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TOP COWL VEHICLE ANTENNA

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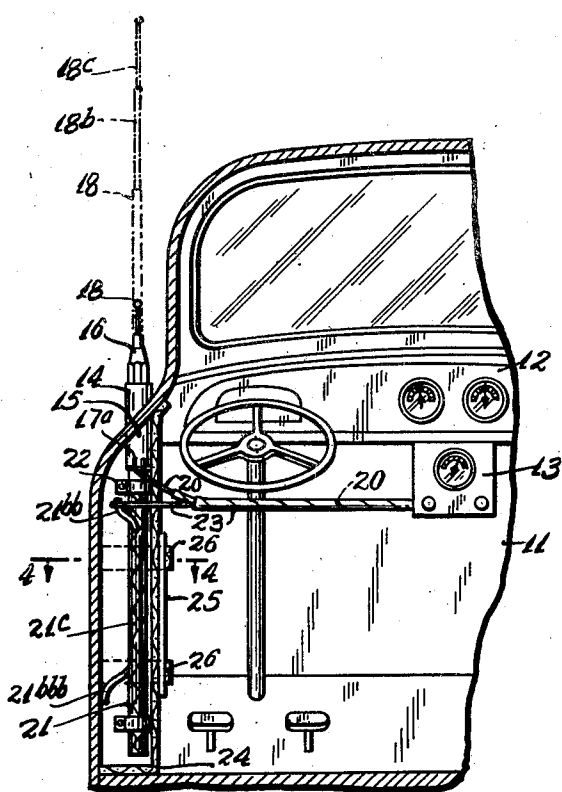


Fig. 1

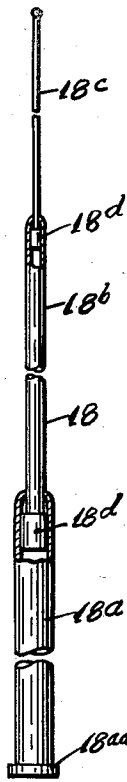


Fig. 2

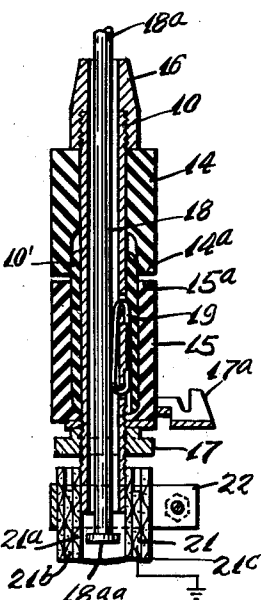


Fig. 3

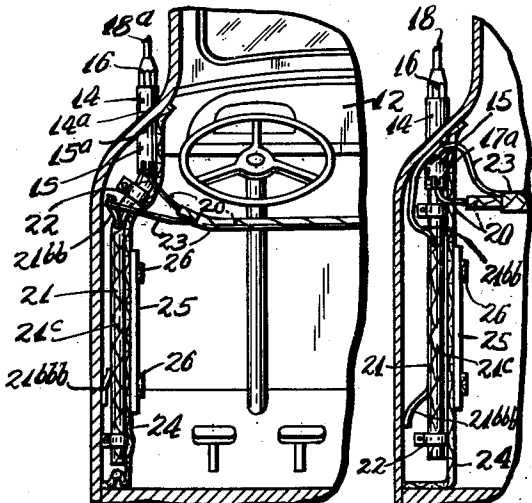


Fig. 5

Fig. 6

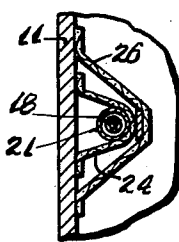


Fig. 4

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## UNITED STATES PATENT OFFICE

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## TOP COWL VEHICLE ANTENNA

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9 Claims. (Cl. 250—33)

This invention relates to new and useful improvements in a top cowl vehicle antenna.

More specifically, the invention proposes the construction of a top cowl antenna characterized by a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver and which has a telescopically extendable and retractable antenna engaged therethrough in a manner to be extended above said tube or to be retracted beneath said tube.

