Nov. 5, 1968 L. D. BURNS 3,409,256

ANTENNA ROOF MOUNT SUPPORT

Filed March 7, 1966 2 Sheets-Sheet 1

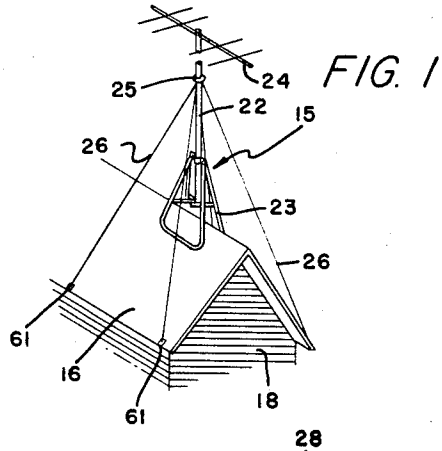

FIG. 1

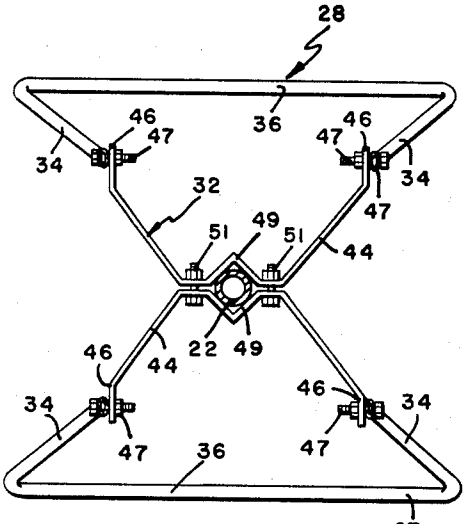

FIG. 3

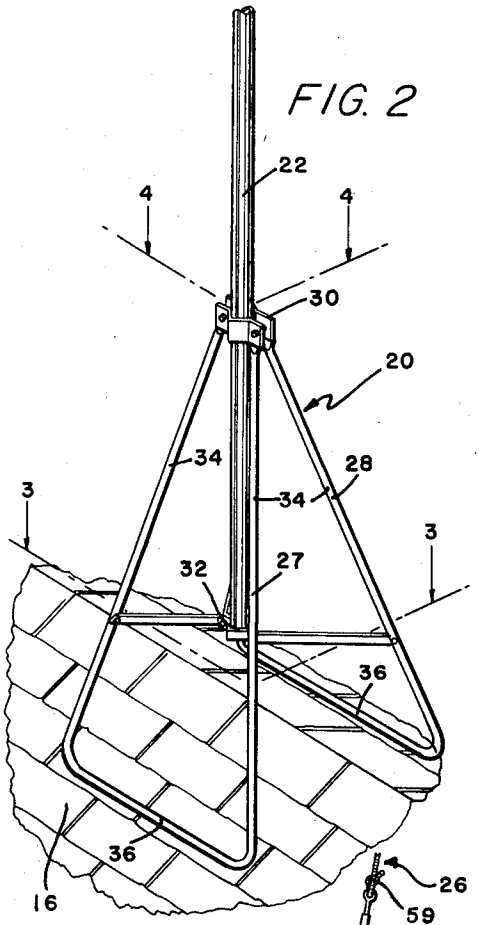

FIG. 2

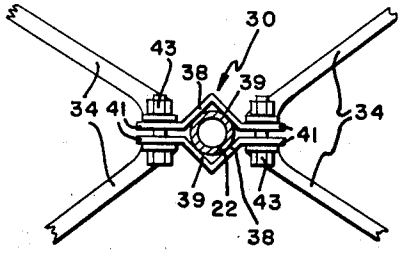

FIG. 4

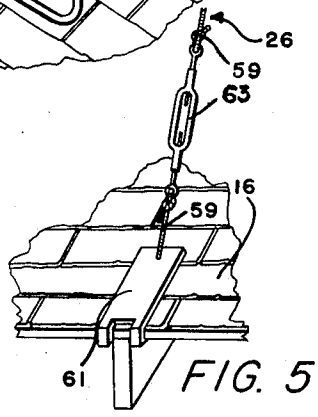

FIG. 5

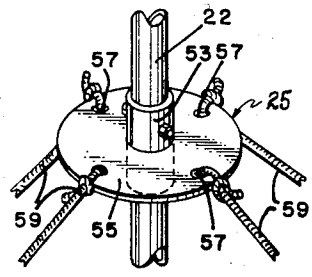

FIG. 6

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ANTENNA ROOF MOUNT SUPPORT

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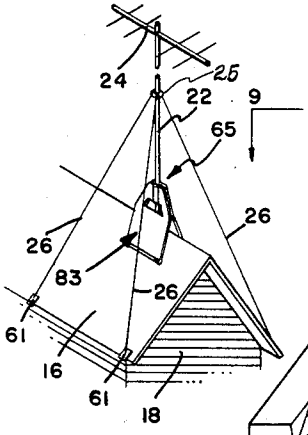

