

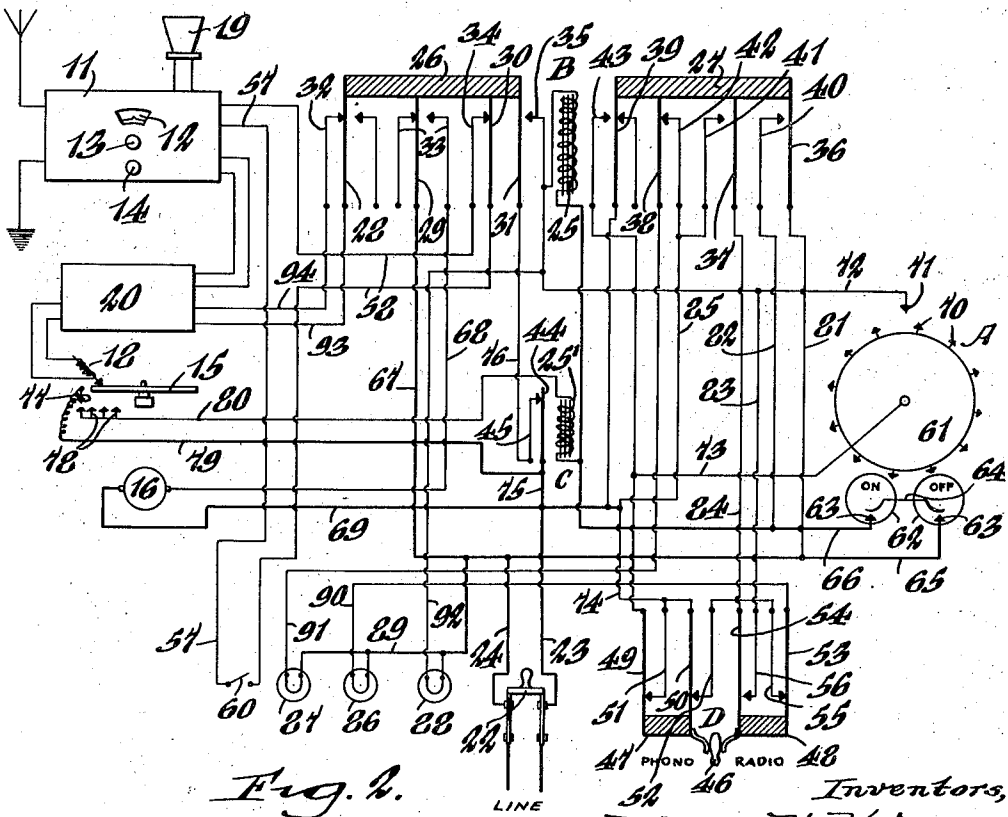
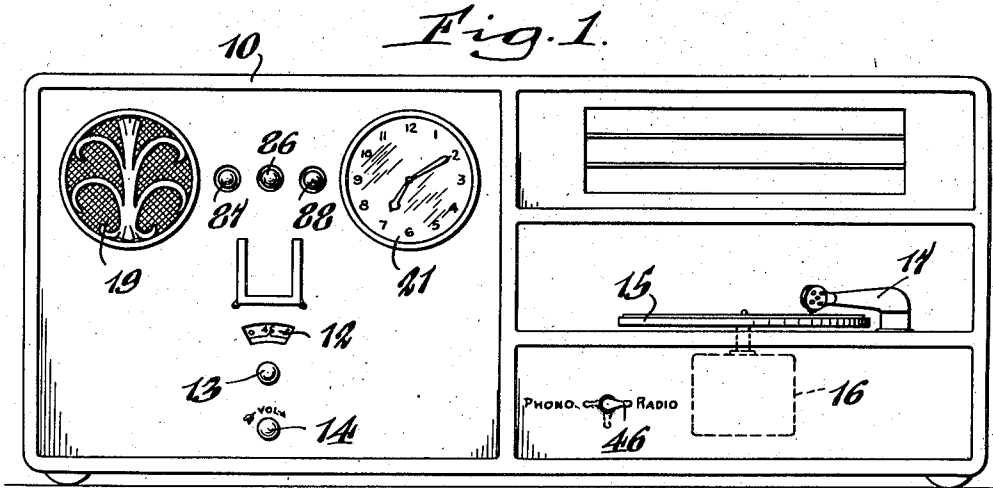
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SOUND EMITTING APPARATUS

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SOUND EMITTING APPARATUS

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This invention relates to certain new and useful improvements in sound emitting apparatus and more particularly to a combined radio receiving set and phonograph or like device from which recorded messages or the like may be produced.

