Jan. 26, 1954 V. W. TREBULES 2,667,317

ANTENNA MAST SUPPORT

Filed Aug. 4, 1949 2 Sheets-Sheet 1

FIG. 1

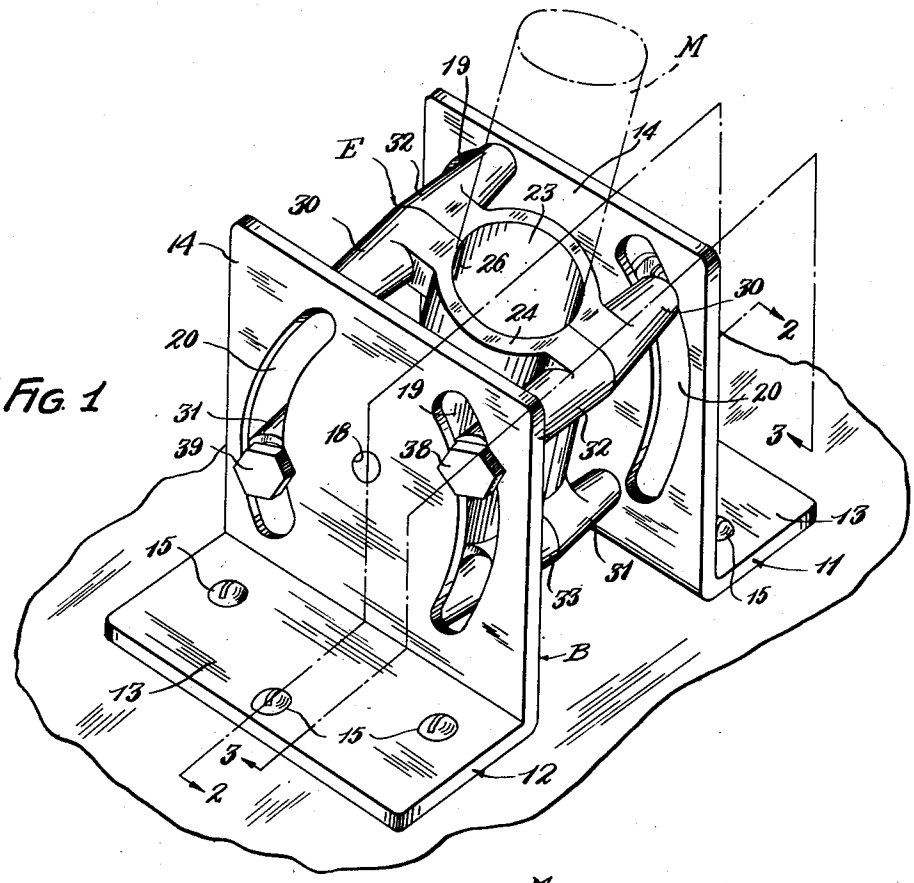
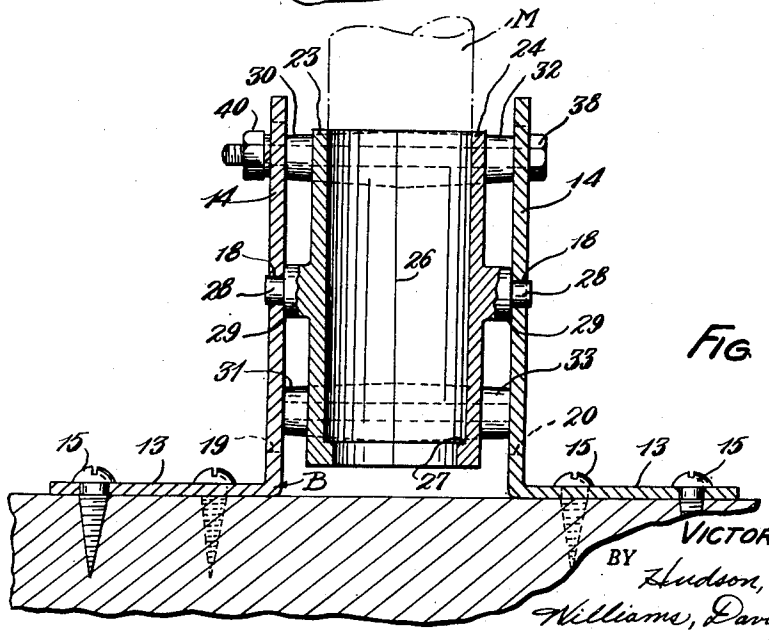


