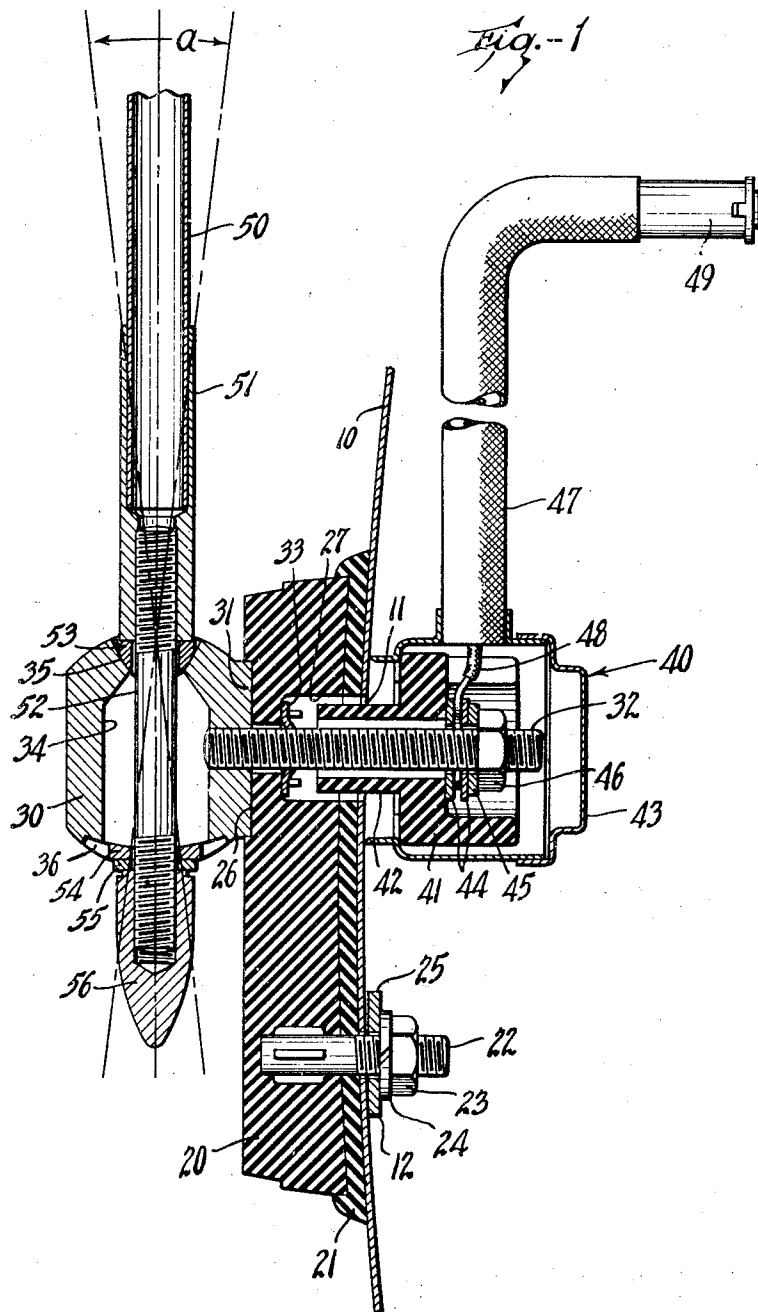
S. LUDWIG

2,251,889

ANTENNA MOUNTING

Filed Jan. 17, 1940

2 Sheets-Sheet 1



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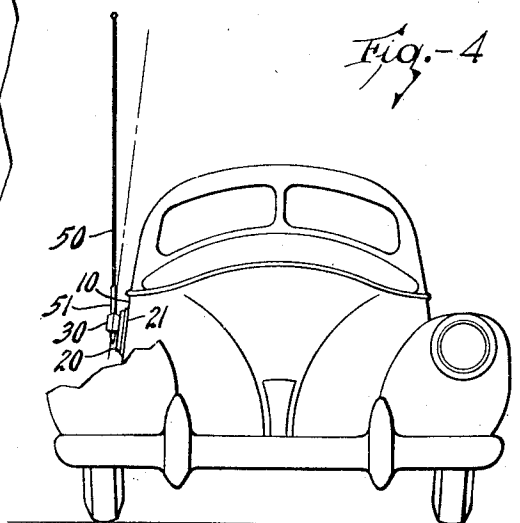
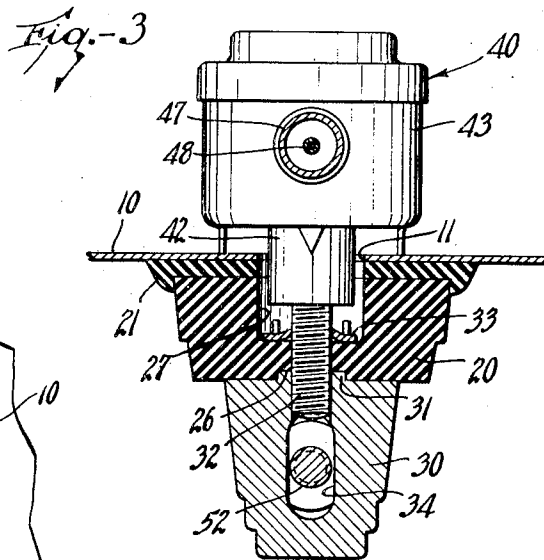
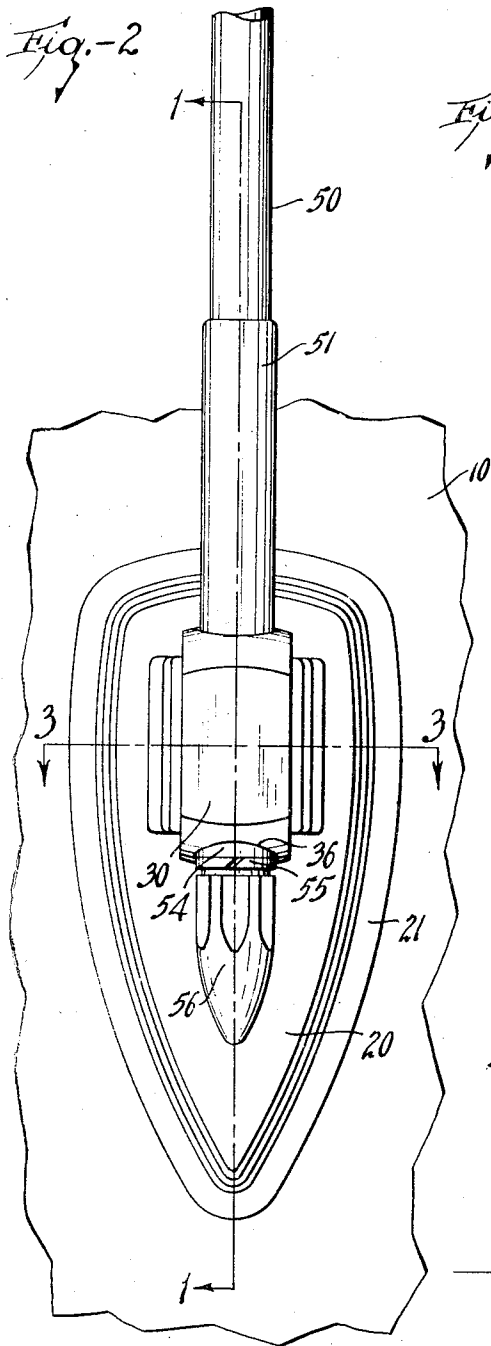
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UNITED STATES PATENT OFFICE

2,251,889

ANTENNA MOUNTING

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3 Claims. (Cl. 250—33)

This invention relates to an automobile radio antenna and more particularly to a side cowl mounting for an automobile radio antenna of the rod type which will permit the adjustment of the slope of an antenna rod to conform to the lines of the automobile upon which the antenna is mounted.

Heretofore automobile antenna rods have been most conveniently mounted on the side cowls of automobiles by drilling through the side cowl panel of an automobile body at two selected points, securing insulated stanchions to the panel at these points, and mounting the antenna rod in the stanchions, the lead-in from the antenna to the radio being brought in through one of the insulated stanchions. Heretofore, it has been necessary to employ two stanchions in order to fasten the antenna securely and thereby eliminate the possibility of loose connections which interfere with radio reception. Because automobile side cowl panels are curved and because the curvature varies in the several makes and models of automobiles, it was extremely difficult for a service mechanic to locate and install the insulated stanchions on a side cowl panel so that the antenna rod would be supported at a slope which would conform to the lines of the automobile or which would be pleasing to the purchaser. Installation costs, therefore, were high due to the necessary services of a skilled mechanic.

