June 18, 1963 M. P. BELGER 3,094,303

ANTENNA SUPPORTING BRACKETS

Filed Nov. 8, 1961

Fig. 1.

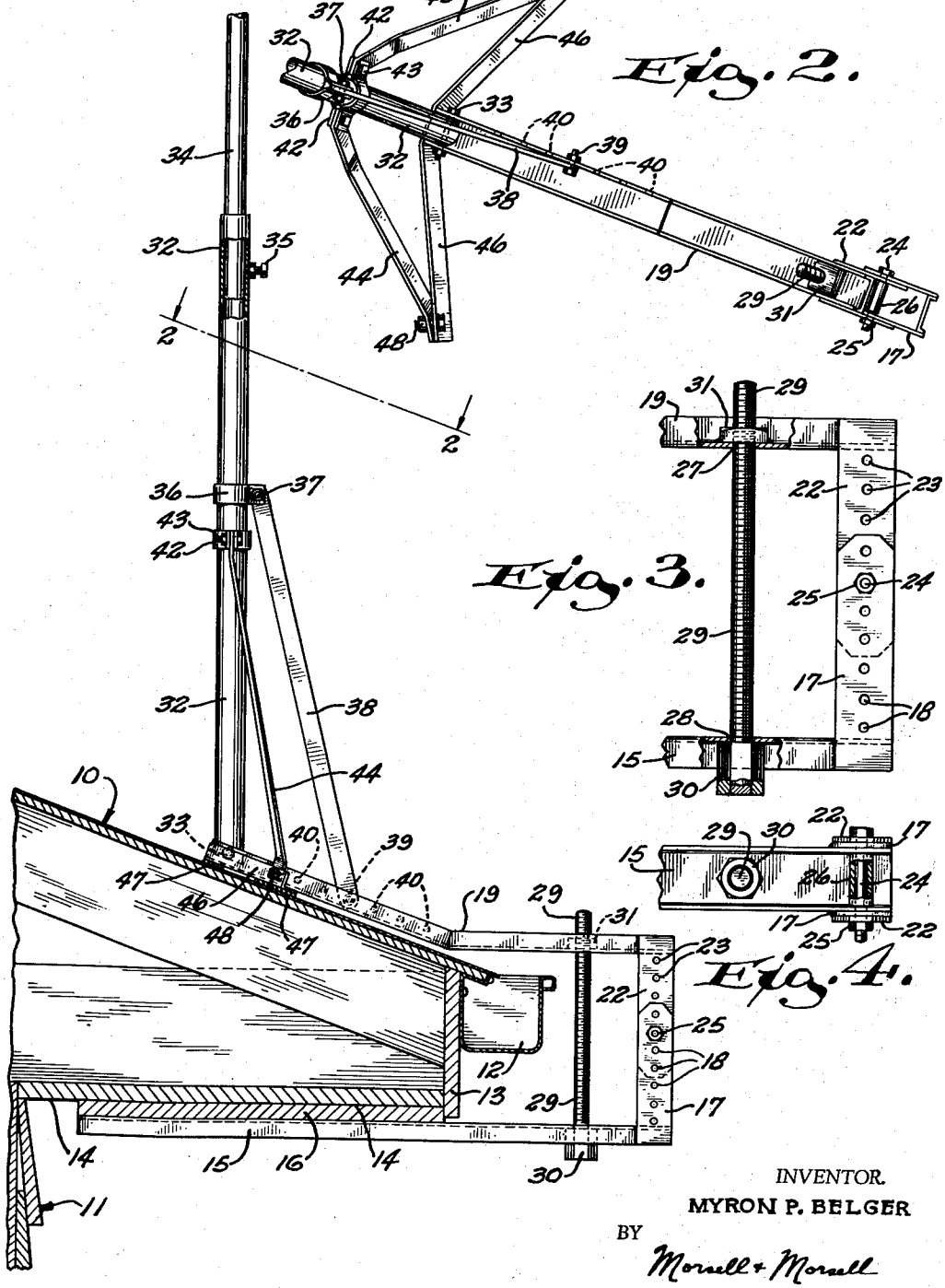


Fig. 2.

Fig. 3.

Fig. 4.

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United States Patent Office

3,094,303
Patented June 18, 1963

3,094,303

ANTENNA SUPPORTING BRACKETS

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Filed Nov. 8, 1961, Ser. No. 151,053
5 Claims. (Cl. 248—40)

This invention relates to improvements in antenna supporting brackets, and more particularly to an inexpensive but sturdy bracket assemblage which can be mounted on the roof of a house with a maximum of ease and convenience.

