

July 9, 1940.

G. BABCOCK

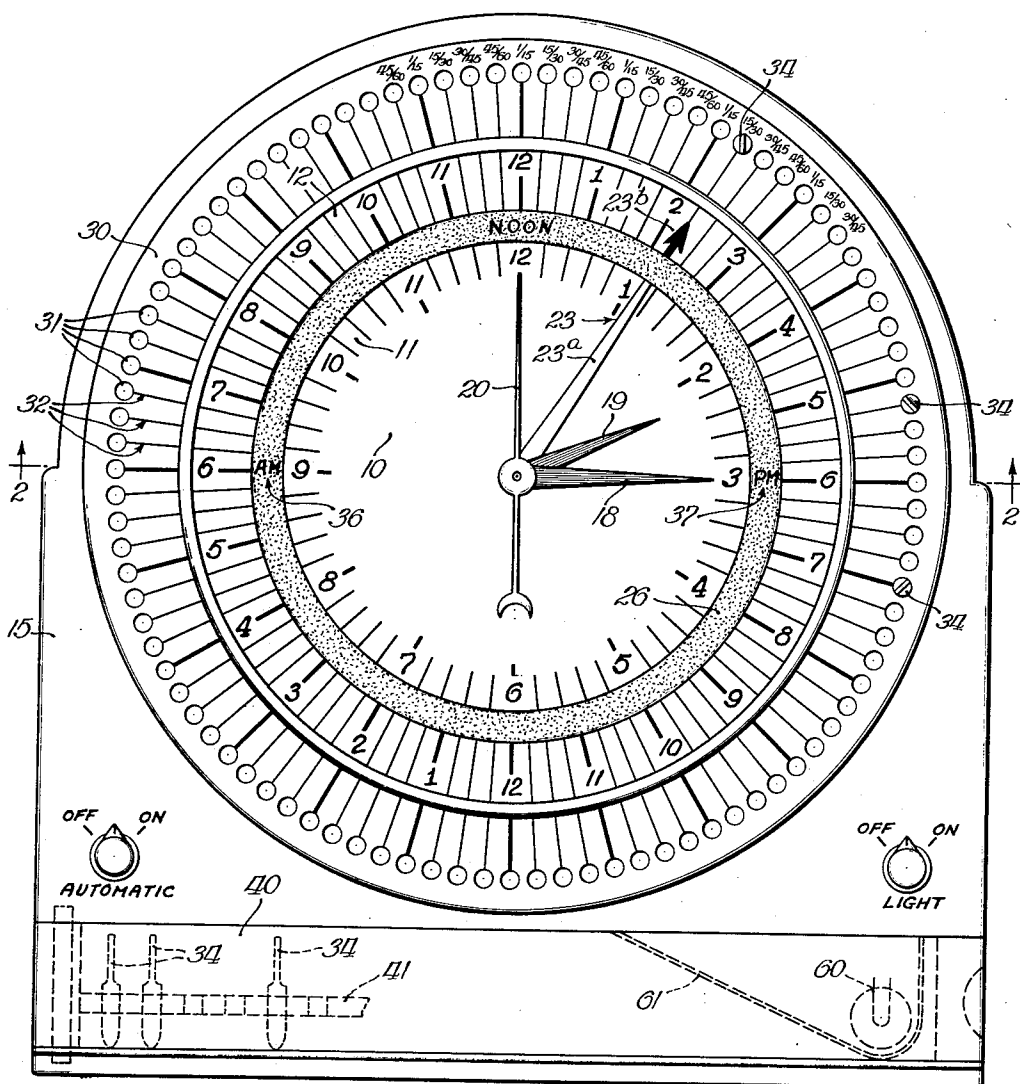
2,207,394

RADIO PROGRAM ANNUNCIATOR

Filed June 21, 1937

3 Sheets-Sheet 1

Fig. 1.



