

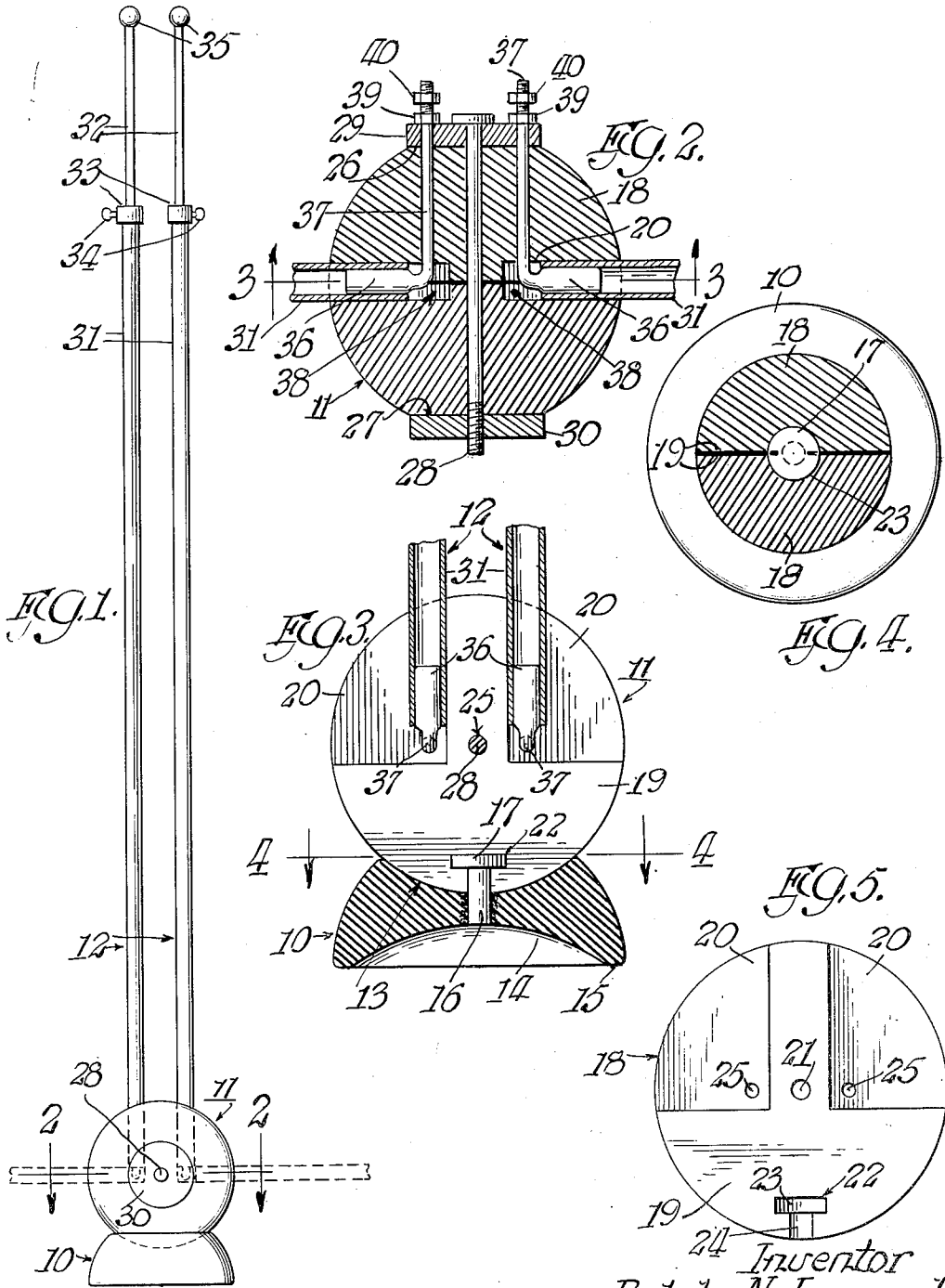
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ANTENNA

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1

This invention relates to improvements in antennas and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

One of the objects of the invention is to provide a simple, inexpensive but efficient antenna for receiving radio signals and which is so made as to be capable of adjustment to various positions, thereby making it possible to orient the antenna so as to get maximum pick-up from transmitting stations in widely different directions.

Again, it is an object of the invention to provide an antenna having a pair of signal receiving arms, each adjustable as to length so that the maximum signal pick-up can be had of the different frequencies which the antenna is designed to receive.

Another object of the invention is to provide an antenna, wherein the signal receiving arms thereof may be readily adjusted both as to length and direction.

Furthermore, it is an object of the invention to provide an antenna, which though readily portable in use, includes a base which securely holds the antenna against tipping.

