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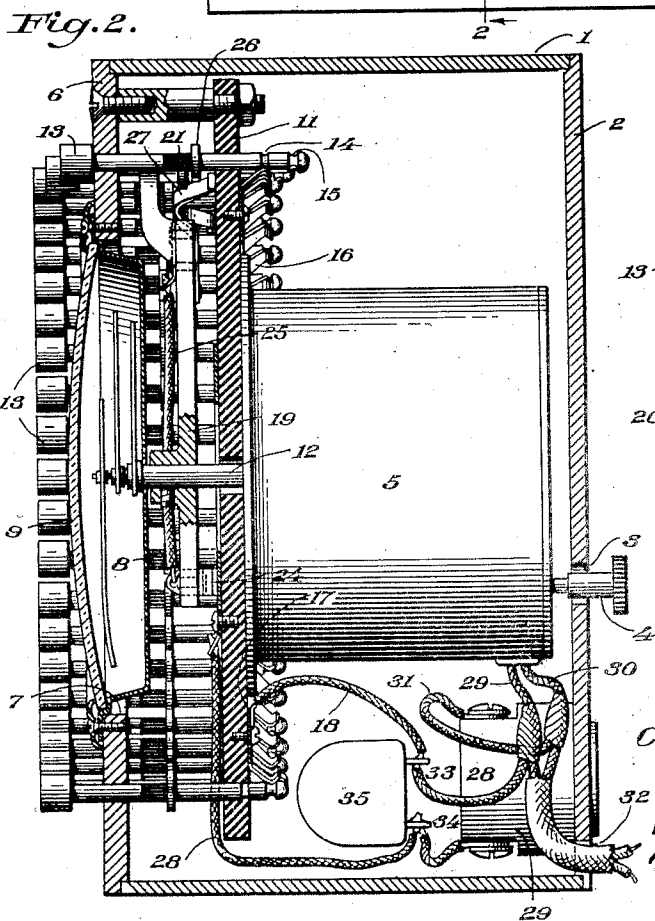
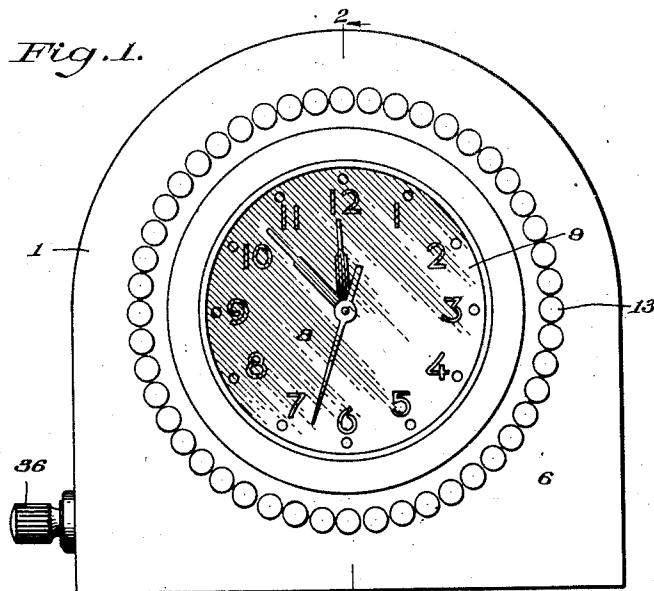
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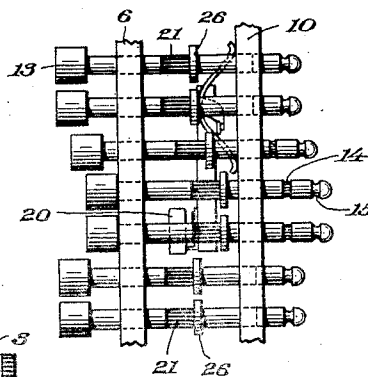
AUTOMATIC TIME CONTROL FOR RADIOS

Filed Nov. 17, 1941

2 Sheets-Sheet 1



*Fig. 3.*



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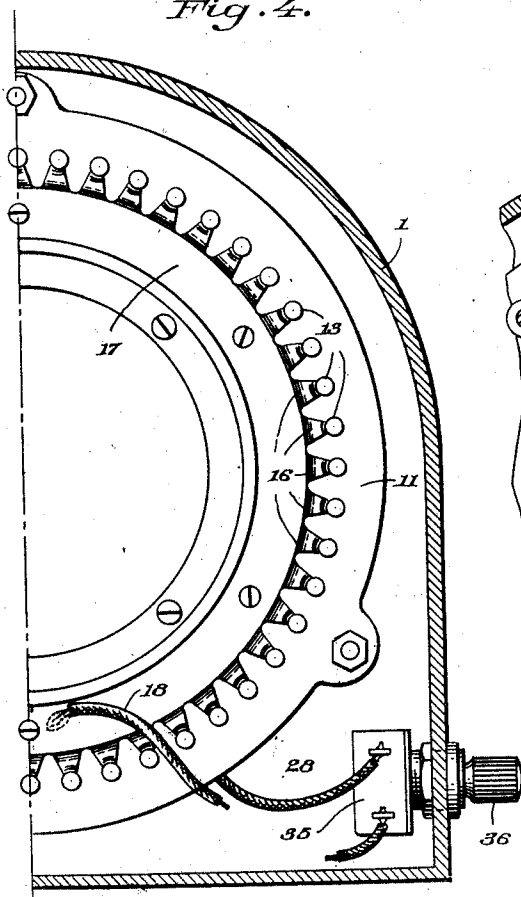
**2,309,040**