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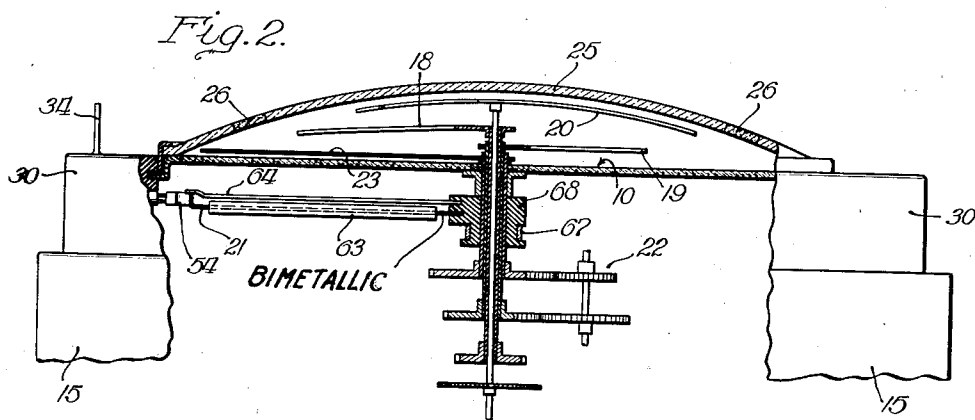
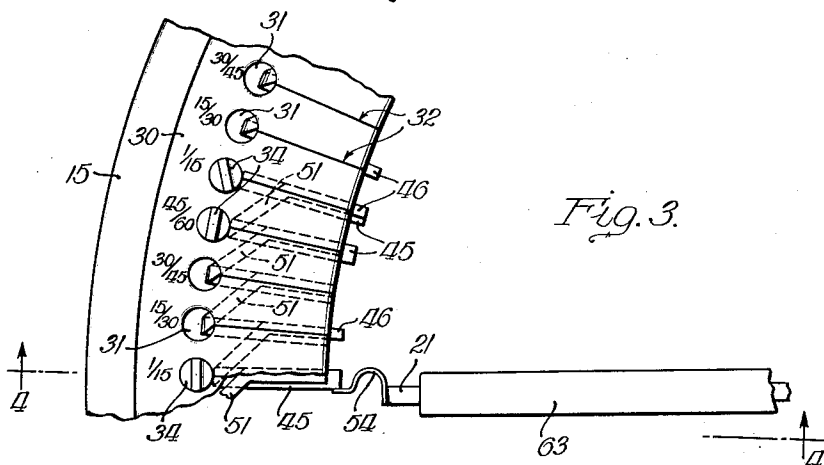
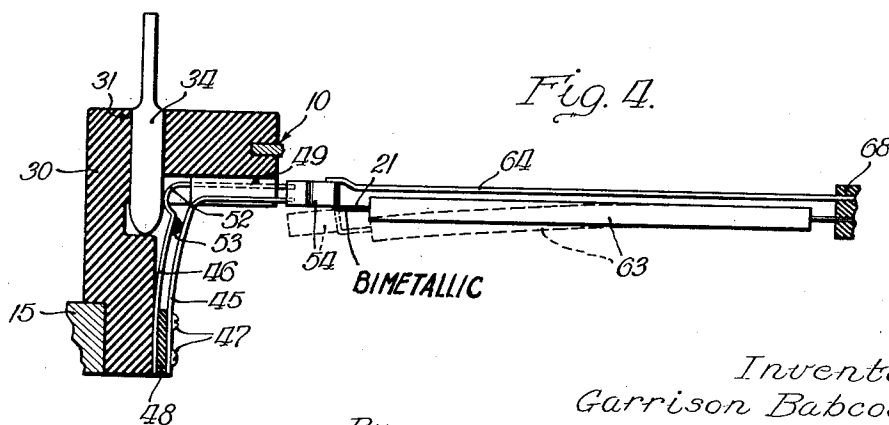
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RADIO PROGRAM ANNUNCIATOR