FIG. 7

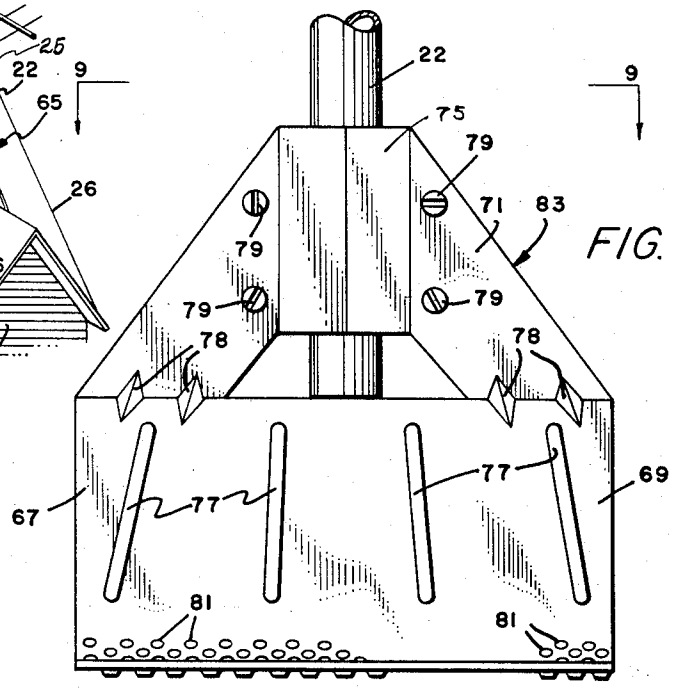

FIG. 8

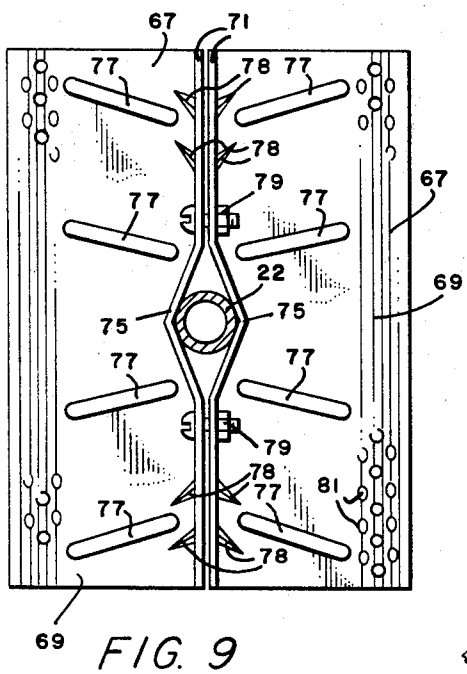

FIG. 9

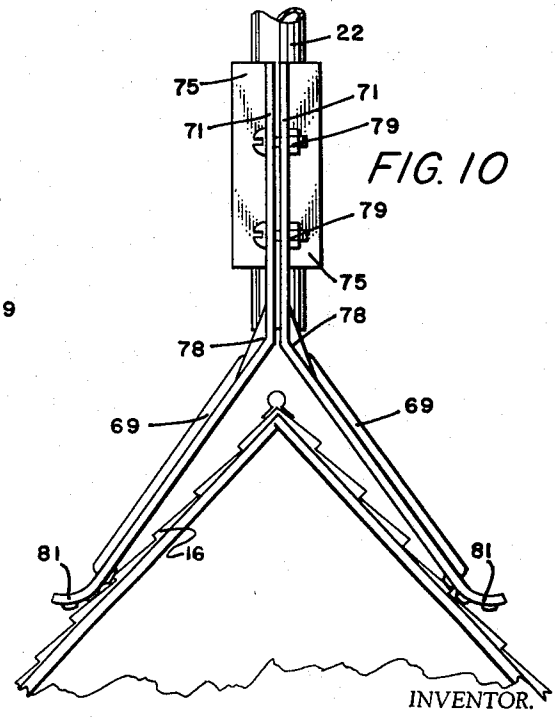

FIG. 10

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3,409,256
Patented Nov. 5, 1968

