June 17, 1941. G. MOUNTJOY 2,245,701

RADIO ANTENNA FOR AUTOMOBILES

Filed Sept. 29, 1939

Fig. 1

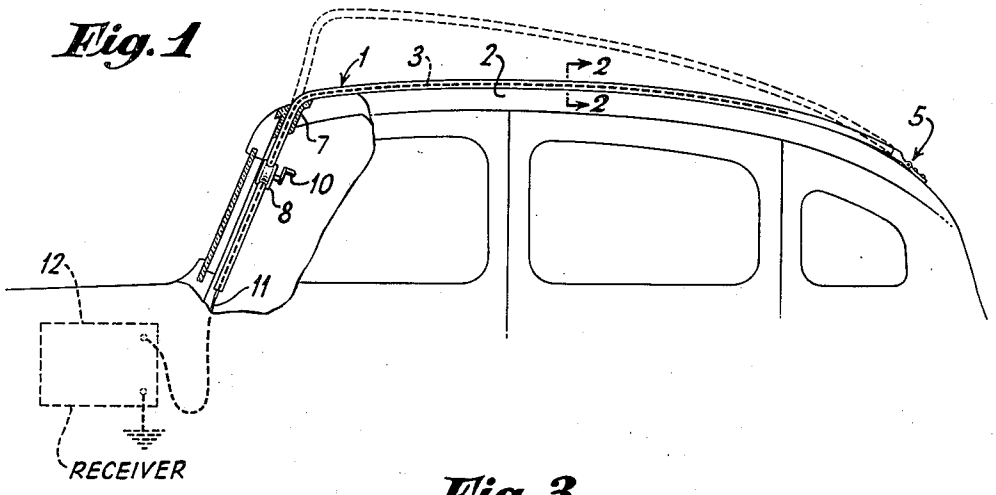


Fig. 3

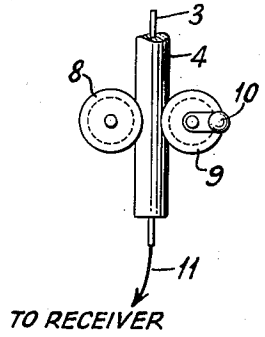


Fig. 2

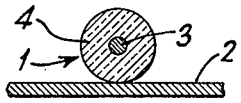


Fig. 4

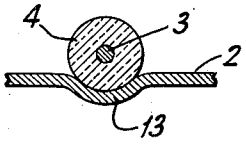


Fig. 6

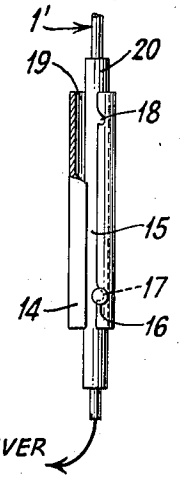
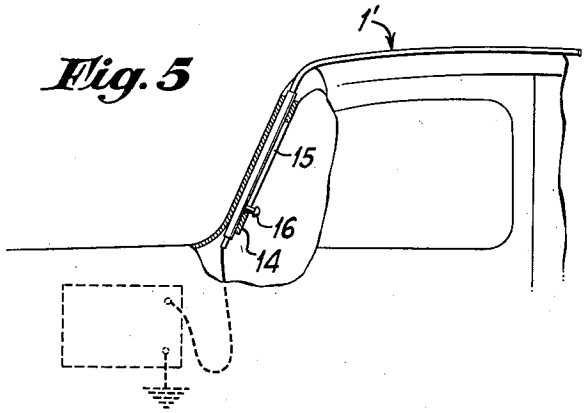


Fig. 5



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RADIO ANTENNA FOR AUTOMOBILES

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Application September 29, 1939, Serial No. 297,676

4 Claims. (Cl. 250—33)

This invention relates to a novel antenna and its installation on automobiles or other vehicles.

There are in use at the present time many types of antennae adapted for installation on vehicles, such as, the "rod" or "mast" type which may either be supported from the cowl of the vehicle or mounted on the rear bumper; the kind that extends rearwardly and above the roof or top of the car; and the type that is mounted underneath the running board or car chassis. The latter or undercar type has been found inefficient and insensitive due to its low effective height above ground, the shielding effect by the automobile body, and the static electrical disturbances caused by the tires of the car while in motion. The other mentioned types while they are fairly efficient electrically are objectionable to many users of automobile radios because they are conspicuous and detract from the appearance of the automobile.

It is therefore one of the main objects of my invention to provide a simple and efficient antenna structure adapted to be readily mounted on the top or roof of the car, and which is capable of adjustment in a manner such that during silent periods of the radio the antenna conforms to the contour of the car top and lies flush thereon, while during periods of radio reception the antenna is caused to be elevated to a suitable height above the car top.

Another object of the invention is to provide an antenna which is ornamental and will add to the appearance of the car. This is accomplished by embedding the antenna wire or conductor within a rod or sheath of moldable substance, which may be of any desired finish or color to harmonize with the car.

