

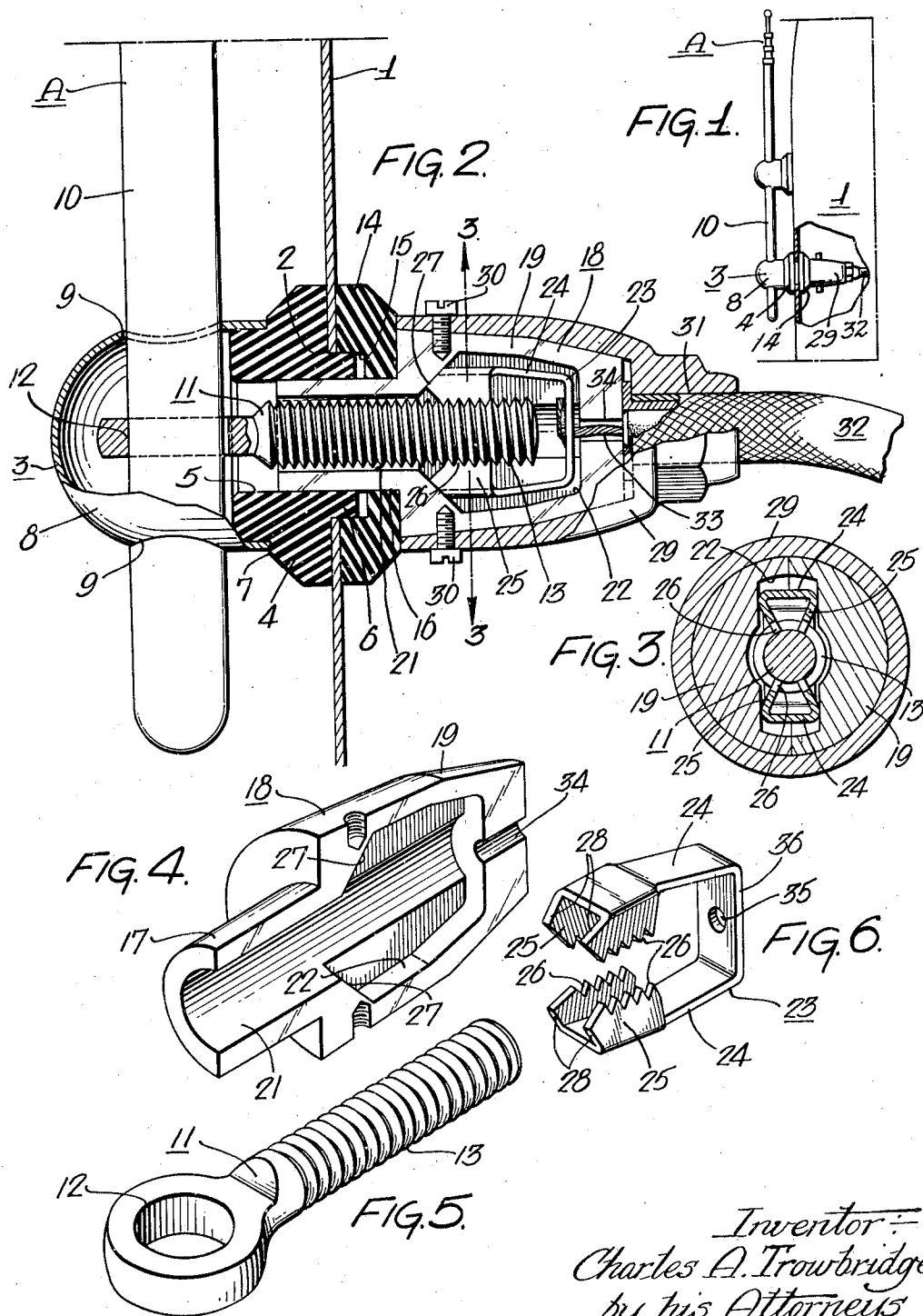
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C. A. TROWBRIDGE

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RADIO ANTENNA

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Inventor:
Charles A. Trowbridge
by his Attorneys
Howson &
Howson

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RADIO ANTENNA

Charles A. Trowbridge, Roxborough, Pa., assignor, by mesne assignments, to Ontario Research Corporation, Philadelphia, Pa., a corporation of Pennsylvania

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This invention relates to new and useful improvements in automobile radio antennae, and more particularly to devices for supporting or mounting such antennae upon the body of the car.