One of its objects is to provide an apparatus of this character which is designed to automatically offer radio entertainment interspersed with recorded messages of general interest or of an advertising nature.

Another object of the invention is to provide a novel and efficient sound producing apparatus designed for installation in stores, public places, street cars, and other places and having simple, efficient and positive means for controlling at predetermined time intervals the operation of the radio receiving set and the phonograph.

A further object is the provision of a combined radio receiving set and phonograph including means for effecting the manual control of such sound producing devices at the will of the user.

A still further object of the invention is to provide an apparatus of this character having means for visibly indicating to the listeners which of the two sound-producing devices is operating, and also to indicate whether the apparatus is working under manual or automatic control.

Other features of the invention reside in the construction and arrangement of parts herein-after described and particularly pointed out in the appended claims.

In the accompanying drawing:—

Figure 1 is a front view of a cabinet embodying the apparatus constituting our invention. Figure 2 is a diagrammatic view of the apparatus embodying our invention.

Similar characters of reference indicate corresponding parts throughout the several views.

In its general organization, our apparatus which we have termed an "autoradiograph", consists of a radio receiving set, an auxiliary sound producing unit preferably in the form to produce recorded messages and illustrated herein as an electrically operated phonograph, a loud speaker common to the radio set and the phonograph, means for automatically rendering either the radio set or the phonograph operative, and a time control mechanism for predetermining the playing of the phonograph and the switching "on" of the radio receiver to alternately offer radio entertainment interspersed with recorded announcements for advertising or other purposes.

In carrying out our invention, the radio receiving set and phonograph are preferably housed in any appropriate cabinet 10, the radio receiver being of any suitable and well known construction and indicated generally by the numeral 11, while 12 indicates the tuning dial, 13 the tuning knob and 14 the volume control knob thereof. The phonograph may likewise be of any well known construction, 15 indicating the record-supporting turn table, 16 the motor for driving it and 17 the tone arm equipped with a magnetic pick-up 18 shown diagrammatically in Figure 2. Common to both the radio receiver and the phonograph is a loud speaker unit 19 including a vacuum tube amplifier 20 connected with the tone arm of the phonograph to step-up or increase its tone volume. Instead of employing a phonograph, any other sound reproducing device may be used, such for example, as an apparatus for reproducing sound from film. If desired, a clock 21 may be mounted on the front or control panel of the cabinet, such clock being employed for controlling, at predetermined time periods and through other instrumentalities, the playing of the phonograph and the radio receiving set.

The means for automatically rendering the phonograph or the radio receiving set independently operative at predetermined time intervals, and thereby afford radio entertainment interspersed with appropriate announcements or advertising messages suitable to a given occasion or to the store or other place wherein the apparatus is installed, is preferably electrical, embodying generally a time controlled switch which, when closed at a pre-set time as when the phonograph is to play, establishes a circuit which not only breaks or cuts off the current supply to the radio receiver to silence it but which simultaneously closes the circuit of the phonograph and brings it into operation. After a predetermined lapse of time, governed by the length or duration of the recorded message or announcement to be given, a switch controlled by the tone arm or like governing element of the phonograph is closed and functions through the medium of the other elements in the circuit to cut off the phonograph to silence it and at the same time reestablish and close the circuit to bring the radio receiver again into operation. Means are also provided for manually controlling the circuits, so that the phonograph can be played as long as desired or the radio receiving set can be played continuously. The phonograph may also include any suitable and well

known means (not shown) for automatically effecting the repetition of one or more records.