# AUTOMATIC TIME CONTROL FOR RADIOS

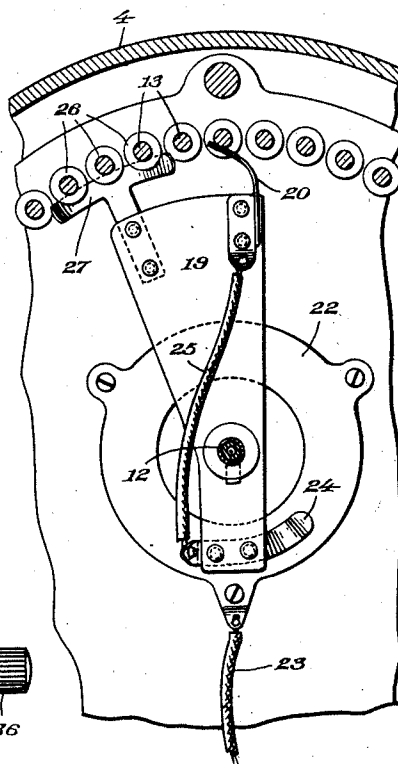
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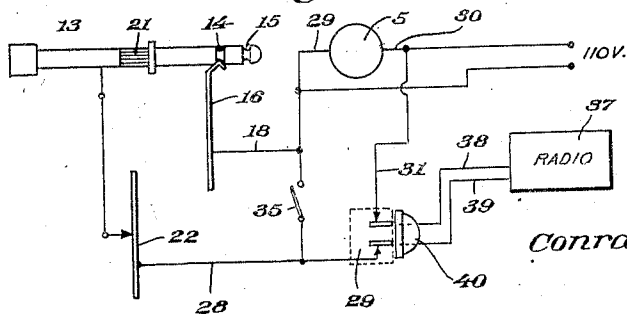
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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## UNITED STATES PATENT OFFICE

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## AUTOMATIC TIME CONTROL FOR RADIOS

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Application November 17, 1941, Serial No. 419,510

6 Claims. (Cl. 200—37)

The invention relates to improvements in automatic time control for radios.

The object of the invention is to provide a control of this character operated by a clock mechanism, whereby a radio is automatically set into operation for a predetermined time during one revolution of the hour hand of a clock.

Another object of the invention is to provide a control of this character in which the time setting mechanism is automatically restored to its normal inoperative position after the radio has been in operation the predetermined time, so that, upon the second revolution of the hour hand, the radio will not be set in operation.

A further object of the invention is to provide a control which is simple in design, easily operated, cheap to construct and positive in operation to insure the operation of the radio for a predetermined length of time.

In the accompanying drawings:

Figure 1 is a front view of my improved automatic control;

Figure 2 is a vertical sectional view, taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged plan view of several of the time setting contacts in different positions;

Figure 4 is a rear plan view, broken away, with the rear closing plate of the case removed;

Figure 5 is a vertical sectional view, broken away, showing the movable contact arm in engagement with the time setting contact and the resetting means;

Figure 6 is a diagrammatical view of the wiring for the control, electric clock and the radio.

Referring now to the drawings, 1 represents a casing having a removable rear closing plate 2, provided with an opening 3 through which extends the setting stem 4 of the electric clock 5. The casing is provided with a removable front plate 6, having a central opening 7, in which is arranged the dial 8 of the clock, and the glass cover 9 therefor. The inner face of the front closing plate is provided with a series of studs supporting a circular plate 11 of insulating material and through which the shaft 12, of the electric clock, passes. The closing plate 6, around the dial of the clock, is provided with forty-eight openings, in which are arranged the contact time setting buttons 13 which extend inwardly and through openings in the plate 11. The inner ends of the buttons are provided with two annular grooves 14 and 15, into which are snapped the spring arms 16, carried by the rear face of the insulated plate 11. By this struc-

ture, it will be seen that the buttons are held in either an inward or outward position, as will be hereinafter more fully described. The spring arms are connected to a ring-like plate 17, carried by the insulated plate 11 and has connected thereto an electric wire 18 leading to the service wires. The shaft 12 of the electric clock carries the hour hand, and mounted on said shaft, and rotated therewith, is an arm 19 which is provided at its outer end with a spring contact member 20, adapted to engage the time setting buttons between the plates 6 and 11. These buttons have the portion 21 insulated and when they are in their outward position, the spring contact member 20 is on the same and the circuit is broken.

