

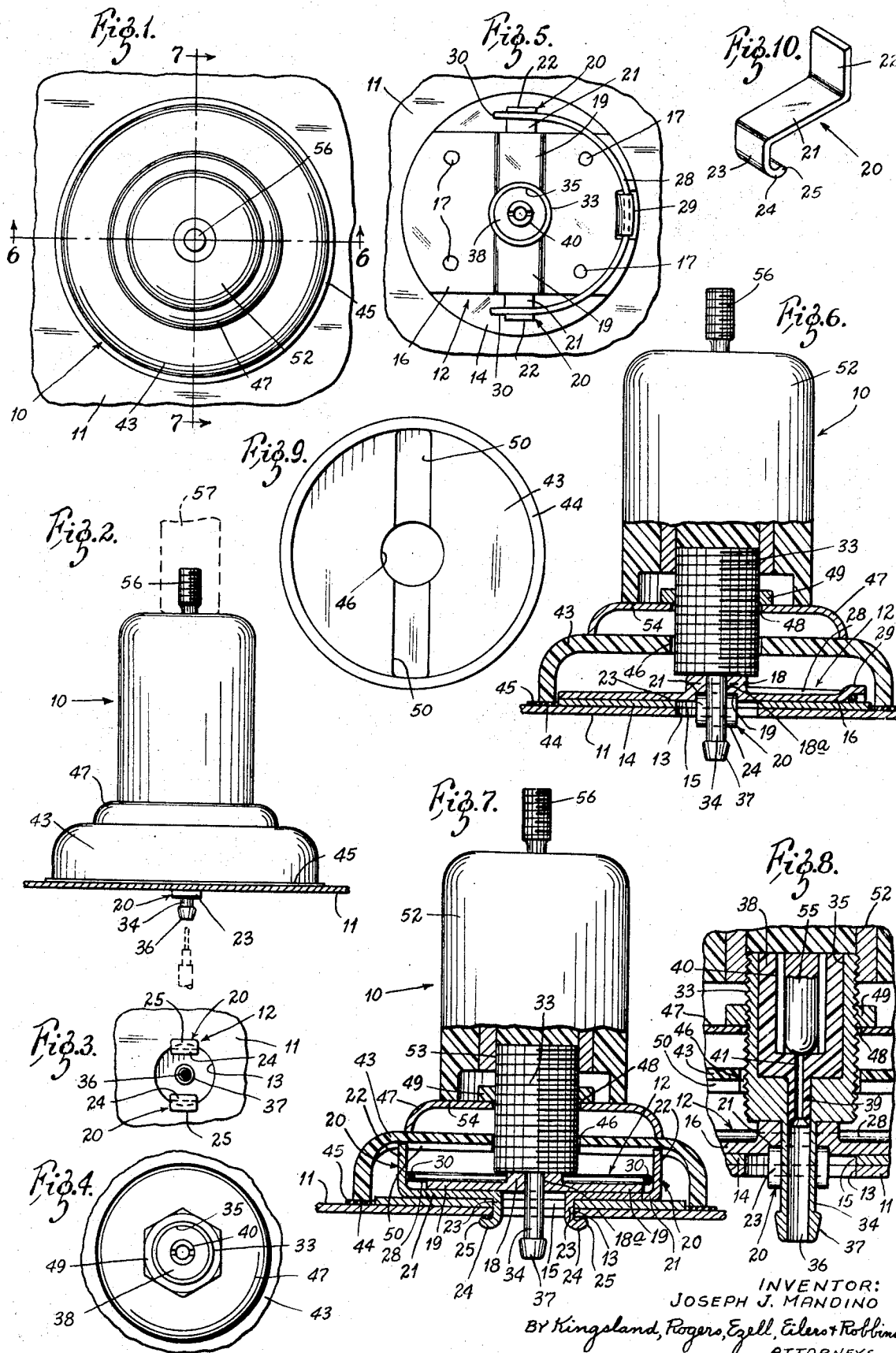
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ANTENNA MOUNTING DEVICE

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ANTENNA MOUNTING DEVICE

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ABSTRACT OF THE DISCLOSURE

A vehicle antenna mount comprising spring-biased latch members received through and then engaged beyond an opening in a vehicle panel with a connecting stud on which other parts of the mount are installed and on which a nut is tightened to draw the latch members against the vehicle panel.