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3 Sheets-Sheet 2



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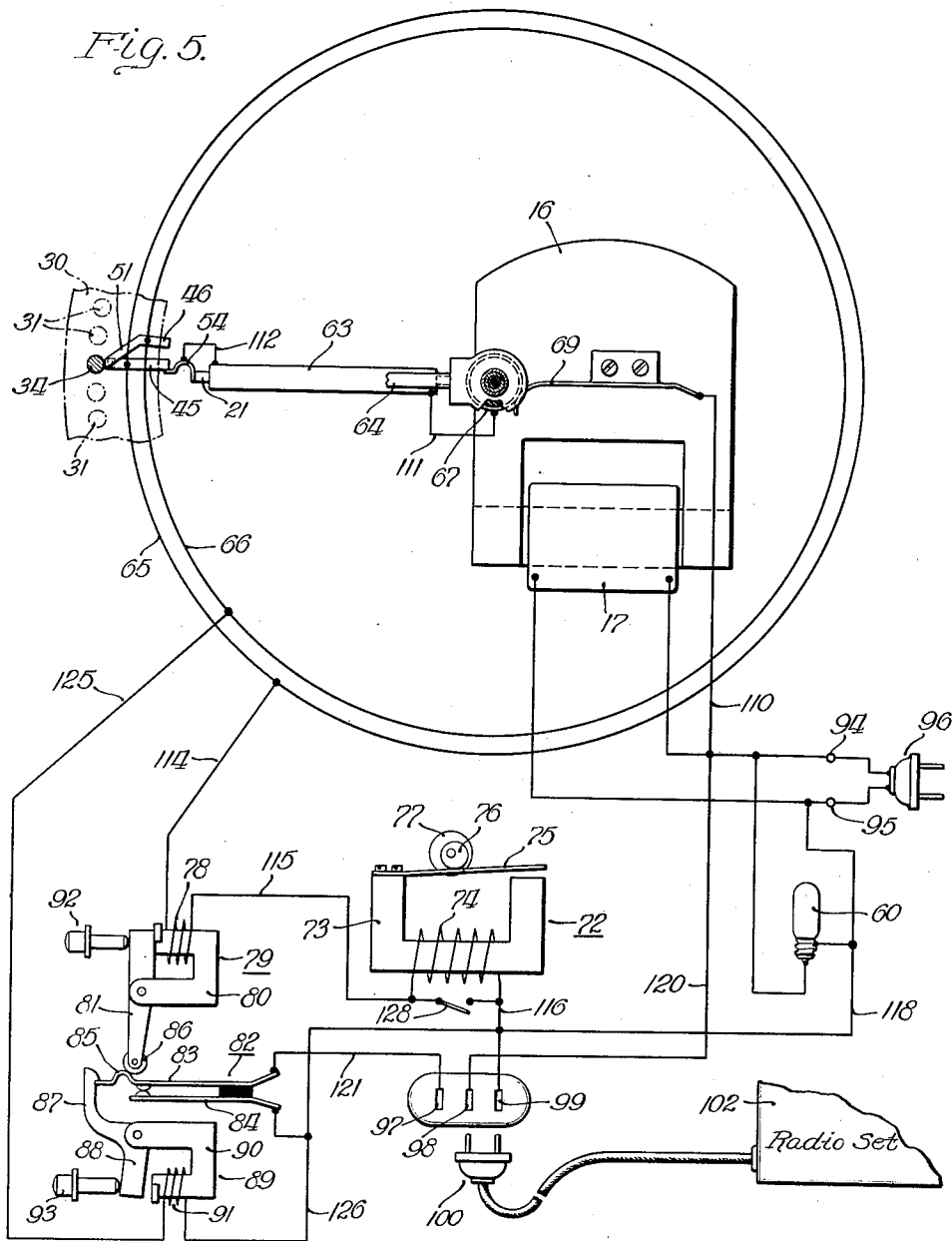
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RADIO PROGRAM ANNUNCIATOR

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,207,394

RADIO PROGRAM ANNUNCIATOR

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Application June 21, 1937, Serial No. 149,390

15 Claims. (Cl. 161—3)

This invention relates to a radio program annunciator, and may be characterized as an improvement upon the radio program annunciator disclosed and claimed in my copending application Serial No. 72,103, filed April 1, 1936, now Patent No. 2,168,662, granted Aug. 8, 1939.