Automobile antennae of the telescoping mast type usually are supported at the left hand side of the engine cowl by means of a pair of vertically spaced support devices which serve also to electrically insulate the antennae from the vehicle body and to provide for the connection of the lead-in wire from the antenna mast to the radio set carried in the car. These support devices generally include a threaded member which extends through the vehicle body and is employed to secure the antenna and its supports to the body by fastening means threaded on such member from interiorly of the vehicle body. This is a difficult task due to the confined space within which the person making the installation has to work and quite often it is not possible to tighten the fastening means upon the threaded member sufficiently to properly support the antenna and prevent rattling thereof.

With the foregoing in mind the principal object of the present invention is to provide a support or mounting device for radio antennae of the type described which embodies novel features of construction and arrangement operable to effect fastening of the support and antenna to the vehicle body with relative facility and ease.

Another object of the present invention is to provide a novel and improved antenna support or mounting of the character set forth which may be readily fastened in position in a secure manner upon the body of a vehicle without regard to the amount of available space within which the person making the installation may have to work.

A further object of the invention is to provide a novel and improved antenna support having the features and characteristics set forth which is of relatively simplified and rugged construction, comparatively inexpensive and entirely efficient and foolproof in use and operation.

These and other objects of the invention and the various features and details of the construction and operation thereof are hereinafter fully set forth and described with reference to the accompanying drawing, in which:

Fig. 1 is a partial elevational view showing devices made according to the present invention supporting or mounting an antenna upon the body of an automobile.

Fig. 2 is an enlarged sectional view taken ver-

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tically through the lower mounting shown in Fig. 1.

Fig. 3 is a sectional view taken on line 3-3, Fig. 2.

Fig. 4 is a view in perspective of one of a pair of similar members embodied in the present device.

Fig. 5 is a view in perspective of an eye-bolt employed in the support device; and

Fig. 6 is a perspective view of a fastener or clamp member adapted to engage the eye-bolt of Fig. 5.

Referring now more particularly to the drawing, reference numeral 1 designates the side cowl panel of an automobile body in which openings 2 have been made to receive the support devices 3 for mounting the antenna to the cowl panel 1.

The antenna supports or mountings 3 each comprise an external annular member or ring 4 of rubber, plastic or other suitable insulating material having a bore 5 of substantial diameter extending axially therethrough and a reduced neck or portion 6 arranged to fit accurately within and through one of the openings 2 in the car body 1. The member or ring 4 is provided with an exterior circumferentially extending shoulder 7 upon which the edge of a hollow cap member 8 is adapted to seat in the relationship shown in the drawing. The cap member 8 may be of any suitable material such as, for example, metal, plastic or the like, and is provided with aligned openings 9 therein through which extends the base section 10 of the antenna A.

The antenna A is retained and supported with respect to the cap 8 by means of an eye bolt 11 which has an eye 12 that embraces the antenna section 10, and a threaded shank portion 13 which extends from the eye 12 coaxially through the bore 5 to a point an appreciable distance inwardly beyond the cowl panel or body wall 1 as shown.

At the inner side of the body wall 1 there is positioned a second dielectric insulating member or ring 14 having a recess 15 arranged to receive the reduced neck 6 of the outer insulator member or ring 4, and having an opening or bore 16 therethrough which has a diameter substantially the same as the bore 5 of the insulator ring 4 and in axial alignment therewith.

