Feb. 18, 1958 R. LANGHECK 2,823,771

EXTENSIBLE TELESCOPIC ANTENNA

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FIG. 1

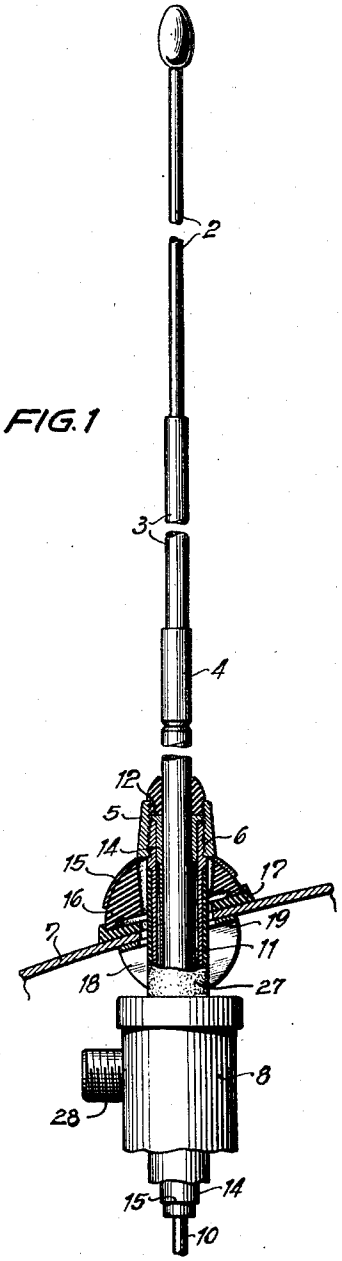
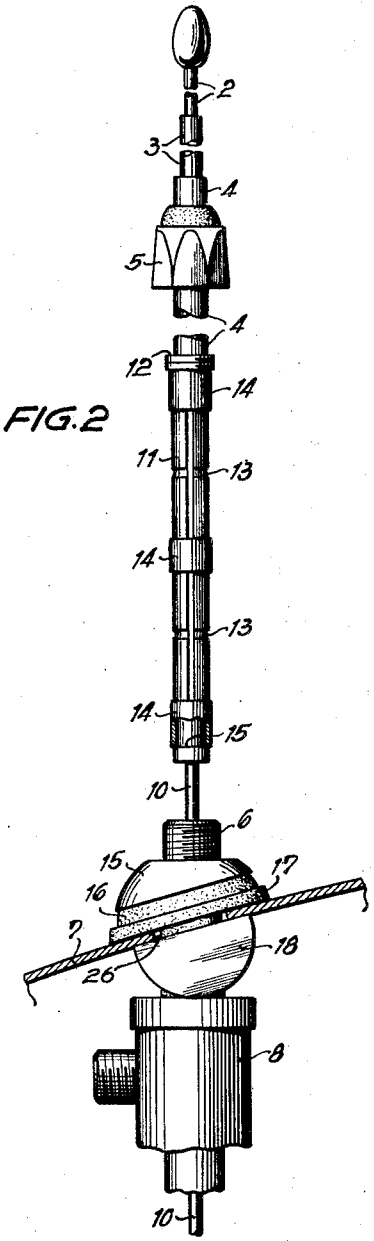


FIG. 2



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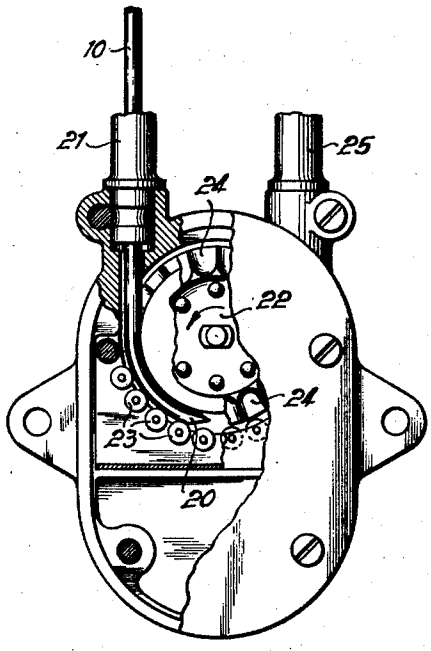
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FIG. 3



