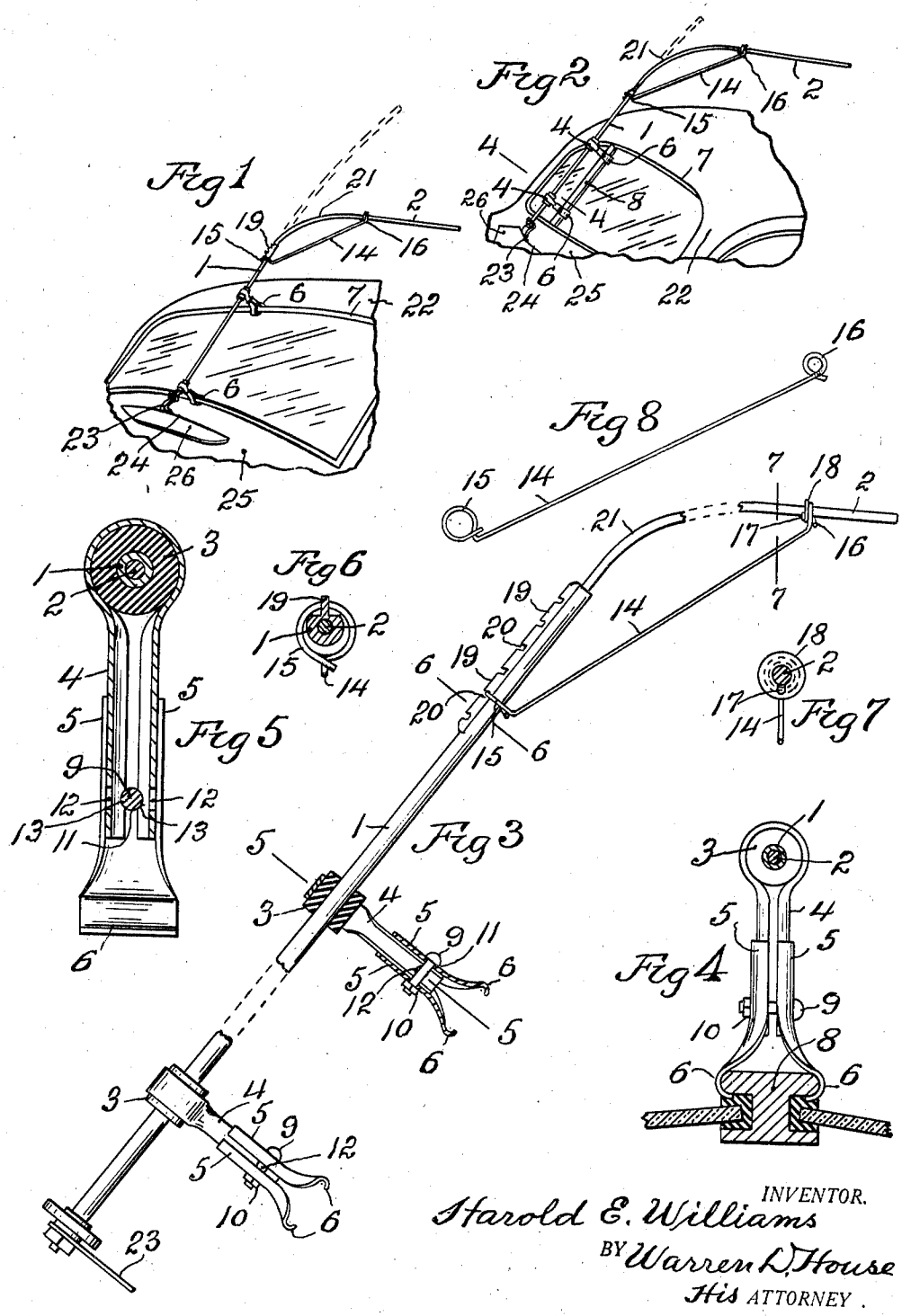
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ANTENNA

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INVENTOR.
Harold E. Williams
BY Warren D. House
His ATTORNEY.

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ANTENNA

Harold E. Williams, Carthage, Mo.

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9 Claims. (Cl. 250—33)

My invention relates to antennas. It relates particularly to an antenna having an antenna rod adapted to be fastened to an automobile forward of and extended over the roof thereof. A further object is the provision of novel means for fastening the antenna to the car. Another object is the provision of novel means for holding the antenna rod in different curved forms for adapting it to different car roofs.