3,409,256

ANTENNA ROOF MOUNT SUPPORT

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Filed Mar. 7, 1966, Ser. No. 532,320
2 Claims. (Cl. 248—43)

ABSTRACT OF THE DISCLOSURE

This invention relates to a mounting means for an antenna mast support, and more particularly, to an antenna support attachable to the roof of a house. Still more specifically, this invention relates to an antenna support mountable on a house roof and laterally supported by cable members whereby no holes need be drilled in the roof for installation and support. Additionally, this invention relates to an antenna roof mount support combination having a bracket means with downwardly diverging leg means mountable upon the upper surface of a house roof; cable connector means connectable to an upright antenna mast mounted in the bracket means; cable members having one end connected to the connector means and the other end securable by clamp members to the outer periphery of the house roof; and means for securing the bracket means to the mast to present an upright rigid structure connectable to the house roof without the necessity of drilling holes therein.

Conventional antenna support means are normally attached to the uppermost portions of the roof of houses by the use of heavy brackets and clamps secured directly to the roof surface. This results in numerous holes in the roof each subject to possible water leakage with resultant damage to the walls and ceilings within the house. The prior art antennas are rigidly secured to the supporting structure and therefore cannot be readily moved to another location on the roof for better signal reception or removed for transport and installation on another house. Additionally, removal of the prior art devices leaves a plurality of holes in the roof surface which must be repaired.

In a preferred specific embodiment of the invention, the antenna support assembly includes a basic frame adapted to straddle opposite sides of a V-shaped house roof. An elongated mast or pole used to support a television or radio antenna and the like is mountable on the basic frame for support in an upright position. The assembled frame, mast, and antenna are secured against lateral upward movement by a plurality of cable assemblies connected between the mast and the outer peripheral edge of the house roof.

In another preferred embodiment of the invention, the basic frame consists of a pair of cooperating plate members having upper clamp sections and lower downwardly diverging leg supports adapted to straddle the opposite sides of a V-shaped roof top. The mast is rigidly secured between the clamp sections with the lower end thereof supported on the upper end surface of the leg supports. A plurality of cable assemblies connected to the mast hold the mast and frame assembly against upward and lateral movement. The cable assemblies are secured to the outer peripheral edge of the roof as above-mentioned in the first embodiment.

It is an object of this invention to provide a new roof mounting means.

Another object of this invention is to provide a new support means for antenna masts mountable on the roofs of houses.

Still another object of this invention is to provide an antenna support means mountable upon the roof of houses without necessitating the drilling of holes and securing to the roof surface.

A further object of this invention is to provide an antenna roof mount support means that can be easily and quickly assembled and readily attached to the uppermost portion of a house roof.

One other object of this invention is to provide an antenna roof mount support means rigidly secured against vertical and horizontal movement.

Still another object of this invention is to provide an improved antenna roof mounting means having a plurality of flexible leg support members whereby the assembly has a shock absorbing characteristic.

Yet another object of this invention is to provide an antenna roof mount support means that is readily assembled, readily removable for transfer, and economical to manufacture.

Further objects, features, and advantages of this invention will become apparent from the following description when taken in conjunction with the accompanying drawings of preferred specific embodiments of the new antenna roof mount support means of this invention in which:

FIG. 1 is a fragmentary perspective view of the upper portion of a house embodying a preferred specific embodiment of the antenna roof mount support assembly of this invention attached to the house roof;

FIG. 2 is an enlarged fragmentary perspective view of a mast and an antenna roof mount support of this invention;

FIG. 3 is a sectional view taken along line **3**—**3** of FIG. 2 illustrating the supporting frame of the antenna roof mount support of this invention;

FIG. 4 is a fragmentary sectional view taken along line **4**—**4** of FIG. 2 illustrating a connector means of this invention;

FIG. 5 is an enlarged perspective view of the lower end of a cable assembly of this invention secured to the outer periphery of the house roof;

FIG. 6 is a perspective view illustrating a mast connector plate of this invention mounted on a mast and connected to cable assemblies;

FIG. 7 is a fragmentary perspective view of a second preferred embodiment of this invention similar to FIG. 1;

FIG. 8 is an enlarged fragmentary elevational view of a mast and a connector plate assembly of the second embodiment of this invention;

FIG. 9 is an enlarged top plan view taken along line **9**—**9** in FIG. 8; and

FIG. 10 is an end elevational view of the second embodiment shown in FIG. 8 illustrated as mounted on the uppermost portion of a house roof.

