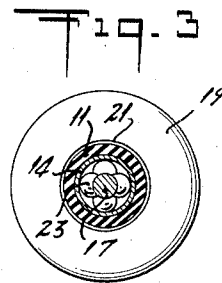
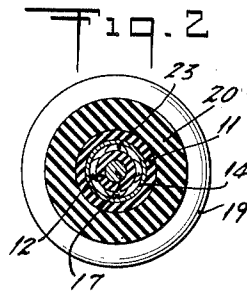
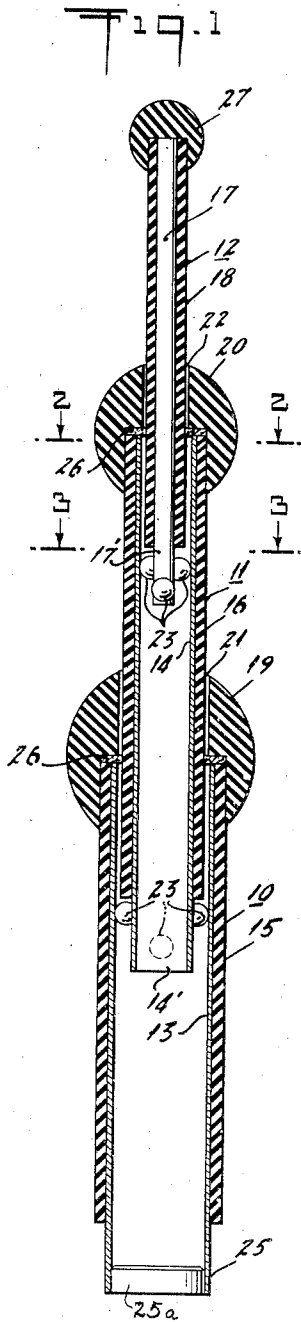


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EXTENSIBLE CAR RADIO ANTENNA

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EXTENSIBLE CAR RADIO ANTENNA

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4 Claims. (Cl. 250—33)

1

This invention relates to extensible radio antennae and more particularly to such antennae designed for use upon moving vehicles such as an automobile.

It is an object of this invention to provide a radio antenna of the character described in which the metal parts are all protected against corrosion, and may be made of a color designed to harmonize with the trimmings of the car, but which nevertheless will give firm connection between the various extensible portions so that noise-making factors are eliminated.

It has heretofore been proposed to provide telescopic antennae having metal surfaces in which the friction required for holding the antenna extended is between those metal surfaces. Such antennae become hard to extend and contract as soon as the metal surfaces become corroded or dirty. Moreover, it frequently happens that the bright metallic color does not harmonize with the trimmings of the car.

It has also been proposed to provide a telescopic antenna having internal mechanism for making contacts between the extensible sections, but in such constructions, the internal contact device was not designed to serve as a means of steadying the telescopic parts relative to each other.

The invention accordingly comprises a device possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a vertical section through an antenna embodying this invention. Fig. 2 is a section on the line 2—2 of Fig. 1, and Fig. 3 is a section on the line 3—3 of Fig. 1.

The antenna of this construction embodies primarily three telescopic sections, 10, 11, and 12. The sections 10 and 11 are each composed of an inner tubular member 13, 14, and an outer plastic sleeve 15, 16, while the upper section 12 comprises an inner metallic rod 17, and an outer plastic sleeve 18. These three plastic sleeves are each firmly fixed upon the metallic member which they surround. There is appreciable clearance between the outer diameter of the plastic sleeve 18 and the inner diameter of the tubular member 14, and similarly there is an appreciable clearance between the outer diameter of the plastic sleeve 16, and the inner diameter of the tubular member 13. Firmly fixed upon the upper end of the sections 10 and 11 are two plastic knobs or balls, shown as balls 19 and 20, which have openings 21 and 22 having a relatively closer fit

2

about the mating plastic sleeves 16 and 18, the diameter of this opening being materially smaller than the inner diameter of the members or tubes 13 and 14, so that the bearing engagement is between the balls and the plastic members rather than between the inner diameter of the tubular members of the plastic members.

As will be seen from the drawings, the rod 17 has an extension 17' below the lower end of the plastic member 18, and similarly the tube 14 has an extension 14' below the lower end of the plastic sleeve 16. Each of the extensions 17' and 14' is provided with two pairs of oppositely disposed recesses adapted to receive balls 23 and maintain them in position to bear against the inner surfaces of the tubular members 13 and 14 respectively, and this engagement is a rather close fit so that at the same time a good electrical contact is made and a firm support is given to the lower end of the sliding member.

By reason of the fact that the inner diameter of the tubes 13 and 14 is greater than the openings in the balls 19 and 20, the extension of the device will be stopped as soon as the balls 23 come in contact with the lower edge of the openings 21 or 22. A felt washer 26 may be provided below the knobs to receive and cushion the blow as the balls come against the stop. Similarly, the downward motion of each of the upper sections is limited by the contact between balls 20 and 27 with the balls 19 and 20 respectively.

As will be seen from the drawings, the lower end of the tube 13 extends below the plastic sleeve 15 as shown at 25 to provide a means by which the antenna may be connected to the radio set of the car. This extension is preferably closed by a plug 25a which will give inner support to the tube. At the upper end of the section 12 there may be also provided a ball 27 serving to protect the upper end of the rod 17, and to give finish to the top and at the same time complete the appearance of the device.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. A radio antenna comprising an outer section and an inner section slidable in said outer section, each of said sections comprising a plastic member, and a metallic member within said plastic member having an extension below the lower end thereof, a knob on the upper end of said outer section having a sliding bearing for said inner section of smaller diameter than the inner diameter of said outer section within which said inner section slides, there being a plurality

3

of recesses upon said extension and balls within said recesses, frictionally engaging the inner surface of said outer section to provide a tight frictional bearing.

2. A radio antenna comprising an outer section and an inner section slidable therein, a knob upon the upper end of said outer section having a slidable bearing of smaller diameter than the diameter of the section within which said inner sections slide, a plurality of recesses upon the lower end of said inner section arranged around the circumference, and balls within said recesses frictionally engaging the inner surface of said outer section to provide a tight frictional bearing, and to serve as a stop when it engages the lower end of said first mentioned bearing.

3. A radio antenna comprising an outer section and an inner section slidable therein, a knob upon the upper end of said outer section having a slidable bearing of smaller diameter than the diameter of the section within which said inner sections slide, a plurality of recesses upon the lower end of said inner section arranged in oppositely disposed pairs in different vertical planes, and balls within said recesses frictionally engaging the inner surface of said outer section to provide a tight frictional bearing, and to serve

4

as a stop when it engages the lower end of said first mentioned bearing.

4. A radio antenna comprising an outer section and an inner section, said outer section having a bearing for the inner section adjacent its top within which said inner section may slide, said inner section having a plurality of ball sockets upon its lower end arranged in oppositely disposed pairs, the ball in each of said sockets of a diameter frictionally to engage the inner surface of said outer section.

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