

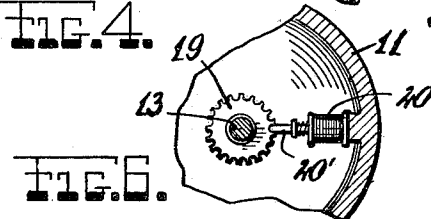
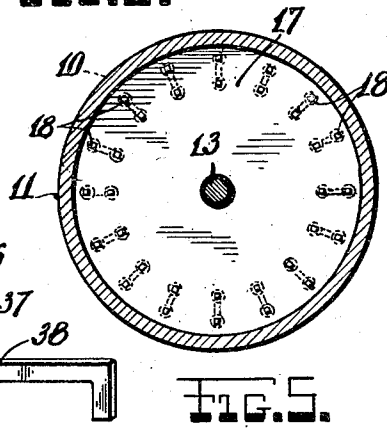
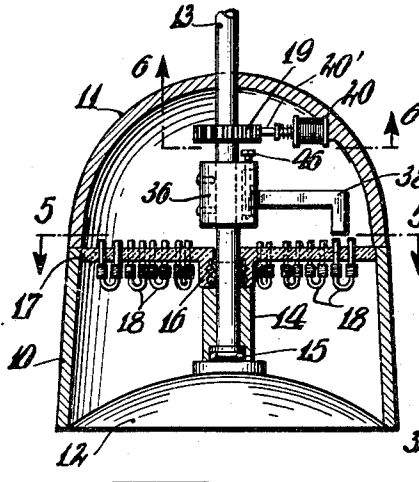
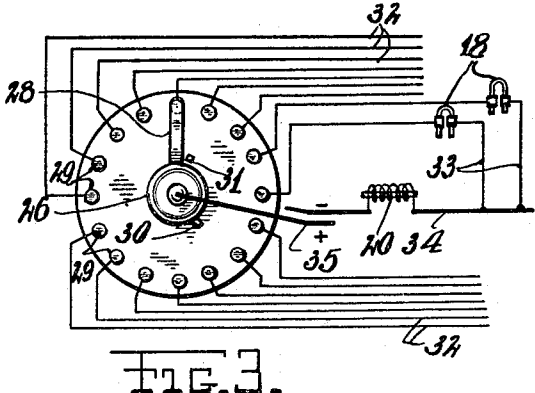
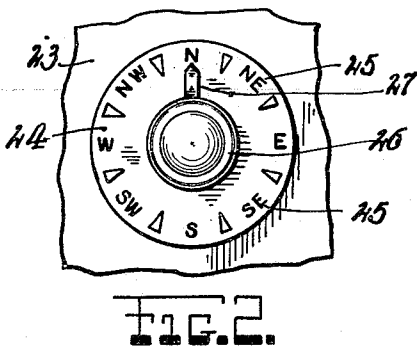
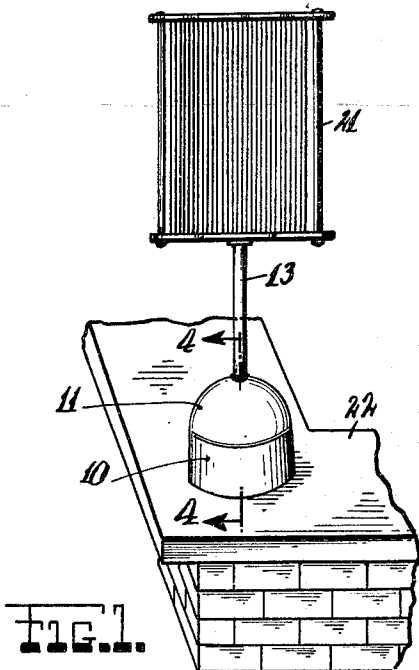
April 14, 1931.

E. H. HAND

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MAGNETIC CONTROL FOR ANTENNAE

Filed March 10, 1928



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MAGNETIC CONTROL FOR ANTENNÆ

Application filed March 10, 1928. Serial No. 260,569.

This invention relates generally to radios and has more particular reference to a novel magnetic control device for directionally positioning the antenna thereof, when the antenna is located at a distance from the point of control or receiving set.

The invention has for an object the provision of a device of the class mentioned, which is of simple, durable, construction, desirable and efficient in action and which can be manufactured and sold at a reasonable cost.

The device consists of a casing rotatively supporting a vertical shaft upon which the antenna is mounted, and a horizontal partition of insulation material is mounted within the casing. A plurality of electric magnets are mounted in the partition in circular formation. An arm projects from the vertical shaft into the field of action of the said magnets. One of the ends of each of the windings of the electromagnets are connected with a power lead, and the other ends are connected with contacts arranged on the rear side of a dial mounted on the front panel of a radio set. A knob is mounted on the front of the dial and carries a rear contact arm engageable with the said contacts, and a second power lead connects this contact arm.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Referring to the accompanying drawing, forming a material part of this disclosure:—

Fig. 1 is a perspective view of the device.