Also, it is an object of the invention to provide in an antenna, a novel construction for holding the arms in operative position relative to other parts of the antenna and which arms may be quickly adjusted as to length and direction even by an inexperienced person.

The above mentioned objects of the invention, as well as others, together with the advantages thereof, will more fully appear as the specification proceeds.

In the drawing:

Fig. 1 is a view in side elevation of an antenna embodying the preferred form of the invention.

Fig. 2 is a horizontal section through the arm holding body of the antenna, as taken on the line 2—2 and on a scale enlarged over that of Fig. 1, when the arms are disposed in the horizontal position appearing in dotted lines in Fig. 1.

Fig. 3 is a vertical sectional view through the body and base of the antenna as taken on the line 3—3 and on the scale of Fig. 2 and with the arms disposed in an upright condition as appears in full lines in Fig. 1.

Fig. 4 is a horizontal sectional view through a part of the antenna as taken on the line 4—4 and on the scale of Fig. 3.

Fig. 5 is a view in elevation of one of the body parts of the antenna, as viewed from the inner face thereof.

2

In general my improved antenna embodies therein a pair of antenna arms, each of which is telescopically extensible and retractable in length. Said arms are operatively disposed at their inner ends, each in an associated recess in an antenna body for an independent swinging movement about parts providing horizontal axes therefor, into any one of a number of positions from an upright side-by-side position to an oppositely extending horizontal position. The parts providing the axis open through one side of the body and form the terminals for the associated arms. Preferably the body comprises two body parts having meeting faces and said faces are formed to coact in providing the recesses for receiving the inner ends of said arms and these recesses limit the swinging movement of the arms relatively to the body. The body is mounted upon and is operatively secured to a base by means having a vertical axis and about which the body may be turned axially into any desired position on the base. When the base is relatively small in diameter, to give it stability, it is made in the form of a suction cup, whereby the base may be rigidly but detachably engaged upon a supporting surface.

Referring now in detail to that embodiment of the invention illustrated in the drawings, the improved antenna includes a base 10, a body 11 formed of insulating material, and a pair of antenna arms 12—12. The base is circular in plan and is provided in its top face with a concaved seat 13 that forms a part of a sphere and it is preferably made of a yieldable material such as rubber. In the bottom of the base is a cavity 14 that stops short of the periphery of the base to afford a marginal flange 15, whereby the base can function as a suction cup. The base is provided with an axially disposed metallic stud 16 which projects a suitable distance above the seat 13 to terminate in a radially extending head 17, as best appears in Fig. 3. Preferably the stud is vulcanized in the base so as to have a good tight connection therewith.

The body 11, which is made of a relatively hard insulating material, is herein shown as a sphere of such diameter that its bottom portions snugly engage in the seat 13 of the base. Preferably the body is made from a pair of like hemispherical parts 18—18 having vertical meeting faces 19—19. The face 19 of one of said parts appears in Fig. 5. In the upper portion of the face 19 of each part 18 are pockets 20—20, one located on each side of the perpendicular center line of the associated face. Centrally of each body part

3

is an opening 21 and at the bottom of the face, on said center line is located a recess 22, having an enlarged upper end portion 23 of the diameter of the stud head 17 and a lower end portion 24 of the diameter of the stud 16 and which connects said portion 23 with the periphery of the body part. In one of said body parts there is provided, one on each side of the opening 21, openings 25—25. The openings 25—25 and 21 extend at their outer ends through a flat area 26 for a purpose soon to appear. The other body part has an outer flat area 27 that corresponds to the area 26 on the first mentioned body part. These areas best appear in Fig. 2.

The body parts 18—18, when assembled together with their meeting faces 19—19 in engagement with each other, as best appears in Figs. 2 and 4, are operatively connected together by a through bolt 28, which at its headed end passes through a disc 29 engaged against the area 26 of one body part and which at the other end is threaded to receive a nut 30 engaged with the area 27 of the other body part.

Each arm 12 includes an inner tubular portion 31 and an outer portion 32 of smaller diameter and which telescopes within the inner portion. The outer end of each portion 31 is provided with a collar 33, through which a screw 34 is threaded for a clamping engagement with the associated portion 32, the outer end of which carries a finishing tip such as a sphere 35. By the structure just described, the outer arm portion 32 may be telescopically extended or retracted relative to the inner portion of the same arm, whereby the arm may be adjusted as to effective length.

The inner end of each tubular arm portion 31 is closed by means of a plug 36 made integral with a terminal stud 37. This stud is disposed at a right angle to the associated plug 36 and is of a diameter to snugly fit in associated opening 25 in said one of the body parts 18 of the body 11.