Still further it is proposed to provide a flexible casing attached to the bottom of said metal tube in a manner to cause said antenna to be extended therein when in its retracted position.

Still further it is proposed to provide a kick pad for covering the flexible case to protect the same from becoming worn due to the engagement of one's legs therewith while driving the vehicle.

Still further it is proposed to provide a means for drawing the kick pad and case against the inner wall of the vehicle when the antenna is in its extended position for providing more space within the vehicle in the vicinity of the driver.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a sectional view of a portion of a vehicle having a top cowl vehicle antenna constructed according to this invention.

Fig. 2 is an elevational view of the telescopic antenna, per se.

Fig. 3 is a vertical sectional view of the metal tube and associated parts.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 4 but illustrating the position of the parts when the antenna is extended.

Fig. 6 is a fragmentary view similar to Fig. 1, but illustrating another form of connections.

The top cowl vehicle antenna, according to this invention, includes a metal tube 10 which is adapted to be extended through an opening in the cowl of a vehicle 11 in the vicinity of the driver. The vehicle 11 is provided with a dashboard 12 upon which a radio 13 is mounted.

A top insulation cover 14 engages over the top projecting portion of the metal tube 10 and is adapted to abut the top face of the material of the cowl above the opening through which the

tube 10 extends. The top insulation cover tube 14 is constructed of hard rubber and is provided with an inclined bottom surface 14<sup>a</sup> matching the inclination of the vehicle for causing the cover tube 14 to solidly sit in position thereon.

A bottom insulation cover tube 15 engages over the bottom projecting portion of the metal tube 10 and abuts the inner face of the material of the cowl about the opening through which the tube 10 passes. The bottom insulation cover tube 15 is constructed of soft rubber and is provided with a top inclined surface 15<sup>a</sup> matching the inclination of the cowl to permit the bottom insulation cover tube to rigidly set in position against the bottom face thereof. An insulation tubing 16 is interposed between the rubber tubing 15 and the tube 10 to insulate the same and the antenna from the ground of the vehicle.

A nut 16 is threadedly engaged on the top portion of the tube 10 which extends beyond the top edge of the top insulation cover tube 14. A similar nut 17 is threadedly engaged on the bottom portion of the tube 10. The bottom portion of the tube extends beyond the bottom edge of the bottom insulation cover tube 15 and the nut 17 is adapted to be tightened there-against for rigidly maintaining the tube 10 in position upon the said cowl.

A telescopically extendable and retractable antenna 18 engages through the metal tube 10. The antenna 18 is constructed of several sections 18<sup>a</sup>, 18<sup>b</sup> and 18<sup>c</sup>. The section 18<sup>b</sup> is slidably engaged into the section 18<sup>a</sup> and the section 18<sup>c</sup> is slidably engaged into the section 18<sup>b</sup>. The section 18<sup>a</sup> extends through the tube 10 and is provided at its bottom end with an outwardly extending flange 18<sup>aa</sup> which is adapted to strike the bottom end of the tube 10, as shown in Fig. 3, to prevent its disengagement therefrom. Each of the other sections of the antenna 18 is formed with an enlarged portion 18<sup>d</sup> which is adapted to strike against the inturned top edge of the section within which it is slidably engaged for preventing the disengagement of the sections.

A metallic spring 19 is mounted on the metal tube 10 and is provided for rigidly bearing against the outer face of the section 18<sup>a</sup> of the antenna 18 for providing a continuous contact between the antenna 18 and the tube 10. The nut 17 which is engaged upon the bottom end of the tube 10 is provided with an extension 17<sup>a</sup> upon which one end of a wire 20 is adapted to be mounted. The other end of the wire 20 is adapted to be connected to the antenna post of the radio 13.

A flexible case 21 is mounted upon the bottom end of the metal tube 10 below the nut 17 and in the retracted position of the antenna 18 the antenna is adapted to extend into the flexible case 21. The flexible case comprises an inner coarse cloth section 21<sup>a</sup> upon which a metal mesh section 21<sup>b</sup> is superimposed. An outer cloth section 21<sup>c</sup> engages over the metal section 21<sup>b</sup> and all of the sections are rigidly maintained in position upon the bottom end of the metal tube 10 by means of a collar 22 which engages thereabout.