In the installation of an antenna on the roof of a dwelling or other building, it is important, of course, that the supporting bracket be capable of securely supporting the antenna even in high winds or storms. For this reason, most prior antenna-supporting devices have been permanently attached to the roof by bolts or screws and reinforced by a number of diverging guy wires or stays. Such supporting devices are not very satisfactory, however, for the reason that they necessitate the drilling of holes through the roof, which is objected to by many home-owners, and, in addition, the resulting structure with its numerous guy wires or other supports is unsightly and detracts from the appearance of the house. Furthermore, conventional antenna-supporting devices which are capable of supporting an antenna in a high wind are relatively expensive in construction and very difficult and costly to install.

With the above considerations in mind, the principal objects of the present invention are to provide a novel television antenna bracket which is strong and dependable, which is inexpensive in construction, and which can be quickly and easily installed and without necessitating the drilling of holes in the roof or otherwise permanently impairing the building.

A further important object of the present invention is to provide an antenna bracket which is adaptable for installation on roofs of varying types or styles, and wherein the antenna mast can be readily fixed in a vertical position regardless of the slope or pitch of the roof.

A further object is to provide a supporting bracket as described which is relatively unobtrusive when installed and does not detract materially from the appearance of a home.

A further object of the invention is to provide an antenna bracket as described wherein the lead wires to the television set are carried within and completely covered by said bracket structure, thus hiding said wires from view and promoting the neat, attractive appearance of the dwelling.

A further object is to provide an antenna supporting device which is so constructed that it can be economically and conveniently shipped in a knocked-down condition and then quickly and easily assembled at its destined point of use.

A further object is to provide a bracket structure which is designed principally for supporting a television antenna on the roof of a house as described, but which novel bracket assemblage can also be advantageously employed for supporting flag poles or other upright members as well.

With the above and other objects in view, which other objects and advantages of the present invention will become apparent, the invention consists of the improved antenna bracket and all of its parts and combinations as set forth in the following specification and claims, and all equivalents thereof.

In the accompanying drawing, illustrating the preferred embodiment of the invention, and wherein the same reference numerals designate the same parts and structural elements in all of the views:

FIG. 1 is a side elevational view of the improved antenna bracket comprising the present invention mounted on a roof, portions thereof being shown in section;

FIG. 2 is a top view of the antenna bracket taken along line 2—2 of FIG. 1, looking downwardly at a right angle to the slanting roof;

FIG. 3 is an enlarged fragmentary side elevational view of the outer end portion of the bracket unit showing the adjustable mounting assemblage incorporated therein, parts thereof being broken away and shown in section; and

FIG. 4 is a plan view of the underside of the bracket end portion illustrated in FIG. 3.

Referring now more particularly to FIG.1 of the drawing, the numeral **10** designates the lower, overhanging eave portion of a typical gable-type house roof. As will be noted, said roof projects outwardly beyond the wall **11** of the house a substantial distance and is provided with a cornice **13** and a rain gutter **12**. As is illustrated in said FIG. 1, the novel antenna bracket comprising the present invention and hereinafter described, is designed to be mounted on said eave, rather than on or near the peak of the roof as are most conventional antenna-supporting devices.

The improved bracket assemblage includes a lower horizontal leg **15**, which is formed of inverted U-shaped metal channel, and which is of a length to underlie a substantial portion of said eave and to project outwardly therebeyond. On roofs wherein the cornice **13** depends slightly below the underside **14** of the eave as illustrated, said lower bracket leg **15** may have an elongated filler member **16** secured on its upper surface and positioned between said leg and the undersurface of the eave, said filler abutting the depending end of said cornice to promote the rigidity of the bracket. Alternatively, it is contemplated that said lower bracket leg **15** could be bent or deflected around the depending edge of said cornice **13** and positioned directly against the undersurface of the eave, thus eliminating the necessity for the filler **16**.

As best appears in FIGS. 3 and 4, the outer end of the lower bracket leg **15** in the present invention is provided with a pair of spaced, upstanding arms **17** which are welded or otherwise rigidly and permanently secured thereon, and which arms are provided with a series of vertically spaced, aligned apertures **18**.

The upper leg **19** of the bracket assemblage is also formed of metal channel and includes a straight, horizontal section which is spaced above and parallel to said lower leg **15**, and a rigid inner section which is angled upwardly to conform generally to the slope of a conventional gable-type house roof. Welded or otherwise permanently rigidly secured to the outer end of said upper bracket leg **19** are a pair of spaced depending arms **22** which are adapted to interfit with the aforementioned upright arms **17** on

the lower bracket leg, and which depending arms 22 are provided with vertically-spaced, aligned apertures 23.

