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REPLACEMENT ANTENNA STAFF ASSEMBLY OR UNIT

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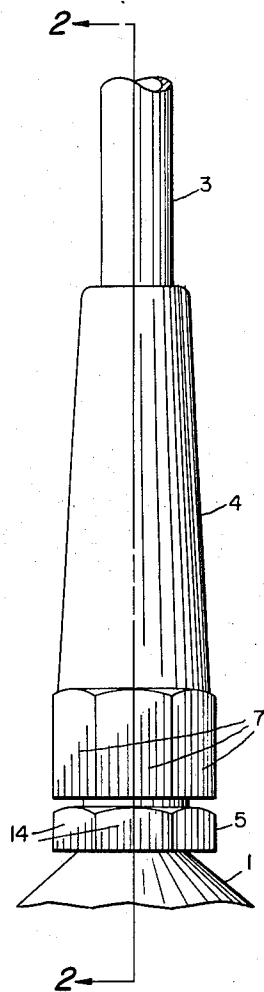


Fig. 1

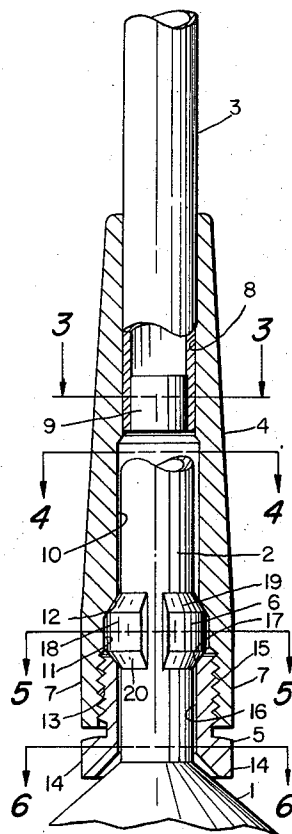


Fig. 2

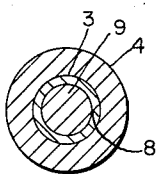


Fig. 3

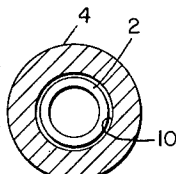


Fig. 4

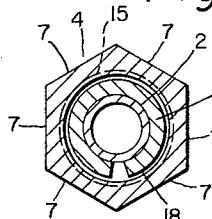


Fig. 5

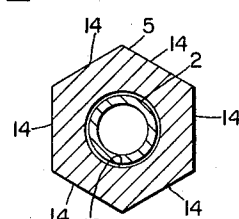


Fig. 6

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REPLACEMENT ANTENNA STAFF ASSEMBLY OR UNIT

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2 Claims. (Cl. 287-117)

This invention relates generally to automobile antennas or the like, but has reference more particularly to an antenna staff assembly or unit which may be used to replace an original antenna, in which the original staff or mast has been stolen, broken, mutilated or otherwise damaged.

Replacement staffs have heretofore been sold, in which a sleeve bushing is provided, having holes drilled and tapped through the sides thereof, so that the bushing may be secured to the broken stub of the original antenna mounting by means of set screws mounted in said holes and adapted to be tightened against said broken stub.

Due to variations in the diameter of the existing broken stub, and the difficulty of adjusting the set screws properly, it has been difficult to secure the replacement staff in the same position as the original staff or mast, and, in most cases, not only is there bad alignment between the replacement staff and the original staff or mast, but the connection between the replacement staff and the original staff or mast is usually unsatisfactory, from the viewpoints of rigidity and conductivity.

The present invention has as its primary object the provision of a replacement staff assembly or unit, of the character described, which can be quickly and easily attached to the existing stub of the original antenna mounting, without the use of set screws or similar fasteners, and in such a manner as to insure precise axial alignment between the assembly and the stub of the original antenna mounting.

Another object of the invention is to provide a replacement staff assembly or unit of the character described, which can be attached to the existing stub of the original antenna mounting by means of simple, conventional tools, and which, after attachment, is rigidly joined to the old stub by a joint, in which excellent electrical conductivity is, at all times, maintained.

A further object of the invention is to provide a replacement staff assembly or unit of the character described, which consists of a minimum number of parts, which can be manufactured inexpensively, quickly and easily assembled, and sold at a reasonable price.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a fragmentary elevational view, showing a portion of the replacement staff assembly connected to the broken stub of the original antenna;

Fig. 2 is a fragmentary cross-sectional view, taken on the line 2-2 of Fig. 1;

Fig. 3 is a transverse cross-sectional view, taken on the line 3-3 of Fig. 2;

Fig. 4 is a transverse cross-sectional view, taken on the line 4-4 of Fig. 2;

Fig. 5 is a transverse cross-sectional view, taken on the line 5-5 of Fig. 2, and

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Fig. 6 is a transverse cross-sectional view, taken on the line 6-6 of Fig. 2.

