

Sept. 24, 1935.

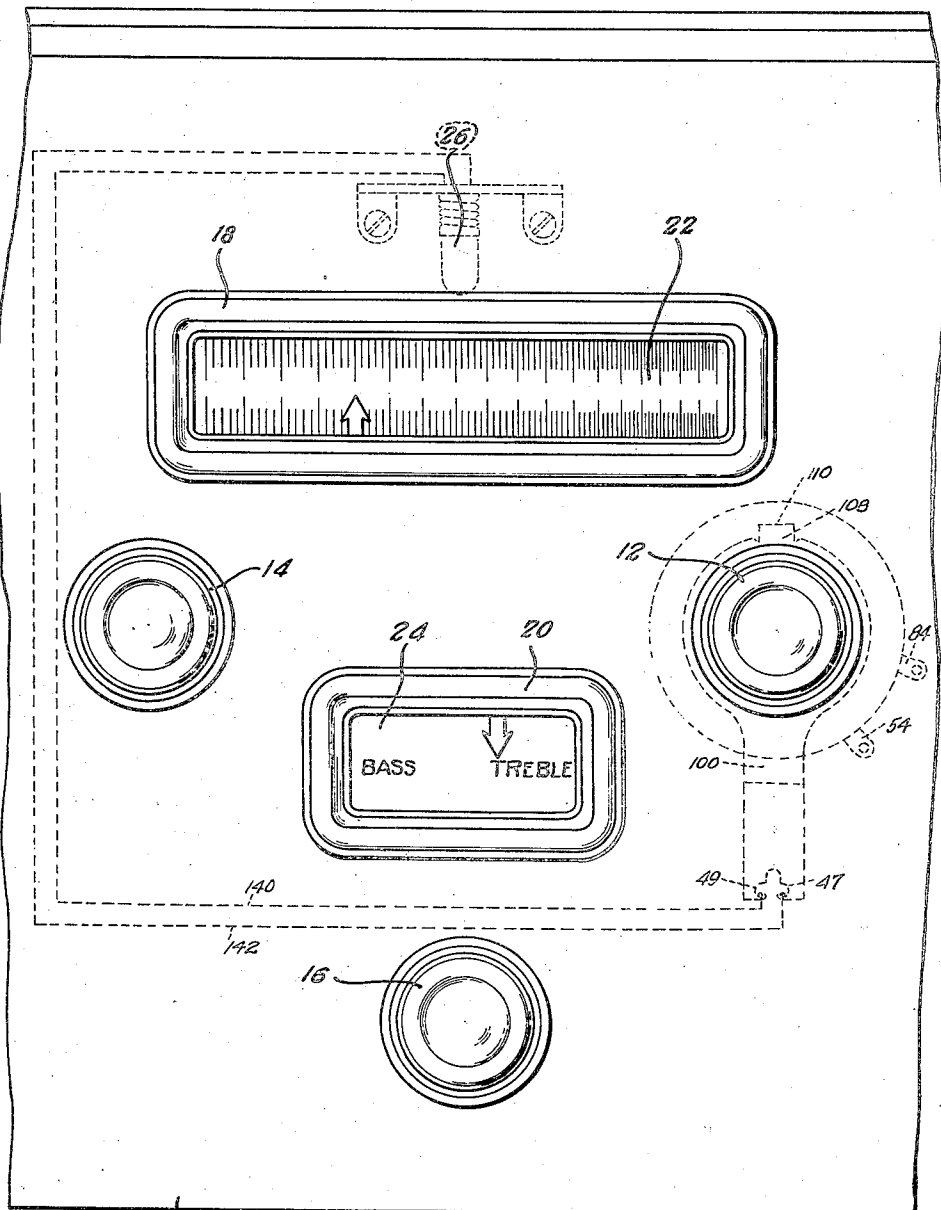
J. Q. GAUBERT

2,015,425

RADIO CONTROL

Filed March 2, 1931

2 Sheets-Sheet 1



10

Fig. 1.