FIG. 2



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2 Sheets-Sheet 2

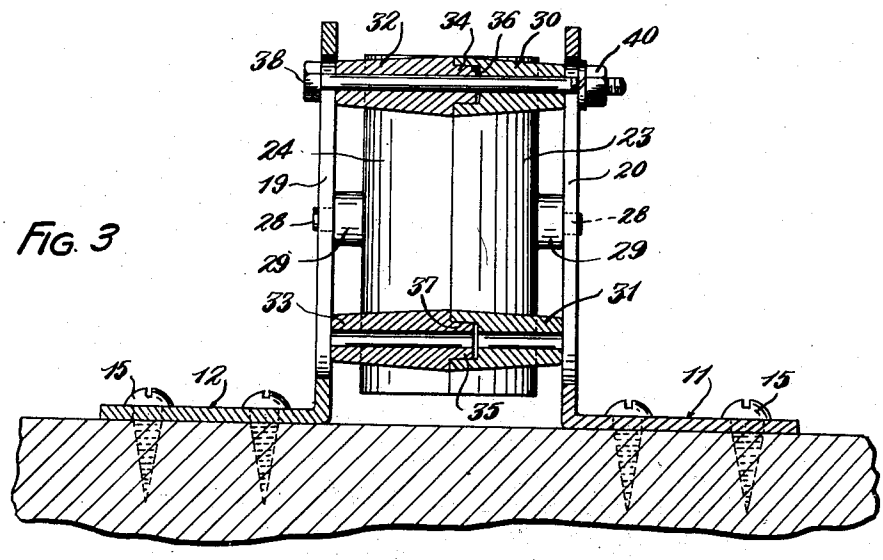


FIG. 3

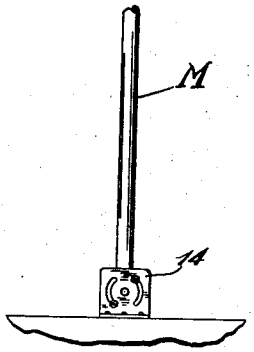


FIG. 4

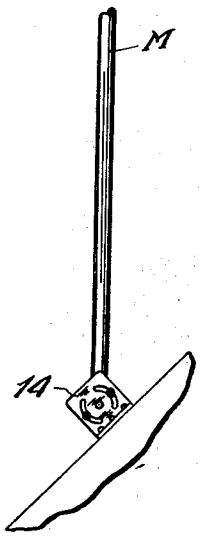


FIG. 5

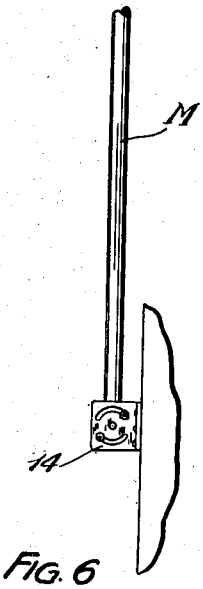


FIG. 6

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ANTENNA MAST SUPPORT

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Application August 4, 1949, Serial No. 108,588

2 Claims. (Cl. 248—43)

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The present invention relates to a supporting device for radio antenna masts and particularly to a mast supporting device which may be arranged and adjusted to carry a mast at any desired angle relative to the surface to which the device is secured.

An object of the invention is the provision of a new and improved radio antenna mast supporting device which may be attached to a suitable support surface, such as a roof of a building, and readily adjusted to carry an antenna mast at any desired angle relative to the support surface and which comprises a few relatively inexpensive components so constructed and arranged that they may be easily assembled into a rugged and durable structure.

Another object of the present invention is the provision of a new and improved supporting device for a radio antenna mast, which device comprises a base structure attachable to a support surface, and a mast carrying element pivotally supported by the base structure and which may be fixed at any desired angle relative to the base structure, within a given plane, by locking means which is also effective to secure the mast to the carrying element.

The invention resides in certain constructions and combinations and arrangements of parts and further objects and advantages will be apparent to those skilled in the art to which it relates from the following description of the preferred embodiment described with reference to the accompanying drawings forming a part of this specification, in which

Fig. 1 is a perspective view of an antenna mast supporting device embodying the invention;

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1; and

Figs. 4, 5 and 6 are elevational side views of the antenna mast support shown secured to horizontal, sloping and vertical supporting surfaces, respectively.

