

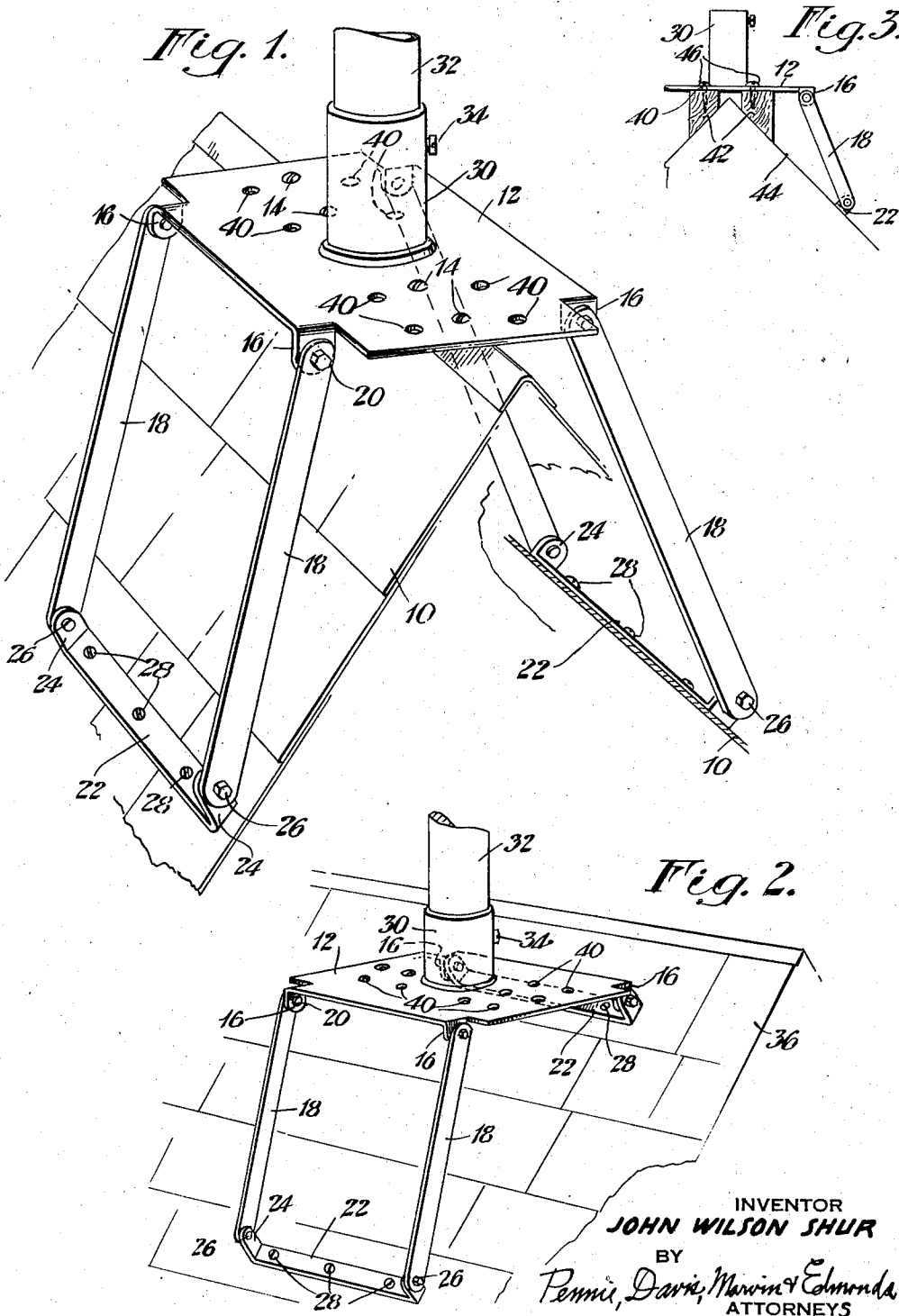
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ANTENNA MOUNTING BRACKET

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ANTENNA MOUNTING BRACKET

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My invention relates to improvements in brackets for mounting antenna masts and more particularly to an improved roof bracket which may be used for mounting radio antennas for receiving or sending apparatus.

This application is a continuation-in-part of my pending application Serial No. 568,319, filed December 15, 1944, for "Antenna mounting," and the present invention is an improvement on the antenna mounting construction described and claimed in said application.

The antenna mounting disclosed in said application comprises a metal platform adapted to be mounted in a horizontal position on a suitable support preferably on the ridge of a roof. The mounting includes a vertical member, for holding an antenna mast, such as a pipe or tubular member attached to the upper surface of the platform, and braces attached to opposite edges of the platform by a pivoted connection, and adapted to be attached to the sloping sides of the roof, regardless of the angle, to hold the platform in horizontal position. In a particular form of the mounting, the braces are relatively long links hinged to two diagonally opposite corners of the platform and each brace is provided with a hinged leaf or plate for securing the end of the brace to any surface, such as the sloping surface of a roof.