Inventor

JOHN Q. GAUBERT

Spencer, Hardman & Fehr  
Attorneys

Sept. 24, 1935.

J. Q. GAUBERT

2,015,425

RADIO CONTROL

Filed March 2, 1931

2 Sheets-Sheet 2

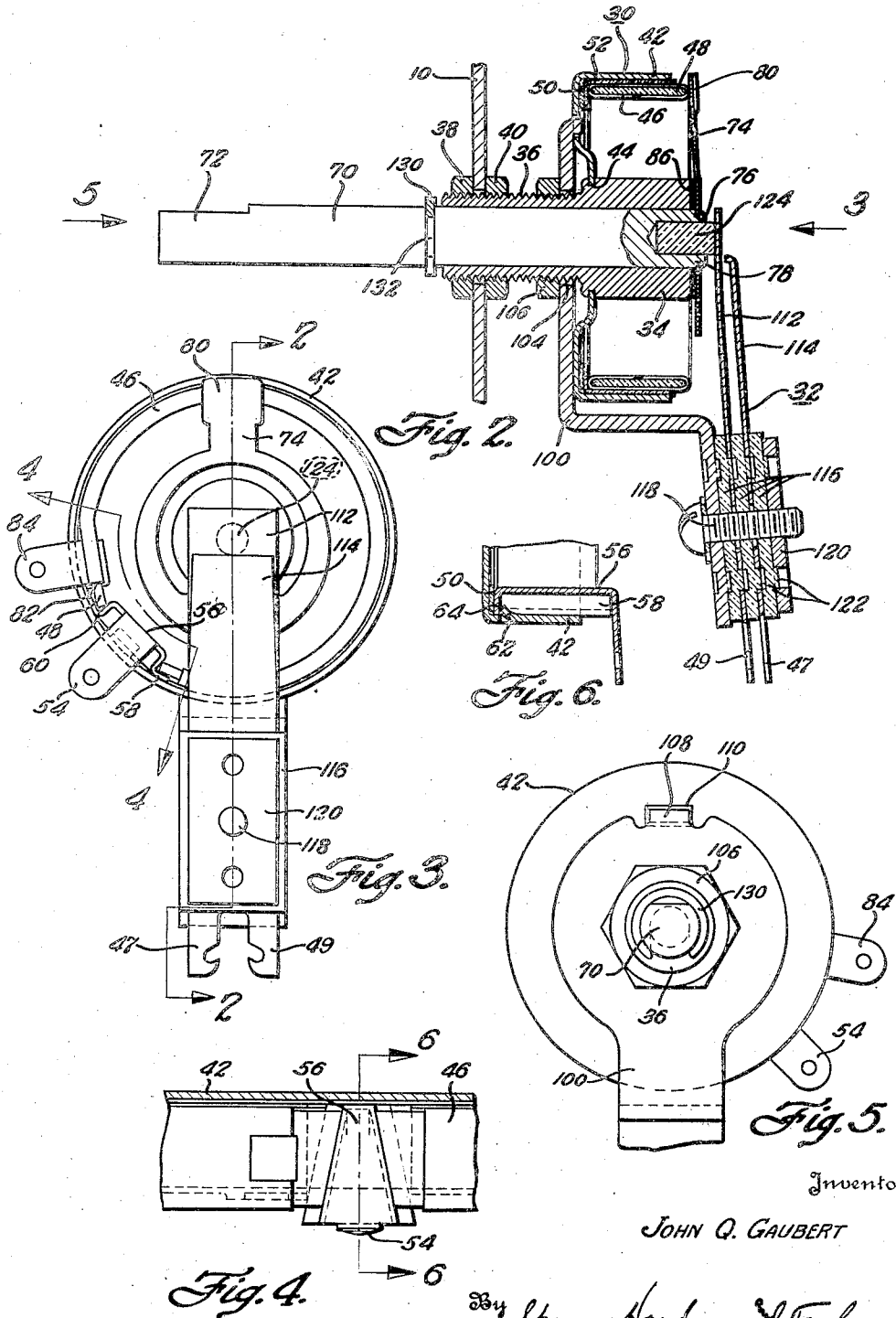


Fig. 2.

