343-012

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Aug. 4, 1936. P. L. MANN 2,049,744

ANTENNA FOR USE WITH AN AUTOMOBILE RADIO RECEIVER

Original Filed July 11, 1932

Fig. 1

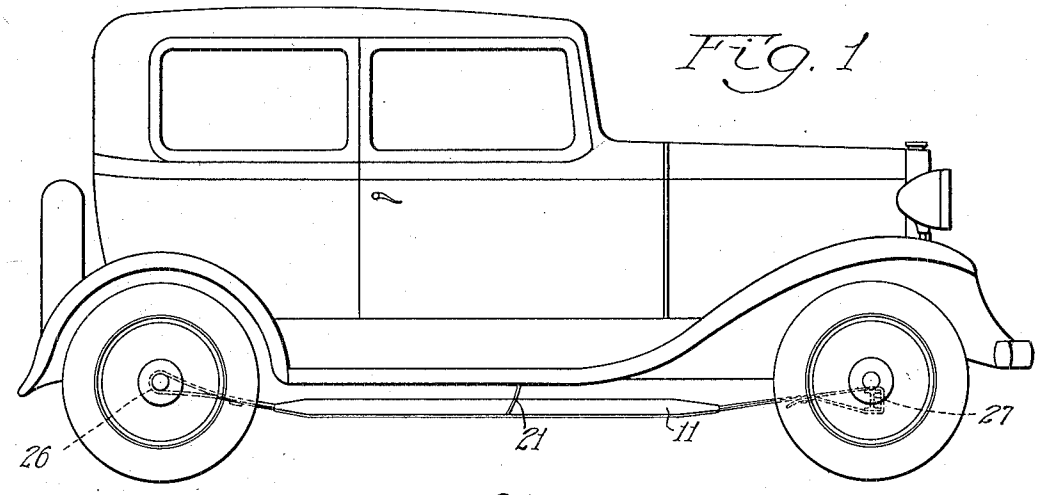


Fig. 2

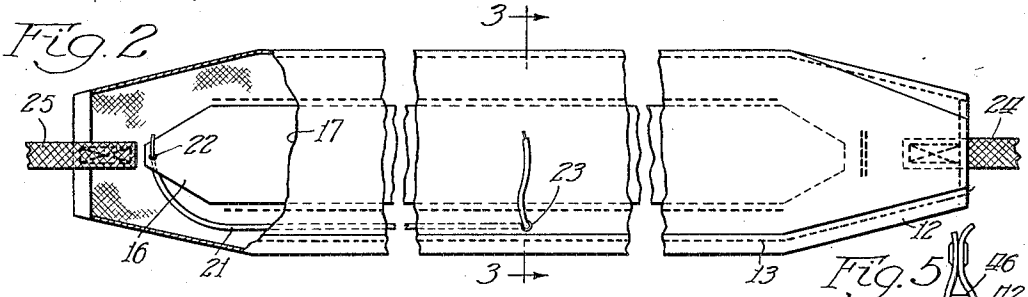


Fig. 3

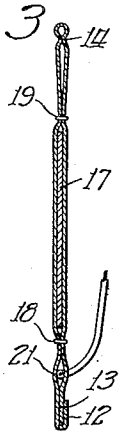


Fig. 4

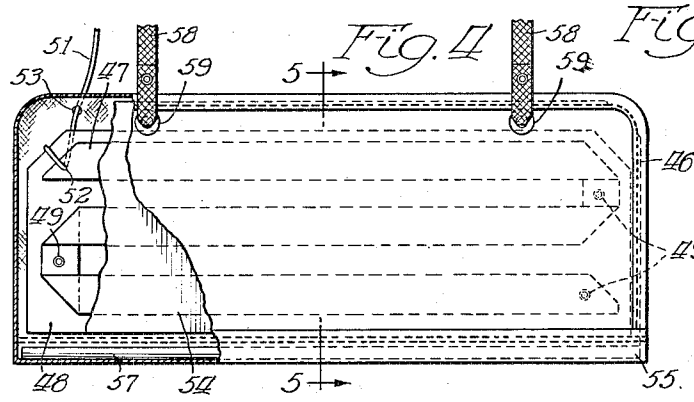


Fig. 5

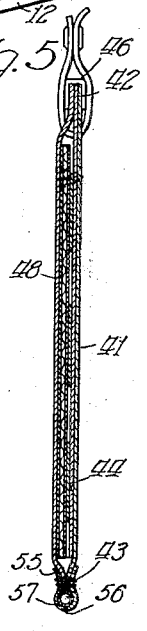
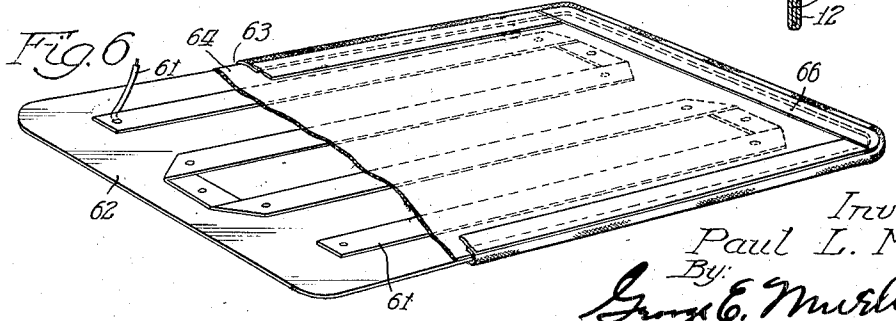


Fig. 6



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UNITED STATES PATENT OFFICE

2,049,744

ANTENNA FOR USE WITH AN AUTOMOBILE RADIO RECEIVER

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Original application July 11, 1932, Serial No. 621,842. Divided and this application July 5, 1934, Serial No. 733,828

4 Claims. (Cl. 250—33)

My invention relates in general to a radio antenna, and more in particular to an antenna for use with an automobile radio receiver.

In an automobile radio receiver installation, some difficulty is encountered in providing the proper antenna system. Interference from motor noises, and the ignition system must be suppressed or eliminated. The size of the car limits the length of the antenna, and at the same time provides a problem in concealing the same so there will be no unsightly appearance resulting from its installation. The antenna must also be installed so that it will not ground on the frame of the car to which the auto storage battery is grounded, and which battery is also used as the A supply for the radio set.

The present application is a division of my parent application, Serial No. 621,842, filed July 11, 1932, Patent No. 1,971,303, August 21, 1934, and the present application is directed more particularly to the yieldingly suspended type of antenna as distinguishing from the self supporting or stiff type of car roof antenna of the parent case.

An object of my invention is to provide a new and improved antenna.

It is a further object to provide a compact automobile radio receiver antenna which is simple to install and presents no unsightliness to mar the appearance of the automobile in which it is mounted.

A further object is to provide an antenna which is groundproof.

A further object is to provide an antenna system of high capacity yet offering selectivity and volume.

It is also an object to provide an antenna which is simple and inexpensive to manufacture, yet sturdy and permanent.