As best appears in FIGS. 3 and 4, in the assembled bracket said interfiitting upper and lower member arms 17 and 22 are fitted together in overlapping relationship and several pairs of the apertures therein aligned, as will be more fully described hereinafter, and a bolt 24 is projected through a pair of said aligned apertures and secured by a nut 25, thus joining said bracket leg members 15 and 19 in a manner permitting their swinging movement toward and away from each other about said bolt connection. A sleeve 26 (FIG. 4) is preferably mounted on and surrounding said bolt 24 to lend rigidity to the structure.

Spaced inwardly a short distance from the outer ends of the bracket leg members 15 and 19 are a pair of aligned apertures 27 and 28 (FIG. 3), and projected therethrough is an elongated threaded shaft 29. The lower end of said shaft 29 has an enlarged head 30 rigid thereon which is of a diameter to permit its rotation within the channel-shaped leg member 15, and which head is preferably long enough to depend below said leg member slightly to permit the same to be readily grasped and turned by means of a wrench. The upper end of said shaft is threaded through a nut 31 which is secured on the upper channel-shaped leg member 19 in registration with the aperture 27 therein. To prevent the turning movement of said nut when the shaft 29 is being threaded therethrough, said nut may be of an enlarged size to fit closely between the upright flanges provided by said channel-shaped upper leg, or it may be welded to said leg member. The function of said threaded shaft and nut assemblage is to provide screw thread means whereby the bracket leg members 15 and 19 can be forcibly drawn together to clampingly retain the same on the projecting eave portion 10 of a house, as will be hereinafter described in greater detail.

Referring now to FIGS. 1 and 2, it will be seen that an elongated metal tube member or mast-holder 32 is mounted on and projects upwardly from the inner end of the bracket upper leg 19, said tube being pivotally secured between the upright flanges on said leg member by means of a bolt 33 to permit swinging movement of said tube in the plane defined by said channel member. As is shown in said FIG. 1, the upper end of said tube member 32 is designed to receive the lower end portion of a television antenna mast 34 and is provided with a set screw 35 for locking said mast at a selected height, and for preventing rotation of the same within the tube.

Slidably carried on said mast-holding tube 32 intermediate its height is a collar 36 and pivotally secured thereto by bolt and nut members 37 is a strut 38. Said strut projects downwardly and outwardly from said collar and has its lower end pivotally and removably secured to the upper bracket leg 19 by means of bolt and nut members 39. As will be noted, said lower connecting bolt 39 is projected through one of a series of spaced apertures 40 formed in said leg member 19, thus permitting the lower end of said strut to be adjusted and set along said bracket leg to maintain the pivotal mast-receiving tube 32 in any desired angular position. Once the desired strut angle has been obtained, the nuts 37 and 39 can be tightened to prevent inadvertent rotation of said strut and to ensure the stability of the tube.

As appears in FIGS. 1 and 2, a second collar 42 is slidably mounted on the tube 32, either above or below the aforementioned collar 36 depending on the slope of the particular roof on which the bracket is to be installed, as will be described, and pivotally secured to said collar 42 by means of bolt and nut members 43 are a pair of braces 44 and 45. Said braces diverge downwardly and laterally outwardly from said collar and have their lower ends pivotally secured to a V-shaped cross bar 46 by bolt and nut members 48, said cross bar being removably secured to and extending laterally and outwardly from the inner end of the upper bracket leg 19. Said cross bar is L-shaped in cross section and is preferably provided with rubber pads 47 on its undersurface (FIG. 1) to promote the engagement thereof with the surface of the roof when the bracket is installed. Due to the slidable nature of said collar 42 on the mast-receiving tube, said braces 44 and 45 are also adjustable to permit the angular positioning of the mast-holding tube 32, the tightening of the nuts 43 and 48 maintaining the same in a selected position. Consequently, said brace and strut members form a tripod support which is adapted to secure said mast-receiving tube in a true vertical position on a roof regardless of the slope of said roof.

In the preferred form of the invention, the aforementioned brace-supporting cross bar 46 is provided with a vertical pin (not shown) which is adapted to be received in an aperture adjacent the inner end of the upper bracket leg 19, thus securing said members in proper position relative to each other when the bracket is fully assembled and installed, but permitting said laterally-extending cross bar and brace assemblage to be swung to an unobstructing position in the same plane as the rest of the bracket structure, or to permit the removal of said brace assemblage when the bracket is to be knocked down into a compact unit for shipment or storage. In the latter respect, it is to be understood, too, that the various bolt and nut connections employed throughout the structure and hereinabove described can be readily disconnected to permit the complete disassembly of the bracket.