Fig. 6.

Fig. 3.

Fig. 5.

Fig. 4.

Inventor

JOHN Q. GAUBERT

Spencer, Hardman & Fisher  
His Attorneys

# UNITED STATES PATENT OFFICE

2,015,425

## RADIO CONTROL

John Q. Gaubert, Dayton, Ohio, assignor to General Motors Radio Corporation, Dayton, Ohio, a corporation of Ohio

Application March 2, 1931, Serial No. 519,351

1 Claim. (Cl. 201—55)

This invention relates to radio control mechanism and more particularly to the illumination of the instrument board during the setting of the receiver.

Where power is available from lighting circuits, it is customary and feasible to illuminate the dials found on the radio receiver whenever the receiver is energized. In battery type receivers where the power is limited it is not feasible to illuminate the dials at all times when the receiver is energized, for the reason, that this would consume too much electric power and cause a rapid discharge of the batteries.

An object of this invention is to provide means for illuminating the dials that are energized only during the manipulation of the controls.

Another object of this invention is to provide a switching mechanism for the pilot circuit that includes the light for illuminating the dial without the addition of extra external control members.

Another object of this invention is to provide a control mechanism that is cheap in construction, efficient, dependable and economical. This has been accomplished by utilizing one of the control members already on the receiver which usually has a rotary movement for changing the circuit that closes the switch upon being actuated axially against the force of a suitable spring.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of one form of the present invention is clearly shown.

In the drawings:

Fig. 1 shows a fragmentary view of the panel of a radio receiver carrying the conventional control mechanism.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 3.

Fig. 3 is a side elevation taken in the direction of the arrow 3 of Fig. 2.

Fig. 4 is a detail sectional view.

Fig. 5 is a side elevation looking in the direction of arrow 5 in Fig. 2.

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

Fig. 1 has been drawn to a smaller scale than the other figures.

In the drawings the reference character 10 indicates a panel of a radio receiver having the control knobs 14, 12 and 16 which may be the station selector, the volume control and the tone selector or the like. The panel 10 is provided

with the escutcheon plates 18 and 20 that surround the dial 22 and the tone selector indicator 24 respectively. The parts thus far disclosed are illustrative and do not form a part of the invention aside from the combination.

It is highly desirable that the dial 22 and the tone selector indicator 24 should be illuminated while the operator manipulates the switch control members. This is the only time that it really is necessary to illuminate these dials. For this reason, a pilot light indicated in dot-dash at 26 has been provided for illuminating the dial. The position of this pilot light is selected so as to produce the most economical illumination of the dial and depends upon the particular design of dial used.

A combined circuit control mechanism such as a resistance element 30, and a switch mechanism 32 is carried upon a tubular supporting member 34 having a reduced end 36 provided with threads that extend through the panel 10 and held in position by the lock nuts 38 and 40. The cup shaped housing 42 seated in an annular groove 44 in the support 34 carries a resistance element 46 that is wound around an insulating support 48 that is substantially cylindrical in shape as best seen in Figs. 2 and 3. In order to insulatingly support the resistance element 46, an annular insulating member 50 and a second insulating member 52 has been interposed intermediate the resistance member 46 and the cup shaped housing 42. One end of the resistance element 46 is connected to a metallic member 54 that is provided with a wedge shaped bridge 56 having substantially L-shaped legs 58 and 60 that engage the beveled ends of the insulating strip 48 and wedge this in position. As the terminal of the resistance element 46, that is attached to element 54 is at the same potential as the cup shaped housing 42, it is not necessary to insulatingly support element 54 with respect to the cup shaped housing 42.