In general, the invention contemplates a supporting device for an antenna mast, which device comprises a base structure which may be secured to a suitable plane surface, such as a roof or a wall, and a mast carrying element pivotally supported on the base structure. The mast carrying element is adapted to be locked to the base structure in any desired angular position relative to the latter, in a given plane, by clamp means which also serve to secure the mast to the mast carrying element.

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Referring to the drawing, a radio antenna mast supporting device is shown which includes a base structure B and a mast carrying element E. The base structure comprises two base plates 11, 12, each having two walls sections 13, 14 at right angles to one another. The base plates are preferably formed of rolled metal plate or strip which is slightly resilient so that the wall sections 13, 14 may flex slightly from their normal right angular relationship. The sections 13 have openings therein by which the base plates may be secured to a suitable plane surface, such as a roof or wall, by screws 15, and in installing the device, the base plates are secured to the surface with the wall sections 14 thereof in spaced parallel relation and in registration with one another as shown. When the base plates are thus secured the mast carrying element E may be pivotally supported therebetween and the sections 14 of the base plates may be flexed toward one another by clamping devices arranged to clamp the mast carrying element firmly between the base plates.

Each wall section 14 has a bearing opening 18 and two oppositely disposed arcuate slot formations 19, 20, the arcs of the slots having a common center which is coincident with the axis of the bearing opening 18. Preferably, the slots 19, 20 extend through at least 90° arcs and the bearing opening 18 and slots 19, 20 are symmetrically located in the wall sections 14 so that the two base plates may be identically formed and when attached to a support surface as described, the slots and bearing openings thereof will be in alignment with one another.

The mast carrying element E comprises two complementary members 23, 24 which form a compressible socket for receiving an antenna mast M. The socket members are preferably of a suitable cast material, such as aluminum. Each of the members 23, 24 has a generally semicylindrical form, and when the open side edges of the two members are in engagement, the transverse cross section of the resulting socket is slightly elliptical, with the longer axis at the engaging edges. This construction permits the members 23, 24 to tightly embrace the mast received therebetween, assuming that the section of the mast is circular in cross section, by drawing the members toward one another. One end of each member 23, 24 has an inturned lip 27 which forms a stop against which the base of the antenna mast may abut.

The mast carrying element E is pivotally supported between the base plates 11, 12 and for this

purpose, each of the members 23, 24 has a pintle 28 extending from a boss 29 formed integral therewith and when the members are complementarily associated, the axes of the pintles coincide with one another and extend normal to the axis of the cylindrical socket formed by the members. The pintles 28 are adapted to be journalled in the openings 18 in the respective base plates to form a pivot for the element E about which the element may be rotated. When the element E is pivoted in the base plates, it is contained within the confines of the wall sections 14 so that it may be rotated through 360° relative to the base plates.

The element E is adapted to be locked with the base plates at any desired angle relative to the plates and for this purpose each of the members 23, 24 has four leg or post structures 30, 31, 32, 33 which are spaced 90° from one another about the axis of the pintles of the respective members and spaced from the pintles such that the ends of the posts may register with the slots 19, 20 when the element is rotated between the base plates on the pintles. The diameters of the posts 30, 31, 32, 33 are greater than the width of the slots and each post has an opening therethrough which is registerable with the slots. Preferably, the end surfaces of the posts and the end surface of the boss 29 of each member 23, 24 lie in a common plane so that these surfaces may frictionally engage the adjacent surface of a wall section 14 of the base plates.