The invention covered by my copending application above mentioned comprises a selecting board having designations indicating intervals of time, a movable hand cooperating with the time indicating designations, and clock mechanism for operating said hand. A plurality of contacts are arranged annularly at the time indicating designations, and a bimetallic contact arm is operated with said movable hand and by means of said clock mechanism past the positions of said annularly arranged contacts. Plugs, designating different radio broadcasting stations, are cooperable with jack holes in the selecting board, selectively with respect to the different time designations thereon, and with said annularly arranged contacts to indicate the radio station broadcasting the selected program at the selected time and to actuate the annularly arranged contacts to position for contact with a contact on the bimetallic contact arm. A circuit controlled by contact of the contact on said bimetallic arm, with the annularly arranged contacts thus actuated to position for contact therewith, has a signal therein which is operated to give a signal at the time indicated for the station designated program to occur.

The invention of the aforesaid copending application further provides for automatically turning on and off a radio set, and for this purpose a plurality of "off" plugs are provided for insertion in "off" jacks at the different time designations on the board. By inserting an "on" plug in the "on" jack at the desired time designation, the radio set is automatically turned on at that time, and a signal is given. By glancing at the device the "on" plug at the signaled time indicates the radio station broadcasting at that time, and the radio set may be tuned to the station thus indicated, or if it has been previously tuned to said station, the desired program will be heard.

An "off" plug is inserted in the "off" jack at the time designation when it is desired to terminate the program, and at that time the contact on the bimetallic arm will contact an annularly arranged contact actuated to position for cooperation therewith by the "off" plug. The engagement of these contacts closes a circuit having means operable to turn off the selected program at the selected time.

The apparatus of my above mentioned copending application requires "on" and "off" plugs and jacks, and distinct operations in inserting not only an "on" plug, but also an "off" plug to turn the desired program on and off at the desired times.

One of the main objects of the present invention is to provide a generally improved and simplified radio program annunciator of the class described and, more particularly, a radio program annunciator with less parts and less operating functions.

It is another and more specific object of the present invention to dispense with the "off" plugs and jacks and the necessity of inserting and removing such plugs or setting the "off" contacts independently of the setting of the "on" contacts, and more particularly to provide means for setting the "off" contacts simultaneously with and by means of the same plugs and operations which set the "on" contacts for engagement with the contact on the bimetallic arm.

Another object is to provide, in a device of this sort, an improved dual face dial having a clock face of the conventional twelve-hour type and a twenty-four hour program indicating dial; also an improved selecting board, particularly with respect to the arrangement of the jack holes therein, and an improved twenty-four hour pointer arrangement.

Another object is to provide the device with a drawer hinged or otherwise mounted for movement to closed and opened positions, and provided with a lamp and reflector arrangement for inner and outer illumination.

Further objects and advantages of the invention will be apparent from the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is a front elevational view of a radio program annunciator embodying the present invention;

Figure 2 is a more or less diagrammatic fragmentary sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a fragmentary view of the selecting board showing the jack holes therein, the "on" and "off" contacts, and the bimetallic contact arm which cooperates therewith;

Figure 4 is a sectional view taken generally on the line 4—4 of Figure 3; and

Figure 5 illustrates diagrammatically the circuit connections for the annunciator.

Referring to the drawings, the improved dual face dial, designated in its entirety at 10, has a

clock face of the conventional twelve hour type, with the twelve hour scale as indicated at 11 surrounded by a twenty-four program indicating scale at 12. The scale 11 has the usual hour markings from one to twelve, and the usual minute markings. The scale 12 covers the twenty-four hours of the day and has the usual hour markings from twelve noon at the top to twelve midnight at the bottom, and from twelve midnight at the bottom to twelve noon at the top, in a clockwise direction around the scale. Each hour division of the scale 12 is divided into quarter hour or other suitable intervals corresponding to the normal length or unit of time upon which the length of radio programs is based. This interval is usually fifteen minutes, and therefore the program indicating scale 12 is shown divided into such intervals, each corresponding to a particular time in the twenty-four hours of the day. The annunciator has an enclosing cabinet 15, and I preferably use as the time motor element a standard twelve hour electric clock mechanism indicated more or less diagrammatically at 16 in Figure 5. The electric clock mechanism 16 has an operating winding 17, and operates through the usual instrumentalities as shown more or less diagrammatically in Figure 2 to rotate the minute hand 18 and hour hand 19 around the scale 11 to indicate the correct time in the manner of the conventional time piece. A second hand, also operated by the electric clock mechanism 16, may be provided as indicated at 20.

