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H. C. ANDERSEN
TELEVISION ANTENNA

2,643,335

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2 Sheets-Sheet 1

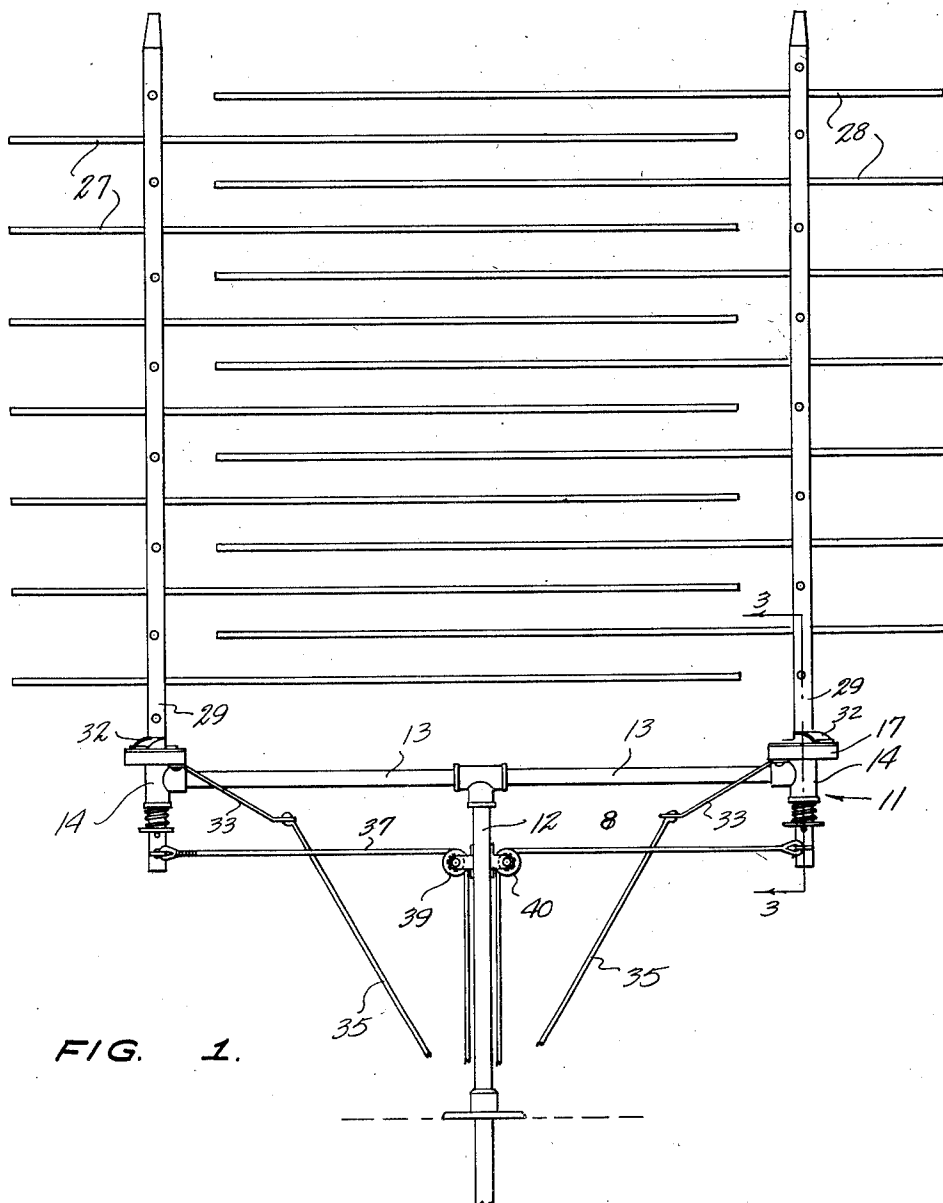


FIG. 1.

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FIG. 2.

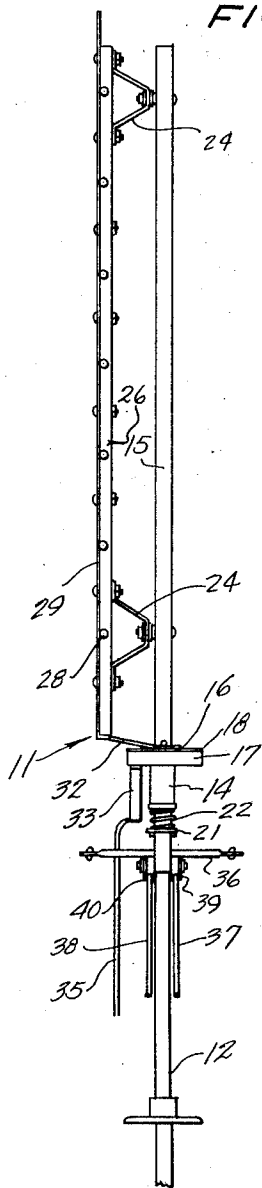


FIG. 3.