BRIEF DESCRIPTION OF THE INVENTION

In this antenna mount, a latching assembly has a pair of latch members that are laterally slidable within lateral passages between two plates. The latch members have lugs that extend downwardly and outwardly with up-turned edges. A spring biases the latch members radially outwardly, but they can be squeezed together to extend through an opening in a vehicle panel, and thereafter released to position the edges of the latch members beyond the inner wall of the panel opening. A stud is connected to and projects upwardly from the latching assembly, and it has a connector extension projecting downwardly from the latching assembly. A cover is mountable over the stud, and there are interlocking parts between the cover and the latching assembly to prevent rotation of the latching assembly relative to the cover. A cup washer fits over the cover, and a nut is threaded onto the stud against the cup washer to draw the stud upwardly and tighten the edges of the latch members against the vehicle panel. A head is mounted on the stud over the nut and against the cup washer. The head receives a standard, conventional antenna element.

With this antenna mount, installation of an antenna, such as a citizens band antenna, is greatly facilitated. Such antennas are commonly mounted at the center of a vehicle roof panel, and with this antenna mount, the installer can complete the installation from one position, rather than having to get under the vehicle panel or move around the vehicle to tighten different components of the antenna mount.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a top plan view of the antenna mount.

FIG. 2 is a side elevation view of the antenna mount.

FIG. 3 is a fragmentary bottom view of the antenna mount as mounted on a vehicle panel.

FIG. 4 is a fragmentary top plan view of the antenna mount with the plastic head removed.

FIG. 5 is a top plan view of the antenna mount with the plastic head, the cup washer and the plastic cover removed.

FIG. 6 is an enlarged view in axial medial section through the antenna mount.

FIG. 7 is a view in axial medial section through the antenna mount taken at right angles to the view of FIG. 6.

FIG. 8 is a fragmentary view in section similar to that of FIG. 6 but showing further parts in section.

FIG. 9 is a bottom view of the cover.

FIG. 10 is an isometric view of a keeper.

DETAILED DESCRIPTION OF THE INVENTION

This antenna mount 10 is designed to be mounted on a

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vehicle panel 11. For citizens band antennas, the mounting is usually at the center of the roof panel of the vehicle, but other locations may be used. Also, this mount may be used to support kinds of antennas other than citizens band antennas.

The antenna mount 10 includes a latching assembly 12, which will be described in detail hereinafter and which includes parts that project through an opening 13 in the vehicle panel 11. The latching assembly 12 comprises a bottom plate 14 that may be circular or of any other shape, with a hole 15 through its center. A retainer plate 16 is fastened by spot welds 17 to the bottom plate 14. The retainer plate 16 has a raised central hub 18, with an opening 18a through it. The retainer plate 16 is also formed with raised sections 19 extending laterally from opposite sides of the hub.

A pair of keepers 20 have horizontal sections 21 that are slidable between the bottom plate 14 and the retainer plate 16 within the lateral raised sections 19 of the retainer plate 16. Each keeper 20 has an outer upwardly extending ear 22 and an inner downwardly extending lug 23 that projects through the openings 13 and 15. Each lug 23 terminates in a reverse and upwardly curved end 24 that has an upwardly projecting edge 25 bearing against the under-surface of the vehicle panel 11.

A spring steel loop 28 is mounted at its center under a lug 29 raised from the retainer plate 16. The spring steel loop 28 has ends 30 that are outwardly sprung against the inner sides of the ears 22 to bias the latches 20 outwardly.

A threaded brass stud 33 has a connector extension 34 projecting downwardly from it through the opening 18a in the hub 18. The stud 33 and its connector extension 34 are braised or otherwise permanently attached to the hub 18. The stud 33 has a recess 35 in it communicating with a passage 36 through the connector extension 34. There is an enlarged head 37 at the lower end of the connector extension 34. An insert 38 of insulating material is mounted within the recess 35 with an extension 39 projecting into the opening 36. There is a recess 40 in the insulated insert 38 and a passage 41 communicating with the recess 40 and extending through the extension 39. As is conventional, a co-axial cable (shown dotted in FIG. 2) is mounted to the connector extension 34 with the outer shielding contacting the connector extension 34 and the inner insulated conductor extending through the passage 36 with its bared end extending into the opening 41 to the recess 40.

A plastic cover 43 is mounted over the latching assembly 12 with its annular lower edge 44 pressed against a suitable gasket 45 which in turn bears against the vehicle panel 11 and with the brass stud 33 projecting through a central opening 46. A cup washer 47 is mounted on the cover 43, the brass stud 33 extending through a central opening 48 in the cup washer 47. The cover 43 and cup washer 47 are held in place by a nut 49 threaded onto the stud 33.

There are lateral grooves 50 in the underside of the cover 43 into which the ears 22 of the keepers 20 project. This interlock prevents relative rotation between the cover 43 and the latching assembly 12.

A plastic head 52 of conventional construction has an internally threaded central section 53 for threading onto the upper end of the stud 33 until its lower annular edge 54 is tightened against the cup washer 47. The head 52 carries a contact member 55 that projects downwardly into the recess 40 for making contact with the aforescribed bared end of a co-axial cable. There is an externally threaded lug 56 at the top of the cover 52 to which an antenna element 57 is connected. The antenna element 57 is of conventional design.