Constructed and arranged to be received within the opening 16 and bore 5 of the insulator rings 4 and 14, respectively, is the elongated reduced neck 17 of a housing 18. The housing 18 comprises a pair of identical complementary

members 19 which are suitably recessed so that when they are cooperatively associated to form the housing 18 they define therein a cylindrical bore or passage 21 which extends axially through the neck 17 and terminates in a relatively wider transverse chamber 22. The bore or passage 21 has a diameter sufficiently large to receive there-through the threaded portion 13 of the eye bolt 11.

Contained within the chamber 22 of the housing 18 is a generally U-shaped clamping member 23 of relatively resilient metal such as, for example, spring steel. The clamping member 23 comprises relatively spaced arms 24 having at their free ends inwardly directed pairs of relatively spaced ears 25 arranged at respectively opposite sides of the threaded portion 13 of the bolt 11, and the adjacent inner edge portions of the ears 25 are serrated or toothed as indicated at 26 for engagement with the teeth of the portion 13 of the eye bolt 11 (see Fig. 2). As shown in Fig. 3, the ears 25 of each pair thereof are angularly disposed with respect to one another so that each of the ears is arranged substantially radial to the bolt threaded portion 13.

The clamping member 23 is adapted to be brought into toothed engagement with the bolt threaded portion 13 not by effecting relative rotation between the member 23 and bolt portion 13 but by effecting linear movement of the housing 18 axially along the bolt so that the latter moves coaxially inwardly of the housing and between the toothed pairs of ears 25 of the clamping member 23 to the extent permitted by engagement of the inner end face of the housing against the outer face of the insulator ring 14. As the housing 18 and the clamp 23 are moved axially along the bolt portion 13 the teeth 26 of said clamp ratchet over the threads on said bolt portion 13 and the latter is effectively retained against withdrawal by providing angularly disposed cam surfaces 27 within the chamber 22 which are arranged for engagement by correspondingly disposed end edges 28 at the free ends of the arms 24 of the clamping member 23. Furthermore, by this construction it will be apparent that any force exerted upon the bolt 11 tending to withdraw it from the housing 18 operates through intercooperation of the edges 28 with the cam surfaces 27 to urge the teeth 26 of the clamp more forcibly into engagement with the bolt threads thereby increasing the bite or grip of the clamp upon the bolt portion 13.

The housing 18 is mounted within a cap or casing 29 in which it is secured by means of screws or other fasteners 30. The casing 29 has an axial bore 31 in its outer end through which is adapted to pass the end portion of the conventional lead-in cable 32 from the antenna A to the radio set in the vehicle, and the cable conductor 33 leads inwardly through an axial opening 34 in the base of the housing 18 and an opening 35 in the clamp base 36 to which said conductor 33 is soldered or otherwise secured to provide a good electrical connection between the clamp 23 and the conductor 33.

To mount an antenna by means of a support or mounting device made according to the present invention, the openings 2 of proper diameter are drilled in the body wall 1 and the antenna A, cap 8, eye bolt 11 and the insulating ring 4, assembled as shown in Fig. 2 of the drawing, are positioned against the exterior side of the body wall 1 with the reduced neck portion 6 of the ring 4 and the threaded portion 13 of the eye bolt 11 projecting through opening 2 as shown. These

parts are held in this position by manual or other pressure exerted thereagainst and, while thus held, the housing 18 and its surrounding cap 29, with the lead-in cable 32 connected as previously described, is moved axially over the threaded portion 13 of the eye bolt 11 so that the latter moves inwardly of the bore 21 of the housing neck portion 17 and enters the transverse chamber 22 between the two pairs of toothed ears 25 of the clamping member 23 until the inner end face of the housing member 18 and the adjacent outer face of the insulator ring 14 are brought into abutting relation. Thus the teeth 26 of the clamp 23 are caused to ratchet over the threads of the bolt portion 13 and the cam surfaces 27 operate to urge the arms 24 of the clamping member into increasing engagement with the bolt threads to effectively retain the bolt in a rigid and secure manner against withdrawal and also provide at all times a good and efficient electrical connection from the antenna A to the conductor 33 of the lead-in cable 32 to the radio set.