The post structures 32, 33 having projecting sleeve portions 34, 35 which are adapted to be received in counterbored portions 36, 37 of the post structures 30, 31 when the members 23, 24 are placed together, as shown in Fig. 3, and assist in maintaining the members 23, 24 properly aligned during the assembly of the mast supporting device. When the two members 23, 24 are arranged to form the mast receiving socket, securing devices, such as bolts 38, 39 may be extended through the openings through the aligned posts of the assembled members. Since the slots 19, 20 extend through at least 90° and the post structures 30, 31, 32, 33 are spaced apart 90°, respectively, one or the other of two pairs of the diametrically opposite posts will be in registration with the slots throughout 360° of movement of the element E. The bolts 38, 39 are adapted to be inserted through the slots 19, 20, respectively, of one of the base plates and through the openings of the post structures of the members 23, 24 which are aligned with the slots and through the slots in the other base plate. The ends of the bolts 38, 39 projecting through the slots 19, 20 of the other base plate have nuts 40 threaded thereon which may be tightly drawn against the base plate section 14 to urge the sections 14 of the two base plates toward one another through the bolts. The clamping action of the nuts and bolts also compresses members 23, 24 against the mast in the socket formed by the members and the end surfaces of the posts 30, 31, 32, 33 and the outer faces of the bosses 29 of the respective members 23, 24 are drawn into tight frictional engagement with the respective abutting wall sections 14 to lock the element E against rotation relative to the base plates.

To erect a radio antenna mast, for example, the members 23, 24 are placed together to form a mast receiving socket and the pintles 28 thereof are journalled in the bearing openings 18 of the respective base plates 11, 12, which plates are arranged as shown in Figs. 1, 2 and 3. The

bolts 38, 39 are then inserted through the slots 19, 20 of the base plates and the post structures of the members 23, 24 and the nuts 40 are loosely threaded in the bolts to hold the base plates and socket members 23, 24 in assembled relation. The base plates may then be secured to any suitable plane surface on which the mast is to be supported after which the mast is inserted in the element E. The mast may then be directed to a desired angle relative to the supporting surface by pivoting the element E on its pintles and the nuts 40 are then tightened on the bolts which secure the mast carrying element E against rotation relative to the base plates and also draws the members of the element together to tightly clamp the mast in the socket thereof.

It will be seen that regardless of the angular position of the support surface, the mast can be erected at any desired angle relative to the surface as the element E may be fixed at any position throughout 360° relative to the base plates. Figs. 4, 5 and 6 illustrate the mast supporting device secured to horizontal, sloping and vertical surfaces, respectively, with the mast supporting element E adjusted relative to the base plates in each instance to carry the mast vertical.

The pivotal support for the mast carrying socket element and the arrangement of the clamping bolts to lock the socket element to the base plates and clamp the mast in the element enables the mast supporting device to be readily installed and adjusted to carry the mast at the desired angle. It will be noted that the construction of the supporting device is such that the base structure, socket members and clamping means may each consist of duplicate parts which enable the supporting devices to be manufactured relatively inexpensively and facilitate the packaging and assembly thereof.

While the preferred form of the invention has been described in considerable detail, it will be apparent that the invention is not limited to the constructions shown and it is my intention to cover thereby all adaptations, modifications and changes therein which come within the practice of those skilled in the art to which the invention relates and the scope of the appended claims.

Having thus described my invention, I claim:

1. A radio antenna support comprising, a base structure including two spaced confronting wall sections movable toward one another and each having two oppositely disposed arcuate slots having a common center, said wall sections having open bearings at said centers, respectively, a mast carrying element supported between said wall sections, said element comprising complementary members cooperating to form a socket to receive a section of a mast therein, said members each having a pintle journalled in the open bearings in the respective wall sections, said members each having at least two surfaces engageable with the adjacent wall sections, respectively, adjacent to the slots in the said wall sections and having openings therein at said surfaces, said openings being at opposite sides of said socket and alignable with the respective openings of the other of said members and the slots in said wall sections, and a pair of clamping devices extending through the respective slots and openings in said members to urge said wall sections and adjacent surfaces of said members into frictional engagement and to urge said members together to clamp a mast section in said socket between said members.

2. A radio antenna mast support comprising two spaced plates facing one another and each having a pair of diametrically disposed concentric arcuate slots, said slots each extending through substantially 90° and the slots in one plate registering with the slots in the other plate, a socket forming member pivotally supported between said plates for rotation on an axis extending through the centers of said arcuate slots and said base plates, said socket member adapted to receive a section of an antenna mast and support the same therein, said member including four tubular portions extending parallel to the axis on which said socket member is pivoted and located at substantially 90° from one another about a circle substantially concentric with said arcuate slots, the outer ends of said tubular portions frictionally engaging the respective base plates, and clamping devices extending through diametrically opposed tubular portions of said

socket member and engaging said plates adjacent to the edges of said slots and operative to frictionally clamp said socket member to said plates.

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