In its preferred construction the mechanisms and circuits for accomplishing these results are constructed and arranged as follows:—

Referring now to the circuit diagram depicted in Figure 2, 22 indicates the line or power switch and 23, 24 the feed wires leading from the switch terminals for supplying the current used in the operation of the various instrumentalities included in the circuit. The letter A indicates generally the electric clock control unit which may be of any ordinary and well known construction; B indicates one or more relays which will be hereinafter referred to as the "master control" relay and which, in its normal deenergized position, maintains the controlling circuit of the radio receiver closed, so that it will operate, and the circuit of the phonograph open, so that it will be inoperative or silent, while when said relay is energized it acts to render the radio set inoperative or silent and the phonograph operative; C indicates a second relay which will be hereinafter referred to as the "cut off" relay and which is in cooperative relation with or in the circuit of the master control relay to act as a breaker therefor, as when automatically switching from the playing of the phonograph to the playing of the radio receiver; and D indicates a manually controlled switch, which, when in its normal or neutral position, places the circuits in condition for the automatic control of the phonograph and the radio receiver, and which when set in one or the other of two positions permits the playing as long as desired of the phonograph or the radio receiver.

The master control relay B, diametrically shown in Figure 2, comprises a coil 25 and two armature sections 26 and 27, the armature section 26 carrying contact members 28, 29, 30, and 31 which are adapted to make and break with companion fixed contact members 32, 33, 34 and 35, while the companion armature section 27 carries similar contact members 36, 37, 38 and 39 which are adapted to make and break with companion fixed contact members 40, 41, 42 and 43. The cut off relay C includes a coil 25' and an armature contact member 44 adapted to make and break with a companion fixed contact member 45. The manual controlled switch D consists of an operating lever 46 and two movable switch elements 47 and 48 actuated thereby and manually controlling the phonograph and the radio receiver, respectively, the switch element 47 carrying contact members 49 and 50 adapted to engage corresponding companion contacts 51 and 52, while the switch element 48 has contact members 53 and 54 adapted to engage companion contacts 55 and 56, respectively. When the switch lever 46 is in its pendant or neutral position, the apparatus is in proper position for automatic operation, while when this lever is shifted to the left it is in position for manual control of the phonograph and when shifted to the right is in position for manual control of the radio receiving set.

In the diagrammatic representation of parts shown in Figure 2, the relays B and C are in a deenergized condition, the phonograph is silent and the radio is playing. The control circuit established for playing the radio set may be independent and is shown as including the wires 57 and 58 which are connected at one end to a

switch 60 employed for manually silencing the radio, when desired, and connected at their other ends to one of the tubes in the radio circuit to control the filament voltage supply, the wire 58 having interposed in series therewith the companion contacts 30 and 34 of the relay armature-section 26, such contacts constituting a switch for automatically controlling the "on" and "off" positions of the radio receiver. When the relay B is energized, the contacts 30 and 34 are broken and the voltage supply to the connected radio tube is cut off, causing the filament in the tube to gradually cool off and reduce the emission thereof and producing a fading or dying out of the radio signal. When said relay is deenergized the reverse effect takes place. Other contacts, namely, contacts 29 and 33, operated by this relay are made to establish a circuit for bringing the phonograph into play, as will presently appear.

The energization of the master control relay B which is responsible for the closing of the motor circuit of the phonograph to render it operative, is automatically effected through the time control unit A, the latter consisting of a revolving disk or wheel 61 operatively connected to the minute hand of the clock 21, and "on" and "off" setting dials 62 which automatically govern the time of starting and stopping the apparatus and which include switch contacts 63, 64 closed and opened in accordance with the predetermined time-settings at which the dials are set to thereby control the main circuit of the apparatus. The companion switch contacts 63 are series-connected by wires 65 and 66, respectively, with the feed wire 24, the wire 65 leading directly to such feed wire and the wire 66 being a common and connected to the coils 25 and 25' of the relays B and C, respectively. The master control relay contact member 29 is connected by a wire 67 with the feed wire 24 and the companion contact member 33 is connected by a wire 68 with one terminal of the motor 16, the other terminal of the motor being connected by a wire 69 with the other feed wire 23 of the power line. Therefore, whenever contacts 29 and 33 are closed, the phonograph motor is operated and the phonograph is brought into play, and when said contacts are broken the motor circuit is opened and the phonograph stops playing.

