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ANTENNA MOUNTING BASE

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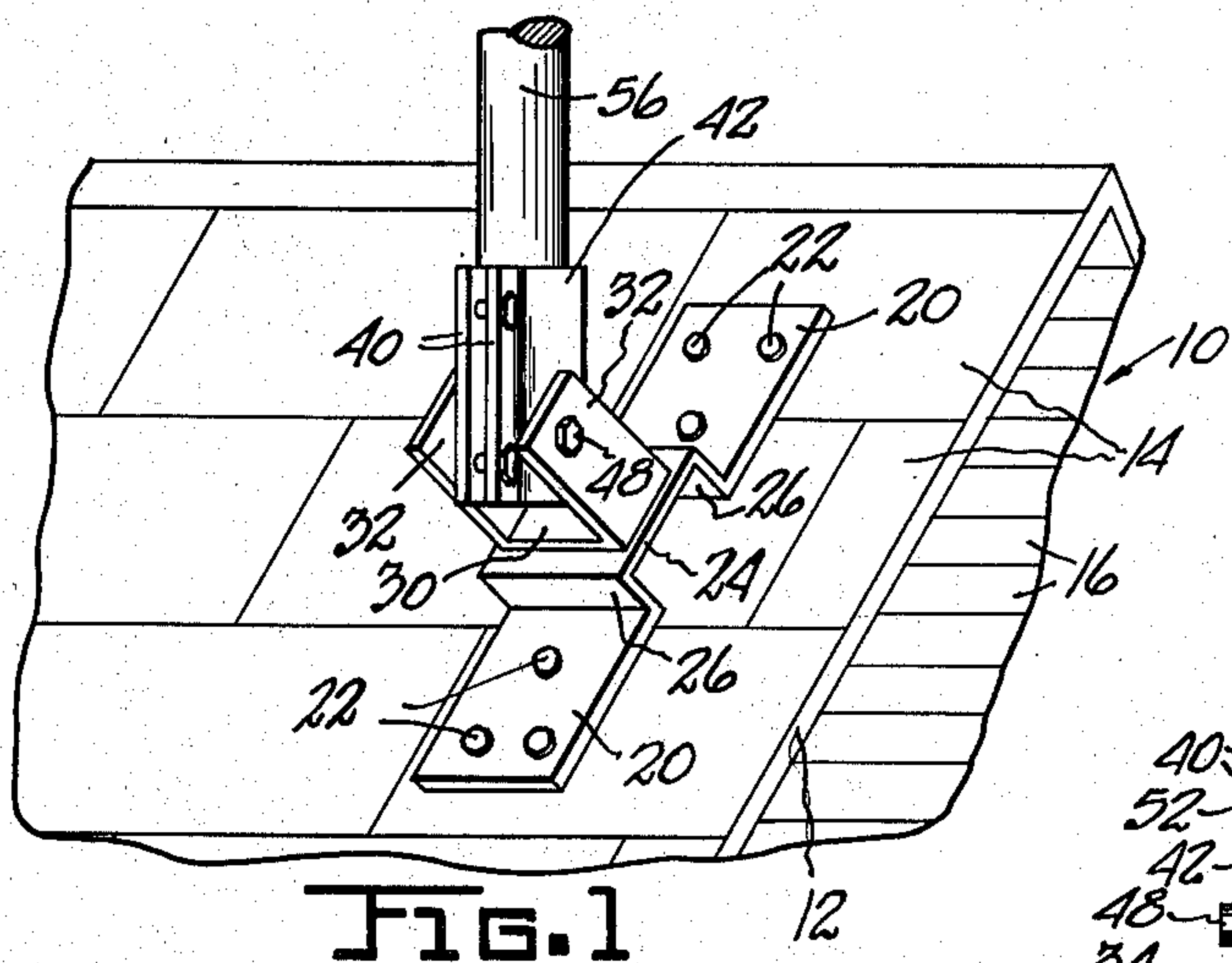