Still another object of my invention is the provision of a novel antenna of the kind described, which is simple, cheap, strong, durable, not likely to get out of order, which is easily and quickly attached to a car without alteration or damage to the latter, and which is efficient in operation.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawing, which illustrates the preferred form of my invention,

Fig. 1 is a reduced perspective view of my improved antenna shown attached to the upper and lower portions of the windshield frame.

Fig. 2 is a similar view, showing the antenna attached to the midrib of the windshield frame.

Fig. 3 is a side view, enlarged, partly broken away, and partly in section, of my improved antenna.

Fig. 4 is an enlarged section on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged section on the line 5—5 of Fig. 3.

Fig. 6 is an enlarged section on the line 6—6 of Fig. 3.

Fig. 7 is an enlarged section on the line 7—7 of Fig. 3.

Fig. 8 is a perspective view of the chordlike member for holding the antenna rod in the desired arcuate form.

Similar characters of reference designate similar parts in the different views.

The antenna rod comprises a forward substantially rigid portion 1 and a flexible resilient rear portion 2 firmly inserted in a longitudinal hole in the rear end of the portion 1.

For supporting the rod portion 1 by and insulated from the automobile, there are provided two posts each comprising, as best shown in Figs. 3, 4 and 5, an insulating collar 3, as of soft rubber, tightly clamped on the portion 1 by a U shaped metal strip 4, the arms of which are arcuate in cross section and are disposed in two clamping members 5 having wide inwardly turned jaws 6.

The clamping members 5 are circumferentially adjustable on the arms of the member 4 to two positions at right angles to each other to enable the jaws 6 to be positioned for clamping engagement with the upper and lower portions of the windshield frame 7, as shown in Figs. 1, 3 and 5; or positioned as shown in Figs. 2 and 4 for clamping engagement with the ends of the windshield frame, or with the midrib 8 of the windshield frame, as shown in Fig. 2.

For holding the clamping members 5 in the position to which they are adjusted, there is provided a screw 9 having a nut 10, the screw 9 being adapted for insertion through two holes, one in each member 5, designated by 11 in Figs. 3 and 5.

When the clamping jaws 6 are to engage the midrib 8 of the windshield frame, and the clamping members 5 are disposed as shown in Figs. 2 and 5, the screw 9 extends through two holes 12 respectively provided through the arms of the member 4, the holes 12 being shown in Figs. 5 and 6.

When the clamping jaws 6 are to engage the upper or lower portions of the windshield frame 7, the screw 9 extends between the arms of the U shaped member 4, disposed in notches 13 in the edges of said arms, Figs. 3 and 5.

For holding the flexible portion 2 of the antenna rod curved rearwardly, as shown in Fig. 3 and in solid lines in Figs. 1 and 2, there is provided a chordlike member comprising a wire 14 having at each end a loop forming an eye, said loops being respectively designated 15 and 16. The rear loop or eye 16 slips on the portion 2 and at its front side has engagement with anchoring means comprising an abutment which, in the form shown, consists of a tooth 17 extruded from the periphery of the rod portion 2, a washer 18 being, preferably, inserted on the portion 2 and bearing against the tooth 17 and having the loop 16 bear against its rear side, Fig. 3.

The loop 15 is slidably mounted on the portion 1 of the antenna rod, and is adapted for releasable holding engagement with any one of a longitudinal row of anchoring means, comprising abutments spaced from the abutment 17 and, in the form shown, consisting of peripheral teeth 19, preferably formed by extruding at the rear end portion of the rod portion 1 a longitudinal peripheral flange, and then cutting transverse notches 20 in the outer edge of the flange. For securely holding the chordlike member's loop 15, the forward edge of each tooth so made may be undercut, as shown in Fig. 3.

In applying the antenna to the upper and lower portions of the windshield frame 7, as shown in Fig. 1, the supporting posts are slipped on the rod portion 1 to a proper distance apart, and the clamping members 5 are adjusted on the U shaped members 4 of the supporting posts to the positions shown in Figs. 3 and 5. The jaws 6 are then engaged with the frame 7 and clamped thereto by tightening the nuts 10 on the screws 9, which are disposed in the holes 11, and between the arms of the members 4 in the notches 13 therein.

When applied to the midrib 8, the clamping

members are disposed as shown in Fig. 4, and the jaws 6 are clamped to opposite edges respectively of the midrib 8, as in Fig. 2.