It is an object and advantage of this invention that a single mounting is employed which may be readily and cheaply installed by a relatively unskilled mechanic. It is another object and advantage of this invention to provide a single mounting, simple in construction, which will permit the adjustment of the slope of the antenna rod to conform to the lines of the automobile or to any other slope which the purchaser may desire.

It is a still further object of this invention to provide a single mounting which will fasten the antenna securely and eliminate loose connections. Another object of this invention is to provide a neat and attractive single antenna mounting which is neat and attractive in appearance and in which separable parts are substantially concealed from view. A still further object and advantage of this invention is to provide a single mounting which will receive any standard type of antenna rod. Other and further objects and advantages of this invention will appear from the following specification and claims and from the drawings in which:

Fig. 1 is a cross-section taken along the line I—I of Fig. 2;

Fig. 2 is a detailed elevation of an antenna mounting;

Fig. 3 is a cross-section taken along the line 3—3 of Fig. 2; and

Fig. 4 is a front elevation of an automobile, with one fender broken away, to show my antenna mounting secured to the side cowl of an automobile.

In the drawings, in which like reference characters refer to like parts, 10 represents the side cowl panel of an automobile in which openings 11 and 12 are made to receive the means for securing the antenna mounting to the panel.

The antenna mounting comprises a base 20 of non-conducting material such as molded Bakelite, ceramic material, or the like, which may rest upon a pad 21 of rubber or similar cushioning material. A base bolt 22 secured in the base 20 extends through the opening 12 and carries a nut 23, lock washer 24, and washer 25 by which the base 20 may be secured to the panel 10.

The face of the base 20 is provided with an elongated recess 26 which is adapted to receive the boss 31 of the housing 30. A housing bolt 32 is threadedly engaged in the boss 31 and extends through the base 20 and the opening 11 whereby the housing 30 may be secured to the base 20 by the housing bolt speed nut 23 which may be received in the insulator recess 27 of the base 20.

The inner end of the housing bolt 32 carries the lead-in assembly 40 which is comprised of a ceramic insulator cup 41 having a shank 42 which extends into the insulator recess 27 to prevent the bolt 32 from being grounded to the panel 10, a shield can 43 which encloses the insulator cup 41, washers 44, lock washer 45, and nut 46. The shield can 43 carries the cable 47 which shields the lead 48 and carries the terminal connector 49. By engaging the lead 48 between the washers 44 and tightening the nut 46, a good electrical connection between the bolt 32, lead 48 is established, and the shield can 43 engages the panel 10, thereby additionally securing the base 20 to the panel 10 and grounding the can 43 and cable 47 thereto.

The housing 30 is provided with a hollow core 34 into the upper portion of which the concave antenna socket 35 opens. The socket 35 is preferably hemispherical but may be cylindrical with its axis substantially parallel to the base 20. The bottom of the housing 30 is provided with an elongated arcuate slot 36 preferably extending in a direction perpendicular to the base 20 and opening into the hollow core 34. The curved surfaces of the socket 35 and slot 36 are preferably concentric.

The antenna 50 is received in the upper end of the ferrule 51 and may be secured therein by a press fit or like method. The lower end of the ferrule 51 is threaded to receive the antenna bolt 52 which extends through the core 34 and

carries the pivot washer 53, concave washer 54, lock washer 55, and an ornamental nut 56. The pivot washer 53 is preferably convex so as to conform to the curvature of the socket 35 and afford an ample area of contact between the washer and socket. As shown in the drawings, the pivot washer 53 is separate from the ferrule 51, but it may conveniently be made integral therewith. The concave washer 54 is received in the slot 36 and preferably conforms to the curvature thereof. By tightening the ornamental nut 56, the antenna rod 50 may be held at whatever angle the rod is adjusted by the engagement of the concave washer 54 with the bottom of the slot 36.

The manner of installing the improved antenna mounting is as follows. The openings 11 and 12 are drilled in panel 10 after their centers are located by a suitable templet or the like. The assembled housing 30, base 20, and pad 21 are then secured to the panel 10 by the base bolt 22 and nut 23. The lead assembly is then secured to the housing bolt 32 and the terminal connector 49 is connected to the radio set. The antenna rod 50 is mounted by inserting the antenna bolt 52 in the housing 30, seating the pivot washer 53 in the socket 35, and the concave washer 54 in the slot 36, and tightening the ornamental nut 56 after adjusting the antenna rod 50 to the slope desired. When the slope of the antenna rod 50 is adjusted, the pivot washer 53 moves in the socket 35 and the concave washer 54 moves in the slot 36 about the center of curvature of the substantially concentric socket 35 and slot 36. The total angle through which the center line of the antenna 50 may swing is indicated by the angle α in Fig. 1.