To install the improved antenna-supporting bracket comprising the present invention on a sloping roof, the upper and lower bracket legs 19 and 15 are first separated and spaced from each other a distance approximately equal to the height of the cornice on the particular building, and the connecting bolt 24 is inserted through one of the aligned pairs of apertures 23 and 18 in the overlapping arm members on said bracket legs. The latter are then manually spread apart a sufficient distance so that they will easily straddle the eave portion of the roof. In those buildings wherein the cornice 13 depends below the eave a filler 16 of wood or other material can be inserted between the lower bracket leg and the underside of the eave, and positioned to abut said cornice, to ensure the tight engagement of the bracket with said eave. It might also be desired in some instances to utilize screws or other fastening devices to secure said lower bracket leg to the underside of the eave to eliminate the possibility of any inadvertent movement of said leg, but this is a matter of preference and is not critical to the invention.

After the bracket has been positioned on the eave as described, the upper bracket leg 19 is swung downwardly to the point where it rests against the surface of the roof. The threaded shaft or tightening screw 29 is then turned to draw said bracket legs toward each other and into secure clamping engagement with the eave. As mentioned, the head 30 on said threaded shaft 29 preferably extends below the bracket arm 15 a short distance so that it can be easily grasped and turned by means of a common wrench or pliers.

The mast-holding tube 32 is then moved about its pivotal connection with the upper bracket leg 19 until it is in a true vertical position, and the supporting braces 44 and 45, and strut 37, are adjusted and tightened as hereinabove described to ensure that said tube is securely maintained in said position. The antenna mast 34 may then be inserted into the top of said tube 32 and locked in a desired position by means of the set screw 35. After the antenna has thus been securely mounted on the roof, the lead wires from said antenna can be strung along and within the channel-shaped bracket members to hide the same from view and promote the neat, attractive appearance of the dwelling.

From the foregoing detailed description it will be seen that the present invention provides an antenna bracket which is designed to securely support a television antenna mast or the like even in high winds, the present unit

including a sturdy, dependable tripod-type supporting structure, but which bracket is relatively inexpensive in construction and which can be installed with a maximum of ease and convenience. Moreover, of course, the present, compact bracket assemblage does not employ a multiplicity of unsightly guy wires which detract from the appearance of the house, it can be readily adapted for installation on roofs of varying pitches, and it does not require the drilling of holes through the roof or otherwise permanently impairing the building.

It is to be understood, of course, that various changes and modifications in the structure hereinabove described will undoubtedly occur to those skilled in this art, and it is intended that the invention shall include not only the illustrated bracket assemblage but any modified forms thereof as shall come within the spirit of the invention and within the scope of the following claims.

What I claim is:

1. In combination with a sloping roof having an overhanging eave at its lower end, an antenna-supporting bracket comprising: a lower horizontal clamping leg underlying said eave and extending outwardly therebeyond; an upper clamping leg spaced above said lower leg, said upper clamping leg having an outwardly extending portion and having an upwardly angled inner portion engaging the sloping upper surface of said eave; means operatively connected to and between said clamping legs outwardly of said eave and releasably pressurably holding said legs in clamping engagement on said eave; an angularly-adjustable antenna mast-holding member mounted on said upper clamping leg and arranged in a vertical position; and means maintaining said mast-holding member in said vertical position.

2. In combination with a sloping roof having an overhanging eave at its lower end, an antenna-supporting bracket comprising: a lower horizontal clamping leg underlying said eave and extending outwardly therebeyond; an upper clamping leg spaced above said lower leg, said upper clamping leg having an outwardly extending portion and having an upwardly angled inner portion engaging the sloping upper surface of said eave; adjustable means operatively connected to and between said clamping legs outwardly of said eave and releasably pressurably holding said legs in clamping engagement on said eave; an antenna-holding member pivotally mounted on said upper clamping leg and arranged in a vertical position; a plurality of rigid braces pivotally and vertically-adjustably secured to said antenna-holding member, said braces diverging downwardly and outwardly to the surface of the roof; and means releasably maintaining said braces in said position of angular adjustment and to thereby secure said antenna-holding member in its vertical position.