The disk 61 of the time control unit A predetermines the closing of the circuit to bring the phonograph into play and for this purpose has at its periphery a plurality of contacts 70 which are spaced about the periphery of the disk according to the predetermined times when it is desired to operate the phonograph alternately with the radio receiver. Each one of the disk contacts 70 is adapted to successively and intermittently make contact with a fixed contact 71 connected by a wire 72 jointly to the fixed relay contact 35 and to one end of the master relay coil 25, the other end of said coil being connected by the wire 66, contacts 63, 64 and wire 65 to the power line feed wire 23. The disk 61 which is also a conductor, is connected through its axis by a wire 73 with the other side of the power line through the medium of the normally closed contacts 49, 51 of the manually controlled switch D, said contact 51 being connected by a wire 74 with the feed wire 23. With the circuit of the relay B closed whenever a disk contact 70 engages the companion contact 71, the armatures

26 and 27 of such relay are actuated to close and open certain of its controlling contacts, among others closing the contacts 29 and 33 which govern the phonograph motor 16.

5 The duration of contact of the time-controlled switch 70, 71 is only momentary, it being a wiping or brushing contact of approximately 30 seconds and in order to maintain the circuit of the master control relay B "on" to play the
10 phonograph for the predetermined period desired after such switch is opened as well as to effect the breaking of said circuit when the predetermined playing period of the phonograph has elapsed, the relay C is included in the circuit of the relay B. For accomplishing these
15 ends, the normally closed contacts 44 and 45 of the relay C, which relay at this stage of the operation is deenergized, are connected by wires 75 and 76, respectively, to the power feed wire 23 and the master control relay contact 31, whereby the circuit is maintained closed across the contacts 31, 35 and 44, 45, after the clock control switch 70, 71 is opened or broken. The completed circuit thus established to in effect
20 keep the phonograph motor circuit closed is through feed wire 23, wire 75, relay contacts 44, 45, wire 76, the master control relay contacts 31, 35 and its coil 25, and thence through wire 66, contacts 63, 64 and wire 65 to the other feed wire 24, such circuit remaining closed until the
30 phonograph through the medium of the switch controlled by it causes said circuit to be opened to render the phonograph inoperative and the radio receiver again operative.

35 This phonograph-controlled switch is included in the circuit of the cut off relay C and may be of any suitable construction, it being diagrammatically shown in the drawing as consisting of a switch member 77 carried by and movable with the tone arm 17 and a series of suitably spaced, companion fixed switch members 78 which are
40 disposed in the moving path of the switch member 77 and which may be adjustably set as desired in accordance with the playing time of a given message on the record, a single record having a series of independent messages thereon. The movable switch member 77 is connected by a wire 79 with the wire 75 leading to the feed wire 23, while the fixed switch members 78 are
50 severally connected to a wire 80 leading to one end of the coil 25' of the relay C, the other end of this coil being connected to the wire 66 in common circuit with the master control relay coil 25 and leading to the other side of the power line, thus completing the circuit of the relay C to maintain relay B energized and the phonograph playing. When the switch member 77 contacts with one or another of the companion members 78, relay C becomes energized, breaking the contacts 44, 45 thereof to likewise break the
60 previously established circuit of the relay B, and deenergizing the latter to restore it to its original position, wherein the phonograph motor-governing contacts 29, 33 are broken to automatically render the phonograph inoperative and the radio-governing contacts 30, 34 are again closed to automatically bring the radio receiver into operation.

Should the electric clock control unit A cease
70 to function for any reason while the phonograph is playing, we provide means in the controlling circuit for maintaining the master control relay B energized and consequently the circuit of the phonograph motor 16 closed. For
75 this purpose, wires 81 and 82 are connected at

one end to the wires 65, 66 leading to the switch contacts 63, 64 of the clock-setting dials 62 while their opposite ends are connected, respectively, to the contact member 36 carried by the armature 27 of the master control relay and to the companion contact member 40, whereby the circuit of the master control relay is maintained closed across the contacts 36 and 40 should the clock control unit become incapacitated, it being understood that said contacts are closed whenever the master control relay is energized.