In the following is set forth a discussion and description of preferred specific embodiments of the new antenna roof mount support of my invention, made with reference to the drawings whereon the same numerals are used to indicate the same or similar parts and/or structure.

It is to be understood by those skilled in the art that the drawings, discussion and description of this disclosure are not to limit the scope of my invention.

Referring to FIG. 1 of the drawings, the antenna roof mount assembly of this invention, indicated generally at **15**, is mounted on a roof **16** of a house **18**, and includes a basic support frame assembly **20** secured to the lower end of a mast **22** to form a mast and frame assembly **23**. A connector plate **25** secured to an upper portion of the mast **22** and a plurality of cable assemblies **26** extended between the connector plate **25** and the outer peripheral edge of the roof **16** provides for vertical and lateral stability of the mast and frame assembly **23**. A multi-direc-

tional antenna **24** is secured to the upper end of the mast **22**.

The basic support frame assembly **20** as shown in FIG. 2, includes a pair of leg members **27** and **28** interconnected at the uppermost ends by a clamp or bracket assembly **30** and the mid portions of the leg members **27** and **28** are interconnected by a brace assembly **32**. As the leg members **27** and **28** are identical, only leg member **27** need be described in detail. The leg member **27** is preferably constructed of a tubular aluminum material having opposite end sections **34** bent laterally from a base section **36** towards each other so as to be of substantially isosceles triangular shape. The terminal ends of the leg member **27** are flattened, formed with holes, and angularly displaced from the end sections **34** for reasons to become obvious.

As shown in FIG. 4, the bracket assembly **30** comprises a pair of plates **38** having right angular shaped center portions **39** integral at opposite ends with connector portions **41**. The plates **38** are assembled in a face to face relationship having the terminal ends of the leg members **27** and **28** against the outer surfaces of the connector portions **41**. Bolt members **43** are extended through aligned holes in the terminal ends and the connector portions **41** whereby the mast **22** is mountable between the center portions **39** in a clamped relationship.

The brace assembly **32** includes a pair of arm members **44** of irregular shape each having end sections **46** secured as by bolts **47** to respective ones of the end sections **34** of the leg members **27** and **28**. The arm members **44** have mid sections **49** of V-shape in substantial vertical alignment with respective ones of the plates **38** of the bracket assembly **30** whereby the lower end portion of the mast **22** is mountable between the mid sections **49** and held in a clamped rigid position by bolt members **51**.

It is seen, therefore, that the basic frame assembly **20** is usable to support the mast **22** in a vertical position having the lower end section thereof rigidly clamped by the brace assembly **32** and the bracket assembly **30**. The parallel base portions **36** of the leg members **27** and **28** are substantially spaced to add lateral stability to the mast and frame assembly **23**.

In the use and operation of the invention, the mast and frame assembly **23** is mounted or straddled on the upper edge of the house roof **16** with the leg members **27** and **28** on opposite sides thereof. In the mounted position, the mast extends vertically of the upper ridges of the house roof **16** and substantially perpendicular thereto. In order to secure the mast and frame assembly **23** against the roof **16**, the connector plate **25** is secured to an upper portion of the mast **22** and a plurality of cable assemblies **26** are secured to the plate **25**. As shown in FIG. 6, the connector plate **25** has a cylindrical body **53** mounted about the mast **22** having a laterally extended flange **55** with four spaced holes **57** therein. Each cable assembly **26** includes a cable **59** having one end mounted with one of the holes **57** and the opposite end secured to a U-shaped roof clamp **61**. (FIGS. 1 and 5). The roof clamps **61** are mounted about a portion of the peripheral edge of the roof **16** whereby the four cable assemblies **26** cooperate to anchor the mast and frame assembly **23**. Intermediate opposite ends of the cable **59** are mounted conventional turn buckles **63** so that the position and tension of the cable **59** is readily adjustable on rotation of the turn buckles **63**.