Referring more particularly to the drawings, reference numeral 1 designates generally the original mounting of an automobile antenna, from which the broken stub 2 of the antenna extends.

For the purpose of replacing the antenna, without removal of the original mounting or the broken stub, to which reference has been made, I have provided a replacement staff or mast assembly, which consists of an antenna staff or mast 3, which may be the lower section of a collapsible antenna staff or mast, a clutch sleeve 4, a clutch nut 5, and a split clutch ring 6.

The clutch sleeve 4 has an upper portion having a conical exterior surface and is provided exteriorly at its lower end with flats 7, which are adapted to be engaged by a wrench of the crescent or open-end type, for the purpose of rotating the sleeve. The sleeve is also provided in its upper portion with an opening or bore 8, in which the lower end of the mast 3 is press-fitted, the mast being provided in its lower end with a plug 9 for preventing passage of water or moisture through the lower end of the mast. The plug 9 also functions to prevent collapse of the lower end of the mast 3 when the mast is press-fitted into the sleeve 4.

The opening or bore 8 of the sleeve 4, is counterbored, as at 10 for the reception of the stub 2 of the original antenna, and the opening 10, is, in turn, counterbored to provide a larger opening or bore 11, the wall of which is connected to the wall of the bore 10, as by a conical wall or surface 12. Below the bore 11, the sleeve 4 is provided with threads 13.

The clutch nut 5 is also provided with flats 14, adapted to be engaged by the wrench of the crescent or open-end type, for the purpose of rotating the nut. The nut 5 is provided with a threaded extension 15, of reduced diameter, which is adapted for securement to the threads 13 of the sleeve 4. The nut 5 also has a bore 16 extending axially therethrough, through which the stub 2 of the original antenna extends, and the upper end of the extension 15 is provided with a conical surface or wall 17, inclined to the same degree, but in an opposite direction to the inclination of the surface or wall 12.

The split clutch ring 6 is provided with an annular exterior surface 18 adapted to be disposed within the bore 11, and is provided at its upper and lower ends, respectively, with conical surfaces 19 and 20, of the same degree of inclination as the surfaces 12 and 17 respectively, and adapted to engage the latter surfaces.

In securing the replacement mast assembly to the broken stub 2 of the original assembly 1, the parts of the assembly assembled in the manner shown in Figs. 1 and 2, but with the nut 5 loosened sufficiently to permit the ring 6 to expand to a diameter slightly larger than the diameter of the stub 2, is slipped over the stub 2 to the position shown in Fig. 2.

Then, by the use of crescent or open-type wrenches, applied to the flats 7 and 14, the sleeve 4 and nut 5 are rotated in opposite directions, so as to cause the surfaces 12 and 17 to act on the surfaces 19 and 20 respectively, of the clutch ring 6, thereby contracting this ring and causing it to firmly grip or grasp the surface of the stub 2. The replacement staff assembly is thus rigidly locked to the stub 2, and all of the parts of the assembly are axially aligned with the stub of the original antenna. Moreover, tight conductive or electrical connections between all of the parts of the replacement assembly and the original antenna parts is obtained by this construction.

The assembly, as will be readily seen, consists of a minimum number of parts, which are inexpensive to

manufacture, and can be quickly and easily assembled and sold at a relatively low price.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes may be made in the shape, size and arrangement of parts thereof, without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In combination with the broken stub of an original antenna installation of an automobile, a replacement mast assembly comprising a nut encompassing said broken stub and having a tapered surface at its upper end, a split ring encompassing said stub and having a correspondingly tapered surface at its lower end resting on said tapered surface of the nut, said split ring having a tapered surface at its upper end, a sleeve encompassing said broken stub and threadedly secured to said nut, said sleeve having an interior tapered surface corresponding to the taper of the tapered surface of the upper end of the split ring and adapted to engage said latter surface, and a replacement antenna mast press-fitted in the upper end of said sleeve, said split ring adapted to be clamped to said stub

in response to relative movement of the sleeve and nut toward each other, whereby the conical surfaces of said sleeve and nut coact with the conical end surfaces of the split ring.

2. The combination, as recited in claim 1, in which said replacement antenna mast is provided in its lower end with a solid plug which prevents the walls of said mast from collapsing when the mast is press-fitted in the sleeve.

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