Other objects and advantages will appear as the description proceeds.

Referring now to the drawing,

Fig. 1 is a side elevation showing an embodiment of my invention as mounted underneath the chassis of an automobile and extending from axle to axle.

Fig. 2 is a fragmentary elevation, partly in section of the antenna of Fig. 1.

Fig. 3 is a sectional view along line 3—3 of Fig. 2.

Fig. 4 is an elevational view partly in section of another embodiment of the invention.

Fig. 5 is a sectional view along line 5—5 of Fig. 4, and

Fig. 6 is a perspective view partly in section of a further embodiment.

In accomplishing the invention, I provide a casing in which a strip of thin sheet metal is mounted, which casing is adapted to be mounted on the car, with a wire lead extending from the sheet metal through the casing and to the radio set.

The antenna illustrated in Figs. 1 and 2 comprises a waterproof fabricoid casing 11, composing a single piece of fabric folded over, and having the lower edge 12, as illustrated in Fig. 3, folded over and held by stitching 13. The casing 11 is also stitched at 14 along the upper edge.

A metal strip 16 of thin sheet copper or cold rolled steel fits snugly into a pocket 17 formed in the casing by running a stitching 18 adjacent the lower edge, and a stitching 19 adjacent the upper edge. An insulated wire 21 is soldered to the metal strip 16 at 22 and when the strip is slipped into the pocket 17, the wire is brought through a channel formed by the stitching 13 and 18 and out through an eyeleted hole 23. The eyelet is of a diameter such that it grips the insulation on the wire and further seals the casing against moisture. and foreign substances. The wire 21 connects the antenna to the radio set when the former is mounted on the car. After the strip 16 is in place in the casing, the ends are sewed up and cloth straps 23 and 24 are secured to the ends of the casing by riveting or, preferably, stitching, with said straps waterproofed and adapted to be attached to the axles 26 and 27 of the car, to securely mount the antenna thereunder.

This particular embodiment provides a strong, waterproof casing for the antenna proper, which may be secured to the chassis of the car as stated, and require no further attention whatever. The sturdy assembly insures against breaks or tears, thus assuring a groundproof installation which is essential to the proper operation of the radio set, and is flexible so that there will be no cracking or breaking.

