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CLAMP SUPPORT FOR STANDOFF INSULATORS

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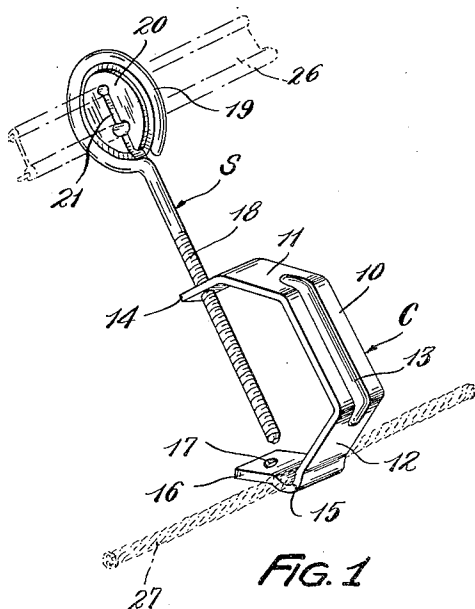


FIG. 1

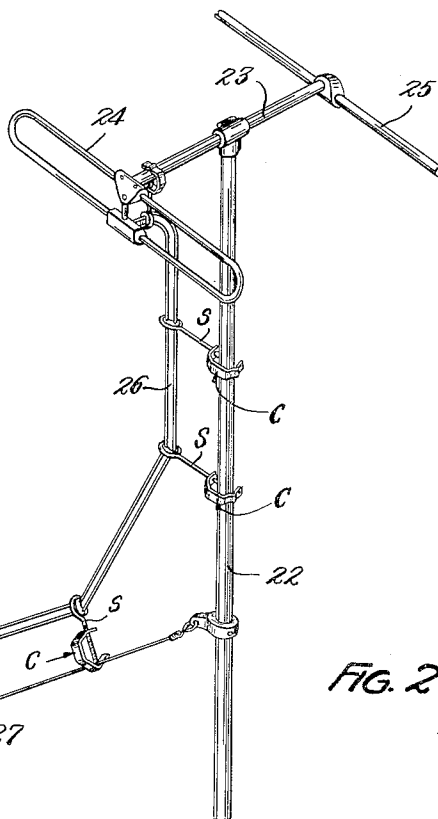


FIG. 2

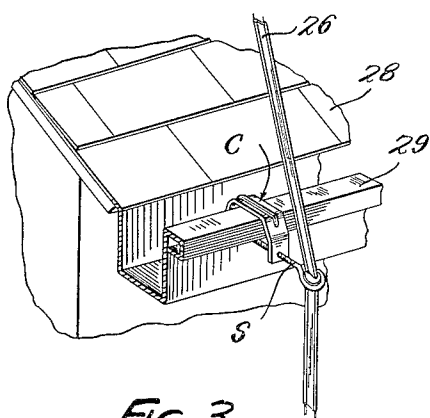


FIG. 3

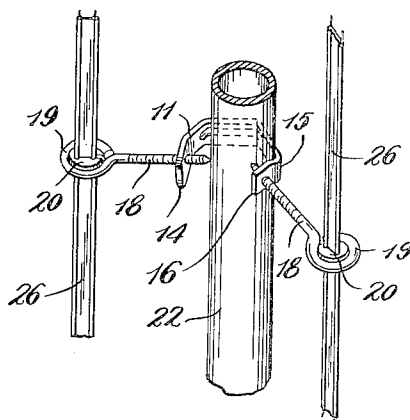


FIG. 4

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CLAMP SUPPORT FOR STANDOFF
INSULATORS

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4 Claims. (Cl. 174—154)

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This invention relates to a clamp and more particularly to a combined clamp and stand-off insulator for supporting lead-in or transmission wires as, for instance, the lead-ins of TV and FM antennae.

An object of the invention is to provide a combined clamp and stand-off insulator that is of simple construction, may be readily and easily applied and is efficient in use.

Another object is to provide a combined clamp and stand-off insulator which is so constructed that it can be applied with equal facility to a wide variety of supporting elements as, for instance, to antenna masts or cross arms, pipes, guy wires, gutters, beams or other similar elements.

Another object is to provide a combined clamp and stand-off insulator capable of the wide varieties of applications mentioned above and therefore adaptable in the solution of numerous lead-in installation problems.

Another object is to provide a combined clamp and stand-off insulator which may be secured to a supporting element so as to hold the lead-in wires above, below or beside the element as desired or required.

A further object is to provide a combined clamp and stand-off insulator which can be used to support a single lead-in or a double lead-in as required.

A still further object is to provide a combined clamp and stand-off insulator which since it can be attached to a guy wire enables the lead-in to be brought from a mast, even if the mast is high and in the center of the roof, to the edge of the roof, thus eliminating horizontal sections of the lead-in which may pick up unwanted signals.

Another object is to provide a combined clamp and stand-off insulator which since it can be attached to a gutter will support the lead-in in spaced relation to the edge of a roof.

A still further object is to provide a combined clamp and stand-off insulator which enables a lead-in to be carried readily and effectively across a basement ceiling where there are exposed beams, pipes and the like.