The bimetallic contact arm 21 is geared at 22, one to two to the hour arbor of the twelve hour clock movement to make one revolution each twenty-four hours, and a pointer 23 is rotated in unison with the contact arm 21—one revolution per twenty-four hours—and cooperates at its outer end with the twenty-four hour scale 12. The dial 10 and the hands 18, 19 and 20, and pointer 23 are covered by a glass cover 25. To render the pointer 23 inconspicuous with respect to the twelve hour clock face, this pointer is preferably colored at 23a the same color as the twelve hour clock face. The outer end of the pointer 23 which cooperates with the twenty-four hour scale 12 is preferably black or other distinctive color as indicated at 23b with respect to the twenty-four hour dial face, so that its position on the scale 12 is clearly visible at all times.

The inner twelve hour dial face is separated from the surrounding twenty-four hour dial face by a non-transparent ring 26 incorporated in the glass cover 25. Other means for separating these dial faces may, of course, be employed within the scope of the present invention, but the arrangement shown is distinctive and has practical advantages. This and the dual dial arrangement constitute novel aspects of the present invention.

Associated with the twenty-four hour scale 12 and positioned concentrically around the same is a selecting board 30 which is composed of insulating material such as a molded phenolic condensation product in which are located a plurality of jack holes or jacks 31. These jacks 31 are preferably located on a single radius, rather than the staggered two radius arrangement of my co-pending application. The board 30 has quarter hour markings at 32 radially aligned with the quarter hour markings of the scale 12, and one of the jacks 31 is provided at the outer end of each of the quarter hour markings 32. The jacks 31 are merely openings in the selecting

board 30 into which plugs 34 are inserted selectively as desired, as will presently be set forth.

The jacks 31 on the left hand side are the A. M. jacks as indicated by the A. M. marking at 36, and the jacks on the right hand side are the P. M. jacks as indicated by the P. M. marking at 37. Each jack 31 also preferably has its minute designation one-fifteen, fifteen-thirty, thirty-fourty five, forty five-sixty, as shown, and in the disclosed arrangement the hour figures of the twenty-four hour scale 12 are disposed at each fourth jack. There are ninety-six jacks at equal quarter hour intervals around the twenty-four hour scale 12.

At the bottom of the cabinet 15 is a drawer 40 hinged or otherwise mounted for movement to open and closed positions. Within the drawer 40 is a rack or magazine 41 for carrying a plurality of the plugs 34 sufficient in number to select and signal the programs to which it may be desired to listen during the twenty-four hours indicated by the device.

A plurality of sets of annularly arranged contacts 45 and 46 are mounted as shown at 47 in Figure 4 on the insulating ring constituting the selecting board 30, one set of these contacts 45 and 46 being positioned adjacent each jack 31. The contact 45 of each of these sets of contacts constitutes an "on" contact, and the contact 46 of each set constitutes an "off" contact. Each "off" contact 46 is insulated at 48 from the adjacent "on" contact 45. Each contact 45 and 46 is of generally inverted L-shaped form with the lower ends of the upright legs thereof secured to the insulating ring 30 as previously described, and the upper portions disposed generally horizontally in radial grooves 49 in the insulating ring or selecting board 30. One groove 49 is radially aligned with each jack 31, and one "on" contact 45 is likewise radially aligned with each jack and has its horizontally extending upper portion disposed in the groove 49 in radial alignment with the jack with which it is aligned.