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2,823,771

EXTENSIBLE TELESCOPIC ANTENNA

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Application August 15, 1955, Serial No. 528,472

Claims priority, application Germany February 4, 1955

2 Claims. (Cl. 189—26)

This invention relates to a new and useful construction of a telescopic antenna for automobiles of the type wherein telescopic extension and retraction of the antenna is effected by a motor, and wherein an antenna conveying means such as a flexible rod or strip having a free end is actuated by friction from an actuating device for the aforesaid flexible antenna telescoping means.

It is well known in the art to mount antennas on the outside of automobiles by providing special mountings located for instance on the cowl of an automobile. Antenna mountings are already known which permit mounting a radio antenna of the non-telescopic type on an antenna base by fastening both the base and the antenna on an automobile cowl from the outside, with the lead-in for the radio frequency passing from the antenna through the antenna base and through an opening in the cowl below the base into the interior of the automobile.

However, all hitherto known telescopic antennas for automobiles require that the telescoping members of the antenna are inserted into the opening in the automobile cowl and in the antenna base from the interior of the automobile. This has the drawback that it becomes necessary to remove the telescopic antenna from the inside of the car whenever an exchange of the antenna conveying rod or a cleaning of the antenna members is required, which occurs with relative frequency, the outer telescopic member bearing the antenna base usually being the mechanically most sensitive part of the antenna assembly.

In order to remove a telescopic antenna from an antenna mounting for automobiles, as it is, for instance, described in the Patent No. 2,454,897, it is necessary, after loosening a cap nut on the outside of the antenna mounting, to withdraw the entire telescopic antenna downwardly into the interior of the car and out of the antenna mounting.

It is an object of my invention to overcome this inconvenience by providing a telescopic antenna and mounting for the same which permits removal of the telescopic members of the antenna including the attached antenna conveying means from the opening in the cowl by simply loosening a cap nut from the outside and then pulling or lifting the entire telescopic antenna out of the cowl also from the outside.

It is another object of my invention to provide a telescopic antenna having a flexible antenna conveying means attached to the outer telescopic member, which telescopic antenna can be inserted from the outside into an opening in the cowl of an automobile in a simple manner through an antenna mounting, the free end of the flexible antenna telescoping means being adapted to be seized by the friction wheels of an actuating device after each reassembly of the antenna.

The antenna actuating device is described in detail in my co-pending patent application Ser. No. 449,403, filed August 12, 1954, now Patent No. 2,749,759, patented June 12, 1956.

The aforesaid objects are achieved by the arrangement according to my invention which will be easily understood from the following description in connection with the accompanying drawings, wherein:

Figure 1 is a sectional view of an automobile cowl having an antenna mounting, and a telescopic antenna and antenna base according to my invention mounted therein.

Figure 2 is a side view of the mounting and antenna according to my invention with the antenna completely withdrawn from the antenna mounting toward the outside of the automobile.

Figure 3 is a partially sectional view of the antenna actuating device, according to the invention, which serves for feeding and retracting the telescopic antenna conveying means.

Referring now to the drawings more in detail, reference numerals 2, 3, and 4 designate several telescopic members of a car antenna of the telescopic type. A cap nut 5 is screwed on to the threaded sleeve 6, and holds, with aid of the cap 15, a semi-spherical member 16, serving as a "toggle head," in position on the annular gasket 17.

Through an opening 26 of the automobile cowl 7, the upper sleeve part 27 of the antenna base tube 8 extends upwardly from the interior of the car to the outside thereof. The sleeve 6 extends downwardly into the upper sleeve part 27 of the antenna base tube 8 and is rigidly connected therewith. The antenna base tube 8 is mounted in the interior of the vehicle as shown in my co-pending application, Ser. No. 381,540, filed September 22, 1953. The antenna base tube 8 is fastened to the cowl 7 by means of the rocker support plate 19 and the rocker portion 18 of the latter. It houses in its central bore the outermost telescopic antenna member 4, and a sleeve 11 which surrounds member 4 and is provided at its upper end with a threaded collar 12. This collar is threadedly engaged by the aforesaid cap nut 5.

