Nov. 4, 1930. V. O. SYESTER 1,780,690

SWITCH FOR RADIORECEIVERS

Filed Aug. 1, 1927

Fig. 1.

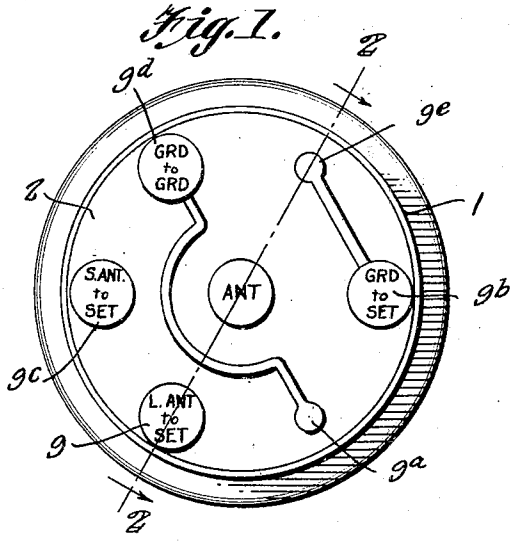


Fig. 2.

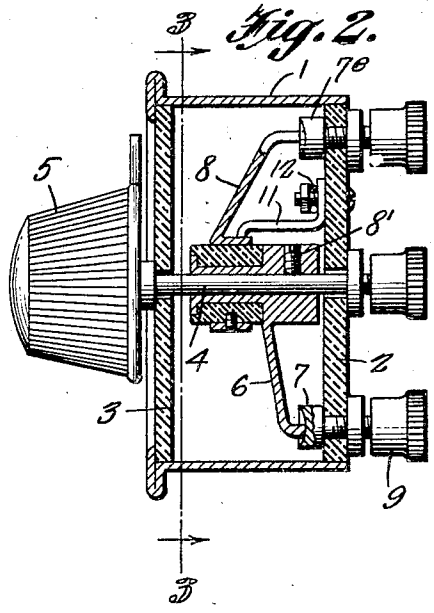
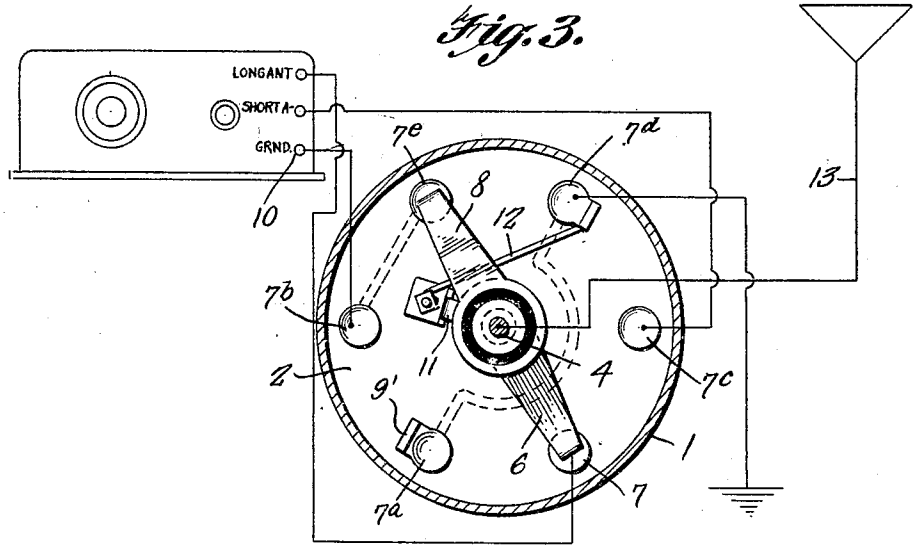


Fig. 3.



Vernis O. Syester,
INVENTOR

BY Victor J. Evans
ATTORNEY

P. A. Hickey
WITNESS:

Patented Nov. 4, 1930 1,780,690

UNITED STATES PATENT OFFICE

VERNIS C. SYESTER, OF LINTON, INDIANA

SWITCH FOR RADIORECEIVERS

Application filed August 1, 1927. Serial No. 209,939.

This invention relates to lightning arresters, particularly adapted for the protection of radio receiving instruments whether of long or short antenna and is adapted to protect the coils of the instrument from damage by lightning either during the reception of a radio entertainment or after the instrument is shut off.

In carrying out my invention I provide a rotatable switch adapted to afford a direct path for the lightning and which may afford an aerial or an antenna connection for the windings of the receiver to keep the instrument in commission during a storm and simultaneously afford a short path for lightning discharge. I also provide an instrument provided with a number of binding posts and contacts adapted to be successively engaged by a rotative switch to selectively place the receiver circuits in series with an antenna either of short or long length and simultaneously afford an independent shunt path for lightning discharges direct to ground. I effect this result by connecting one or more antenna binding posts of the receiver and the ground to separate binding posts of the rotative switch and by suitable rotary movements connect either antenna with ground in series with the receiving coils of the instrument and simultaneously by an auxiliary switch member of the rotative switch provide a shunt path by which lightning following the antenna will have a path of low resistance to ground independently of the receiving instrument.

My invention therefore comprises a rotary switch through the rotary shaft of which an aerial connection is made and which may be led by the switch contacts through a long or short antenna to the receiving coils of the radio instrument. It embodies also other more specific features, the novelty of which will be more fully hereinafter described and will be definitely indicated in the appended claims.