The metal section 21<sup>b</sup> is provided with two extensions or pigtails 21<sup>bb</sup> and 21<sup>bbb</sup>. The latter is adapted to be grounded to the vehicle body and extension 21<sup>bb</sup> is attached to one end of a ground wire 23 which runs parallel with the antenna wire 20 but is insulated therefrom. The other end of the wire 23 is adapted to be attached to the ground post of the radio 13. When the antenna is extended into the flexible case 21, as shown in Fig. 1, it is adapted to project vertically downwards from the end of the tube 10 and occupy a portion of the space normally needed by the driver. For this reason a cloth covering 24 is engaged over the casing 21. A kick pad 25 is mounted on the outer face of the cover 24 and is adapted to be engaged by one's feet during operation of the vehicle for protecting the flexible casing 21 to prevent the cloth covering 21<sup>c</sup> thereof from becoming worn or damaged.

When the antenna is in its extended position, as illustrated in Fig. 5, a means is provided for holding the kick pad 25 and the flexible casing 21 against the inner wall of the vehicle for maintaining the same away from the legs of the driver. This means comprises a pair of spaced elastic bands 26 which have their intermediate portions attached to the outer face of the kick pad 25. The ends of the elastic bands 26, as shown in Fig. 4, are attached to the inside of the vehicle for drawing the flexible case thereagainst.

In Fig. 6, the upper extension 21<sup>bb</sup> of the flexible case 21, is shown to be connected to the ground wire 23 and to the vehicle body at the upper end of the insulation tube 15. In other respects this form of the invention is similar to the previous form and at the various parts may be recognized by the similar reference numerals.

While we have illustrated and described the preferred embodiments of our invention, it is to be understood that we do not limit ourselves to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent is:

1. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same.

2. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said top insulation cover tube having its bottom end cut at an inclination to agree with the surface curvature of said cowl and said bottom insulation cover tube having its top edge cut at an inclination to agree with the surface curvature of said cowl.

3. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said antenna being formed of a plurality of sections each of which is telescopically engaged within one another.

4. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said flexible case being constructed of several sections comprising an inner coarse cloth section, an intermediate wire mesh section, and an outer cloth cover section.

5. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said flexible case being constructed of several sections comprising an inner coarse cloth section, an intermediate wire mesh section, and an outer cloth cover section.

6. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said flexible case being constructed of several sections comprising an inner coarse cloth section, an intermediate wire mesh section, and an outer cloth cover section.

top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, said flexible case being constructed of several sections comprising an inner coarse cloth section, an intermediate wire mesh section, and an outer cloth cover section, said wire mesh section being grounded to the body of said vehicle and being connected to the ground post of a radio.

6. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, and means for holding the kick pad and said case against the wall of the vehicle when the antenna is extended.

7. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging

through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, and means for holding the kick pad and said case against the wall of the vehicle when the antenna is extended, said means comprising spaced elastic bands having their intermediate portions attached to the outer face of said kick pad and their ends attached to the inside of said vehicle.

8. A top cowl vehicle antenna, comprising a metal tube extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same, a cover being engaged over said case, and said kick pad being mounted upon said cover.

9. A top cowl vehicle antenna, comprising a metal tube partially covered with an insulation sleeve, extending through an opening in the cowl of a vehicle in the vicinity of the driver, a top insulation cover tube engaging over the top projecting portion of said metal tube and the insulating sleeve and abutting the material of said cowl about said opening, a bottom insulation cover tube engaging over the bottom projecting portion of said metal tube and the insulating sleeve and abutting the material of said cowl about said opening, nuts mounted on the top and bottom ends of said metal tube and clamping said insulation tubes in position, a telescopically extendable and retractable antenna engaging through said metal tube, a flexible case for the antenna in its retracted position and attached on the bottom of said metal tube, and a kick pad mounted on said vehicle and covering said flexible casing for protecting same.

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