

- [54] **DUAL POLARIZED ANTENNA WITH TRIANGULAR WIRE REFLECTOR** 3,727,230 4/1973 Doi..... 343/819
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- [51] Int. Cl. **H01q 21/00**
- [58] Field of Search 343/727, 815, 817, 818, 343/819, 880

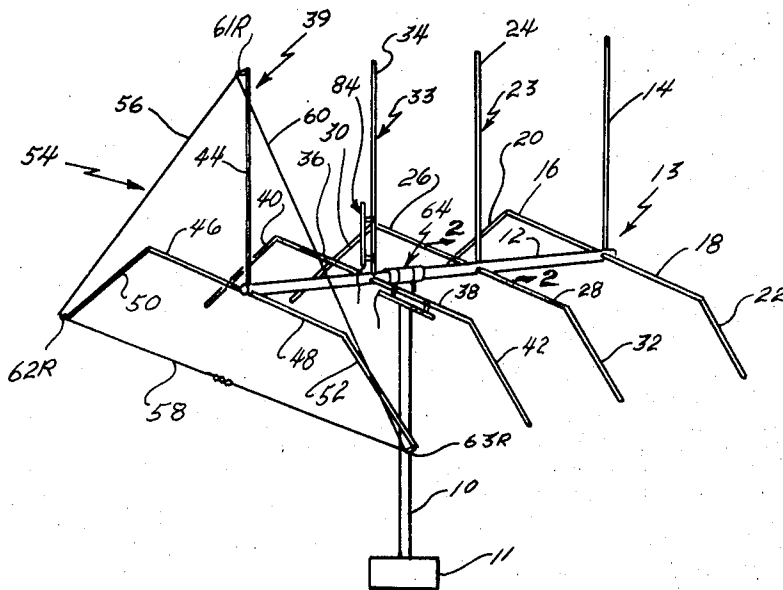
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- [56] **References Cited**
UNITED STATES PATENTS
- 2,982,959 5/1961 Hanneken..... 343/727

[57] **ABSTRACT**

A citizens band antenna has two or more units made up of horizontal, vertical and twin duty elements supported by a mast and a boom, at the rear of which is a triangular reflector connected at the rear of the antenna to the nearest array.

4 Claims, 4 Drawing Figures



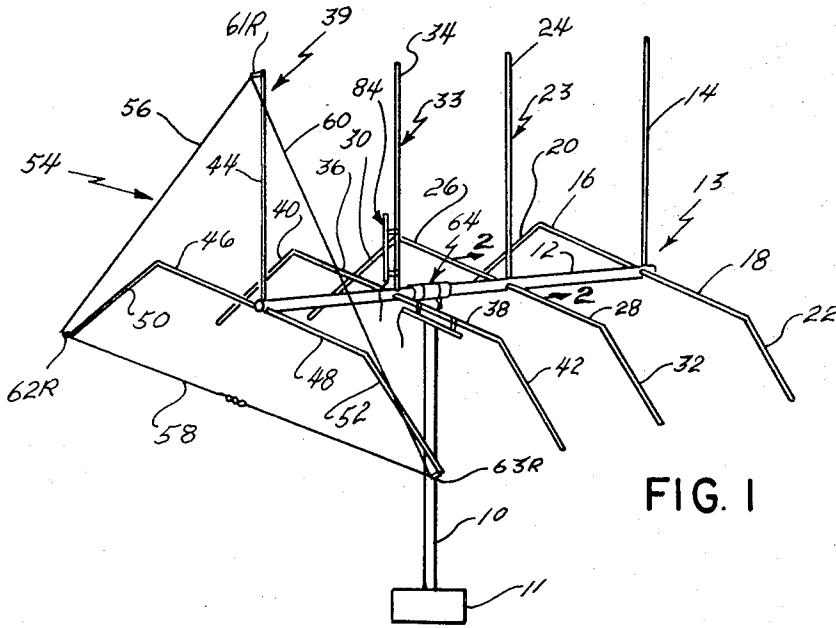


FIG. 1

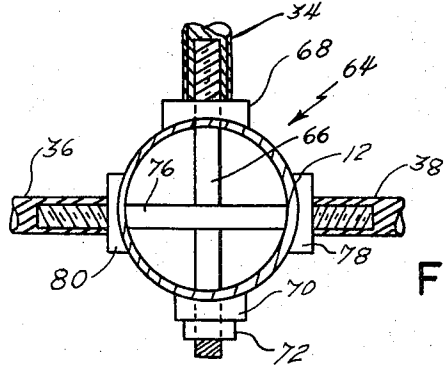


FIG. 2

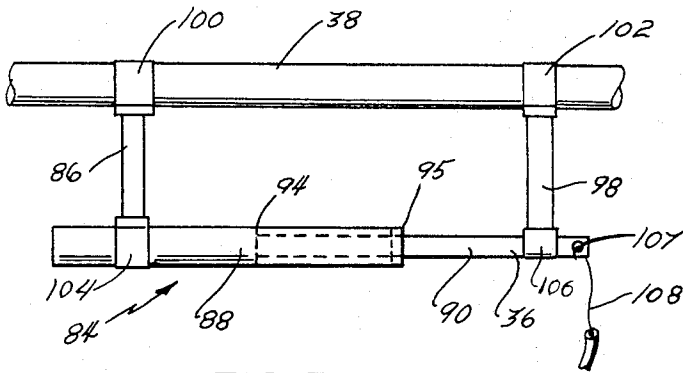


FIG. 3

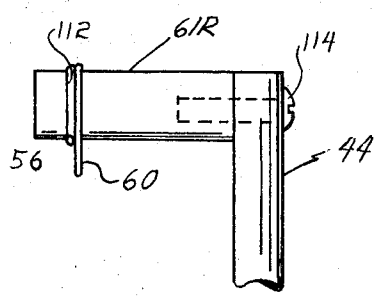


FIG. 4

DUAL POLARIZED ANTENNA WITH TRIANGULAR WIRE REFLECTOR

The principal object of my invention is to provide an improved reflector that can increase vertical, polarized signals if used in vertical mode, can increase horizontal, polarized signals if used in the horizontal mode, and effectively reject unwanted signals from the rear.