A suitable latch 62 struck out of the cup shaped housing 42 engages a flange 64 integral with the bridge member 56 so as to lock the bridge 56 in position thereby preventing the resistance element 46 and the insulating supporting member 48 from getting out of position.

The resistance adjusting mechanism includes a rotary shaft 70, that may carry one of the knobs 12, 14 or 16 on the external end 72 and that is journaled for rotation in the tubular supporting member 34. A contact lever 74 fitted in the annular groove 76 and held therein by the spun edge 78 slidably contacts at 80 with the re-

sistance element 46 so as to control the effective resistance which includes the portion of the resistance element 46 found between the end 82 electrically connected to the insulatingly supported clip 84 and the point of contact 80 as best seen in Fig. 3, as is well known to those skilled in the art.

A spring washer 86 has been interposed between the tubular support 34 and the short circuiting member 74 so as to insure good electrical contact intermediate member 74 and the cup shaped housing 42.

The switch 32 is carried in a bracket 100 having an aperture 104 through which passes the reduced portion 36 of the tubular support 34 and that is held against the cup shaped housing 42 by a nut 106. In order to prevent rotation of the bracket 100, with respect to cup shaped housing 42, a detent 108 integral with the bracket 100 is located in an aperture 110 in the cup shaped housing 42.

The switch 32 includes a pair of resilient leaf spring contact members 112 and 114 normally biased to the open position that are insulatingly carried on the bracket 100 by a plurality of insulating strips 116 clamped together by a screw 118 passing through a suitable aperture in the bracket 100 and engaging nut 120. The ends 47 and 49 of the contact members 112 and 114 may be used in connecting these contact members into a suitable electrical circuit, not shown.

In order to prevent rotation of the members 112, 114, 116 and 120 suitable recesses and detents 122 have been provided in each of these members.

An insulating abutting member 124 carried in a suitable aperture in the shaft 70 engages the leaf spring contact 112 so that as the shaft 70 is actuated toward the right as viewed in Fig. 2 the switch contacts 112 and 114 will contact so as to close the pilot circuit, shown schematically in Fig. 1. A suitable collar 130 has been positioned in the groove 132 located in the shaft 70 so that the movement of the shaft 70 is limited by the washer 130 engaging the tubular support 34.

As may best be seen in Fig. 1 a pilot circuit, including the leads 140 and 142, extends from the pilot light 26 to the switch mechanism 32. Leads

140 and 144 extend to a suitable power source which may be either A. C. or D. C. current. Clips or metallic members 54 and 84 may be used in connecting the rheostat into a suitable circuit (not shown) for a radio receiver.

#### Operation

As the shaft 70 is rotated by the operator actuating the control knob mounted thereon, the magnitude of the resistance will be changed and by actuating the shaft 70 longitudinally the switch contact carried by the leaf springs 112 and 114 will close the pilot circuit. It can be readily seen that if the operator desires to select a station he merely presses the knob mounted on the shaft 70 toward the panel so as to cause the dial to be illuminated. He may then rotate whatever control knob he desires. Upon the release of the pressure applied to the control knob on the shaft 70, the leaf spring 112 restores the shaft 70 to the out position and opens the switch 32 thereby open circuiting the pilot circuit.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claim which follows.

What is claimed is as follows:

A dual control device for a radio instrument comprising in combination, a hollow sleeve, a cup shaped housing mounted thereon, a resistor element mounted in said housing, insulation means interposed between said housing and said resistor, a bracket carried by said sleeve, two normally separated metallic switch members mounted on said bracket, insulation means between said bracket and said switch members and also between said two switch members, a shaft mounted within said sleeve for rotation and endwise movement, a contact arm secured to said shaft and in engagement with said resistance element, one end of said shaft being in constant engagement with one of said switch members and said member having a sufficient degree of flexibility to move said shaft to its normal position after it has been displaced endwise to operate said switch.

JOHN Q. GAUBERT.