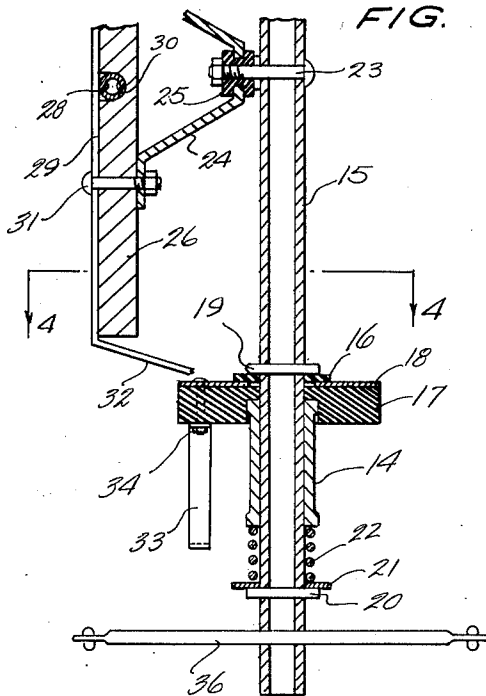
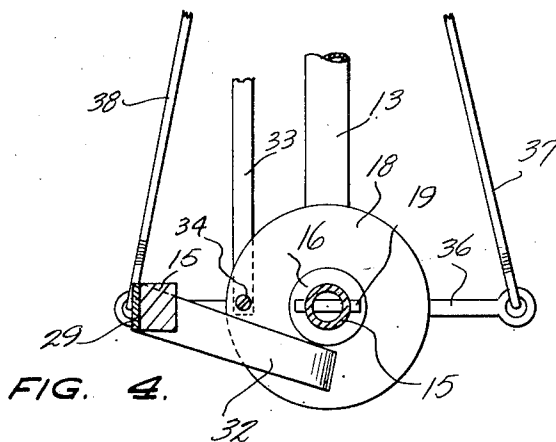


FIG. 4.



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TELEVISION ANTENNA

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3 Claims. (Cl. 250—33.55)

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This invention relates to antennas, and more particularly to a television antenna of the rotatable type.

The main object of the invention is to provide a novel and improved antenna suitable for use with television and similar receivers, the improved antenna being simple in construction, being easy to install, and being rotatable to desired orientations to provide maximum efficiency of reception of television transmitters and similar radio transmitters located in different directions from a given point of reception at which the improved antenna is located.

A further object of the invention is to provide an improved rotatable antenna suitable for use in receiving television signals, said antenna being inexpensive to fabricate, involving relatively few parts, being rugged in construction and being relatively compact in size.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a front elevational view of an improved television antenna constructed in accordance with the present invention.

Figure 2 is a side elevational view of the television antenna illustrated in Figure 1.

Figure 3 is an enlarged cross sectional detail view taken on the line 3—3 of Figure 1.

Figure 4 is a cross sectional detail view taken on the line 4—4 of Figure 3.

Referring to the drawings, the antenna is designated generally at 11 and comprises a vertical standard or mast 12 adapted to be mounted in a fixed position on the structure to which the antenna is to be attached, as for example the roof of a building. Secured to the top end of the mast 12 are the respective oppositely directed horizontal arms 13, 13 to the ends of which are rigidly secured the respective vertical sleeve members 14, 14. Extending rotatably and slidably through the respective sleeve members 14, 14 are the respective vertical post members 15, 15 which may be formed of tubular metal stock. As shown in Figure 3, the lower ends of the post elements 15 are supported in the sleeve members 14 by disc members 16 engaging respective insulating discs 17 secured on the sleeve members 14. Secured on the insulating discs 17 are the respective annular conductive rings 18 which are engaged by the insulating discs 16. Extending transversely through the post elements 15 are keys 19 which engage the insulating discs 16, as shown in Figure 3. Ex-

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tending transversely through the lower end portions of the post members 15 are additional keys 20 which support annular rings 21 encircling the post members 15. Surrounding the post members 15 and bearing on their lower ends on the rings 21 and on their upper ends on the bottom rims of the sleeves 14 are respective coil springs 22 which bias the post members 15 downwardly while allowing said post members to rotate in the sleeves 14.