The novel features characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its construction and the mode of operation together with other objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawing in which

Fig. 1 is a side elevational view showing the antenna structure according to my invention and its mounting on the car top,

Fig. 2 is an enlarged cross-sectional view of the antenna structure per se taken along the line 2—2 of Fig. 1,

Fig. 3 is a front view of the means employed to raise and lower the forward end of the antenna,

Fig. 4 is a view similar to Fig. 2, but showing a modification wherein a groove is formed lengthwise in the top of the car for accommodating the antenna in its lowered position,

Fig. 5 is a view similar to Fig. 1 and showing a modified form of the invention, and

Fig. 6 is a detail showing the manner of adjusting the antenna structure of Fig. 5.

Corresponding and like parts are referred to in the following description and designated in the several figures of the drawing by like reference characters.

Referring now to Fig. 1, the antenna is indicated generally by reference 1 and extends lengthwise along the top of the car. In its inoperative position or during silent periods of the receiver the antenna is caused to conform to the contour of the car top 2 so that the same is hardly conspicuous. The antenna is comprised of a central conductor 3 which may be of copper or other suitable conducting material and a sheath of insulating material 4, preferably of moldable, slightly flexible material, such as Celluloid or Cellophane, which surrounds the central conductor. Preferably, the central conductor is not extended to the full length of the insulating rod, it being sufficient if it terminates at a reasonable distance from the anchored portion of the antenna, otherwise there would be a shunting effect of the induced signal voltage by unwanted capacitance between the antenna and the counterpoise or ground portions of the signal pick-up system.

One end of the antenna structure is suitably clamped or otherwise attached to the movable portion of a hinge 5 located towards the rear of the car top, the fixed portion of the hinge being attached to the top by screw means. Actually the hinge 5 may be omitted if the insulating material is sufficiently flexible. In that case the point of attachment may be rigid and permanent. The forward end of the antenna structure is lead through an opening in the forward end of the car top fitted with suitable means such as a watertight bushing 7. A pair of friction rollers 8 and 9 are adapted to receive between them and guide the forward end of the antenna structure, and a crank arm 10 within convenient reach of the operator is associated with one of the friction wheels, such as 9, whereby the forward end of the antenna structure may be raised or lowered for the purpose heretofore explained the position of the antenna in the raised position being shown in dotted lines in Fig. 1. A flexible lead-in conductor 11 is connected between the forward end of the antenna and the radio receiving

set 12 which may be mounted behind the dashboard, on the fire-wall or any other suitable location as known in the prior art.

If preferred the top of the car may be provided with a longitudinally extending groove or trough 13 of suitable depth to accommodate partly or entirely the antenna structure, as shown in Fig. 4, so that during idle or non-reception periods it will be less likely for the antenna to be conspicuous, especially when the insulating material is given the same color as the finish of the car. If desired the insulating material may be colored differently than the car to provide a pleasing contrast, and thereby enhance the appearance of the car.

In Fig. 5 I have disclosed a further modification of my invention. In this case the opening in the car top for leading-in the forward end of the antenna structure is dispensed with, and I have shown the use of an antenna rod 1' which is entirely of conducting material, such as steel, cooper or brass, and which has some degree of flexibility in order to conform to the contour of the car top. It will be understood of course that the antenna structure 2 of Fig. 1 may also be used in place of 1' in this modification. According to Fig. 5 the vertical bar 14 which is usually provided between the two front windows of present day cars is provided with a longitudinal bore 19 and an insulating sleeve 20 through which the forward portion of the antenna extends. The bar 14 is further provided on its back side with a slit 15 through which a manual member 16 fastened to the antenna extends inwardly within convenient reach of the operator, and the same is manipulated between a pair of notches 17 and 18. Moving the manual member into the lower notch 17 will cause the antenna to lie flush with the car top, and adjusting the manual member to engage the upper notch 18 the antenna structure will be raised to an operative position, such as indicated by dotted line portion in Fig. 1.

Many modifications within the scope of my invention will occur to those skilled in the art, and I therefore do not wish that my invention be limited to the precise embodiments which have been illustrated by way of example. I only intend to limit my invention as required by the prior art and appended claims.

What I claim as my invention is:

1. An antenna for installation on the tops of motor vehicles, comprising a rod of insulating material and a conductor embedded therein, said rod being attached at one end to the top of the vehicle, the opposite end of the rod extending through the top, and means within the vehicle cooperating with the latter end whereby the same may be raised or lowered at will.

2. An antenna for installation on the tops of motor vehicles, comprising a rod of conducting material, said rod being attached at one end to the top of the vehicle, the opposite end of the rod extending through the top, and means within the vehicle cooperating with the latter end whereby the same may be raised or lowered at will.

3. An antenna for installation on the tops of motor vehicles, comprising a rod of moldable insulating material and a conductor embedded therein capable of conforming to the contour of the vehicle top, means for pivotally mounting one end of said rod on the vehicle top toward the rear end thereof, the vehicle top having at its forward end an aperture through which the other end of said rod is adapted to extend and means cooperating with said other end of the rod for elevating the same above the vehicle top into an operative position.

4. An antenna for installation on the tops of motor vehicles, comprising a rod of conducting material capable of conforming to the contour of the vehicle top, means for pivotally mounting one end of said rod on the vehicle top toward the rear end thereof, the vehicle top having at its forward end an aperture through which the other end of said rod is adapted to extend; and means cooperating with said other end of the rod for elevating the same above the vehicle top into an operative position.

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