FIG. 1

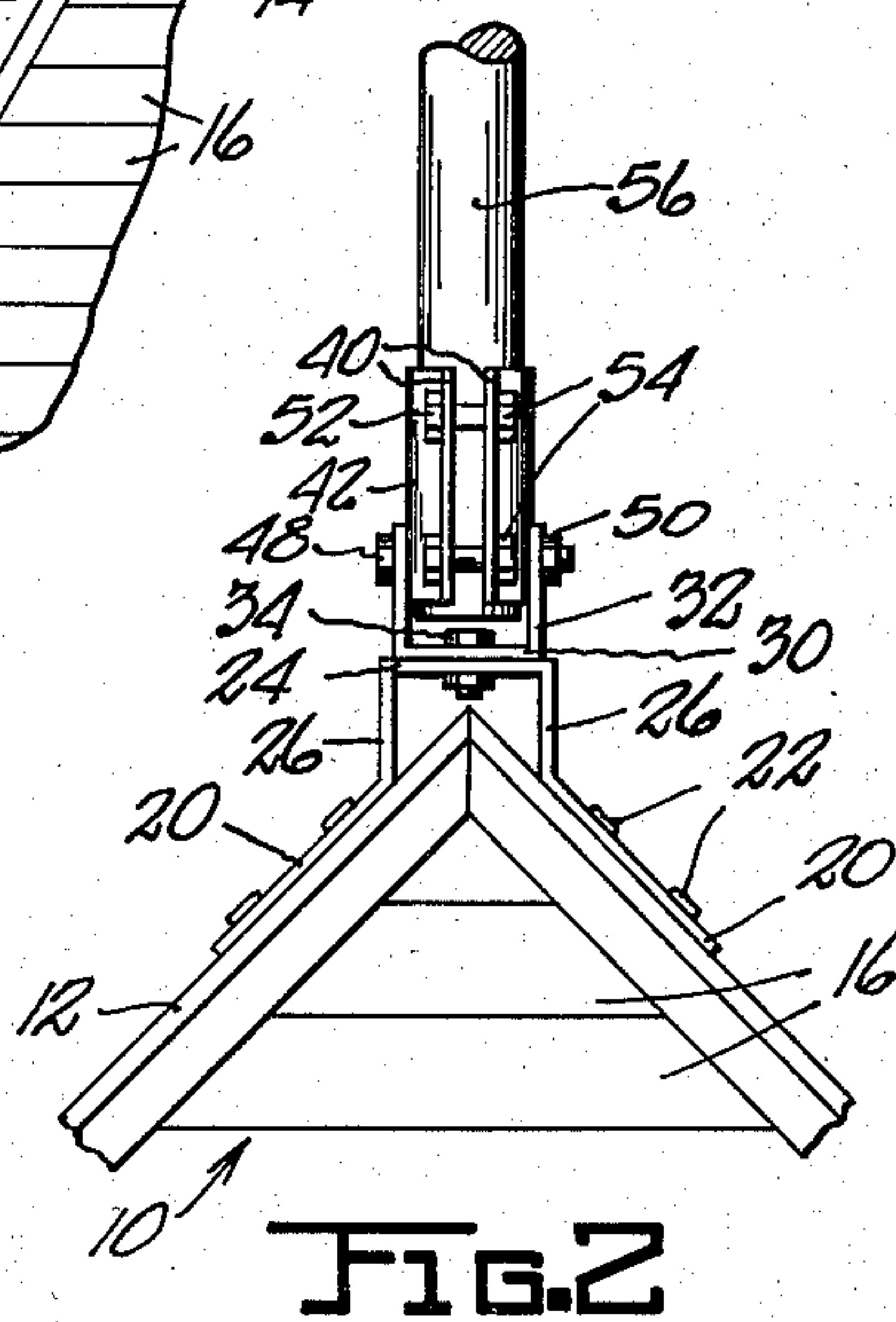


FIG. 2

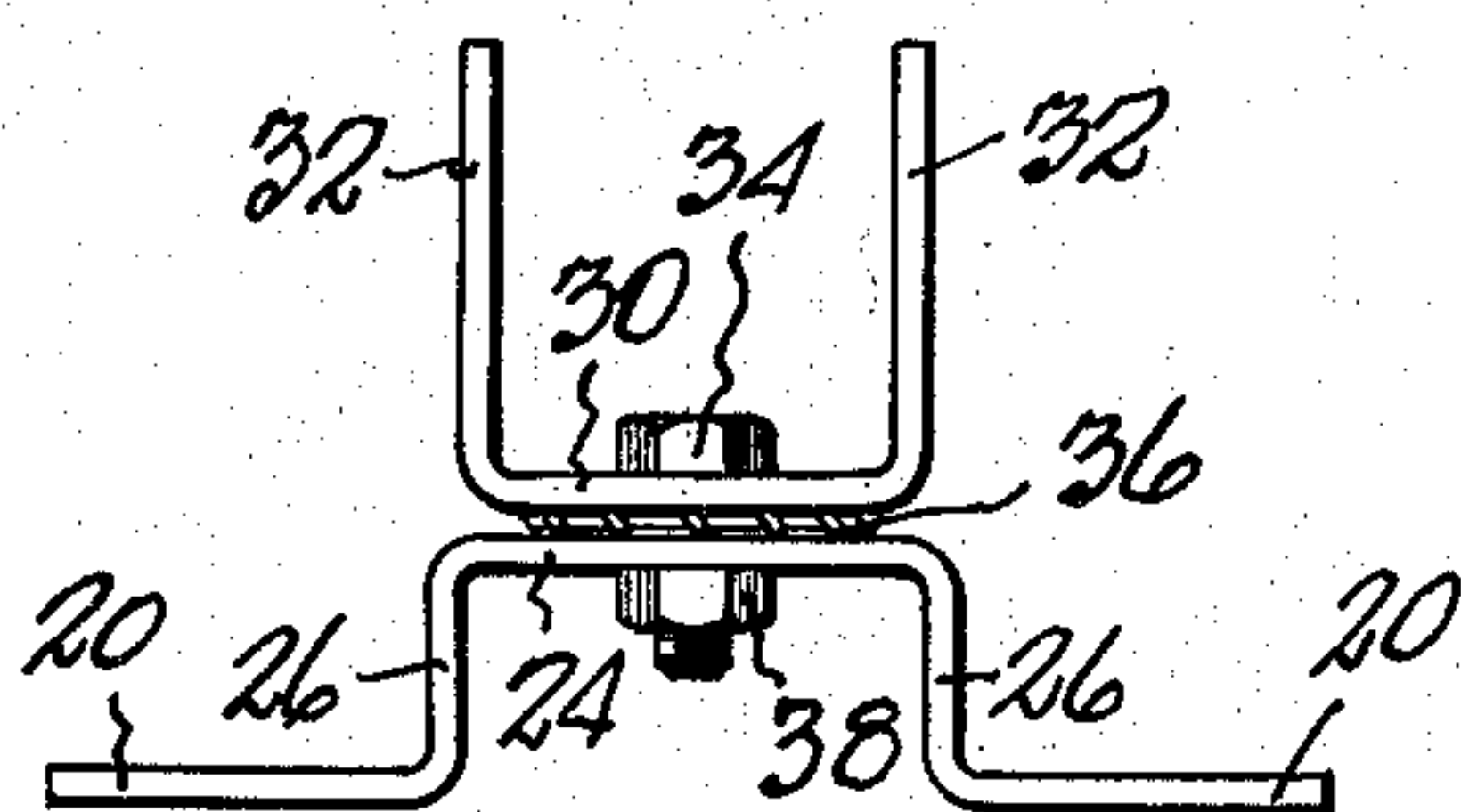


FIG. 4

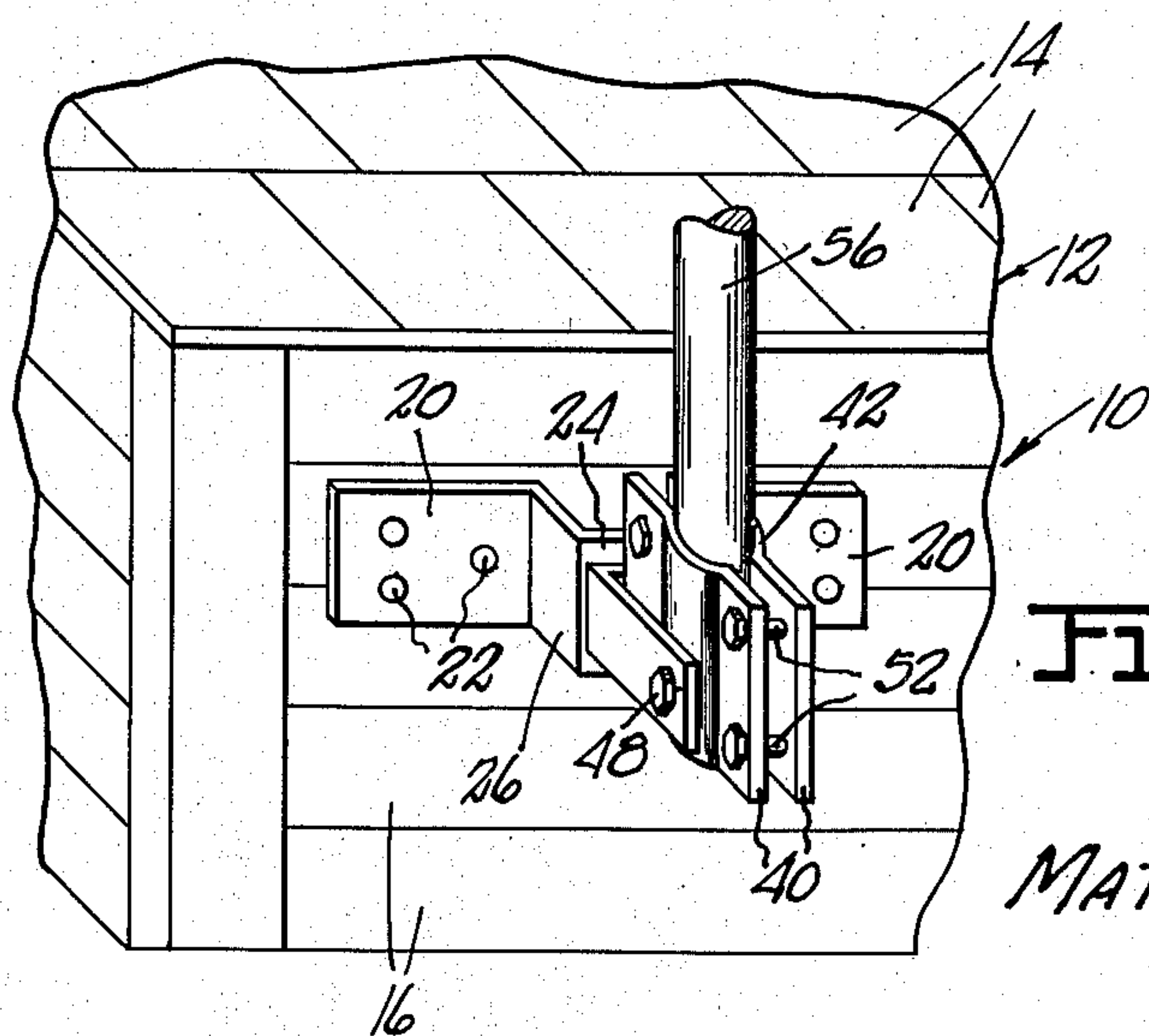


