Jan. 1, 1929. 1,696,928

F. M. SQUIRE

ANTENNA

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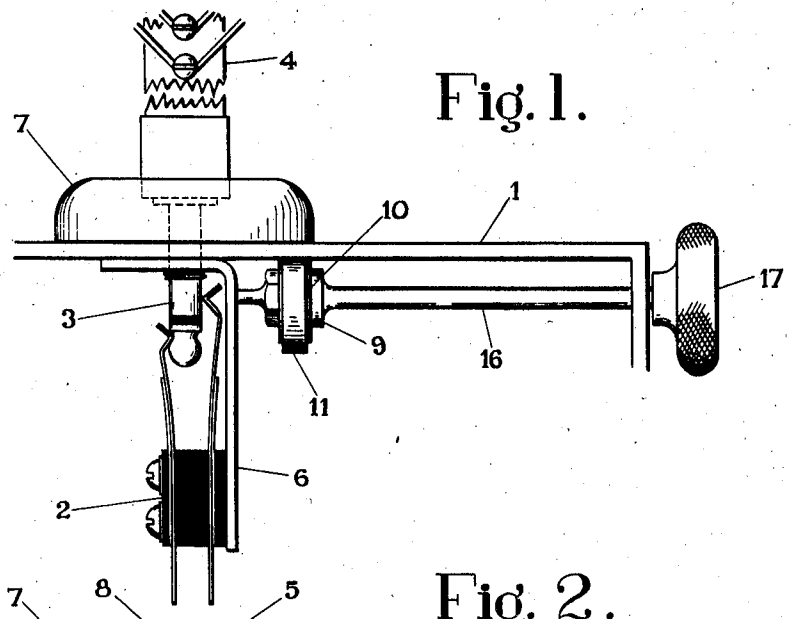


Fig. 1.

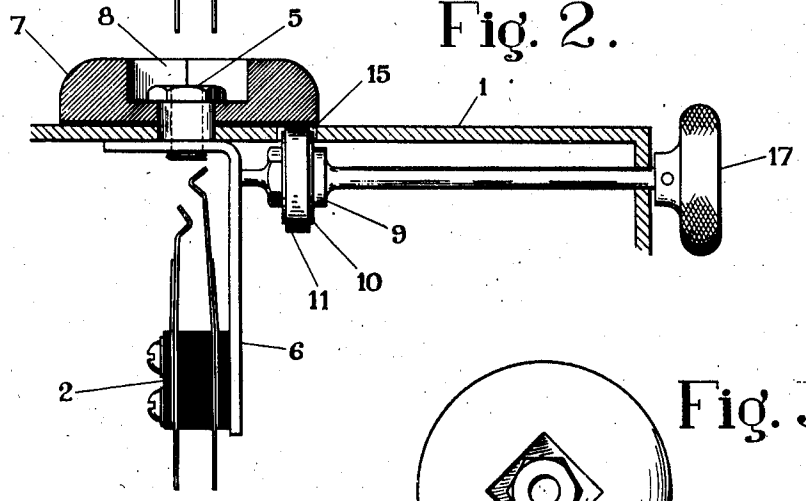


Fig. 2.

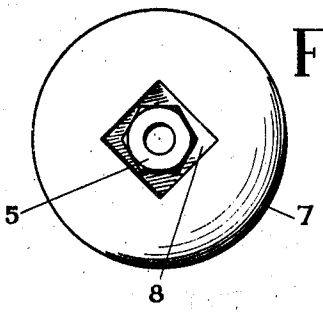
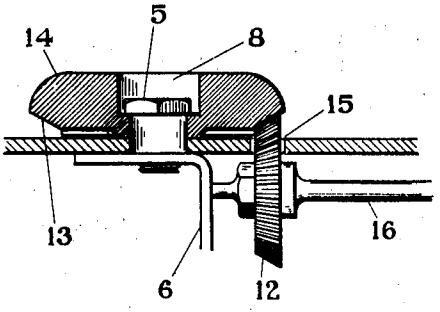


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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ANTENNA.

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This invention relates to antennæ, and more particulary to the type of antennæ known as "loop" or coil antennæ. Such loop antennæ are usually of a compact nature, and mounted upon the box or casing containing the various devices in connection with a radio outfit.

The objects of the invention are to provide in connection with an aerial of this nature, means for rotating the same; to enable the rotation of the aerial to be made gradually and with a steady motion; to thus enable the aerial to be adjusted very accurately to the proper directional position for interception of the radio impulses to best advantage; to provide a structure readily attached and utilized in connection with radio apparatus and aerials in present day use; to secure simplicity of construction, ease, convenience and positiveness of operation; and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings in which like numerals of reference indicate similar parts throughout the several views,

Figure 1 is a view in elevation showing my improved operating device for antennæ in use;

Figure 2 is a similar view showing parts thereof in section and with the loop stick removed;

Figure 3 is a plan of the rotator into which the loop stick fits, and

Figure 4 is a sectional view corresponding to Fig. 2, but showing a modified structure.