By the provision of the manually-controlled switch D, it is possible for the operator to selectively and independently set the apparatus to play the phonograph continuously or the radio receiving set continuously. When it is desired to play the phonograph continuously, the manual-controlled switch lever 46 is turned to the left for the purpose of maintaining the master control relay energized through the switch contacts 54 and 56 rather than through the circuit controlled by the time clock and relay C, thereby dispensing with the time-controlled, automatic operation of switching the radio and phonograph alternately "on" and "off". In the circuit thus established to effect continuous playing of the phonograph, it being understood that the phonograph can come into operation initially only when the time control contacts 70 and 71 are closed firstly, to energize the relay B and secondly, to close the phonograph motor control contacts 29, 33 by such energization of that relay, the path of the current is through wires 24, 65, dial-setting contacts 63, 64, wire 66, coil 25 of the master control relay B, wire 72, then to a branch wire 83 joined at one end to said wire 72 and at its other end to the manual switch contact 56, thence from contact member 56 to the companion contact member 54, through wire 84 to the contact member 37 on the armature 27 of the relay B to companion contact member 41 and through a wire 85 connected at one end thereto and at its other end to the wire 69 leading to the feed wire 23. Thus, as long as the switch lever 46 is in phonograph playing position, the phonograph will continue to play uninterruptedly.

When it is desired to play the radio receiving set continuously, the switch lever 46 is turned to the right which breaks the circuit of the time clock at the switch-contacts 49, 51, thereby preventing the master control relay B being energized and maintaining the radio set "on" across the normal closed contacts 30, 34 of the master control relay. Upon returning the switch lever 55 to its neutral or automatic playing position, the time clock unit again is permitted to function to automatically and periodically control the alternate playing of the radio set and the phonograph.

It will be noted that in the manual operation of this apparatus the time control unit is in no way disturbed or interfered with, and when the switch lever 46 is set at neutral, the automatic time control instrumentalities again come into operation.

For the purpose of indicating whether the apparatus is operating under manual or automatic control or whether the radio set or phonograph is playing, we provide suitable signal or tell tale elements in the operating circuit. Such signals may be in the form of different colored lamps 86, 87 and 88 mounted on the control panel of the cabinet 10 where they may be readily seen. These lamps are connected at one
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terminal by a common wire 89 with the feed wire 24 and by separate wires 90, 91 and 92, respectively, with the respective switch contacts for opening and closing their circuits in accordance with the manual or automatic playing of the sound producing elements. The automatic indicating lamp 86 has its other terminal connected by the wire 90 with the contact 53 of the manually-controlled switch 53, 55, the latter contacts being also included in the circuit of the companion set of contacts 50, 54 controlled by the manual switch D, so that when the switch lever 46 is set at neutral, said contacts are closed and the lamp 86 is lit. The lamp 87 is the radio-indicating playing lamp and its wire 91 is connected to one of the switch contacts 38, 42 controlled by the master control relay B, the companion contact 42 being connected to the wire 85 which leads to the feed wire 23. The lamp 98 is the phonograph-indicating playing lamp and has its wire 92 connected to the contact 35 of the master control relay actuated switch 31, 35, the contact 31 being connected by wire 76, contacts 44, 45 of the relay C and wire 75 with the feed wire 23. Thus, whenever the switch lever 46 is in its neutral position, the apparatus is playing automatically and the lamp 86 is lit constantly through the closing of its circuit at contacts 53, 55 and 50, 54; when the master control relay B is energized through the closing of the time controlled switch 70, 71 and thereafter maintained energized through the contacts 44, 45 of the relay C, the lamp 88 is also lit, indicating jointly with the lamp 86 that the phonograph is playing automatically; when the phonograph is "cut off" by the closing of the contacts 77, 78 and the opening of the relay contacts 44, 45, the circuit of said lamp 88 is opened and it goes out, while the radio indicating lamp 87 is lit through the closing of its switch contacts 38, 42, the latter having been closed by reason of the master control relay having been deenergized by the breaking of the cut off relay contacts 44, 45. When the lever 46 of the manual switch D is shifted to effect the selective manual-controlled playing of the apparatus, the automatic-indicating lamp 86 goes out, its circuit being broken at 53, 55 or at 50, 54, and the lamp 87 or 88 is accordingly lit depending on whether said switch is set for the radio or the phonograph, it being understood that the radio indicator lamp 87 will light whenever the contacts 38, 42 are closed as when the relay B is deenergized, and that the phonograph indicator lamp 88 will light whenever the contacts 31, 35 are closed, as when said relay is energized.