Secured to the outer face of the insulated plate 11 is a ring-like member 22 connected by the wire 23 to the service wire. This ring-like member surrounds the shaft 12 of the clock and is engaged by a spring brush 24 carried by the arm 19, whereby the contact is made. The arm 19 is of insulating material and connecting the brush 24 and the spring 20 is a wire 25. The push buttons 13, as heretofore stated, are normally in an outward position, with the brush 20 engaging the insulating material 21, and the spring arms 16 are in the peripheral groove 15 to hold the buttons in their outward position. The buttons on the inside of the insulating material 21 are provided with annular flanges 26, which are engaged by the spring member 27, carried by the outer end of the insulated rotating arm 19. By this structure, it will be seen that, when a button is forced inwardly and the contact 20 has engaged the button beyond the insulating material, the circuit is closed and the radio is set into operation. As the arm 19 rotates, the spring member 27 engages the flange 26, forcing the buttons outwardly, so that, in the next rotation of the arm 19, the spring contact will engage the insulation 21 on the button. It will be seen that, upon the second rotation of the arm 19, the radio will not be set into operation. Connected to the plate 24 is a wire 28 leading to the radio socket 29. The wire 18 leads to the electric clock and the return 30 from the clock is connected by a wire 31 to the radio socket. The service wires enter the case through an opening 32.

The wires 18 and 28 are connected to terminals 33 and 34 of the electric switch 35, which is operated by means of a button 36 extending through the case. The radio 37 is connected by the wires 38 and 39 to a plug 40, which is adapted to be

placed in the socket 29, whereby the radio is connected to the circuit of the time controlled mechanism.

In operation, the desired button 13, representing a certain time, is pushed inwardly and the succeeding button is pushed inwardly, representing the period of time of fifteen minutes, in which the radio is to be played. If, however, it is desired to play the radio a longer period of time, a button can be pushed representing thirty, forty-five minutes, or any length of time, each succeeding button representing fifteen minutes. The movement of the button inwardly brings the spring arm 20 into contact with the portion thereof which is not insulated; and, by means of the brush 24 engaging the plate 22, the circuit is closed through the wire 23. The spring arms 16 are at all times in electrical contact with the buttons. These arms are carried by the plate 19, which in turn is connected by the wire 13 to the switch 35. The arm 19, as is understood, is carried by the hour shaft of the clock 5. After the spring contact 23 has passed from the button pressed inwardly, the spring member 27 engages the annular flange 26, carried by the button, and forces the same outwardly bringing the spring arm 20 into engagement with the insulation 21 and the circuit is broken when the radio is stopped.

Having thus described my invention, what I claim is:

1. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a period of time, an arm carried by the hour hand shaft for engaging an insulated portion of the push buttons, means for moving the push buttons to bring the arm off of the insulated portion of the buttons to complete the circuit, and automatic means carried by the arm for returning the buttons to their normal positions after the hour hand shaft has passed the inwardly pressed buttons.

2. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a period of time, an arm carried by the hour hand shaft and having a spring arm normally engaging an insulated portion of the button, means whereby said buttons may be moved inwardly to complete the circuit through the spring arm, individual spring contacts engaging the push buttons for holding them in their adjusted positions, and a spring arm carried by the arm on the hour hand shaft for engaging the buttons and returning them to their normal outward positions after the spring contact has passed the button or buttons.

3. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a

period of time, an arm carried by the hour hand shaft, a spring contact carried by the outer end of the arm and normally engaging an insulated portion of the individual button, spring contacts engaging the inner ends of the buttons and adapted to enter grooves in the periphery thereof for holding the buttons in their adjusted positions, collars carried by the buttons, and a spring member carried by the arm and engaging the collars for forcing the buttons outwardly after the spring contact has passed over the button or buttons.

4. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a period of time, an arm carried by the hour hand shaft, a ring-like contact plate surrounding the hour hand shaft, a spring brush carried by the arm and engaging the ring, a spring contact carried by the outer end of the arm and normally engaging an insulated portion of the individual button, a spring contact engaging the inner end of each button and adapted to enter grooves in the periphery thereof for holding the same in their adjusted positions, a ring carrying said spring contacts, an electrical connection for said ring, collars carried by the buttons, and a spring member carried by the arm and engaging the collars for forcing the buttons outwardly after the spring contact has passed over the buttons.

5. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a period of time, an arm carried by the hour hand shaft, a ring-like contact plate surrounding the hour hand shaft, a spring brush carried by the inner end of the arm and engaging the ring-like contact, a spring contact carried by the outer end of the arm and normally engaging an insulated portion of the individual button, a ring-like contact at the inner ends of the buttons, spring contacts carried by said ring and adapted to enter grooves in the periphery thereof for holding the same in their adjusted positions, collars carried by the buttons, and a bowed spring member carried by the arm, the central portion of which is adapted to engage a collar on the button for forcing the same outwardly after the spring contact has passed over the same.

6. A radio time control, comprising a casing, a clock arranged therein, push buttons arranged around the dial of the clock and representing a period of time, an arm carried by the hour hand shaft for engaging an insulated portion of the push buttons, means for moving the push buttons to bring the arm off of the insulated portion of the buttons to complete the circuit, and a cam means carried by the arm for engaging the buttons and returning them to their normal positions after the hour hand shaft has passed the inwardly pressed buttons.

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