FIG. 3

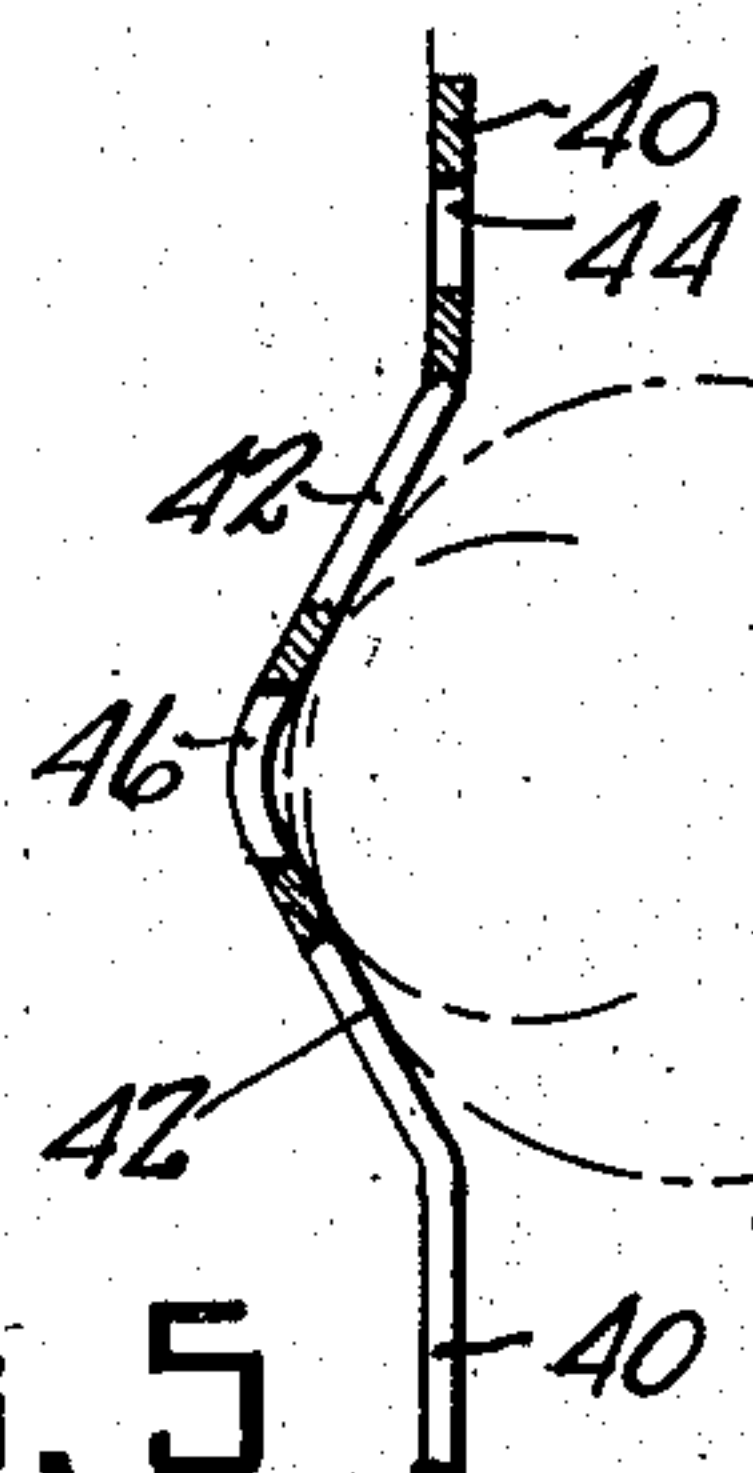


FIG. 5

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ANTENNA MOUNTING BASE

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1 Claim. (Cl. 248-43)

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This invention relates to improvements in antenna mounting bases, and particularly to bases for mounting the antenna members for use with radio and television receivers.