3. In combination with a sloping roof having an overhanging eave at its lower end, an antenna-supporting bracket comprising: a lower horizontal clamping leg underlying said eave and extending outwardly therebeyond; an upper clamping leg spaced above said lower leg, said upper clamping leg having an outwardly extending portion and having an upwardly angled inner portion engaging the sloping upper surface of said eave; connecting means adjustably and pivotally connecting the outer ends of said upper and lower clamping legs; screw means operatively connected to and between said clamping legs outwardly of said eave and releasably pressurably holding said legs in clamping engagement on said eave; an antenna mast-holding member pivotally mounted on said upper clamping leg and arranged in a vertical position; a strut pivotally and vertically-adjustably secured to said mast-holding member, said strut extending downwardly and outwardly and having its lower end pivotally and longitudinally-adjustably secured to said upper clamping leg; means releasably maintaining said strut in said position of angular adjustment; a pair of supporting braces pivotally and vertically adjustably secured to said mast-holding member and diverging downwardly and laterally outwardly therefrom to said roof; and means releasably maintaining said braces in said position of angular adjustment.

4. In combination with a sloping roof having an overhanging eave at its lower end, an antenna-supporting bracket comprising: a lower horizontal clamping leg underlying said eave and extending outwardly therebeyond; an upright arm rigid on the outer end of said lower clamping leg, said arm having a plurality of vertically spaced apertures therethrough; an upper clamping leg spaced above said lower leg, said upper clamping leg having an outwardly extending portion and having an upwardly angled inner portion engaging the sloping upper surface of said eave; a rigid arm depending from the outer end of said upper clamping leg, said arm having a plurality of vertically-spaced apertures therethrough and said depending arm overlapping the upright arm on said lower clamping leg whereby a pair of apertures in said arms are in alignment; connecting means removably projected through said aligned apertures and pivotally joining the outer ends of said upper and lower clamping legs; screw means operatively connected to and between said clamping legs outwardly of said eave and releasably pressurably holding said legs in clamping engagement on said eave; an antenna mast-holding member pivotally mounted on the inner end of said upper clamping leg and arranged in a vertical position; a strut pivotally and vertically-adjustably secured to said mast-holding member, said strut being angled downwardly and outwardly and having its lower end pivotally and longitudinally-adjustably secured to said upper clamping leg; means releasably maintaining said strut in said position of angular adjustment; a crossbar on the inner end of said upper clamping leg and extending laterally from both sides thereof; a pair of supporting braces having their upper ends pivotally and vertically adjustably secured to said mast-holding member, said braces diverging therefrom and having their lower ends pivotally connected to said crossbar; and means releasably maintaining said braces in said position of angular adjustment.

5. In combination with a sloping roof having an overhanging eave at its lower end, an antenna-supporting bracket comprising: a lower horiozntal clamping leg underlying said eave and extending outwardly therebeyond, said leg being formed of inverted channel-shaped metal; a pair of parallel upright arms rigid on the outer end of said lower clamping leg, said arms having a plurality of vertically-spaced, aligned apertures therethrough; an upper clamping leg spaced directly above said lower leg, said upper leg being formed of channel-shaped metal and having an outwardly extending portion above said lower leg and an upwardly angled inner portion engaging the sloping upper surface of said eave, said channel-shaped leg members being adapted to receive a television lead wire therein; a pair of rigid parallel arms depending from the outer extending end of said upper clamping leg, said arms having a plurality of vertically-spaced, aligned apertures therethrough, and said depending arms interfitting with the upright arms on said lower leg in overlapping relationship whereby pairs of apertures in said arms are in alignment; a connecting bolt projected through a pair of said aligned arm apertures and pivotally connecting the outer ends of said upper and lower clamping legs; screw means operatively connected to and between said upper and lower clamping legs outwardly of said eave and releasably pressurably holding said legs in clamping engagement on said eave; a mast-holding tube pivotally mounted on the inner end of said upper lamping leg and arranged in a vertical position; a tube-supporting strut pivotally and longitudinally slidably mounted on said tube, said strut extending downwardly and outwardly and having its lower end pivotally and longitudinally-adjustably

secured to said upper clamping leg; means releasably maintaining said strut in said position of angular adjustment; a crossbar removably mounted on the inner end of said upper clamping leg and extending laterally and outwardly from both sides thereof; a pair of tube-supporting braces having their upper ends pivotally and longitudinally-slidably connected to said tube, said braces diverging downwardly and outwardly and having their lower ends pivotally and removably connected to said crossbar; means releasably maintaining said braces in

said position of angular adjustment; and means associated with said mast-holding tube adapted to maintain the lower portion of an antenna mast in a selected position therein.

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