

Nov. 24, 1964

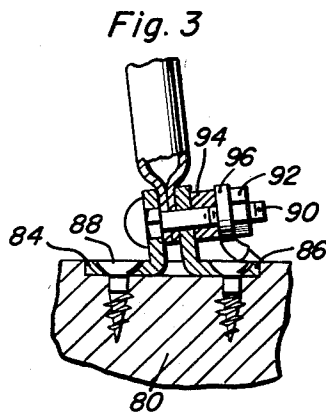
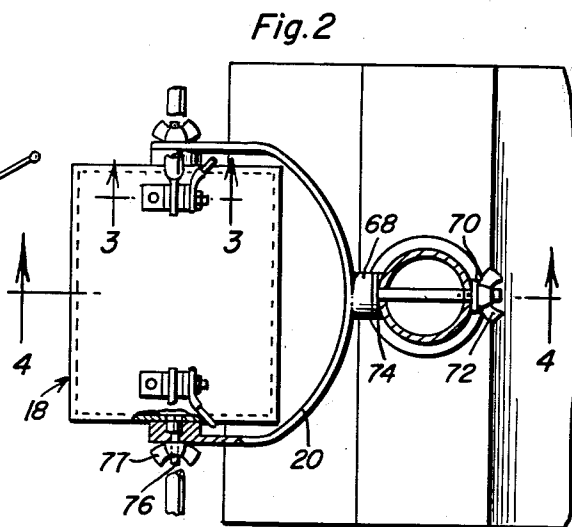
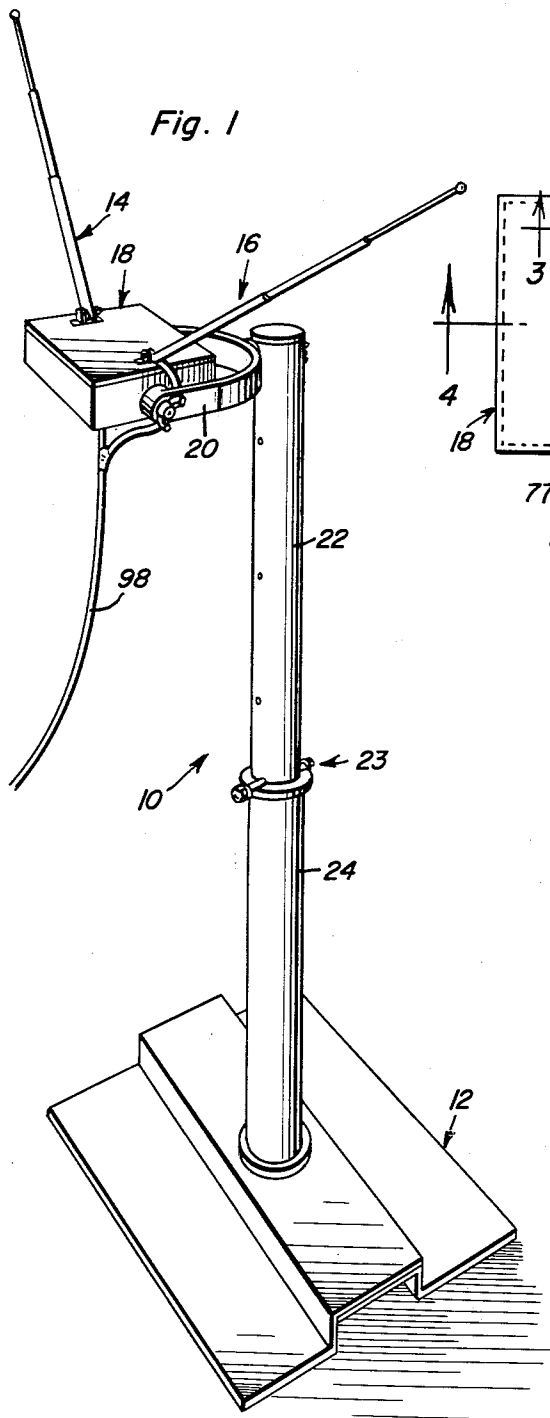
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3,158,866

