Jan. 31, 1956 O. V. HAWTHORNE 2,733,030

UNIVERSAL MAST MOUNTING DEVICE

Filed Jan. 3, 1951

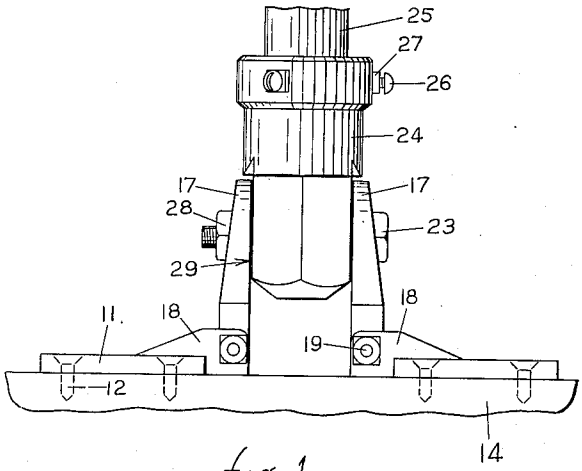


fig. 1

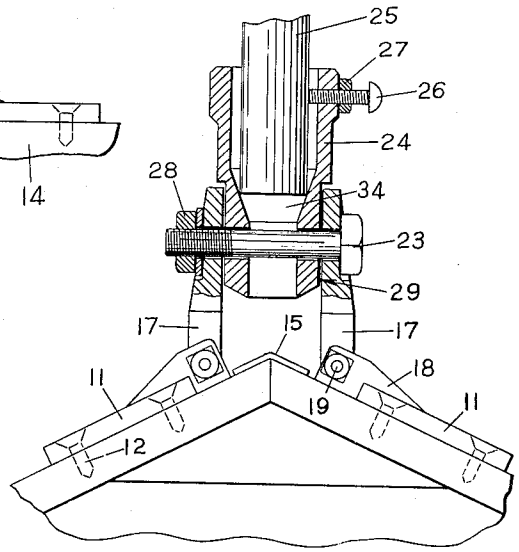


fig. 2

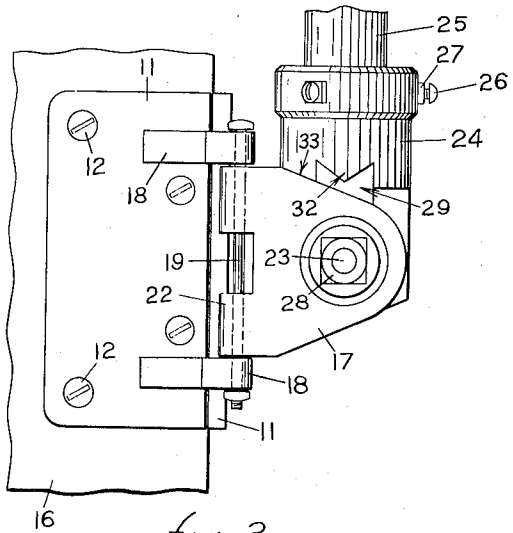


fig. 3

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United States Patent Office 2,733,030 Patented Jan. 31, 1956

2,733,030

UNIVERSAL MAST MOUNTING DEVICE

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Application January 3, 1951, Serial No. 204,163

6 Claims. (Cl. 248—40)

This invention relates to a mast mounting, particularly to a universal mounting by means of which the masts of radio and television antennae, flag poles and the like can be mounted on roofs, corner members or side walls of buildings or in other desirable locations.

Television and frequency modulated radio receiving sets generally operate much better when an outside aerial is provided and this is often true of receiving sets for non-frequency modulated radio waves as well. The mounting of masts for such aerials and for flagpoles and other mast-like structures on buildings, where they are usually desired, has heretofore presented certain problems due to the lack of suitable devices for supporting the mast in a desired position which can be attached readily in a convenient place on the building, which are sturdy and neat appearing and, in particular, which have universal features permitting them to be secured to the building in a position where they will be inconspicuous and where the screws or nails used to secure them will do the least harm to the building regardless of the slope of the surface or surfaces to which the mounting is secured. It is not always desirable, for instance, to mount the mast on the roof of a building but rather on a vertical side or corner of the structure where it can be secured to a more solid member and where the driving of nails or screws through the roof surface will be avoided. When such a mast is to be mounted on a roof surface it is desirable in some instances to mount it at the peak and, in other instances, to mount it on one of the sloping sections removed from the peak or ridge. Such masts and poles must usually be mounted in a vertical position and this has limited seriously the type of surfaces on which they could be mounted using hitherto available mounting devices.

It is therefore an object of the present invention to provide a mounting for masts for radio and television aerials, flag poles and the like.

An additional object is to provide a mast mounting which can be secured to substantially any flat, sloping or angular surfaces and yet allow the mast to extend vertically upward.

An additional object is to provide a universal mast mounting device adapted to receive masts of different sizes and to mount them on roofs and structural members of different sorts.

These and related objects are accomplished readily and economically by the device of the invention which can best be understood by reference to the accompanying drawings wherein, in the interest of clarity, certain features are shown on a somewhat exaggerated scale and wherein:

Figure 1 is a side elevation of a universal mast mounting embodying features of the invention and secured to a flat surface,

Figure 2 is a side elevation, partially in section, of a universal mast mounting similar to that of Figure 1 secured astride the ridge of a common gable roof, and

Figure 3 is a side elevation of the universal mast

mounting of Figure 1 in yet another position and secured to a square corner of a vertical member.