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This antenna mount is easy to install at any location on a vehicle, and the person doing the installation can complete the job from one position, rather than having to fasten different parts from different sides of the vehicle or having to crawl beneath the vehicle. There are no claws or keepers that need be individually tightened to non-uniform pressures by independent operation. Also, while the size of the hole 13 in the vehicle panel 11 must be within a range that will receive and then retain the keepers 20, it need not be a single, precise dimension.

Installation of the antenna mount 10 begins with drilling a hole 13 in a vehicle panel 11 at the location desired. A conventional co-axial cable is then extended through the hole 13 and is connected to the connector extension 34. Next, the latching assembly 12 is installed by squeezing the ears 22 of the latches 20 together against the force of the loop spring 28. This slides the latches 20 inwardly as guided by the raised sections 19 of the retainer plate 16 and permits the ends 24 of the latches 20 to pass through the hole 13. When the bottom plate 14 is positioned against the vehicle panel 11 the ears 22 are released. The ends 30 of the loop spring 28 spring outwardly, sliding the latches 20 outwardly until the lugs 23 stop against the opening 15 in the bottom plate 14 and against the edge of the opening 13 through the vehicle panel 11. This also slides the ends 24 under the vehicle panel 11 beyond the edge of the opening 13 with the edges 25 in close proximity to the under surface to the panel 11. The brass stud 33 is now standing upwardly above the hub 18, and the connector extension 34, with the coaxial cable attached, is projecting downwardly.

Next, the cover 43 and gasket 45 are mounted over the brass stud 33 and the cover 43 is oriented with the ears 22 projecting into the lateral recesses 50, as shown in FIG. 7. The cup washer 47 is installed over the cover 43, and the nut 49 is threaded onto the brass stud 33. Then, while the cover 43 is held to prevent rotation of the latching assembly 12 and the stud 33 by the interlock of the ears 22 within the recesses 50, the nut 49 is tightened. As the nut 49 is tightened, the stud 33 is drawn upwardly, drawing the latching assembly 12 upwardly and drawing the edges 25 of the latches 20 into tight contact with the vehicle panel 11. Then, the plastic head 52 is threaded onto the stud 33, and an antenna element 57 is threaded onto the lug 56.

To remove the antenna mount 10, the procedure is the reverse of what has just been described. Again, removal can be done from one position in a few easy operations.

What is claimed is:

1. An antenna mount for mounting an antenna to a wall comprising a latching assembly, means supported by the latching assembly for attachment to a radio signal carrier, the latching assembly comprising a base for bearing against one side of the wall, a plurality of latching arms for extending through an opening in the wall, the latching arms having radially outwardly extending ends for engaging the other side of the wall opposite the said one side, means for biasing the latching arms radially outwardly, means located on the antenna side of the wall for permitting manual radially inward movement of the

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latching arms, the radially inward movement of the latching arms permitting extension of the outwardly extending ends through an opening in the wall for both installation and removal operations, and means to tighten the outwardly extending ends of the latching arms against the said other side of the wall.

2. The antenna mount of claim 1 including a stud projecting upwardly from the latching assembly, the means to tighten the outwardly extending ends against the said other side of the wall comprising a nut adapted to be threaded onto the stud, and bearing means between the nut and the said one side of the wall.

3. The latching assembly of claim 1 wherein the radially outwardly extending ends of the latching arms have upwardly curved outer edges.

4. The antenna mount of claim 2 wherein the bearing means includes a cover between the nut and the vehicle wall, the cover being cup-shaped to cover the latching assembly, and interlocking means between the latching assembly and the cover to prevent relative rotation therebetween.

5. The antenna mount of claim 4 including a cup washer between the nut and the cover.

6. The antenna mount of claim 1 wherein the latching arms have outer upstanding ears and the means for biasing the latching arms comprises a loop spring bearing against the radially inward sides of the ears.

7. An antenna mount for mounting an antenna to a wall comprising a latching assembly, means supported by the latching assembly for attachment to a radio signal carrier, the latching assembly comprising a base for bearing against one side of the wall, a retainer plate mounted against the base, means defining lateral passages between the retainer plate and the base, a plurality of latching arms slidably mounted within the lateral passages for extending through an opening in the wall, the latching arms having radially outwardly extending ends for engaging the other side of the wall opposite the said one side, means for biasing the latching arms radially outwardly while permitting manual, radially inward movement of the latching arms, the radially inward movement of the latching arms permitting extension of the outwardly extending ends through an opening in the wall, and means to tighten the outwardly extending ends of the latching arms against the said other side of the wall.

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ALFRED C. PERHAM, Primary Examiner

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