Further and additional objects and advantages inherent in the invention will become apparent hereinafter during the detailed description of an embodiment of the invention which is to follow.

Referring to the accompanying drawing illustrating an embodiment of the invention,

Fig. 1 is a perspective view of the combined clamp and stand-off insulator, with a lead-in being indicated by dot and dash lines as extending through the insulating insert carried by the

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eye of the bolt and with a guy wire, indicated by dot and dash lines, located in a recessed or grooved portion of the clamp proper, the bolt being shown prior to its having been screwed to clamping position.

Fig. 2 is a perspective view of the upper portion of an antenna mast mounting a cross arm having a folded dipole antenna and a reflector at its opposite ends, several of the combined clamp and stand-off insulators being shown applied to the cross arm and mast and supporting the lead-in from the dipole, while several more of the combined clamp and stand-off insulators are shown applied to the guy wire and supporting the lead-in.

Fig. 3 is a fragmentary perspective view of a portion of a roof of a building and shows the combined clamp and stand-off insulator attached to the gutter and supporting a lead-in in spaced relation to the edge of the roof.

Fig. 4 is a fragmentary elevational view of the combined clamp and stand-off insulator secured to a mast and supporting double lead-ins.

The combined clamp and stand-off insulator comprises the clamp proper indicated generally at C and the clamp screw indicated generally at S. The clamp proper preferably is a steel stamping formed of sufficiently heavy gauge material to assure that it will have the requisite strength to serve its functional purpose. The clamp C is of a size such that it can be applied to masts, pipes, gutters and the like of the size usually encountered in installing TV and FM antennae. The clamp C and the screw S preferably are weather-proofed to impart the necessary wearing characteristics thereto.

The clamp C comprises a central portion 10 having at its opposite ends integral angularly extending divergent and opposed portions 11 and 12. The portions 10, 11 and 12 are reinforced or strengthened by means of a rib 13 formed therein and extending the full length of the portion 10 and partially of the length of the portions 11 and 12.

The portion 11 has its free end bent to provide an angularly disposed part 14 which is provided with a threaded opening. The portion 12 inwardly of its free end is formed to provide a transversely extending groove which is in substantial alignment with the opening in the part 14. The portion 12 beyond the groove 15 has an angularly disposed end part 16 which may be provided with a tapped opening 17.

The screw S is in the form of an eye bolt having a threaded shank 18 and an eye 19. The

threaded shank 18 is screwed through the tapped opening in the part 14 of the portion 11 of the clamp and is in alignment with the groove 15 of the portion 12. An insulating insert 20 is mounted in the eye 19 of the screw and while clamped in the eye against displacement with respect thereto the insert is free to rotate in the eye.

The insulating insert may be formed of any suitable insulating material that is sufficiently weather-resistant and has the necessary dielectric and non-absorptive properties as, for instance, it may be made of low-loss polyethylene. The insulating insert may be formed with suitable openings to receive various types of lead-ins as, for instance, a lead-in of the flat twin lead type or a lead-in of the round or oval coaxial cable type. For illustrative purposes the insulating insert has been shown herein as formed with a slotted opening 21 to receive and support a lead-in of the flat twin lead type as indicated by dot and dash lines in Fig. 1.

The varied and multiple utility of the combined clamp and stand-off insulator as well as the ease with which it can be applied to various supporting elements will be exemplified by the description which follows relating to different applications and uses for the combined clamp and stand-off insulator.

Referring to Fig. 1, 22 is a supporting mast which may be assumed as mounted on the roof of a building a substantial distance from the edge of the roof and of substantial height. The mast 22 is illustrated as having at its upper end a cross arm 23 which supports at its opposite ends a folded dipole antenna 24 and a reflector 25. The lead-in or transmission line from the dipole antenna is indicated at 26 and is of the flat twin lead type. One of the combined clamp and stand-off insulators embodying the invention is shown as having the clamp C clamped to the cross-arm by the screw S with the lead-in 26 extending through the insulating insert 20. Two of the combined clamp and stand-off insulators are shown as similarly clamped to the mast with the lead-in passing through the insulating inserts thereof and held in substantial spaced relationship to the mast.

The mast 22 as shown is steadied by means of a guy wire 27 extending angularly from the mast over the roof and toward the edge thereof. Two of the combined clamp and stand-off insulators are shown as secured to the guy wire 27, with the insulating inserts supporting the lead-in 26 in spaced relation to the guy wire, it being noted that the guy wire is in the grooves 15 of the clamps and that the screws S thereof tightly clamp the guy wire in this position.

Assuming that the lead-in 26 shown in Fig. 2 extends over the edge of the roof, Fig. 3 indicates how one of the combined clamp and stand-off insulators can be used to support the lead-in 26 in suitable spaced relationship to the edge of the roof 28 and the gutter 29. The clamp C straddles the reinforcing flanged outer and upper edge of the gutter with the portion 12 thereof extending inwardly of the gutter and with the screw S firmly clamping the outer side of the gutter between it and the portion 12 with its end part 16.