The sleeve 11 is provided with annular and longitudinal grooves or slots 13 which impart to the sleeve a certain amount of resilience that causes it to be snugly displaceable along the telescopic member 4. Sections 14 of sleeve 11 have the full diameter while the intermediate sections of the sleeve have a somewhat reduced diameter.

When the cap nut 5 is screwed down on the threaded part of sleeve 6 it urges the abutment 12 of sleeve 11 downwardly and the latter moves the telescopic member 4 in the same downward direction by means of its lowermost full section 14, which abuts against a collar 15 provided at the lowermost end of the aforesaid member 4.

The antenna conveying means 10 extends from the uppermost telescopic member through a central bore in all successive members downwardly and emerges from the lowermost member 4 to pass downwardly through the antenna base tube 8 into the antenna actuating device. In a preferred embodiment this antenna conveying means is a flexible nylon rod or wire, for instance of a diameter of 2–3 millimeters.

The pointed end 20 of the conveying means is introduced into the tube 21 of the actuating device (Figure 3) and passes around the friction wheel 22 having lateral elastic shields 24 and friction rollers 23, all of which grip the conveying means 10, and pull it downwardly if the friction wheel 22 is rotated in the sense indicated by an arrow in Figure 2. The conveying means, i. e., for instance, a nylon rod 10 then passes through the socket or outlet tube 25, for instance, into a chamber (not shown), containing a reel or bobbin.

When the antenna is to be removed from the car, all that is required is to loosen the cap nut 5. All telescopic

members together with the sleeve **11** and the antenna conveying means **10** can then be easily withdrawn toward the outside of the cowl.

On the other hand it is equally easy to reintroduce the antenna by first introducing the pointed end of the conveying means **10** and then the sleeve **11** with the telescopic member **4** and the other antenna members into the central bore of sleeve **6**.

When protruding downwardly from the antenna base tube **8** the pointed end **20** of the conveying means **10** enters immediately into tube **21** of the antenna actuating device. The cap nut **5**, which may have been pushed back, i. e. upwardly over the telescopic members, is then passed over the same downwardly and screwed on to the threaded part of sleeve **6**, whereby the telescopic antenna is again assembled in the cowl. The conveying means **10** can be actuated by rotating the friction wheel **22** in a known manner, for instance by a motor (not shown).

The high frequency lead-in may be connected to the socket or connecting bolt **28** provided laterally on the antenna base tube **8**.

It will be understood that while there have been described herein certain embodiments of my invention, it is not intended thereby to have the invention limited to the specific details given in view of the fact that it is susceptible to various modifications and changes which come within the spirit of the specification and the scope of the appended claims.

What is claimed is:

1. In a motor-operated telescopic antenna adapted for mounting in the cowl of an automobile and having an antenna mounting assembly comprising a toggle head, a support plate provided with rocker means, and a base tube stationary in the interior of the cowl, and a telescopic assembly comprising a plurality of telescopic members and conveying means having a free end and operable with aid of friction by means of an antenna actuating device; the improvement comprising means for fastening said telescoping assembly in said base tube from the outside of said cowl, said fastening means comprising a sleeve part of said base tube protruding from said toggle head to the outside of said cowl, the widest of said telescoping members having an abutment at its innermost end, a grooved sleeve being displaceable on said widest telescoping members downwardly to said abutment thereof, and fitting snugly with friction around said widest telescopic member and inside said sleeve part of said base tube, said grooved sleeve being provided with a threaded flange of a diameter wider than said sleeve part, and a cap nut adapted for being screwed on to said threaded flange and said threaded sleeve part from the outside of said cowl.

2. Fastening means as described in claim 1, wherein said grooved sleeve is provided with resilient sections for fitting snugly and with friction around said widest telescopic member.

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