The primary object of the present invention is to provide an improved antenna mounting bracket which involves certain of the principles of construction of the antenna mounting bracket of said application but which is somewhat more sturdy.

A further object of the invention is to provide an improved antenna mast-mounting bracket-construction which is particularly adapted for easy manufacture and for mass production procedure.

According to the present invention, the improved antenna mounting bracket comprises a substantially rectangular-shaped metal platform adapted to be mounted in a horizontal position on a supporting structure such for example as the ridge or peak of a roof which will take the weight of the antenna directly, the platform being mounted with two opposite sides substantially parallel to the ridge of the roof with the platform projecting over both sloping roof surfaces. The bracket includes a link or arm attached by a pivoted connection to each corner of the platform, the links on each side of the ridge extending down to the sloping surface of the roof, and the pair of links on each side of the ridge being

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attached by pivoted connections to a flanged cross bar, which is adapted to be attached to the sloping surface of the roof and employed as an anchoring means for the links and the platform. The structure includes a means attached to the central portion of the platform, such as a vertical pipe for holding an antenna mast.

One of the problems involved in providing special types of antenna for television and frequency modulation reception is the provisions of suitable means for mounting the antenna mast upon an elevated structure such as a roof structure. Various types of brackets have been proposed for mounting masts, but so far as known no one has attempted to market a versatile mounting construction which is easy to manufacture, which is of sturdy construction and which can be conveniently installed on existing building structures so that the weight is supported directly.

The improved antenna mounting bracket of the present invention meets the problems referred to and includes other advantages and features which will be apparent to those skilled in the art from the following more detailed description taken in connection with the accompanying drawings forming a part of this application.

In the drawings:

Fig. 1 is a perspective view showing the improved bracket mounted symmetrically upon the ridge of a roof.

Fig. 2 is a perspective view showing the improved antenna mounting bracket attached to the sloping side of a roof.

Fig. 3 is a broken end view in elevation illustrating a variation in the erection of the improved bracket.

Referring to Fig. 1 of the drawings, the improved antenna mounting bracket of the present invention is illustrated in connection with its mounting on the ridge of a roof 10. The bracket comprises a rectangular-shaped platform 12 which is attached to the ridge of the roof by screws 14, or other suitable means for initially positioning the platform on the ridge so that the weight of the antenna will be carried directly by the ridge. The platform 12 is preferably made of about one-quarter inch steel or other suitable metal which will provide a relatively rigid platform member. The platform 12 may be formed by starting with a square or oblong shaped metal plate and cutting and bending the corners, as shown, to provide a depending lug or flange 16 at each corner. These lugs are preferably at right angles to the surface of the plat-

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form and are drilled to provide holes for receiving bolts, rivets or pins.

The platform 12 is preferably mounted on the ridge of the roof with the two opposite sides parallel to the ridge, as shown, these sides each having a pair of depending flanges or lugs 16 which are parallel to each other and in planes at right angles to the ridge of the roof. A relatively long link or flat bar 18, having a hole near each end is attached by means of a bolt 20 to the outside of each of the lugs 16, to provide a swinging pivot joint. These bars extend downwardly to the sloping surface of the roof to provide a pair of bars on each side of the ridge. The projecting ends of each pair of bars are attached by a pivot joint to a cross bar or plate 22 provided with flanges or lugs 24 which are similar to lugs 16. The links or bars 18 are attached to the outside of the lugs 24 by means of bolts or pins 26, the lugs 24 on each bar 22 preferably being spaced the same as the opposite lugs 16.

In mounting the platform 12 on the ridge of a roof the screws 14 are preferably first inserted to initially anchor the platform to the ridge with the links 18 and cross bars 22 extending onto the respective sides of the roof. The platform is then leveled crosswise of the ridge and the cross bars 22 are then secured flat side down to the sloping sides of the roof 10 by means of screws 28 or other suitable attaching means. It will be noted that the pairs of links or bars 18 on each side of the roof pivot freely on the lugs 16 and that the cross bars 22 also pivot or rotate freely with respect to the links 18. The cross bars lie flat on the roof and are readily secured thereto, preferably under a slight tension, so as to hold the platform 12 rigidly upon the roof.

According to a preferred form of the invention, the platform is provided with a means for holding an antenna mast comprising a vertical section of pipe 30 which is welded or otherwise attached to the center of the platform 12, and which may extend substantially above the platform and receive an antenna mast 32. A set screw 34 is provided for retaining and anchoring the mast in the pipe 30.