The mounting of an antenna for a radio or a television receiver commonly presents substantial problems, particularly insofar as the provision of a base which can be used as a standard to accommodate the requirements of different locations of different structures is concerned. Thus it may be desirable in some instances to provide a base which will fit at the ridge of a roof, whereas in other instances it may be desirable to provide a base which will bear flat against an inclined roof or which will be susceptible of being secured to a substantially vertical surface, such as the side wall of a building or the side wall or top surface of a chimney.

The problems which are encountered in these various mountings result from the fact that the surface, such as a shingle roof may be irregular and several levels will have to be accommodated. In the roof ridge mounting it will be necessary to mount opposite parts of the base upon converging surfaces. In the side wall mounting, for example, upon wood siding, it is necessary to accommodate the inclination of the supporting surface relative to the vertical. Previous installations have commonly necessitated the use of a base, either custom built to meet the requirements of location or to provide a standard base with shims, blocks or other items cut to size and required shape on the job. Such operations in each instance are laborious and time consuming, detract from the desired appearance, have a slipshod or haphazard appearance and lack of stability of construction.

It is the primary object of this invention to provide a base for mounting an antenna which satisfactorily meets the problems aforementioned and the difficulties associated therewith.

A further object is to provide a device of this character which provides a universal action whereby the position of the antenna member may be controlled accurately, for example, may extend truly and vertically, regardless of the position of the surface or surfaces upon which the mounting base is secured.

Other objects will be apparent from the following specification.

In the drawing:

Fig. 1 is a perspective view illustrating the use of the invention in mounting an antenna upon an inclined roof member.

Fig. 2 is a fragmentary end view illustrating

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the manner in which the device serves to mount an antenna at the ridge or peak of a building roof.

Fig. 3 is a perspective view illustrating the manner in which the device serves to mount an antenna at the side wall of a building.

Fig. 4 is an enlarged fragmentary edge view of the device.

Fig. 5 is an edge view of one of the clamp members of the device.

Referring to the drawing which illustrates the preferred embodiment of the invention, the numeral 10 designates the side wall of a building having an inclined roof 12 covered by shingle members 14, the side wall 10 preferably being covered with lapped siding members 16.

My improved antenna mounting base comprises a rigid plate or sheet of metal which tends normally to retain its shape but which can be bent to desired form without requiring the use of special tools. I have found that sheet steel of 12 gauge or 13 gauge is particularly well suited for this usage, although it will be understood that the metal employed may be of other thickness or gauge. The base plate includes two flat substantially coplanar end portions 20, each of which is provided with a plurality of openings adapted to receive nails, screws or like securing means 22, by means of which the end portions 20 may be anchored to a support. The end portions 20 are spaced apart by an offset portion 24 preferably positioned in a plane substantially parallel to the end portions 20. The offset portion 24 is formed integrally with the portions 20, being joined thereto by integral portions 26 substantially perpendicular to the portions 20 and 24, although it will be understood that said portions 26 may extend at an angle or may be formed of any shape desired. It is desirable, however, that the portion 24 shall be substantially flat.

The U-shaped bracket having a central base portion 30 and spaced substantially parallel end portions or flanges 32 is secured to the offset portion 24 of the base. One form of connection between these parts is illustrated in Fig. 4 wherein the shank of a bolt 34 extends through registering openings in the centers of the offset 24 of the base plate and the base 30 of the U-bracket, respectively. Interposed between these parts may be a lock washer 36, and the parts are drawn tight and snug together and in firm engagement with the lock washer 36 by means of the nut 38 on the bolt. The purpose in this instance is to be able so to mount the U-bracket 30, 32 upon the base that said U-bracket will be held against

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rotation about the shank of the bolt 34 as an axis. The use of the lock washer 36 is illustrative only and any other conventional means may be employed to guard against loosening or rotation of the U-bracket on the base. Thus, instead of providing the lock washer with lugs which tend to bite into the metal of the parts 24, 30, the upper face of the part 24 and the bottom face of the part 30 may be coined, serrated or striated in a manner well understood in the art, so that when the surfaces are abutted in face engagement, they will resist turning, one relative to the other, as long as the bolt and nut 34, 38 position them in face engagement.