In case it is desired to support double lead-ins 26 in spaced relation to the mast 22 the combined clamp and stand-off insulator may be employed for this purpose as illustrated in Fig. 4. In so utilizing the device it is merely necessary to screw a second screw S through the tapped opening 17 in the end part 16 of the portion 12 of the

clamp C and then one of the lead-ins will extend through and be supported by the insulating insert of the screw carried by the part 14 and the other of the lead-ins will be similarly supported by the insert of the screw carried by the part 16.

In addition to the uses or application of the combined clamp and stand-off insulator shown in Figs. 2, 3 and 4, for illustrative purposes, it will be evident that it has additional uses, applications and adaptations. As illustrative of the latter, reference is made to the situation wherein the lead-in 26 extends into a basement of a building and is carried across the ceiling thereof. In this situation if the ceiling includes steel I-beams the combined clamp and stand-off insulator may be attached to the beams or if there are pipes available near the ceiling it may be attached to the latter.

Although the lead-in 26 is shown in Fig. 2 as supported above the guy wire 27 it will be understood that the combined clamp and stand-off insulators could be so mounted on the guy wire 27 as to support the lead-in below or to either side of the guy wire as desired.

From the foregoing description it is manifest that the combined clamp and stand-off insulator embodying the invention attains all of the objects enumerated herein and due to its adaptability facilities the installation of antennae, and particularly the proper supporting of the lead-ins.

Although a preferred embodiment of the invention has been illustrated and described herein it will be understood that the invention is susceptible of various modifications and adaptations within the scope of the appended claims.

Having thus described my invention, I claim:

1. A combined clamp and stand-off insulator for use with antennae comprising a clamp adapted to partially embrace a supporting element such as a mast, cross-arm, gutter, beam or the like and having a central portion provided at its opposite ends with integral divergent and opposed portions, said opposed portions at their outer ends having integral angularly disposed parts, the part of one of said opposed portions being provided with a tapped opening, the other of said opposed portions being provided inwardly of its angularly disposed part with a groove facing said tapped opening and aligned therewith and adapted to receive a guy wire, a clamping bolt screwed in said opening and adapted to have its inner end clamp said guy wire in said groove, said bolt being provided at its outer end with an eye, and an insulating insert mounted in said eye and provided with an opening to receive a lead-in or transmission line.

2. A combined clamp and stand-off insulator for use with antennae comprising a clamp adapted to partially embrace a supporting element such as a mast, cross-arm, gutter, beam or the like, and having a central portion provided at its opposite ends with integral divergent and opposed portions, said opposed portions at their outer ends having integral angularly disposed parts, the part of one of said opposed portions being disposed substantially perpendicularly to said central portion and provided with a tapped opening, the other of said opposed portions being provided inwardly of its angularly disposed part with a groove facing said tapped opening and aligned therewith and adapted to receive a guy wire, the part of the other of said opposed portions being disposed at an acute angle to said central portion, a clamping bolt screwed in said opening and adapted to have its inner end clamp

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said guy wire in said groove and extending substantially parallel to said central portion, said bolt being provided at its outer end with an eye, and an insulating insert mounted in said eye and provided with an opening to receive a lead-in or transmission line.

3. A combined clamp and stand-off insulator for use with antennae comprising a clamp adapted to partially embrace a supporting element such as a mast, cross-arm, gutter, beam or the like, and having a central portion provided at its opposite ends with integral divergent and opposed portions, said opposed portions at their outer ends having integral angularly disposed parts, the part of one of said opposed portions being provided with a tapped opening, the other of said opposed portions being provided inwardly of its angularly disposed part with a groove facing said tapped opening and aligned therewith and adapted to receive a guy wire, a clamping bolt screwed in said opening and adapted to have its inner end clamp said guy wire in said groove, said bolt being provided at its outer end with an eye having an insulating insert mounted therein and provided with an opening to receive a lead-in or transmission line, the angularly disposed part of the said other portion being provided with a tapped opening adapted to have screwed therein a clamping bolt similar to the clamping bolt that is screwed in the tapped opening in the part of said one portion.

4. A combined clamp and stand-off insulator for use with antennae comprising a clamp adapted to partially embrace a supporting element such as a mast, cross-arm, gutter, beam or the like, and having a central portion provided at its opposite ends with integral, divergent and opposed portions, said opposed portions at their outer ends having integral angularly disposed parts, the part of one of said opposed portions

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being disposed substantially perpendicularly to said central portion and provided with a tapped opening, the other of said opposed portions being provided inwardly of its angularly disposed part with a groove facing said tapped opening and aligned therewith and adapted to receive a guy wire, the angularly disposed part of the other of said opposed portions being disposed at an acute angle to said central portion, a clamping bolt screwed in said opening and adapted to have its inner end clamp said guy wire in said groove and extending substantially parallel to said central portion, said bolt being provided at its outer end with an eye having an insulating insert mounted therein and provided with an opening to receive a lead-in or transmission line, the angularly disposed part of the said other portion being provided with a tapped opening adapted to have screwed therein a second clamping bolt similar to the clamping bolt that is screwed in the tapped opening in the part of said one portion, said second clamping bolt extending substantially perpendicular to said one opposed portion.

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