Referring to Figures 1 to 3, a pair of base plates **11** are provided each of which is adapted to be secured, as by screws **12** or by nails or bolts to a surface. In Figure 1 the base plates **11** are illustrated as secured on the top surface of a flat roof **14**. In Figure 2 the plates **11** are illustrated as secured on the sloping surfaces adjacent to and on opposite sides of the ridge **15** of a common gable roof. In Figure 3 the plates **11** are illustrated as secured on adjacent vertical sides of an upright square cornered structural member **16**.

Each of the base plates **11** is hinged along one edge, herein sometimes referred to as its "facing edge" since in the completed device it lies nearest the corresponding edge of the other base plate, to an edge or base of one of a pair of socket clamping members **17**, the function of which will be explained later. Any suitable hinging arrangement can be employed to join each base plate to the corresponding clamping member. One such suitable arrangement illustrated in the drawing consists of a pair of thickened and reinforced lugs or projections **18** formed along the facing edge of the base plate **11**, each of which is bored to receive a hinge bolt **19** longitudinally parallel with the facing edge. The clamping member **17** is bored longitudinally through its base portion **22** of Figure 3, and is mounted on the hinge bolt **19** between the lugs **18**. It will generally be found convenient to provide for a rotation of each of the base plates about the hinge bolt **19** in the completed device from a position substantially coplanar with the respective clamping member **17** through an angle of at least about 90 degrees in a direction outward and away from the other base plate in which position the base plates will be substantially coplanar with one another, the clamping members **17** being substantially parallel with one another in the finished mounting as will hereinafter be apparent. Each of the clamping members **17** is bored at a point removed from its hinged edge to receive a clamping bolt **23** bearing a clamping bolt nut **28**.

A mast socket **24** is provided for receiving a mast **25** which it is desired to mount. The mast socket **24** is a generally tubular member of convenient internal diameter provided near its upper or mast-receiving end with three or more centering bolts **26** and lock nuts **27** for centering the mast in the socket. The mast socket is bored transversely near its lower end to receive the clamp-the bolt **23** on which it is mounted between the clamping members **17** and on which it turns freely until the clamping members **17** are pressed against it by tightening the clamping bolt nut **28**. The lower portion of the outer surface of the mast socket is preferably provided with flat clamp-engaging surfaces **29** surrounding and normal to the longitudinal axis of the clamping bolt **23** to provide better frictional engagement between the mast socket and the clamping members.

In a preferred modification, each clamping member **17** is in the forms of a substantially flat plate thickened somewhat along one edge, i. e., along its base **22**, to accommodate the bore for the hinge bolt **19** and is rounded at its opposite end to form an arc of about 180 degrees or somewhat less and having the hole through which the clamping bolt **23** extends at the center of the arc, the width of the member continuing to increase beyond the ends of the 180 degree arc as shown clearly in Figure 3. A projection on the flat, clamp-engaging face **29** of the mast socket **24**, conveniently a shoulder remaining when a part of the outer surface of the wall of the socket is cut away to form the flat face **29**, is spaced at a sufficient distance from the clamping bolt bore in the socket to clear the arced outer end of the clamping member **17** as the socket member is rotated on the clamping bolt, but so that it engages the sloping edge **33** of the

clamping member near the end of the 180 degree section of arc. In this way the rotation of the mast socket **24** about the clamping bolt **23** is limited to about 180 degrees, or about 90 degrees in either direction from a position wherein its longitudinal axis is perpendicular to a plane containing the longitudinal axes of the two hinge bolts **19**. This is often convenient in mounting a mast because the mast can be secured in the mast socket while in a horizontal position and then elevated into an upright position. At the same time the mast is not so likely to become damaged by being laid directly on the roof or other surface on which it is to be mounted.

The bore, **34** of Figure 2, of the mast socket is preferably formed with a downwardly decreasing diameter immediately above the clamping bolt **23** to provide for the automatic centering of masts of different diameters and also to prevent entry of the mast too far into the socket. The bore **34** also preferably extends clear through the mast socket member **24** and is open at its lower end to provide for drainage of water which may enter the upper end of the bore around the mast **25**.

I claim:

1. In a mast mounting device, the combination including: a pair of separate base plates each adapted to be secured to a surface; a pair of substantially flat socket clamping members each hinged at its base along one edge of the base plates; a generally tubular mast socket adapted at one end to receive an end of a mast and positioned with its other end between the two clamping members; a clamping bolt extending through the two clamping members and transversely through the mast socket therebetween; and a clamping bolt nut threadably engaging an end of the clamping bolt, the clamping members being adapted to frictionally engage the outer surface of the mast socket and prevent its rotation about the clamping bolt when the clamping bolt nut is tightened.

2. A combination as claimed in claim 1 including means to prevent the rotation of the mast socket about the clamping bolt through an angle greater than about 180 degrees when the clamping bolt nut is loosened.

3. A combination as claimed in claim 1 wherein the tubular mast socket is contoured on its outer surface to provide a pair of flat faces for frictionally engaging the socket clamping members.

4. A combination as claimed in claim 1 including means for centering a mast received by the mast socket.

5. A combination as claimed in claim 1 wherein the central bore of the mast socket is of downwardly decreasing diameter over a section removed from its mast-receiving end to a center and prevent the further entry into the socket of a mast received thereby.

6. In a mast-mounting device, the combination including: a pair of separate base plates each adapted to be secured to a surface; a pair of socket clamping members having opposed substantially flat surfaces, each member being hinged at its base along an edge of one of the base plates; a generally tubular mast socket adapted at one of its ends to receive an end of a mast and at its other end to engage in flat surface contact the opposing faces of the two clamping members; and clamping means to clamp the mast socket between the two socket-clamping members adapted, when tightened, to prevent movement of the mast socket and the two socket-clamping members with respect to one another and, when loosened, to permit relative independent rotation thereof about a common axis.

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