UNIVERSALLY ADJUSTABLE ANTENNA SUPPORT

Filed March 28, 1962

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig 4

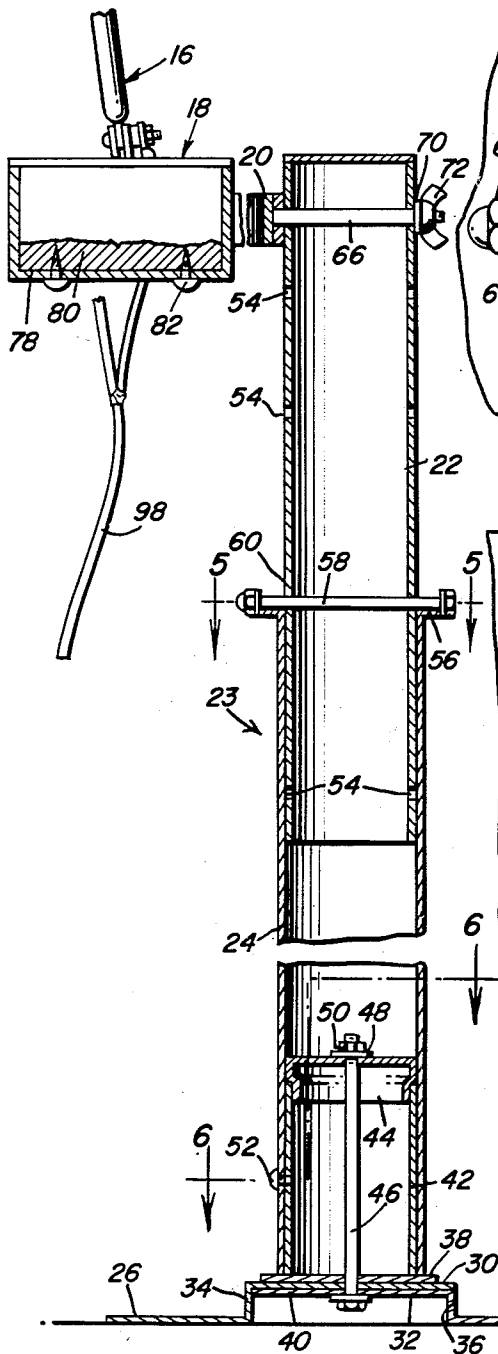


Fig. 5

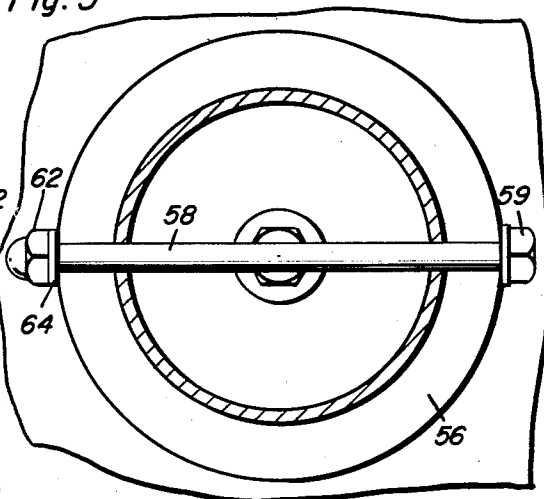
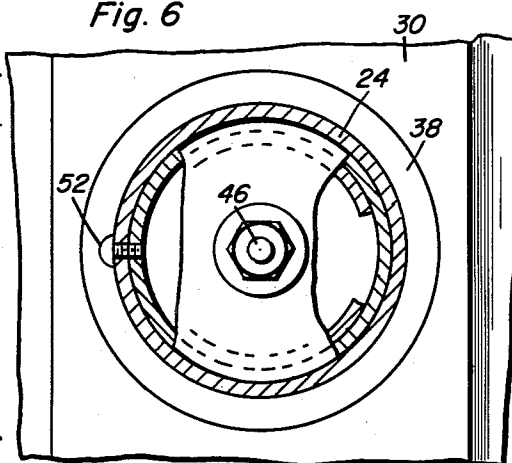


Fig. 6



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UNIVERSALLY ADJUSTABLE ANTENNA SUPPORT

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3 Claims. (Cl. 343-882)

This invention relates to antennae, and more particularly to indoor adjustable antennae suitable for use with television sets.