The loop 15 of the chordlike member 14 is then adjusted longitudinally on the rod portion 1 to a position in which the arc 21, formed in the flexible portion 2, is of a form such that the portion 2 will clear the roof 22 of the car a proper distance. The loop 15 is then engaged with the front edge of the adjacent tooth 19, whereby the flexible portion 2 may be releasably locked in positions at such different angles to its normal position, as shown in dotted lines in Figs. 1 and 2, as may be desired.

A lead in strip 23, exteriorly insulated, and consisting of a strip of metal, as copper, in the form of a thin ribbon, is conductively connected to the front end of the rod portion 1, and is extended through a ventilation opening 24, which is usually provided in the top of the hood 25 forward of the windshield frame 7, Figs. 1 and 2. The lead in strip 23 is connected in the usual manner to a radio set, not shown, but of usual construction, mounted in the car.

The lead in strip 23 is of thin ribbon like form, so that it will lie between the hood 25 and the ventilator cover 26, when the latter is closed or open, without interfering with the operation of the latter, and without liability of being damaged by such operation.

When the antenna is applied to a car having a hinged windshield, a sufficient length of the flexible lead in strip 23 is provided outside of the hood, to permit of the opening and closing of the windshield without interference by the lead in strip.

In the formation of the teeth 19, they may be separately extruded from the metal with suitable tools; or, as shown in Fig. 3 they may be cut from a flange formed longitudinally on the periphery of the rear end portion of the rod portion 1.

In forming the flange, the rod portion 1 may be disposed between two compression dies of proper form and squeezed thereby along two longitudinal parallel lines, so as to force the metal outwardly to form a projecting flange, after which notches 20 are cut by suitable tools along the longitudinal outer edge of the flange to form the teeth 19. As shown in Fig. 3, some of the teeth may be under cut at their front edges to more securely hold the loop 15.

Modifications of my invention, within the scope of the appended claims, may be made without departing from its spirit.

What I claim is:

1. In an antenna for an automobile, an antenna rod, and a post supporting and insulating said rod and two clamping jaws adjustable on said post circumferentially and one toward and from the other and adapted to releasably clamp a part of the automobile.

2. In an antenna for an automobile having an upwardly and downwardly extending windshield frame provided with an upwardly and downwardly extending midrib, the combination with said frame, of an antenna rod, an insulating support for said rod, and two clamping jaws adjustable on said support circumferentially and toward and from each other for selectively clamping a border portion of said frame or said midrib.

3. In an antenna, an antenna rod having two teeth on its periphery and having a flexible portion between said teeth, and a chordlike member shorter than the distance between said teeth having holding engagement with said teeth and holding said flexible portion in the form of an arc.

4. In an antenna, an antenna rod having a longitudinal row of teeth on its periphery and a peripheral abutment and a flexible portion between said teeth and said abutment, and a chordlike member shorter than the distance between said abutment and said teeth having holding engagement with said abutment and movable into releasable holding engagement with any one of said teeth, for holding said portion in the form of different arcs.

5. In an antenna, an antenna rod having a longitudinal row of peripheral teeth and a peripheral abutment and having a flexible portion between said abutment and said teeth, and a member having two eyes spaced apart a distance less than the distance between said abutment and said teeth and through which said rod extends, one of said eyes having holding engagement with said abutment, and the other eye being slidable into holding engagement with any one of said teeth, for holding said portion in the form of different arcs.

6. In an antenna, an antenna rod having a longitudinal row of transverse notches and having an abutment at a distance from said notches and a flexible portion between said notches, and a member shorter than said distance and having means for holding engagement with said abutment, and having means for releasable holding engagement with said rod by disposition in any one of said notches, whereby said member can hold said flexible portion in arcs of different forms.

7. A chordlike member for holding a flexible portion of an antenna rod in the form of an arc, comprising a wire having loops forming eyes at its ends respectively adapted to have inserted therethrough the antenna rod.

8. In an antenna for an automobile, an antenna rod having a longitudinal row of peripheral abutments and spaced therefrom a peripheral abutment, and having a flexible portion between said abutment and said abutments, and a member having holding engagement with said abutment and having means for releasable holding engagement with any one of said row of abutments, for holding said flexible portion in the form of different arcs.

9. In an antenna, an antenna rod having two portions, means for supporting one of said portions, the other of said portions being movable from a normal position, in which it is supported by said first named portion, to positions at different angles to said normal position, and a member having holding engagement with one of said portions, and having means for releasable holding engagement with the other of said portions at points at different distances from the first named point of engagement, whereby when said movable portion is moved to positions at different angles to said normal position, said movable portion will be releasably held in such of said positions to which it may be adjusted.

HAROLD E. WILLIAMS.