When the two body parts 18—18 are secured together by the bolt 28, the pockets 20—20 of each body part mate up with the like pockets of the other body part and coact therewith in forming recesses 38—38 in the body, each of which opens through the top and one side of the body. These recesses 38, which best appear in Fig. 2, are of a width approximating the diameter of the arm parts 31, the inner end of each of which is disposed in an associated recess.

When the body 11 is disposed upon the base, the recesses 22 in the inner faces of each body part embrace opposite sides of the upper end of the stud and its head and when the nut 30 is drawn up tight on the bolt 28, the two parts 18—18 of the body are held together in body forming relation and operatively secure the body to the stud 16 and its head, so that the head cannot be displaced therefrom, but the body may be turned in the seat about said stud as an axis.

When the parts mentioned are in their assembled relation, the terminals 37—37 extend through the disc 29 and each is clamped in place by a nut 39, with which is associated a second nut 40, whereby a terminal wire (not shown) may be attached to each terminal. The disc 29 is composed of material having good electrical insulating characteristics.

The arms 12—12 may be swung about the terminals 37—37 as axes, from the upright side by side position shown in full lines in Fig. 1, through

4

a number of angular positions, into the opposed horizontal position shown in dotted lines in Fig. 1. By reason of the nut 30, the body parts 18—18 may be so brought together as to provide that friction for the arm parts 31—31 as will hold the arms into any position into which they are moved between the positions appearing in full and dotted lines in Fig. 1.

The improved antenna has universal directional adjustment, is simple in construction, is light in weight so as to be readily portable and is stable and will not readily tip over when engaged by means of its suction cup base, upon a support.

By means of the suction cup, the antenna may be readily positioned and held on the cabinet of the radio receiver, or on some other convenient adjacent support. The antenna may thus be conveniently manipulated for directional characteristics, or to change the length of the arms to obtain the maximum signal strength. While not limited to such use, the antenna is particularly adapted for use in receiving the ultra high frequencies.

In the specific form described, a collar 33 and set screw 34 are shown for holding the telescopic sections 31, 32 in desired placed position. If desired, these may be omitted and the parts 31, 32 fitted so as to be held in any placed position by friction. Also, if desired, a greater number than two telescopic sections may be provided.

While the base is shown as a suction cup, if desired, any other suitable form of mounting may be used.

While in describing the invention I have referred in detail to the form, arrangement and construction of the parts embodied therein, the same is to be considered only in its illustrative sense and therefore I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:

1. An antenna embodying therein a body of insulating material formed to provide, at opposite sides thereof, laterally spaced recesses, each of which opens through the top and the associated side of the body, means providing a supporting base for said body, an antenna arm associated with each recess and having its inner end disposed within the same, means providing terminals having ends exposed at another side of the body, each terminal operatively securing the inner end of an associated arm in its recess and providing an axis transverse to the longitudinal axis of said antenna arm about which each arm may be swung from a substantially vertically extending position to a substantially horizontally extending position.

2. An antenna embodying therein a body of insulating material formed to provide, at opposite sides thereof, laterally spaced recesses, each of which opens through the top and the associated side of the body, a supporting base for said body, means providing a vertical pivotal connection for the body on the base and about which the body may be turned into different relative positions thereon, an antenna arm associated with each recess and having its inner end disposed within the same, and means providing terminals having ends exposed at another side of the body, each terminal operatively securing the inner end of an associated arm in its recess and providing an axis transverse to the longitudinal axis of said antenna arm about which each arm may be

5

swung from a substantially vertically extending position to a substantially horizontally extending position.

3. An antenna embodying therein a body having a spherical portion at least at the bottom thereof, said body being formed at opposite sides of its vertical axis with laterally spaced recesses, each of which opens through the top and the associated side of the body, means providing a supporting base having a recess in its top complementary to and for receiving the spherical portion of said body, means providing a stud connection between said body and base and about which said body may be turned relative to said base, an antenna arm associated with each recess and having its inner end disposed within the same, and means providing terminals having ends exposed at another side of the body, each terminal operatively securing the inner end of an associated arm in its recess and providing an axis transverse to the longitudinal axis of said antenna arm about which each arm may be swung from a substantially vertically extending position to a substantially horizontally extending position.

4. An antenna embodying therein a body having a base portion, a pair of horizontally disposed, spaced shaft members positioned in the body, an antenna arm connected to each shaft at a point within the body, extending outwardly therefrom at right angles to its associated shaft, said body being recessed to permit each antenna

6

arm to be swung from a horizontal position to a vertical position, a part of each shaft being adapted to serve as a terminal for electrical attachment to a radio receiver, one antenna arm and its associated shaft being electrically insulated from the other antenna arm and its shaft.

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