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ROOF MOUNT FOR TV ANTENNAS

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Fig. 1

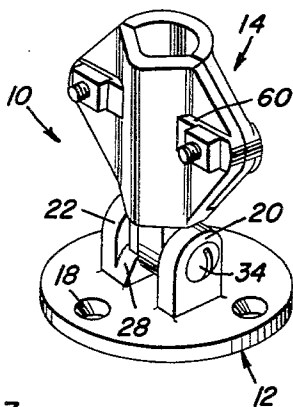


Fig. 2

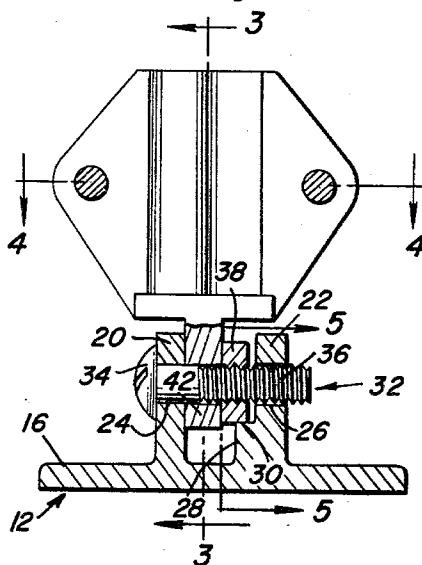


Fig. 3

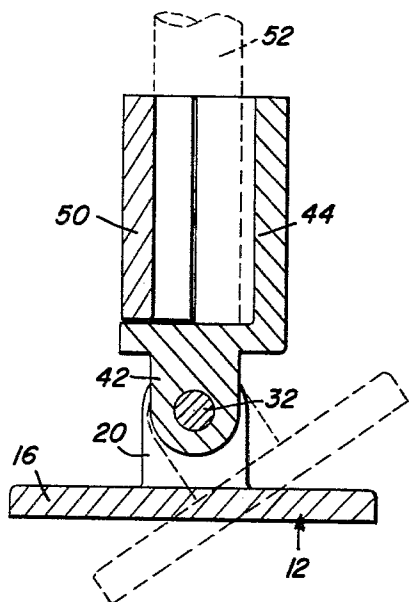


Fig. 4

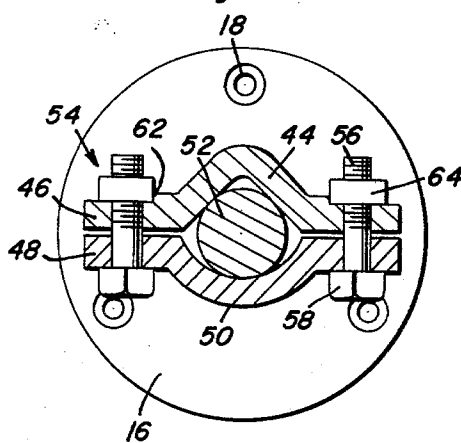
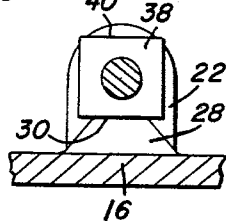


Fig. 5



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ROOF MOUNT FOR TV ANTENNAS
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This invention relates to adjustable mounting structure for antenna masts, poles, posts and the like.

A primary object of the present invention is to provide a new and useful mounting structure for elongated posts or masts which is durable, easy to adjust, and less likely to be loosened under prolonged vibration. The mounting structure of the present invention therefore is particularly suited for the mounting of outdoor antennas which are subject to vibratory forces due to wind and the deleterious effects of atmospheric exposure.

Another object of the present invention is to provide an adjustable mounting structure for antenna masts involving a minimum number of parts capable of being manufactured at a low cost and yet capable of forming a rigid and stable assembly in any adjusted pivotal position.

An additional object of the present invention is to provide a pivotally adjustable supporting structure for antenna posts which features a simple laterally adjustable locking feature by means of which angular adjustment of the antenna mast or post is made possible without complex and expensive angular adjustment structure that have characterized antenna mounting devices heretofore utilized.

A still further object of the present invention is to provide a simple and low cost pivotally adjustable antenna mast mounting device capable of supporting an antenna mast in an angularly adjusted position with a greater degree of stability and reliability than comparable antenna mounting devices heretofore utilized.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of the adjustable antenna mast mounting device of the present invention.