Secured to each post member 15 by respective bolts 23 are the vertically spaced U-shaped brackets 24, 24, the bolts 23 extending through the bight portions of the brackets and being insulated therefrom by insulating bushings 25, as shown in Figure 3. Secured to the ends of the arms of the brackets 24, 24 are the vertical mast elements 26. Secured in regularly spaced relation to the vertical mast elements 26 are the respective sets of horizontally extending conductor rods 27 and 28, the conductor rods 27 being secured to one of the mast members 26 and the conductor rods 28 being secured to the other of the mast members 26, the rods 28 being staggered relative to the rods 27, as shown in Figure 1. The rod members are clamped to the respective mast members 26 by respective vertical metal strap members 29, the rods being received in transverse grooves 30 formed in the mast members 26 and the strap members transversely overlying the rods and clamping the rods in the grooves 30. As shown in Figure 3, the strap members 29 may be secured to the mast members 26 by bolts 31, said bolts being employed for securement to the respective ends of the arms of the U-shaped brackets 24, whereby the mast members 26 are rigidly secured to the brackets by the same bolts 31 which clamp the strap members 29 to the mast members 26. Each strap member 29 is formed at its lower end with a downwardly and inwardly extending resilient contact arm 32 which slidably engages the associated contact ring 18 and thereby electrically connects the conductor arms 28 or 27 to the conductive ring 18 associated therewith. As shown in Figure 1, the arms 27 and the arms 28 may be rotated into coplanar relationship, said arms 27 and 28 being secured adjacent their ends and the longer portions of said arms 27 and 28 being arranged to intermesh when they are rotated into the aforesaid coplanar relationship.

Designated at 33, 33 are respective terminals secured to the respective insulating discs 17 and electrically connected to the respective conductive rings 18 by fastening bolts 34, in the manner

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shown in Figure 3. The antenna lead-in wires 35, 35 are connected to the respective terminals 33, 33, as illustrated in Figure 1.

Extending through and rigidly secured to the lower end of each rotatable post member 15 is a transversely extending bar 36. The ends of the bar 36 have respective cables 37 and 38 connected thereto. The cables 37 and 38 pass over respective pulleys 39 and 40 rotatably supported on the vertical mast 12 and extend to suitable reels whereby the vertical post members 15 may be rotated from remote positions by suitable manual control means, not shown. It will be readily apparent that the respective post members 15 may be rotated either simultaneously or independently of each other, and that the orientations of the respective horizontal conductors 27 and 28 may be varied in any suitable manner by the operation of the aforesaid manual control means. For example, the conductors 27 and 28 may be arranged either in the coplanar meshing relationship, as shown in Figure 1, or may be rotated in unison and in parallel relationship to face in any desired direction and to provide maximum efficiency of reception of television signals coming from any desired direction.

It will be understood that the respective conductors 27 and 28 define vertically stacked elements of the respective arms of a dipole antenna and are employed in conjunction with a conventional transmission line, such as for example the usual 300 ohms twin-lead transmission line employed for connecting television antennas to television receivers.

While a specific embodiment of an improved television antenna has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A television antenna comprising a support having a horizontally extending arm, respective vertical sleeves at the opposite ends of said arm, respective vertical mast members rotatably and slidably mounted in said sleeves, a plurality of coplanar horizontal conductor rods secured to each mast member in vertically spaced relation, means electrically connecting the rods of each mast member, the conductor rods on one mast member being staggered relative to the conductor rods on the other mast member and said rods being arranged to intermesh when rotated into the same vertical plane, and means for rotating said mast members.

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2. A television antenna comprising a support having a horizontally extending arm, respective vertical sleeves at the opposite ends of said arm, respective vertical mast members rotatably and slidably mounted in said sleeves, spring means operatively connected to said sleeves and said mast members and biasing the mast members downwardly in said sleeves, a plurality of elongated coplanar horizontal conductor rods secured adjacent their ends to each mast member in vertically spaced equidistant relation, means electrically connecting the rods of each mast member, the conductor rods on one mast member being staggered relative to the conductor rods on the other mast member and said rods being arranged to intermesh when rotated into the same vertical plane, and means for rotating said mast members.

3. A television antenna comprising a support having a horizontally extending arm, respective vertical sleeves at the opposite ends of said arm, respective vertical mast members rotatably and slidably mounted in said sleeves, spring means biasing the mast members downwardly in said sleeves, stop means limiting downward movement of the mast members in the sleeves, a plurality of elongated coplanar horizontal conductor rods secured adjacent their ends to each mast member in vertically spaced equidistant relation, means electrically connecting the rods of each mast member, the conductor rods on one mast member being staggered relative to the conductor rods on the other mast member and said rods being arranged to intermesh when rotated into the same vertical plane, an insulating ring carried concentrically on each sleeve, an annular contact ring mounted concentrically on each insulating ring, a resilient contact brush connected to each electrically connecting means and slidably engaging the contact ring of the associated sleeve, a terminal connected to each contact ring, and means for rotating said mast members.

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