It is a primary object of the invention to provide an antenna which has a plurality of adjustments whereby the antenna may be properly adjusted for correctly receiving a signal of any frequency, of any strength and coming from any direction. Accordingly, the antenna may be adjusted in height and is connected to a base by universal joint means so that it may be pivoted in any direction and in three dimensions. The antenna has two signal-receiving arms which are also separately pivoted to a supporting base so that the angle between the arms may be varied for maximum effectiveness. Each arm is also adjustable in length for properly picking up signals of different wave lengths.

It is another object of the invention to provide an adjustable antenna that may be easily assembled and adjusted without requiring any special skill or tools on the part of the operator. Normally, all that is necessary for assembling the antenna is a screwdriver and a pair of pliers.

It is another object of the invention to provide an antenna which is composed of conventional materials, is simple in design, is economical to manufacture and reliable in use.

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 complete antenna;

FIGURE 2 is an enlarged plan view partially in section and with parts broken away;

FIGURE 3 is an enlarged cross-sectional view taken substantially on the plane of line 3-3 in FIGURE 2;

FIGURE 4 is a vertical cross-sectional view with parts broken away;

FIGURE 5 is an enlarged cross-sectional view taken substantially on the plane of line 5-5 in FIGURE 4; and

FIGURE 6 is an enlarged cross-sectional view taken substantially on the plane of line 6-6 in FIGURE 4.

The antenna 10 comprises a base 12, telescoping signal pick-up arms 14 and 16 pivotally mounted on a support 18 and a yoke 20 with pole sections 22 and 24 connecting the base and support together.

The base 12 comprises two substantially identical sheet metal plates bent into a substantially Z-shape so as to provide two coplanar support flanges 26 and 28 connected to two upper overlapping flanges 30 and 32 by central vertical flanges 34 and 36. The upper flanges 30 and 32 are each provided with a central aligned vertical bore which is the same size as and concentric with bores in washers 38 and 40 on opposite sides of the upper flanges. A tubular sleeve 42 is supported on the upper surface of the washer 38 and is concentric therewith. An inverted cup-like cap 44 of the same external diameter as sleeve 42 is supported on the upper end of the sleeve and has a reduced lower flange which telescopes within sleeve 42. Cap 44 also has a central bore in its upper end and a bolt 46 extends upwardly through washers 38 and 40, flanges 30 and 32, and the bore in cap 44. A washer 48

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is provided on the upper end of the bolt and a nut 50 is threaded on the upper end of the bolt so as to urge the members 44, 42, 38, 30 and 32 all tightly together and in assembled relationship.

A vertical post 23 comprising sections 22 and 24 telescoped together is secured to the base 12. The lower post section 24 is telescoped snugly over the sleeve 42 and secured thereto by means of a sheet metal screw 52 threaded through section 24 and sleeve 42. The upper post section 22 is slidable and rotatable within section 24. Section 22 is provided with a plurality of horizontal bores 54 extending diametrically therethrough.

The upper end of the post section 24 is provided with a radial annular flange 56. An axle comprising a bolt 58 extends diametrically through one of the lower bores 54 and has its ends supported on and rotatably journaled on the upper surface of flange 56. The bolt 58 is retained in proper position by means of a cap nut 62 threaded on the outer ends of bolt 58, a bolt head 59 and a pair of washers 64. Washers 64 may rotatably provided between the nut, roller and edges of flange 56.

A cylindrical stud 66 extends through one of the upper bores 54 and has one end secured to the central portion of a U-shaped yoke 20. The yoke 20 may have a central projection 68 to which one end of the stud 66 is threadedly connected. The opposite end of the stud is threadedly connected to a wing nut 72. Washers 70 and 74 are provided on the stud 66 adjacent the section 22 and serve as bearing means.

The free ends of yoke 20 are parallel to one another and are pivotally connected to a rectangular support 18 by means of pivot pins 76 which are secured to the support and extend through bores in the ends of the yoke. Wing nuts 77 are threaded on the outer ends of pins 76 for securing the yoke and support together. The support 18 comprises a hollow sheet metal box 78 having an open top and containing a block of wood 80 which preferably projects slightly above the box 78. Wood screws 82 extend through bores in the bottom of the box and are threaded into the block 80 for securing these members together. Each end of the upper surface of the block 80 is provided with a pair of L-shaped ears 84 and 86 which are slightly spaced from one another in parallel relationship. Wood screws 88 secure the ears to the block in a conventional manner.