The links 18 and cross bars 22 may be made of the same metal as the platform 12 and of substantially the same thickness, so as to provide a sturdy mounting. A relatively large platform is provided so that the sections extending along the ridge of the roof each side of the mast holder 30 aid in preventing the tipping of the mast in connection with the arms 18 which are mounted at the corners of the platform. The platform is also preferably relatively wide so that it extends over a substantial part of the sloping sides of the roof to provide a sturdy anchoring base for the attachment of the links or arms 18 which preferably are relatively long and extend a considerable distance down the slope of the roof. The angle between the platform and arms is preferably greater than 90°. This angle of course will vary somewhat, depending upon the slope of the roof. The cross bars or plates 22 will always lie flat on the roof parallel to the ridge, and if desired, they may be attached to wooden cross pieces which in turn are attached to two adjacent rafters of the roof.

In Fig. 2, the improved mounting bracket is illustrated in connection with its use on the side of a sloping roof 36. In this instance, one pair of the links 18 are omitted, and the cross bar 22 for that side is attached to the lugs 16 in place of the links. It will be noted that the flanges

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24 on each cross bar 22 has the same spacing as the opposite flanges or lugs 16 and that in Fig. 2 the upper cross bar 22 is attached to the lugs 16 by an overlap on the same side of each lug 16.

In mounting the bracket on the sloping side of the roof 36, in Fig. 2, the upper cross bar 22 is first attached to the roof by means of the screws 28 in substantially a horizontal position or so that the adjacent edge of the platform is level, after which the platform 12 is leveled off and the lower cross bar 22 then fastened to the roof. It will be noted that in each instance, the cross bars 22 in Fig. 2, lie flat on the same side of the roof and parallel to each other.

The platform 12 of the mounting bracket shown in Figs. 1 and 2 includes sets of holes 40 in addition to the holes for applying the screws 14. These holes 40 are positioned in a row each side of the center line of the platform 12 and are employed in the manner shown in Fig. 3 of the drawings to attach a pair of spaced wooden blocks or other members 42 to the under side of the platform parallel to the ridge of a roof 44. The use of the blocks 42 may be advantageous in certain cases where the ridge of the roof may be unsuited for the use of the screws 14. In Fig. 3 the bracket is shown as mounted on the roof 44 with the blocks 42 mounted symmetrically under the platform 12 and secured thereto by means of screws 46. The blocks 42 may be shaped in the manner shown so that a flat surface engages the under side of the platform while a sloping surface may be provided for engaging the sloping roof. In this illustration the blocks 42 will serve as a bearing for carrying the weight of the platform and the antenna mast while the links 18 and cross bars 22 are attached to the roof in the manner described above to anchor the platform in a level position. The blocks 42 extend the full length of the platform 12 and may have their lower side shaped to fit a particular roof. However, a standard shaped block may be employed, as for example, a half round wooden block in which the flat surface would be secured to the under side of the platform while the round surface would engage the roof. Where the ridge of the roof is constructed favorably, the blocks 42 may be first attached to the roof and afterwards have the platform 12 attached thereto as by screws 46.

The improved antenna mounting bracket of the present invention may be mounted in other ways than those illustrated, as will occur to persons skilled in the art. The drawings illustrate the facility of the bracket and the fact that it is readily installed on most any roof or other object where it may be desired to mount an antenna. Furthermore, a permanent and rigid mounting is provided which is easy to keep in proper condition and which is adapted to support and orient a complex antenna such as the dipole type used in connection with the transmission and reception of television and frequency modulation signals. Any antenna mast, if not round, may be readily trimmed to fit the pipe 30 or be bored to fit over the pipe. A different form of mast holder may be welded or otherwise attached to the platform 12. A pipe mast may fit either on the inside or on the outside of the pipe section 30.

The platform 12, as an example, may be from eight to twelve inches long, in the direction of the ridge, and from six to ten inches wide across the ridge, and in fact may be square if desired. The links or bars 18 may be from about five to ten inches long. While the platform is pref-

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erably formed in the manner shown with the integral lugs, suitable pivot connections other than the flanges 16 may be provided at the corners of the platform. The entire bracket is preferably made of a weather resisting steel, or steel alloy, or it may be made of duraluminum, aluminum, bronz, cast iron, and it may be plated, galvanized or painted.

The antenna mounting bracket of the present invention is relatively easy to manufacture since the platform is of simple construction and all of the links 18 are of the same size and shape, being nearly flat bars or plates, while the cross bars 22 are of the same stock and easily formed. In fact the arrangement may be such that the cross bars 22 are the same length as the bars or links 18 but are formed by bending the flanges 24 and drilling holes for the screws 28. The various changes and modifications indicated are contemplated as coming within the spirit and scope of the invention, as defined by the appended claims.