A good electrical connection between the antenna rod 50 and the housing 30 is assured by the relatively large area of contact of the pivot washer 53 with the socket 35 and of the concave washer 54 with slot 36, so that radio frequencies picked up by the antenna rod 50 pass to the lead 48 through the ferrule 51, antenna bolt 52, washers 53 and 54, housing 30, and housing bolt 32. It will be noted that in the embodiment disclosed, the several areas of contact between the members of the mounting are substantially concealed, so that the mounting is not only neat and attractive in appearance, but the contact areas are protected from corrosion which might interfere with the electrical connections between the members.

In the embodiment disclosed, the antenna is held most securely. The base 20 is securely fastened to the panel 10 and the housing 30 is securely attached to the base 20 because the speed nut 33 on the housing bolt 32 locks the housing boss 31 in the recess 26. Although the antenna 50 may be easily pivoted on the pivot washer 53 when the nut 56 is loosened, the antenna is held in place especially securely when the nut 53 is tightened. This is believed to be due not only to the action of the lock washer 55 but also to the wedging action of the pivot washer 53 in the socket 35.

It is apparent from the foregoing that any standard antenna rod, either of the telescopic type or of the single rod type, may be carried in the ferrule 51. It is also apparent that the services of a skilled mechanic are not required to locate and install the disclosed antenna mounting upon a curved side cowl panel, but that the mounting may be installed by an unskilled mechanic since the slope of the antenna may be adjusted either by the mechanic or the

purchaser after the mounting is installed. The inner surface of the base 20 is slightly curved to accommodate the general curvature of side cowl panels on most makes of automobiles at the location where antennas are preferably mounted, but if the mounting is installed on a panel which is extremely curved, or if the mechanic should install the mounting in a location which is not standard, as for example, on a panel other than a side cowl panel, the difference in curvature between the base 20 and the panel 10 is taken up by the resilient pad 21.

Although a preferred embodiment of this invention has been described, it is apparent that this invention may be modified to meet particular conditions, and that this invention is not limited, either in whole or in part, to the preferred embodiment disclosed but only by the appended claims.

What is claimed is:

1. In an automobile antenna mounting, an antenna, a vertically elongated housing, said housing having a socket in its upper portion, a slot in its lower portion, and a bore connecting said socket and said slot, said antenna being carried by said housing so that the axis of said antenna extends through said socket and slot, a curved bearing surface in said socket, a bearing member carried by said antenna, a curved surface on said bearing member mating with the curved surface in said socket to permit said antenna to pivot about the center of said mating curved surfaces, a bolt extending into the said bearing member, one end of said bolt being connected to said antenna, and a nut on the other end of said bolt to lock said antenna and bearing member with respect to said housing.

2. In an antenna mounting, an electrically non-conducting base, a vertically elongated housing fitted on said base, said housing having an upper end and a lower end, a bearing surface on the upper end of said housing curved about a substantially horizontal axis, an antenna, bearing means carried by said antenna contacting said bearing surface, said antenna being secured in said bearing means, a curved surface on said bearing means concentric with the curved surface of said housing, and removable securing means fastened to said antenna and abutting the lower end of said housing to frictionally engage the curved surface of said bearing means with the curved surface of said housing and lock the antenna against pivotal movement about the axis of the curved surface on said elongated housing.

3. The combination of a sloping automobile body panel wall, an electrically non-conducting antenna mounting base, a bolt fastening said base against the outer surface of said body panel wall, a vertically elongated hollow housing fitted on said base, a curved upper surface on said housing, a bearing member seated on and frictionally engaging said curved upper surface, said bearing member being rotatable about the substantially horizontal axis of said curved surface, a radio antenna supported by said bearing member, a lead-in assembly grounded against the inner surface of said body panel wall, a radio-frequency conducting bolt electrically connected to said antenna and extending from the hollow interior of said housing through said base and said body panel wall into said lead-in assembly, and means to insulate said radio-frequency conducting bolt from said body panel wall.

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