The signal pick-up ears 14 and 16 are of conventional construction and each comprise three telescoping tubular members. The bottom end of each pick-up arm is flattened and provided with a bore which is aligned with bores in the upper ends of ears 84 and 86. A bolt 90 extends through these bores and pivotally secures the ears and arms together. Friction between the ears and arms may be adjusted by means of a nut 92 threaded on one end of each bolt 90. Each bolt 90 also extends through a washer 94 and an electrical terminal fitting 96. Antenna lead 98 is conventional and has two conductors each of which is secured to one of the fittings 96.

Pole 23 may be adjusted in height by selectively locating axle 58 in the proper bore 54. The elevation of support 18 may be further adjusted by selectively locating stud 66 in the proper bore 54. Preferably, when pole 23 is fully extended, it is at least four or five feet high. Thus, by placing the antenna on top of the TV set, the antenna may be extended up to the ceiling of a room. Alternatively, if pole 23 is fully collapsed by properly locating axle 58, and the antenna is placed on the floor, the antenna will be very low. Of course, the height of pole 23 will be adjusted so as to give the best picture in the TV set to which it is connected.

Signal pick-up arms 14 and 16 and support 18 are in effect connected to the base 12 by a universal joint. The

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support may be rotated about a horizontal axis by rotating pole section 22 relative to pole section 24. Bolt 58 acting on flange 56 permit the pole section 22 to be easily rotated with respect to section 24. Support 18 may be also rotated about horizontal axes 66 and 76 which are normal to one another. Thus, it can be seen that support 18 and arms 14 and 16 may be moved or pivoted in three dimensions or in any direction.

The angle between arms 14 and 16 may be adjusted by pivoting these arms about their supporting bolts 90. Of course, the lengths of the arms 14 and 16 may be adjusted in a conventional manner.

In operation of the antenna, the most effective positions and adjustments of the arms 14 and 16 are normally obtained by experimentation. Since the pick-up arms 14 and 16 may be adjusted to any position or location in a room, it is apparent that the antenna 10 may always be adjusted for maximum effectiveness.

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 antenna comprising a base, means adapted to pick-up television and radio type signals, universal joint means movably connecting said base and pick-up means whereby said pick-up means may be moved in any direction relative to said base, said base having a coplanar horizontal bottom supporting surface, said universal joint means including a vertically extending member at least a portion of which is pivotally connected on a vertical axis to said base, a yoke pivotally connected on a first horizontal axis to a portion of said member, a support for said pick-up means pivotally connected to said yoke on a second horizontal axis normal to said first horizontal axis, said vertical member comprising a pair of elongated telescoping tubes rotatable and axially slidable relative to one another, the lower tube fixed to said base and the upper tube connected to said yoke, said upper tube being provided with a series of vertically spaced pairs of diametrical bores, a removable axle in one of said pairs slidably engaged with the upper end of the lower tube.

2. An antenna as defined in claim 1, wherein a removable stud extends through one of said pairs above said axle, one end of said stud being connected to said yoke.

3. An antenna as defined in claim 1 wherein said base includes a raised planar central portion, a tubular sleeve extending upwardly from said central portion, a cap on the upper end of said sleeve, bolt means extending through said central portion, said tubular sleeve and said cap for clamping the sleeve to the base, said lower tube having the lower end thereof telescoped over said sleeve, and fastener means releasably securing said lower tube to said sleeve.

References Cited in the file of this patent

UNITED STATES PATENTS

1,889,568	Pickard	Nov. 29, 1932
2,458,885	Warren	Jan. 11, 1949
2,460,286	Hansen et al.	Feb. 1, 1949
2,983,342	Howard	May 9, 1961
3,041,609	Rathenau	June 26, 1962

FOREIGN PATENTS

930,933	Germany	July 28, 1955
1,067,118	France	Jan. 27, 1954
1,132,278	France	Oct. 29, 1956