Included in the circuit of the amplifier 20, which is operatively connected to the tone arm, are the switch contacts 28, 32 controlled by the armature 26 of the master relay B and connected by the wires 93, and 94, respectively, with the amplifier tube. When the master relay is energized to play the phonograph, the contacts 28, 32 are broken and the amplifier tube is thereby properly biased to cause the sounds emitted from the phonograph to be amplified; when said relay is de-energized to play the radio, the contacts 28, 32 are closed and the amplifier tube is thereby improperly biased with the result that the amplifier does not properly operate, the loud speaker of the radio receiver producing the tone quality desired.

In order to prevent the radio receiver being manually brought into operation while the phonograph is automatically operating through

the master relay circuit established by the normally closed manual switch contacts 49, 51, and time clock contacts 70, 71, and thereby eliminating any interference with the timing and normal automatic operation of the apparatus, we provide an auxiliary circuit for maintaining the master relay B energized even though its previously established circuit has been broken as when the manual switch lever 46 is moved to radio play position and said contacts 49, 51 controlled thereby are broken. To this end, the contacts 39, 43 controlled by the armature section 27 of the master relay are provided for establishing and maintaining the phonograph circuit operative even though the manual switch lever has been shifted to radio play position. The contact 39 is connected by a wire 95 with the wire 69 leading to the feed wire 23 and the companion contact 43 is connected by a wire 96 with the wire 73 included in the circuit of the time clock switch contacts 70, 71, so that whenever the master relay B is energized by said time clock switch to automatically play the phonograph, the contacts 39 and 43 are closed and a branch circuit is established which retains the relay energized even should the switch lever 46 be moved to a position to break the normal circuit at 49, 51. However, when the predetermined playing time of the record has elapsed, the phonograph will stop playing and the radio receiver will thenceforth play continuously until the switch lever has been moved to its neutral automatic playing position or to radio playing position, at which times the phonograph and radio receiver will alternately and automatically come into operation or the radio receiver will continuously play, respectively.

We claim as our invention:—

1. In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound-reproducing unit, a time-control mechanism for governing the playing interval between said units, respectively, and means controlled by said sound-reproducing unit in correlation with said time-control mechanism for controlling the duration of operation of such unit.

2. In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound-reproducing unit, automatic means for periodically rendering the radio unit inoperative and the auxiliary sound unit operative, and means controlled by said auxiliary sound unit for periodically rendering it inoperative and the radio unit operative.

3. In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound-reproducing unit, automatic time-controlled means for periodically rendering the radio unit inoperative and the auxiliary sound unit operative, and means controlled at a predetermined time in the operation of said auxiliary sound unit for rendering it inoperative, said last-named means being correlative with said time-controlled means to simultaneously render said radio unit operative.

4. In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound reproducing unit, automatic means for periodically and alternately rendering one of said units inoperative and the other operative, means controlled by said auxiliary sound unit for periodically rendering it inoperative and the radio unit operative, and manu-

ally-controlled means for selectively rendering said units operative.

5 In an apparatus of the character described, the combination of a radio receiving unit, and auxiliary sound reproducing unit, automatic means for periodically and alternately rendering one of said units inoperative and the other operative, manually-controlled means for selectively rendering said units operative, means governed by said manually-controlled means for rendering said automatic means inactive whenever said manual means is rendered active, and means for temporarily rendering the manually-controlled means ineffective to selectively play the radio receiver when the auxiliary sound unit is under automatic rendition and effective to play the radio receiver when the time period of the automatic rendition of the auxiliary sound unit has terminated.

6 In an apparatus of the character described, the combination of a radio receiving unit, a phonograph unit having a motor for operating it and a tone arm, automatic means for periodically and alternately rendering one of said units inoperative and the other operative, and means controlled by the phonograph unit for periodically rendering it inoperative and the radio unit operative and comprising an electric circuit including a switch, a time control unit in said circuit for closing said switch at predetermined intervals to render the phonograph operative, and switch means in said circuit controlled by the phonograph tone arm for periodically breaking said circuit to render the phonograph inoperative, said switch means including a plurality of spaced contacts within the playing range of the phonograph record.

7 In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound reproducing unit, automatic time-controlled means for periodically and alternately rendering one of said units inoperative and the other operative, means controlled by said auxiliary sound unit for periodically rendering it inoperative and the radio unit operative, and visible means for indicating to the listener which one of the two units is in operation.