A further embodiment of the invention is illustrated in Figs. 4 and 5. This particular antenna assembly is also adapted for installation under an automobile and comprises a water-proof fabricoid casing 41 stitched along the top at 42 and at the bottom at 43 to form a pocket 44. The edges are further reinforced and protected by a waterproof tape 46 stitched around the edge after the pocket is completely closed. A metal strip 47 of thin copper sheet or cold rolled steel is secured to a heavy piece of cardboard, or corrugated paper 48. This antenna proper is secured as

noted by riveting, eyeleting or in any desirable manner. Inasmuch as the thin metal strip **47** is stiff and retains its shape, a very few eyelets **49** will be sufficient to hold it in place on the paper. The metal strip **47** is from one to two inches in width and is looped back and forth on the paper as illustrated in Fig. 4, to cover as large an area for reception of radio waves as possible, and at the same time have the various loops separated from one another. The insulated wire **51** for connecting the antenna with the radio set is soldered to the metal strip **47** at **52** looped through a hole in the cardboard **48** and, when the latter assembly is inserted in the pocket **44**, the wire **51** extends out of the casing through an eyelet **53**.

A second cardboard **54** cut slightly larger than the mounting **48** slips snugly into the pocket **44** and is adapted to lie against the face of the antenna proper, serving as insulation and also tending to stiffen the entire assembly.

This particular embodiment is adapted to be suspended beneath a trunk carrier or gas tank in the rear of the car, or beneath any part of the chassis as to allow it to swing free of the road. After the mounting **48** and paper **54** are in place in the pocket **44**, the wire **53** is brought out as noted above, the end is stitched, and the tape **46** secured around the top edge and ends. A tape **55** is stitched along the lower edge in a manner so as to leave a channel **56** in which is placed rubber tubing **57**. This tubing serves as a buffer to protect the lower edge of the antenna should the automibile be driven over roads where the center is considerably higher than the tracks in which the wheels travel, and the antenna might drag along this center portion. Straps **58** are extended through eyelets **59** punched through both faces of the casing **41**, and the paper **54** with said straps adapted for use in attaching the antenna beneath the car.

A further embodiment of the invention is illustrated in Fig. 6, in which a metal strip **61** similar to strip **47** is mounted in the same manner on a heavy cardboard **62**. This embodiment is adapted particularly to be mounted on the inside of the roof of the car. The cardboard mounting is placed within a pocket formed by a cloth material **63** chosen to match the material on the roof of the car, which cloth **63** covers the face of the cardboard **62** opposite to that on which the strip **61** is mounted, laps over the edge of a second cardboard **64**, and is secured thereto by gummed paper **66** or a similar expedient. After the mounting **62** is placed in the pocket, it is sealed along the four edges as described. Wires **67** is soldered to the strip **61** and extends through the mounting to be connected to the radio set.

The invention thus provides an antenna for an automobile radio receiver set which in each instance is compact and designed to be securely mounted inside or outside of the automobile. The particular assembly also insures against grounding to the frame or body of the car, and provides a source of reception of radio waves for maximum operating efficiency of the radio set. Furthermore, the simple assembly makes possible an inexpensive antenna, yet one with the desired permanency.

It will be understood that the nature and embodiments of the invention herein described and illustrated are merely convenient and useful forms of the invention, and that many changes and modifications may be made therein without departing from the spirit and scope of the invention.

I claim:

1. The combination with a vehicle of a radio set antenna beneath the under side of the vehicle, an insulating cover for said antenna including a single sheet of waterproof material wrapped around said antenna and secured closed, a lead-in wire connected with said antenna and passing through a hole in said cover, means for sealing said hole around said wire, and yieldable means secured to said cover and suspending the antenna from the vehicle.

2. The combination with a vehicle of a radio set antenna beneath the under side of the vehicle, an insulating cover for said antenna including a single sheet of waterproof material wrapped around said antenna and secured closed, a lead-in wire connected with said antenna and passing through a hole in said cover, means for sealing said hole around said wire, and yieldable means secured to said cover and suspending the antenna from the vehicle, said antenna being positioned in a pocket formed by stitching through said cover.

3. The combination with a vehicle of a radio set antenna beneath the under side of the vehicle, an insulating cover for said antenna including a single sheet of waterproof material wrapped around said antenna and secured closed, a lead-in wire connected with said antenna and passing through a hole in said cover, means for sealing said hole around said wire, and yieldable means secured to said cover and supending the antenna from the vehicle, said antenna being positioned in a pocket formed by stitching through said cover, and said lead-in passing through a channel formed between the pocket and the edge of the cover.

4. The combination with a vehicle, of a radio set antenna beneath the under side of the vehicle, and a yieldable insulating means suspending the antenna from the vehicle, including tapes extending in opposite directions from said antenna, drawn substantially taut, and secured to remote parts of said vehicle.

PAUL L. MANN.