Another object is to provide such a reflector that requires a minimum amount of wire, is easy to install and occupies a minimum amount of space.

The foregoing and other objects, which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination, and arrangement of parts such as is disclosed by the drawing. The nature of the invention is such as to render it susceptible to various changes and modifications, and therefore, I am not to be limited to the construction disclosed by the drawing, nor to the particular parts described in the specification; but am entitled to all such changes therefrom as fall within the scope of my invention.

In the drawing:

FIG. 1 is a perspective view of my citizens band antenna.

FIG. 2 is a sectional view, enlarged, taken on the line 2-2 of FIG. 1.

FIG. 3 is a fragmentary view showing gamma rod apparatus, enlarged.

FIG. 4 is an enlarged, fragmentary, side elevational view showing the insulator connection made at a reflector corner.

As illustrated, my antenna has the usual supporting means with a mast 10 shown attached to the usual rotator 11, and on which a boom 12 is mounted which supports two or more units of elements or radials. One unit 13 has a vertical element or director 14, two horizontal elements 16 and 18 and two twin duty elements 20 and 22. Another unit 23 as shown, has a vertical element 24, two horizontal elements 26 and 28, and two twin duty elements 30 and 32.

Another unit 33, as shown, has a vertical or driven, element 34, two horizontal or driven, elements 36 and 38, and two twin duty elements, 40 and 42. A fourth unit 39, as shown, has a vertical element or reflector, 44, two horizontal elements 46 and 48, and two twin duty elements 50 and 52. The number of said units to be used depends upon the results desired, and upon conditions prevailing such as the space available, at least two being needed.

A vertical array has a driven element such as 34, a reflector such as 44 and a director such as 14 or 24. A horizontal array has a like number of elements such as a driven element 38, a reflector such as 48, and a director such as 18 or 28.

All twin duty elements as shown, extend diagonally downward from the adjoining horizontal elements, preferably extending at an obtuse angle thereto, such as 135° therefrom.

At the rear of my antenna, I provide a supplemental triangular reflector 54 preferably formed of a single wire having three portions or members 56, 58 and 60, which reflector is connected to a rear unit shown as at 39, at or adjacent the extremities of vertical and twin duty elements of said unit 39. As shown, the peak point of said reflector 54 is connected by an insulator 61R to a said vertical element 44 at its upper end and to said wire members 56 and 60. Also said wire member 56 is

connected at its lower end by an insulator 62R as is wire member 58. Said wire member 58 is connected to the lower end of said wire member 60 by an insulator 63R.

In said FIG. 4 I show one of said insulators in detail, using 61R as an example. Each has a groove 112 extending completely around it. A screw 114 extends through a said element such as 44, for instance, and into a said insulator such as 61R. Said wire members 56 and 60 are shown connected to insulator 61R by looping the wire in said groove 112 and around the latter. Such a connection is made at each insulator.

Said units have the usual boom connector means such as 64, as shown in said FIG. 2 for example, which shows how said horizontal and vertical elements in each array are attached to said boom 12. A vertical stud 66 extends through a curved lock washer 68 and into a said vertical element such as 34 with which it screw-threadedly connects. Said stud 66 passes through said boom and another washer 70, being held by a nut 72 that bears against said boom. A horizontal stud 76 extends horizontally through and beyond said boom 12, respectively passing through, at opposite ends, washers 78 and 80 and screw-threadedly connecting with two of said horizontal or driven elements such as 36 and 38 as shown.

Said units have the usual gamma rod apparatus, such as 84, for instance, one being shown in said FIG. 3. A conductive strap 86 is attached to a said horizontal element such as 38, for instance, and connects with a gamma rod 88. The latter connects with another gamma rod 90 and there are the usual insulators 94 and 95 on said gamma rods 88 and 90. Said gamma rod 90 connects with an insulated strap 98 which connects with said horizontal or driven element shown as 38.

A clamp 100 holds said conducting strap 86 to said element 38 and to said gamma rod 88, and likewise a clamp 102 holds said gamma rod 90 to said insulating strap 98 and to said element 38. A clamp 104 holds said strap 86 to said rod 88, and a clamp 106 holds said strap 98 to said gamma rod 90. A hole 107 at the boom end of said rod 90 receives a coaxial electrical cable 108.

Each said reflector member 56, 58 and 60 may measure 13½ feet, for instance, although that is given by way of example, as these members may be of various lengths. Only one length of wire is used to provide said three members; but they could be three separate wires.

What is claimed is:

1. A citizens band antenna comprising supporting means, a vertical array having a driven element, a reflector and at least one director mounted on said supporting means, a horizontal array having a like number of elements extending from the points of connection of the vertical array at said supporting means, and a supplemental triangular wire reflector connected to said array vertical reflector to support same and augment reflector efficiency.

2. A citizens band antenna as of claim 1, said horizontal array holding at least one twin duty element slanting diagonally outward and downward from opposite points of a said driven element.

3. A citizens band antenna as of claim 2, said slanting element slanting at an obtuse angle from an adjoining point of said driven element.

4. A citizens band as of claim 1, said supplemental reflector being formed of a single length of wire.

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