8 In an apparatus of the character described, the combination of a radio receiving unit, an auxiliary sound reproducing unit, automatic means for periodically and alternately rendering one of said units inoperative and the other operative, manually-controlled means for selectively rendering said units operative, means governed by said manually-controlled means for rendering said automatic means inactive whenever said manual means is rendered active, and visible means for indicating to the listener which one of the two units is operative and whether the unit is operating under manual or automatic control.

9 In an apparatus of the character described, the combination of a phonograph having a motor for driving it and a tone arm, an electric circuit including a switch, a time-control unit in said circuit for closing said switch at predetermined intervals to render the phonograph operative, a master relay in the circuit of said time-control unit and said switch for closing the latter when energized to render the phonograph operative, a second relay in said circuit and including switch-contacts in circuit with said master relay to normally maintain the same energized, said second relay being normally de-energized, and switch means in the circuit of

said second relay controlled by the tone arm for periodically closing the circuit of the second relay to break its switch-contacts and de-energize the master relay to open the first-named switch and render the phonograph inoperative.

10 In an apparatus of the character described, the combination of a radio receiving unit including a controlling switch, an auxiliary sound reproducing unit including a motor for actuating it and a switch for controlling the motor, an electric circuit including said switches, an electric time-control unit in said circuit, a master relay for closing and opening said motor-switch and for opening and closing said radio-controlling switch when said relay is energized and de-energized, respectively, a switch actuated by said time-control unit and governing the energization of said relay at predetermined times to close the motor-switch to render the auxiliary sound unit operative and to open the radio-switch to render the radio receiver inoperative, and a second switch controlled by said auxiliary sound unit for governing the de-energization of said relay at predetermined intervals to open the motor-controlling switch to render said sound unit inoperative and to close the radio-controlling switch to render the radio receiver operative.

11 In an apparatus of the character described, the combination of a radio receiving unit including a controlling switch, an auxiliary sound reproducing unit including a motor for actuating it and a switch for controlling the motor, an electric circuit including said switches, an electric time-control unit in said circuit, a master relay for closing and opening said motor-switch and for opening and closing said radio-controlling switch when said relay is energized and de-energized, respectively, a switch actuated by said time-control unit and governing the energization of said relay at predetermined times to close the motor-switch to render the auxiliary sound unit operative and to open the radio-switch to render the radio receiver inoperative, a second relay included in the circuit of said master relay for maintaining the latter energized after the time-control actuated switch is opened, and a second switch controlled by said auxiliary sound unit and included in the circuit of said second relay for controlling the same, said second switch when closed energizing the second relay and breaking the circuit of and de-energizing the master relay to open the motor-controlling switch to render said sound unit inoperative and to close the radio-controlling switch to render the radio receiver operative.

12 In an apparatus of the character described, the combination of a radio receiving unit including a radio frequency tube, an auxiliary sound reproducing unit, automatic means for periodically rendering the radio unit operative and the auxiliary sound unit operative, means controlled by said auxiliary sound unit for periodically rendering it inoperative and the radio unit operative, an electric circuit including the aforesaid means, and switch means in said circuit controlling the filament voltage supply of said radio frequency tube and automatically controlling the "on" and "off" position of the radio unit, said switch means, when opened, cutting off the voltage supply to said tube and causing its filament to gradually cool and reduce the emission thereof to produce a fading out of the radio signal, and to effect a

reversal of such filament action when the switch means is closed.

13. In an apparatus of the character described, the combination of a sound producing unit including a vacuum tube amplifier, an electric circuit including said amplifier and a vacuum tube thereof, and switch means in said circuit controlling the filament voltage supply of said vacuum tube and automatically controlling the "on" and "off" position of the sound producing unit, said switch means, when opened, cutting off the voltage supply to said tube and causing its filament to gradually cool and reduce the emission thereof to produce a fading out of the sound emitted from said producing unit, and to effect a reversal of such filament action when the switch means is closed.

14. In an apparatus of the character described, the combination of a sound producing unit including electric power means for operating it, an electric circuit including said power means, a switch in said circuit for closing the same to operate the sound producing unit, a relay-actuated switch included in the circuit for maintaining it closed should said first-named switch assume an open position, and switch means in said circuit controlled by said sound producing unit at a predetermined time for breaking said circuit to render such unit inoperative.

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