FIGURE 2 is a side elevational view of the mounting device with parts shown in section.

FIGURE 3 is a sectional view taken substantially through a plane indicated by section line 3—3 in FIGURE 2.

FIGURE 4 is a sectional view taken substantially through a plane indicated by section line 4—4 in FIGURE 2.

FIGURE 5 is a partial sectional view taken substantially through a plane indicated by section line 5—5 in FIGURE 2.

Referring now to the drawings in detail, it will be observed that the antenna mounting device generally referred to by reference numeral 10 is adapted to be mounted on a building structure at any suitable location such as the roof thereof by means of a base portion generally referred to by reference numeral 12. Pivotally mounted in an adjusted position on the base portion 12, is a mast holding portion generally referred to by reference numeral 14. The mast holding portion 14 is therefore adapted to clamp therewithin the lower end of a mast or post by means of which the mast may be held in a pivotally adjusted position with respect to the base portion 12.

The base portion 12 includes a base plate member 16 formed with a plurality of countersunk holes 18 by means of which the base plate is secured to the building structure or roof. The base plate may be made of a rigid

durable material such as aluminum or some other non-corrosive metal so that it would not be subject to the deleterious effects of weather exposure. Formed integrally with the base plate 16 and projecting upwardly therefrom, are a pair of relatively rigid pivotal supporting members 20 and 22 having aligned apertures 24 and 26 formed therein so as to define therebetween a pivotal adjustment axis. Also formed integrally with the base plate 16 and the pivotal supporting member 22, is a locking surface formation 28 which is spaced from the pivotal supporting member 20 and presents a flat surface or face 30 which is spaced below the aligned apertures 24 and 26 for purposes to be hereafter explained.

A bolt member 32 is received through the aligned apertures 24 and 26 of the pivotal support members for rotatable mounting therebetween. The pivotal adjustment axis aforementioned, thus extends through the bolt member 32. The bolt member is provided at one end with the slotted adjusting head 34 which is disposed in abutting relation to one side of the pivotal support member 20. The bolt member 32 is also provided with a threaded portion 36 which projects out of the aperture 26. The mast holding portion 14 is thereby adapted to be pivotally mounted between the pivotal support members 20 and 22 on bolt member 32.

In order to lock the mast holding portion 14 in a pivotally adjusted position, a nut member 38 having flat sides 40 is mounted in threaded engagement on the threaded portion 36 of the bolt member between the pivotal support member 22 and the pivotal connecting portion 42 of the mast holding portion 14. One of the flat sides 40 of the nut member 38 is disposed in sliding contact with the flat face 30 of the surface locking formation 28 in order to prevent rotation of the nut member. It will therefore be appreciated that upon rotation of the bolt member 32 effected by applying a torque applying tool or screwdriver to the slotted head portion 34, the nut member 38 may be axially displaced along the bolt member between limit positions respectively in contact with the pivotal support member 22 and the connecting portion 42 of the mast holding portion. In this manner, the mast holding portion may be clamped in an adjusted pivotal position by locking the connecting portion 42 between the nut member 38 and the pivotal support member 20 relying only on axial displacement of the nut member to obtain sufficient clamping pressure. In order to readjust the pivotal position of the mast holding portion, axial displacement of the nut member 38 may be effected toward the pivotal support member 22 without any danger of the nut member becoming disassembled from the bolt since it is not mounted thereon on the outer side of the pivotal support member 22. It will be furthermore appreciated, that since rotation of the nut member 38 is prevented under all circumstances because of its contact with the formation 28, vibratory forces applied to the mast holding portion 14 will not produce any loosening.

The mast holding portion 14 includes the clamp section 44 to which the pivotal connecting portion 42 is connected or with which it is integrally formed. The clamp section 44 includes a pair of flange portions 46 which are disposed in confronting relation to the flange portions 48 of the clamp section 50 whereby the mast or post 52 is clamped between the clamp sections. The clamp tightening assemblies generally referred to by reference numeral 54 are therefore provided in order to secure the flange portions 46 and 48 of the clamp sections together. Each of the clamp tightening assemblies 54 therefore include a threaded member 56 having a head portion 58 disposed in abutting relation to the flange portion 48 and extending through aligned apertures in the flange portions. Locking formations 60 are formed on the flange portions

46 of the clamp section 44 so as to present a locking shoulder 62 which abuts against the flat side of a fastener nut element 64. The clamp section may thereby be tightened against the antenna post 62 by means of the tightening assembly 54 by simple rotation of the threaded screw member 56 through the head portion 58 thereof, the assemblies 54 remaining in tightened condition by virtue of the fact that the nut elements 64 are prevented from rotation by abutment with the shoulders 62 on the locking formations 60.