Once installed, the mounting device or support may be dismounted by rotating the housing 18 and cap 29 in the proper direction relative to the bolt 11 to unscrew the clamp 23 therefrom and, while the present device is constructed and arranged to provide for fastening the support or mounting in position merely by effecting coaxial movement of the housing 18 and bolt 11 relative to each other as hereinbefore described, it will be noted that, if desired, the housing 18 and clamp 23 also may be screwed upon the bolt 11 by rotating the housing in the proper direction relative to said bolt 11 to cause teeth 26 of the clamp to traverse the threads of the bolt portion 13.

From the foregoing description it will be apparent that the present invention provides a novel support or mounting device for radio antenna of the type described which embodies novel features of construction and arrangement operable to effect fastening of the support or mounting in a vehicle body with substantial facility and ease. The invention also provides a novel and improved antenna support and mounting of the character set forth which may be readily fastened in position in a secure rigid manner upon the body of the vehicle without regard to the amount of available space within which to work. Furthermore, the invention provides a novel and improved antenna support or mounting having the features and characteristics set forth which is of relatively simplified and inexpensive construction and both electrically and mechanically efficient and foolproof in operation and use.

While a particular embodiment of the invention has been illustrated and described herein, it is not intended that the invention be limited to such disclosure and changes and modifications may be made therein and thereto within the scope of the claims.

I claim:

1. In a mounting for a rod type antenna, a bolt to engage the antenna rod, a housing arranged to receive said bolt coaxially therein, clamping means in said housing having portions arranged for ratchet engagement with the threads on said bolt to retain the same against withdrawal from the housing, means to cause the said portions of the clamping means to engage the threads on said bolt with increasing pressure according to the withdrawal forces exerted on said bolt, a cap enclosing said housing member, and a lead-in cable extending inwardly of the outer end of

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said cap and having its conductor electrically connected to said clamping means.

2. In a mounting for a rod type antenna, a bolt to engage the antenna rod, a housing arranged to receive said bolt coaxially therein, clamping means in said housing having oppositely disposed toothed portions arranged for ratchet engagement with the threads on said bolt at opposite sides thereof to retain the same against withdrawal from the housing, a cap enclosing said housing member, and a lead-in cable extending inwardly of the outer end of said cap and having its conductor electrically connected to said clamping means.

3. In a mounting for a rod type antenna, a bolt to engage the antenna rod, a housing arranged to receive said bolt coaxially therein, clamping means in said housing having oppositely disposed toothed portions arranged for ratchet engagement with the threads on said bolt at opposite sides thereof to retain the same against withdrawal from the housing, cam surfaces interiorly of said housing cooperable with said clamping means to cause the toothed portions of the same to engage the threads on said bolt with pressure that increases according to the withdrawal forces exerted on said bolt, a cap enclosing said housing member, and a lead-in cable extending inwardly of the outer end of said cap and having its conductor electrically connected to said clamping means.

4. In a mounting for a rod type antenna, a cap to receive said rod, an insulator ring supporting said cap and arranged for positioning against the exterior side of a wall having an aperture there-through coaxial with the opening through said ring, a second insulator ring for positioning at the interior side of the wall in interengagement with the first mentioned ring, a bolt engaging the antenna rod within said cap and projecting

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through said insulator rings to a point therebeyond, a housing having a reduced neck arranged to extend through said wall and insulator rings and to receive said bolt coaxially therein, clamping means in said housing having oppositely disposed toothed portions arranged for ratchet engagement with the threads on said bolt at opposite sides thereof to retain the same against withdrawal from the housing, cam surfaces interiorly of said housing cooperable with said clamping means to cause the toothed portions of the same to engage the threads on said bolt with pressure that increases according to withdrawal forces exerted on said bolt, a cap enclosing said housing, and a lead-in cable extending inwardly of the outer end of said cap and having its conductor electrically connected to said clamping means.

CHARLES A. TROWBRIDGE.

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