The upright leg of each "off" contact 46 is radially aligned with the upright leg of the "on" contact 45 with which it constitutes one set of contacts, but the upper horizontally extending portion of the "off" contact 46 is turned obliquely at 51 and lies in the next adjacent groove 49 clockwise about the selecting board 30. Each contact 46 is humped at 52 to be engaged by the plug 34 upon insertion of the same into the adjacent jack 31, and the engagement of the plug with the hump 34 moves the top horizontal portion of the contact 46 radially inwardly into the path of a flexible contact finger 54 on the outer end of the bimetallic contact arm 21.

Each contact 46 has insulating means at 53 (Figure 4) which, upon actuation of the contact 46 into the path of movement of the contact 54 on the bimetallic contact arm by insertion of a plug 34, engages the "on" contact 45 and moves the top horizontal portion of this contact radially inwardly into the path of movement of the contact finger 54. By reason of the oblique turning of the same at 51, the free or inner end of each "off" contact 46 is disposed one quarter of an hour ahead of the inner or free end of its associated "on" contact 45. When the plug 34 is withdrawn from the jack the contacts 45 and 46 return to their normal positions outside the path of movement of the contact finger 54.

The drawer 40 is provided with a lamp at 60 and a reflector arrangement at 61, as shown in Figure 1, for inner and outer illumination. When

the drawer 40 is closed the lamp and reflector arrangement illuminate the dual dial of the device from the inside, and as the drawer is opened illumination is provided from the outside or by means of a combined illumination from the inside and outside.

The bimetallic contact arm 21 is surrounded by a heating coil 63. On energization of this coil the bimetallic arm will be curved downwardly due to the unequal thermal expansion of its constituent parts to move the flexible contact finger 54 downwardly and out of contact engagement with the annularly arranged contacts to break the circuit, as will presently appear. On deenergization of the heating element 63, the bimetallic contact arm moves upwardly. Its upward movement may be limited by means of an upward limit stop arm 64, or in any other suitable or preferred manner, the stop means being so positioned that when the bimetallic arm 21 is engaged therewith the flexible contact finger 54 will be positioned for engagement with the annularly arranged contacts upon actuation of the same into the path of movement thereof.

As shown in the diagram illustrated in Figure 5 of the drawings, all of the "on" contacts 45 are interconnected by means of a common conductor 65 and all of the "off" contacts 46 are interconnected by means of a common conductor 66. In order to provide a sliding electrical contact for the heating element 63 and the flexible contact finger 54, a collector ring 67 is mounted on the hub 68, and a brush 69 is mounted for contact engagement therewith.

On insertion of a plug 34 in the jack 31 at the 2:15 P. M. position on the scale 12 as shown in Figure 1, the "on" contact 45 at that position is actuated into the path of movement of the contact 54 on the bimetallic contact arm 21 to engage the contact 54 at the time corresponding to the position of the plug 34, and the adjacent "off" contact 46 is actuated by the same plug 34 to position to engage the contact 54 fifteen minutes after the engagement of the contact 54 with the "on" contact 45. This eliminates the necessity of separate "off" plugs and jacks, which simplifies the annunciator and reduces the cost, and the additional operations required by such "off" plugs and jacks are also eliminated.

In order to provide an audible signal at the time that a preselected radio program should be heard as determined by the position of the plug 34, a buzzer shown generally at 72 is provided. This buzzer 72 may comprise a core 73 of magnetic material of U-shaped form and provided with an operating winding 74. The sound may be provided by means of a reed 75 which may be secured to one end of the core 73 as illustrated, and which may be adjusted by means of a cam 76 from the knob 77 which may be mounted on the cabinet 15.

The operating winding 74 of the buzzer 72 is arranged to be energized in series circuit relation with an operating winding 78 of an "on" relay shown generally at 79, which comprises a core 80 and pivotally mounted armature 81, at the lower end of which is a roller 86. The "on" relay 79 is arranged to control the operation of a switch 82, which comprises a pair of spring contact members 83 and 84, the upper contact member 83 being provided with an upwardly curved portion 85 with which the roller 86 may engage to cause the contact members 83 and 84 to be moved into contact engagement.