In the accompanying drawings:—

Figure 1 is a face view of a switching instrument for a radio receiver adapted to carry out my invention.

Figure 2 is a sectional view of the same on the diametral plane 2—2 of Figure 1.

Figure 3 is a sectional view on the plane 3—3 of Figure 2.

Referring now in particular to the drawings, the switch box containing my circuit connections is comprised of a round case 1 having walls of fiber with bakelite base and cover 2, 3 in which is mounted a shaft 4 provided with an insulated knob 5 by which the switch may be hand-rotated. Mounted on the inside of the casing is a metallic switch arm 6 with a resilient blade adapted to form a rotative connection with slightly concaved contacts 7, 7^a, 7^b, 7^c, 7^d, 7^e, the blade 6 forming a part of a tubular metallic piece adapted to be secured by a set screw 8′ to the shaft 4. A tube of fiber or other insulating material is mounted on the shaft, on which is mounted a cooperating terminal 8, the flexible end of which may be brought into engagement with one of the circumferentially arranged contacts 7, 7^a, 7^b, 7^c, 7^d or 7^e mounted at different radial angles in the base 2 and which lead to binding posts 9, 9^a, 9^b, 9^c, 9^d, and 9^e forming an outside terminal for the contacts 7, 7^a, 7^b, 7^c, 7^d and 7^e. Binding posts 9, 9^a, 9^b, 9^c, 9^d and 9^e may be marked to correspond to the respective binding posts of the receiving instrument and an offset to act as a stop 9′ serves to limit the rotary movement of the switch which is cross connected with the ground post 7^d. The ground binding post 10 of the radio receiver is electrically connected with the contact 7^b, which has a permanent heavy connection with the contact 7^e. Mounted on the base is a flexible contact 11 which bears upon the periphery of the hub portion of the switch blade 8 and which is connected by an electric connection 12 with the contact 7^d to which a permanent connection to earth is made. With this system of connections, when the switch is in the position shown in Figure 3, the long antenna terminal of the receiving instrument is in circuit with the aerial and ground by way of the antenna 13, the post of the switch, the switch arm 6, contact 7, the long antenna post of the radio receiving instrument, through the coils of the receiving in-

strument to the ground post of the receiving instrument, contact 7^b, cross connection to 7^e, switch blade 8, fixed connection 11, lead 12, contact 7^d and ground. By rotating the switch arm 6 anti-clockwise the switch blade 6 will engage the short antenna contact connected with the middle binding post of the radio receiving instrument, when the instrument will be in circuit with the shorter antenna and received impulses will traverse the coils of the instrument to the ground binding post, as before described, by way of antenna 13, blade 6, contact 7^c, middle radio terminal radio tuning coil and ground receiving posts to contact 7^b, contact 7^e, blade 8, wire 12 and ground post contact 7^d, to earth. By rotating the switch arm 6 to the left the switch arms 6, 8 will be brought into contact with ground at contact 7^d, while the antenna 13 will be directly brought to earth through the cross connection in the switch to contact 7^d and earth, thus affording a direct path to ground for lightning while all connection with the radio receiving instrument is cut off.

It will thus be apparent that one of a plurality of antennæ may be accommodated in my instrument and that a direct path to ground is provided when the receiving instrument is out of use.

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

1. A switch of the class described comprising a base of insulating material, a shaft rotatably mounted upon the base, a finger knob upon the shaft, an annular series of equidistantly spaced contacts upon the base concentric to the shaft, a sleeve of conducting material fixed upon the shaft and having a circumscribing recess near one end, a collar of insulating material in said recess, a spring contact extending from the sleeve and engageable at its free end with the first mentioned contacts, in the rotation of the shaft, a spring contact having a ring mounted upon the collar and engageable at its free end with the first mentioned contacts, in the rotation of the shaft, a binding post upon the base, a resilient conductor extending from one of the first mentioned contacts and engaging the ring of the last mentioned spring contact, a conductor bridging two relatively adjacent ones of the first mentioned contacts, and a conductor bridging two diametrically opposite ones of the first mentioned contacts and having an arcuate bend intermediate its ends to extend about the sleeve in spaced relation thereto.

2. A switch of the class described comprising a base of insulating material, a shaft rotatably mounted upon the base, a finger knob upon the shaft, an annular series of equidistantly spaced contacts upon the base concentric to the shaft, a sleeve of conductive material fixed upon the shaft and having a circumscribing recess near one end, a collar of insulating material in said recess, a spring contact extending from the sleeve and engageable at its free end with the first mentioned contacts, in the rotation of the shaft, a spring contact having a ring mounted upon the collar and also engageable at its free end with the first mentioned contacts, in the rotation of the shaft, a binding post upon the base, a resilient conductor extending from one of the first mentioned contacts and engaging the ring of the last mentioned spring contact, a conductor bridging two relatively adjacent ones of the first mentioned contacts, and a conductor bridging two diametrically opposite ones of the first mentioned contacts and having an arcuate bend intermediate its ends to extend about the sleeve in spaced relation thereto, each of the first mentioned contacts having a socket in its outer end, and each of the spring contacts having its outer end overturned to provide a terminal portion to engage in the said first mentioned contacts.

In testimony whereof I affix my signature.

VERNIS O. SYESTER.