In the specific embodiment of the invention illustrated in said drawing, the reference numeral 1 indicates in general a portion of the enclosure, panel or box for mounting and containing the usual apparatus in a radio set. Heretofore a jack 2 has been mounted upon panel 1 within the box for reception of and proper electrical contact with a plug 3 extending longitudinally from the lower end of a coil or loop stick 4. As part of the structure heretofore used, the jack is provided with a threaded shank 5 by which said jack is clamped in place, the shank being longitudinally hollow so as to permit the plug to be inserted therethrough and having a nut formed on one end. It may be further noted that in the construction of jack heretofore employed, an inverted L-shaped bracket 6 is used, the transverse leg of the bracket being clamped against the panel by threaded shank 5, and the other leg of the bracket projecting perpendicular to the panel in the same longitudinal direction as the loop stick.

In carrying out my invention in connection with the old structure above described, I provide a rotator 7 arranged co-axial with the shank 5 and upon the opposite side of the panel from the jack. Heretofore a washer has been placed between the head of the shank and the panel, and I accordingly so form the rotator 7 as to enable a portion of the same to be positioned under the head of the shank thereby not only replacing the washer, but providing a means for rotatably mounting the rotator co-axial with the shank and avoiding any change in size, shape or position of the shank.

The rotator which I have shown in the present disclosure is preferably provided with a socket 8 at its middle, open upwardly, the head of the shank 5 forming a portion of the bottom of said socket. Furthermore, the socket is preferably shaped, or in the present instance, squared, to snugly fit the lower end of the coil or loop stick 4, as a result of which said loop stick may be inserted or removed, but when in position, said stick and rotator must turn together. Obviously the construction described enables the lower end of the loop stick to rest upon the shank 5 and the plug 6 to project through the shank in identically the same relation as if the rotator of the present invention were not applied. However, it may here be noted that the rotator preferably has a comparatively extensive bearing surface at its under side and will thus co-operate with the shank, plug and stick to make said antennæ more rigid and affected less by any tendency to swing or tilt.

In contact with the rotator, preferably near the periphery thereof and in engagement with the under surface, is a driving element 9 by which the rotator may be given angular displacement in either direction and through as great a circular angle as desired. There are various driving elements which may be employed, not only friction members and gears, but various types of these and

other means. In the drawings, for illustrative purposes, I have shown in Figures 1 and 2, a driving element consisting of a wheel 10 with a friction rim 11 in engagement with the under plane surface of the rotator. In Figure 4 I have shown a toothed wheel or gear 12 in mesh with cooperating teeth 13 cut in the under surface of the rotator 14. As clearly shown, in each instance, there is an appropriate slot 15 provided in the panel through which the driving element may project for securing engagement between said element and the rotator.

Said driving element is in each case supported upon a shaft 16 one end of which, for convenience, may be mounted in a suitable bearing or opening in the perpendicular leg of the jack bracket 6 and the other end carried in an opening or bearing in the panel. On the outer end of said shaft is provided a suitable knob or controlling means 17 by which the operator may actuate the shaft and thereby rotate the atennæ.

Obviously detail changes and modifications may be made in manufacture and use of my invention, and I do not wish to be understood as limiting myself to the exact structure shown except as set forth in the following claims when construed in the light of the prior art.

Having thus described my invention, I claim:

1. In a radio apparatus, a rotator having a socket for receiving an antenna structure, and a jack shank mounting said rotator in place and forming an axis about which said rotator may rotate.

2. In a radio apparatus, a rotator, a jack shank mounting said rotator in place and forming an axis about which said rotator may rotate, said rotator having a socket coaxial with said jack shank for receiving an antenna whereby rotation of the rotator will cause said antenna to rotate.

3. A device of the character described comprising a rotatable antenna, a rotator having a socket engaging portion, a rotatable driving element in a plane perpendicular to that of the rotator, said driving element and rotator being in operative engagement, and a shaft and controlling means connected to said driving element for operating said parts manually so as to rotate the antenna.

4. A device of the character described comprising a panel, a rotator, and a member centrally disposed with respect to said rotator and having an overlying head for preventing outward displacement of the rotator and also having a shank for extending through the rotator into the panel for rotatably mounting the rotator on the panel.

5. A device of the character described comprising in combination, a panel, a jack, a threaded shank extending through the panel for securing the jack in place and having a head on the side of the panel opposite from the jack, and a rotator having a portion disposed between the panel and head of the nut whereby said rotator is rotatably mounted adjacent the panel.

6. In radio apparatus, the combination with a jack, a threaded member having a shoulder and a support clamped therebetween of a rotatable seat held on said support by said member, and means for rotating said seat.

7. In radio apparatus, the combination with a jack, a threaded member having a shoulder and a support clamped therebetween of a rotatable seat held on said support by said member and means journalled in said support and jack for rotating said seat.

8. In radio apparatus, the combination with a jack, a threaded member having a shoulder and a support clamped therebetween of a rotatable seat held on said support by said member, means for rotating said seat and an antenna mounted in said seat and connected to said jack so as to rotate with said seat.

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