The contact members 83 and 84 are held in

contact engagement by means of a latch 87 which is carried by an armature 88 of an "off" relay 89 having a core 90 and an operating winding 91, as illustrated. The "on" and "off" relays may be manually operated by means of the "on" and "off" buttons 92 and 93 mounted in the side of the cabinet 15, or in other suitable position, and shown more or less diagrammatically in Figure 5. It will be noted that the buttons 92 and 93 are arranged to move the armatures 81 and 88, respectively, to effect manually what is accomplished automatically on energization of the operating windings 78 and 91 of the "on" and "off" relays, respectively.

The program annunciator may be energized from a source of alternating current, and for this purpose terminal connections 94 and 95 are provided. The connections 94 and 95 may be plugged into a suitable power outlet by a cord and plug combination 96.

In certain instances it is desirable to operate a radio set automatically under the control of the program annunciator. For this purpose, contacts 97 and 98 are provided. In other instances it may be desired to operate the set independently of the program annunciator, and, for this purpose, an additional contact 99 is provided. The contacts or terminals 97, 98 and 99 may be mounted in a suitable terminal block and so spaced that the plug of the plug and cord combination 100 may be inserted to engage either the terminals 97 and 98, or the terminals 98 and 99. The plug and cord assembly 100 may be connected to a radio set 102, the operation of which it is desired to control by means of the program annunciator, or which it may be desired to operate independently thereof on operation of the buzzer 72.

In describing the operation of the program annunciator, it will first be assumed that the cord and plug assembly 100 is connected to the terminals 98 and 99 and that a separate switch (not shown) is provided for controlling the radio set 102. The various plugs 34 from the magazine or rack 41 are inserted in the various jacks 31 in the selecting board 30 corresponding to the programs and stations which it is desired to listen to at various times throughout the day. The clock mechanism 16 is energized, and the hand or pointer 23 and the flexible contact finger 54 carried by the bimetallic contact arm 21 will be rotated to positions corresponding to the time of day. The light 60 will also be lighted to illuminate the face of the annunciator.

Assuming that one of the plugs 34 is inserted in the jack corresponding to the 2:15 P. M. position as shown in Figure 1, and that this time has arrived, then the flexible contact finger 54 will engage the "on" contact 45, corresponding to the position of this plug, and a circuit will be completed for energizing the operating winding 74 of the buzzer 72. At the same time the operating winding 78 of the "on" relay will also be energized. However, no resulting functioning will take place due to the operation of the "on" relay, since the radio set 102 under the assumed conditions is not connected for automatic operation.

The circuit for effecting the energization of the operating windings 74 and 78 may be traced from the terminal 94 through conductor 110, contact brush 69, collector ring 67, conductor 111, heating element 63, conductor 112, contact finger 54, "on" contact 45, conductors 65 and 114, 75.

winding 78, conductor 115, winding 74, and conductors 116 and 118 to the terminal 95.

The buzzer 72 will continue to operate until the circuit which has just been traced is opened 5 due to the downward movement of the flexible contact finger 54 caused by the downward curving (Figure 4) of the bimetallic contact arm 21, so that the contact finger 54 is moved out of contact with the contact 45. The action of rotary 10 movement of the contact arm combined with the delayed action of the thermostat, i. e., the time required to cause the downward warp of the bimetallic contact arm 21, is such that the flexible contact finger 54 will release its tension which 15 has been stored up during the time required for the thermal action, and such released tension will move the contact 54 clockwise past the plug projected contact 45. The action of the thermostat warps the bimetallic arm out of engagement 20 with the contact 45 toward the end of the position of alignment of the bimetallic contact arm with the contact 45, so that as the arm 21 moves up again it is past the place of cooperation with the contact 45. The width of the "on" contact 25 45 is preferably limited to such an extent that the contact finger 54 will have been moved out of position for possible contact engagement therewith by the clock mechanism, so that it will not reengage the "on" contact when it is re- 30 stored to its normal position on the cooling of the bimetallic contact strip.