From the foregoing description it will be appreciated that a post mounting assembly is formed from a relatively few number of parts capable of being manufactured at a low cost and yet capable of effectively and easily locking the antenna post in a pivotally adjusted position. Inasmuch as the mast is clamped in position between the axially displaceable nut 38 and only one of the pivotal support members 20, no deformation of the pivotal support members is necessary to produce sufficient clamping pressure as in prior art devices. Accordingly, the pivotal support members need not be limited in thickness because of rigidity nor need the spacing between said pivotal support members be held to any accurate tolerances in order to minimize the amount of deformation needed to obtain sufficient clamping pressure. The disposition of the nut 38 and the locking face 30 between the support members 20 and 22 is therefore essential in view of the foregoing advantages inherent in the described arrangement. Also, because of this disposition of the nut and locking face, positional readjustment may be effected without any danger of disassembly of the nut as long as axial pressure is held on the bolt, since the nut will be limited in axial movement between the clamp portion 42 and the pivotal support member 22.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An adjustable support for an antenna mast or the like comprising, a base, a pair of spaced pivotal support members projecting from the base, bolt means rotatably mounted by said support members to define a pivotal adjustment axis therebetween, angularly positioned means pivotally mounted on said bolt means in axial abutting relation to a first of said pair of pivotal support members, nut means threadedly engaged with said bolt means between said angularly positioned means and a second of said pair of pivotal support members, and locking surface means mounted on said second pivotal support member to slidably engage said nut means for axial displacement thereof into clamping engagement with the angularly positioned means in response to rotation of the bolt means in order to lock the angularly positioned means in an adjusted position between said pivotal support members.

2. The combination of claim 1, wherein said locking surface means comprises a formation fixed to the base and said second pivotal support member for projection toward said first pivotal support member and presenting a flat face spaced from the bolt means for engagement by the nut means to prevent rotation thereof about the bolt means, said nut means being axially displaceable on the

bolt means between positions in contact with said second pivotal support member and said angularly positioned means for readjustment thereof.

3. The combination of claim 2, wherein said angularly positioned means comprises a pair of clamp sections, one of said clamp sections having a pivotal connecting portion rotatably mounted on said bolt means between said first pivotal support member and the nut means and in axial spaced relation to the locking surface means to permit pivotal adjustment thereof, and clamp tightening means securing said pair of clamp sections together for holding said mast therebetween.

4. The combination of claim 3 wherein said clamp tightening means comprises threaded fastener means connecting said clamp sections and locking formations formed on one of said clamp sections for engagement with said fastener means to prevent loosening thereof.

5. The combination of claim 1 wherein said angularly positioned means comprises a pair of clamp sections, one of said clamp sections having a pivotal connecting portion rotatably mounted on said bolt means between said first pivotal support member and the nut means and in axial spaced relation to the locking surface means to permit pivotal adjustment thereof, and clamp tightening means securing said pair of clamp sections together for holding said mast therebetween.

6. The combination of claim 5 wherein said clamp tightening means comprises threaded fastener means connecting said clamp sections and locking formations formed on one of said clamp sections for engagement with said fastener means to prevent loosening thereof.

7. An adjustable support for an antenna mast or the like comprising, base means, pivotal support means mounted on the base means, mast holding means pivotally mounted on the pivotal support means in spaced relation to the base means, locking means operatively mounted on the pivotal support means for lateral displacement thereon to lock the mast holding means in an adjusted pivotal position, and means mounted on the base means spaced from the mast holding means for engagement by the locking means to constrain limited movement thereof between a locking and releasing position on the pivotal support means.

8. In combination with a fixedly mounted base having a pair of rigid pivotal supports, an angularly positioned member having a thickness substantially less than the spacing between said supports and a threaded bolt rotatably mounted between said supports for supporting the angularly positioned member therebetween, means for clamping the member against one of said supports comprising; a clamping nut member threadedly mounted on the bolt having at least one flat side thereon, and means mounted between said supports in spaced relation to the bolt for engagement by the flat side of the nut member constraining movement thereof in an axial direction along the bolt between the angularly positioned member and the other of said supports.

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