A pair of clamp members are carried by the bracket 30, 32, each of said clamp members preferably formed of sheet metal of substantially the same gauge and thickness mentioned above and being formed substantially as illustrated in Fig. 5 with flat substantially coplanar narrow marginal panels 40 at each of two opposite margins and with angularly disposed intermediate panel portions 42 which extend angularly to each other and preferably at an acute angle to each other and to the base or marginal portions 40. The marginal portions 40 each are provided with a plurality of apertures 44, and adjacent one end thereof each of the clamp plates is provided with an aperture 46 positioned centrally between or at the apex between the intermediate angularly disposed clamp portions 42. The apertures 46 are adapted to be aligned with apertures in the free ends of the flanges 32 of the U-bracket to receive a bolt 48 passing therethrough and securing the clamp members to the U-bracket. A nut 50 threaded on the bolt 48 is adapted to draw the assembly to a tight clamping position. Draw bolts 52 extend through the apertures 44 of the clamp plates and mount nuts 54 drawing the clamp plates together into position to grip and firmly secure an antenna shaft or rod 56.

Fig. 1 illustrates the mounting of the base upon the roof of a building flat against the shingles 14 which, in the usually overlapping relation in which shingles are applied in a roof, commonly entails the positioning of the plate portions 20 in different planes. That is, one plate portion will lie flat against one or more shingles in one course, and the other panel portion 20 will lie flat against one or more shingles in a different shingle course. Alternatively, the requirements of position may be such as to necessitate each of the opposite end portions 20 of the base to engage shingles in two different courses as illustrated in Fig. 1. In each case there is lacking a flat surface against which both portions 20 may bear so as to lie in the same plane. The instant construction is such that when nails 22 are driven into the holes in the portions 20, the act of hammering those nails will cause the plate portions 20 to orient themselves to the supporting surface upon which they bear. Thus by the time three or more nails are applied through the nail-receiving apertures in each end portion 20, each end portion will be firmly anchored in place and will have reshaped or repositioned itself to accord with the contour of the surface engaged thereby, so that firm anchorage of the base plate upon the roof will be afforded.

The mounting base with its constituent parts, namely the base plate, the U-bracket and the clamp members, are preferably preassembled as a unit before being mounted upon the building and also, if desired, may have mounted or secured therewith the antenna rod 56 with or without the

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remaining antenna assembly. The roof side mounting of the bracket is such that the flanges 32 of the U-bracket will extend upwardly, laterally and outwardly at an inclination, as illustrated. This makes it necessary to position the U-bracket so that its flanges 32 lie in vertical planes and so that the cross-bolt 48 for connecting the clamp plates 40, 42 thereto shall be positioned horizontally. The bolt and nut 34, 38 are tightened after the U-bracket is so positioned to an extent sufficient to insure against rotation of the U-bracket upon the base plate. After the antenna rod or standard 56 is clamped fixedly to the clamp plates 40, 42 by the draw bolt units 52, 54, the cross-bolt 48, 50 may be tightened.

In the usual construction, the cross-bolt 48 is not relied upon entirely for positioning of the clamp plates 40, 42 and the antenna standard in desired upright position. Instead, the cross-bolt is relied upon primarily to hold the clamp plates to the remainder of the mounting base unit and, particularly, to the U-bracket 30, 32. Guy wires (not shown) are commonly provided upon the upright or standard 56 of the antenna, and reliance is placed primarily upon these guy wires to maintain the antenna in the desired upright position.