What I claim as new is:

1. An antenna mounting bracket for supporting an antenna mast on the roofs of buildings and other structures, comprising a substantially rectangular-shaped horizontal heavy metal platform of substantial area, an upright member attached to the central portion of the upper surface of the platform for holding an antenna mast, a brace arm hinged to each of the four corners of the platform, a pair of said arms being adapted to extend as an anchoring means for each of two sides of said platform, and a plate pivoted to the extending ends of each pair of arms for attaching the bracket to the sloping surface of a roof or other structure.

2. An antenna mounting bracket adapted to support an antenna mast on the ridge of a building roof, comprising a heavy metal substantially rectangular-shaped metal platform adapted to rest horizontally on the ridge of a roof with opposite sides of the platform substantially parallel to the ridge of the roof and extending substantially on each side thereof, said opposite sides projecting substantially the same distance over the opposite sloping sides of the roof, an upright mast holding member attached to and extending from the upper surface of the platform, a relatively long metal link hinged to each corner of the platform and extending down to the sloping side of the roof, an attachment plate extending between the projecting ends of the pair of links on each side of the ridge of the roof and having an end hinged to each of said pair of links, the attachment plate on each side of the roof being adapted to be attached in a flat position on the sloping roof surface and thereby hold the platform in horizontal position.

3. A mounting bracket for antenna masts comprising a heavy metal platform member of substantially rectangular shape and of relatively large area, an upright mast holding member attached to the central portion of a surface of said platform member, a lug projecting from each corner of said platform in a direction opposite to that of said mast holding member, a relatively long link hinged to each of the two lugs on at least one edge of the platform by an end hinge connection, said links being adapted to be pivoted by said connections through a wide arc but only in planes substantially parallel to each other which are substantially perpendicular to the plane of said platform member, the projecting ends of the said links being connected by a cross-plate having right angle end lugs which

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are respectively pivoted to the respective projecting ends of the links.

4. In an antenna mounting bracket for mounting antenna masts on roofs, a rigid substantially rectangular shaped metal platform member, an upright mast holding member attached to the central portion of the surface of said platform member, an integral right angle lug at each corner of the platform for pivoting an anchoring member thereto, a cross bar anchoring member pivoted directly to a pair of the lugs on an edge of said platform, and an anchoring means including a pair of relatively long links pivoted to the lugs on the opposite edge of the platform.

5. A mounting bracket for antenna masts as defined by claim 3 in which a link is hinged to each lug, and a cross plate connected by end pivot joints to the projecting ends of the links of the opposite pairs of links hinged to said platform.

6. In an antenna mounting bracket for mounting an antenna mast on the ridge of a building roof, comprising a relatively heavy metal substantially rectangular-shaped platform mounted on the ridge of the roof with opposite sides of the platform substantially parallel to the ridge of the roof, said opposite sides projecting a substantial distance and substantially the same distance over the opposite sloping sides of the roof, an upright mast holding member attached to and extending from the upper surface of the platform, a longitudinal block attached to the under side of the platform on each side of the ridge of the roof and parallel thereto, the blocks being arranged to bear directly on the sloping surface of the roof and to support the platform thereon with the opposite sides of the platform extending substantially beyond the blocks, a relatively long link member pivoted to each corner of the platform and extending down to the sloping surface of the roof, and means for attaching the lower end of each link to the roof thereby retaining the platform in a horizontal position.

7. An antenna mounting bracket adapted to support an antenna mast on the ridge of a building roof, comprising a substantially square heavy metal platform adapted to rest horizontal on the ridge of a roof with opposite sides of the platform extending a substantial distance over the sloping sides of the roof and substantially parallel to the ridge of the roof, said opposite sides extending substantially the same distance over the sloping sides of the roof, an upright mast holding member attached to and extending from the upper central surface of the platform, a relatively long metal link pivoted to each corner of the platform and extending down to the sloping side of the roof, an attachment plate extending between the projecting ends of the pair of links on each side of the ridge of the roof and having an end pivoted to each of said pair of links, and means for attaching the pivoted plate on each side of the ridge of the roof in a flat position on the sloping roof surface to thereby hold the platform in horizontal position.

8. In an antenna mounting bracket including a rectangular shaped heavy metal platform mounted in a horizontal position on a roof structure, an upright mast holding member attached to the upper central surface of said platform, a relatively long flat metal link attached to each of the corners of said platform by a pivoted end connection, a cross bar connected by end pivot connections to the opposite ends of the two links on each of two opposite edges of the platform,

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said cross bars being constructed and arranged so as to be attached to a sloping roof surface, and means for positioning the platform on the roof structure comprising a pair of spaced parallel blocks mounted under the platform parallel to said opposite edges and adapted to support the platform on the roof.

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