Fig. 2 is a fragmentary front elevational view of the front panel of a radio set, illustrating the dial of the device.

Fig. 3 is a rear elevational view thereof, provided with schematic wiring.

Fig. 4 is a vertical sectional view, taken on the line 4—4 of Fig. 1.

Fig. 5 is a horizontal sectional view, taken on the line 5—5 of Fig. 4.

Fig. 6 is a fragmentary sectional view taken on the line 6—6 of Fig. 4.

Fig. 7 is a perspective detail view of the mounting of the arm to the vertical shaft.

The reference numeral 10 indicates generally a casing with a cover 11 and a base 12. A vertical shaft 13 is rotatably mounted in the casing and projects from the top thereof. The mounting of this shaft consists of a standard 14 provided with a lower thrust bearing 15 and an upper bearing 16. A horizontal partition 17 of insulation material is mounted within the casing 10 and supports a plurality of electromagnets 18 arranged in circular formation relative to the shaft 13 as a center. A disc 19 formed with notches which correspond with the number of magnets 18 is fixed on the shaft 13 and a solenoid 20 is attached to the cover 11 and its plunger 20' abuts the periphery of the disc 19 and engages the adjacent notch. Normally in the absence of a force to turn the shaft 13, the disc 19 and spring of the solenoid 20 hold the shaft against vibrational turning. A radio antenna 21 is supported to the top of shaft 13 and the elements at the bottom of the shaft serve the purpose of the stand for the antenna, which may rest upon a suitable support 22.

The reference numeral 23 indicates generally the front panel of a radio set connected with the antenna 21. A dial 24 is fixed upon the panel 23 and this dial is calibrated near its outer periphery with symbols 25 denoting various directions such as north, northeast, etc. A knob 26 is rotatively mounted in the center of the dial, and has an indicating finger 27 on its front, and a contact finger 28 on its rear.

A plurality of contacts 29 are arranged on the rear side of the dial in circular formation relative to the pivot point of the contact finger 28 as a pivot. The knob 26 may be turned to selectively make contact with the contacts 29 in consecutive order. At each contact, the antenna 21 turns in the direction indicated at the corresponding contact point on the dial 24, due to the magnetized electromagnet 18. When the current passes thru any one of the electromagnets 18, solenoid 20 is also energized, and causes the plunger 20' to disengage the notch of disc 19 while shaft

13 is rotating. When the antenna 21 is in the desired position, the circuit is open and the spring of the solenoid 20 locks shaft 13. A projection 30 from the knob 26 is engage-
 5 able with the stop lug 31 on the dial so as to prevent continued turning of the knob in one direction. The wires 32 connect the contacts 29 with one of the ends of the windings of the magnets 18, in similar consecutive order.
 10 Wires 33 connect the other ends to a power lead 34 and a coacting power lead 35 is connected with the contact finger 28.

A bracket 36 is firmly fixed on shaft 13 and has a side slot 37 in which an arm 38 is slid-
 15 ably mounted. The inner side of the arm threadedly engages a screw 39 rotatively mounted in the bracket, and having a projecting head 40. The outer end of the arm projects into the field of action of the magnets
 20 18. The head 40 may be turned to raise or lower the arm relative to the magnets 18.

In operation, the knob 26 is turned so that the pointer 27 aligns with the "north" symbol on the dial, and this causes one of the
 25 magnets 18 to be energized. The finger 38 is then set over the energized magnet, and the antenna 21 is positioned to face the north. The operation of the radio set may then move knob 26 clockwise or anticlockwise, so
 30 that contact finger 28 consecutively makes contact with the contacts 29, consecutively energizing the magnets 18, and finger 38 follows the path of the energized magnets, correspondingly turning the antennæ 21 in
 35 desired directions.

It is to be understood that while the antenna shaft has been described to be vertical, it may also be set in a horizontal or
 40 angular position and operated by the same device.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the
 45 precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention what I claim as new and desire to secure by United
 50 States Letters Patent is:—

1. In a magnetic control for an antenna, a casing, a vertical shaft rotatively mounted therein and projecting for supporting an antenna, means for turning the shaft including
 55 a plurality of electro-magnets in a circle around said shaft and in a horizontal plane, a bracket firmly fixed on said shaft and formed with a vertical slot, a screw rotatively mounted in said slot, and an arm threadedly engaging said screw and extending
 60 from said slot into the fields of action of said magnets.

2. In a magnetic control for an antenna, a casing, a vertical shaft rotatively mounted
 65 therein and projecting for supporting an an-

tenna, means for turning the shaft including a plurality of electro-magnets in a circle around said shaft and in a horizontal plane, a bracket firmly fixed on said shaft and formed with a vertical slot, a screw rotatively mounted in said slot, and an arm threadedly engaging said screw and extending from
 70 said slot into the fields of action of said magnets, said screw projecting at one end from said bracket, and a head on the extended end of said screw for manual turning.
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In testimony whereof I have affixed my signature.

ERLE H. HAND.

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