Fig. 2 illustrates the manner in which this mounting can be employed to secure the antenna standard at the ridge of a roof, and it will be observed in this case that the end portions 20 of the base plate bear flat against the converging surfaces of the roof at opposite sides of the ridge. In other words, the base unit is reshaped so that the end portions 20 lie in converging planes. This bending can be accomplished manually on the job to rough approximation of the bend required to provide a firm anchorage against the roofing shingles at the point of mounting, and then can be supplemented by the further bending which can be accomplished as the nails employed to anchor the mounting base are driven home. In the mounting as illustrated in Fig. 2, the care in the positioning of the U-bracket against rotation relative to the base that is required in the mounting shown in Fig. 1, is not required, and all that is necessary is connection of the various parts with a sufficiently firm joint by the use of the connecting bolts to insure against separation of the parts.

The Fig. 3 mounting, wherein the bracket is secured to the side wall of a building, for example, in face engagement with one or more lapped siding members 16, entails substantially the same problems as the Fig. 1 mounting. In this instance the anchorage of the end portions 20 on the base plate by nails or screws may be accompanied by reshaping or bending of the base plate to compensate or accommodate a shape which insures a full and firm engagement with the supporting surface. In this construction it is necessary to hold the U-bracket against rotation with the flanges 32 thereof in substantially vertical planes, and for this purpose the nut and bolt 34, 38 connecting those parts must be drawn firmly, and usage of a lock washer or other rotation-preventing means must be relied upon. In all other respects the problems of installation in Fig. 3 correspond to the problems in the installation in each of the other usages of the invention as here illustrated.

One of the advantages of the construction is that the device may accommodate antenna rods or standards 56 of different dimensions. Thus antenna parts commonly vary in size from a

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cross-sectional dimension of one inch to cross-sectional dimensions of two inches or more. The V-shape of the parts 42 accommodates the clamping of both large and small diameter members thereby. The clamping action being secured between the opposed plate units 40, 42 by the use of the draw bolts 52, 54, is entirely independent of the anchorage of that clamp unit to the remainder of the base, which latter connection is effected by the cross-bolt 48, 50. Thus the fact that the clamp plates 40, 42 are drawn inwardly to a position as required to grip an upright of small diameter or small cross-section does not detract from the connection or anchorage of those clamp parts to the U-brackets, since the cross-bolt 48 performs its same function in that relation of the parts as it does in relation of the parts where an upright of larger section is gripped or clamped. Also, it will be apparent that clearances and freedom for lateral play between the clamp members, which grip a thin or small section upright, and the U-bracket which supports those clamp members, is not detrimental because of the fact that the upright 56 is positioned primarily by the guy wires previously mentioned.

While the preferred embodiment of the invention has been illustrated and described herein, it will be understood that changes in the construction may be made within the scope of the appended claim without departing from the spirit of the invention.

I claim:

An antenna mast mounting base for supporting the mast in a vertical position and comprising a rigid sheet metal base plate having substantially flat and substantially coplanar end portions of substantial area and each having a plurality of apertures therein spaced longitudinally and transversely thereof and an intermediate substantially flat off-set portion having an aperture substantially centrally thereof, a U-shaped rigid sheet metal bracket having an apertured base portion and spaced flange portions, means received in said apertures for fixedly securing said

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bracket base portion to said off-set base plate portion, a pair of rigid sheet metal V-shaped plates having apertured opposite marginal portions and each having a central aperture adjacent one end, the lower end of said mast being disposed between said V-shaped plates, a cross bolt carried by the flange portions of said bracket and extending through said central clamp plate apertures, draw bolts connecting the marginal portions of said clamp plates on opposite sides of the mast, and friction means associated with said base plate off-set portion and with the base portion of said bracket for restraining said bracket against rotation on said base plate, the end portions only of said base plate being adapted to be reoriented to positions in different planes for face engagement with spaced portions of an irregular building surface, and the spacing between the plane of the opposite marginal portions of each V-shaped plate and the apex of said U-shaped bracket being less than one-half the spacing between opposed flanged portions of said U-shaped bracket.

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