It is obvious that the cables **69** can be of any suitable material such as rope, steel cable, wire, etc. However, the use of glass rope has proven to be most satisfactory. Preferably, the leg members **27** and **28** are of a resilient nature thereby providing a shock absorbing characteristic to the support frame assembly **20** which effectively resists damage from tornadoes, high winds, etc. Additionally, it is obvious to one skilled in the art that numerous types of roof clamps and anchors can be used to secure the lower ends of the cables **59** depending on the type of roof edge, etc.

In a second preferred embodiment of the invention as shown in FIGS. 7–10, a basic frame assembly **65** includes a pair of identical plate members **67** having leg sections **69** integral with upper clamp sections **71** angularly disposed therefrom. The leg sections **69** are of a rectangular shape having lower curved support portions **73** adapted for contact with the surface of the roof **16**. The clamp sections **71** are provided with laterally bent mid sections **75** of V-shape adapted to contact and clamp the mast **22** therebetween. The plate members **67** can readily be produced by a stamping process with ridges **77** and projections **78** formed to add sufficient strength thereto. A plurality of spaced holes in the clamp section **71** are adapted to receive bolts **79**. Additionally, a plurality of spaced punched holes **81** in the support portion **73** having downwardly projected edges provide a rough non-skid contacting surface.

In the use and operation of the second embodiment, namely the frame assembly **65**, the mast **22** is placed between the plate member **67** with the lower portion of the mast supported on the upper surfaces of the leg sections **69**. The bolts **79** are actuated to rigidly clamp the mast **22** between the mid sections **75**. As shown in FIG. 10, this mast and frame assembly, indicated generally at **83**, is mounted on the roof **16** so as to straddle the opposite sides thereof. The connector plate **25** and the cable assemblies **26** are thereupon connected to the mast **22** and the periphery of the roof **16**, respectively, as previously described in the first embodiment assembly. The contacting rough surfaces of the leg sections **69** hinders lateral sliding movement of the mast and frame assembly **83** on the roof surface. The cable assemblies **26** maintain downward and lateral force on the mast and frame assembly **83** to rigidly support the same on the house roof **16**. The angular relationship of the clamp sections **71** and the leg sections **69** results in a flexible structure having shock absorbing characteristics thereby preventing damage by wind storms and the like.

The preferred embodiments of my invention presents new and novel antenna roof mount assemblies that can be easily and readily installed without the necessity of drilling holes in the supporting surface. These structures can be readily removed for installation in other locations by the typical home owner, and presents a neat appearing antenna package having new and novel shock absorbing characteristics.

Although the preferred embodiment of the invention has been disclosed herein, various constructions and modifications can be made within the scope of the invention defined in the appended claims.

I claim:

1. A mounting means for use in supporting a vertically extended mast on the upper portion of a house roof, comprising:

(a) cable connector means for rigid connection to a mast;

(b) a plurality of anchoring members each having a hook-like portion securable to the outer periphery of a house roof in anchoring relationship thereto;

(c) a plurality of cable members each having one end portion secured to said connector means and the opposite end portion secured to one of said anchoring members;

(d) support frame means mountable on the house roof and having means to receive and hold the lower end portion of the mast, said frame means comprising a a pair of leg members, each having opposite end sections bent laterally from a base section toward each other so as to form a substantially isosceles triangle, the terminal ends of each of said leg members being flattened and having an angularly displaced aperture therein;

(e) bracket means secured to the terminal ends of said

leg members and when mounted securing said legs to the mast and comprising a pair of oppositely disposed plate members having angularly shaped center portions integral at opposite ends with connector portions, the connector portions of said plate members assembled with the terminal ends of said leg members of said support frame means; and

(f) brace means intermediate the leg members of said support frame means for supporting the lower end portion of the mast when mounted and for securing the mast to said leg members of said support frame means and providing lateral stability to the mast, said brace means comprising a pair of oppositely disposed arm members having their end sections secured to said leg members of said support frame means, said arm members having angular mid sections to receive therebetween said mast and which are in substantial vertical alignment with the angularly shaped center portions of said plate members of said bracket means.

2. The mounting means according to claim **1** wherein said cable connector means comprises:

(a) a tubular body mountable about the mast for axial adjustable movement relative thereto;

(b) a laterally extended connector portion secured to said tubular body member, said connector portion having a plurality of spaced holes adjacent the outer edge thereof whereby the upper ends of said cable members are mounted through said holes and secured to said connector portion; and

(c) a bolt member extended transversely of said tubular body and the mast to rigidly secure said tubular body and thus said connector portion in a selected vertical position to the mast.

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JOHN PETO, *Primary Examiner.*