As soon as the buzzer 72 is operated, a glance at the selecting board will indicate the particular station that was preselected, and the radio 35 set 102 may be turned on and tuned to the desired program.

If it is desired automatically to turn on and off the radio set 102, then the plug and cord assembly 100 may be connected to the terminals 40 97 and 98, which will place the radio set 102 under the control of the switch 82. It will now be assumed that it is desired to connect the radio set 102 for a program to be given at 2:15 P. M., and that it is desired to turn it off at the end 45 of the program at 2:30 P. M. For this assumed operation, a plug 34 is inserted in the jack 31 at the 2:15 P. M. position and actuates the "on" contact 45 to engage the contact finger 54 at that position, and with the same plug and by 50 the same operation actuates the associated "off" contact 46 to engage the contact finger 54 fifteen minutes later.

When the contact finger 54 engages the "on" contact 45 corresponding to the 2:15 P. M. position, the foregoing described circuit will be 55 completed and the "on" relay 79 will be operated. The roller 86 will engage the raised portion 85 of the upper contact member 83 of the switch 82 and a circuit will be completed for energizing the radio set. By means of the hook 87, the contact 60 members 83 and 84 will be maintained in contact engagement after the operating winding 78 is deenergized by the removal of the contact finger 54 from engagement with the contact 45.

The circuit for energizing the radio set 102 65 may be traced from the terminal 94 through conductor 120, terminal 98, plug and cord assembly 100, terminal 97, conductor 121, switch 82, and conductor 118, to the terminal 95.

The radio set 102 will then be automatically 70 turned on, and if it has previously been tuned to the desired station, the desired program will be heard. If not previously tuned, it may be tuned when turned on. When the contact finger 75 54 engages the "off" contact 46 at the 2:30 P. M.

position, a circuit will be completed for effecting the energization of the operating winding 91 of the "off" relay 89. As a result, the armature 88 will be attracted, removing the hook 87 from the upper contact member 83 and permitting 5 the contacts 83 and 84 to spring apart. The circuit traced hereinbefore for energizing the radio set 102 will then be opened and the set will be shut down.

The circuit for energizing the operating wind- 10 ing 91 is similar to that traced hereinbefore for the energization of the operating winding 74 of the buzzer 72 to the contact finger 54. From the contact finger 54 the circuit continues in this instance through the "off" contact 46 at the 15 2:30 P. M. position, conductors 66 and 125, operating winding 91, and conductors 126 and 118, to the terminal 95.

A switch 128 of the single pole, single throw 20 type, marked "on" and "off", may be provided as shown in Figure 5. In this manner the buzzer may be operated during the time the thermostatically controlled contact finger 54 is in contact with the "on" contacts 45, and where the de- 25 vice is used to turn on the radio set automatically, this turning on of the set may be accomplished with or without the operation of the buzzer.

In the precise embodiment of the invention 30 shown in the drawings, the "on" contact springs 45 are relatively wide or wider than the "off" contact springs 46. In this manner, assuming that a plug 34 is in the lower jack 31 as shown in Figure 3, and another plug 34 is in the next 35 adjacent jack 31 upwardly of the lower jack to continue the same program or to select another program fifteen minutes later, the contact finger 54 will engage the inwardly projected end of the lower "on" contact 45 with the resulting operations above described. 40 Then fifteen minutes later, the contact finger will engage the inwardly projected end of the next adjacent "on" contact 45 in the clockwise movement of the bimetallic contact arm to repeat the buzzer operation at that position, or to continue the turned on condition 45 of the radio set, or to continue the radio set turned on and given another buzzer operation. Then as the bimetallic arm warps downwardly the spring tension stored up as herein described 50 moves the contact finger 54 past the "off" contact 46 at the second jack from the bottom as shown in Figure 3. In this manner, when the "on" and "off" contacts are projected inwardly at the same position, the contact finger 54 makes 55 engagement only with the "on" contact.

I do not intend to be limited to the precise 60 details shown or described, and it is to be understood that all matters shown in the accompanying drawings or described in the foregoing description are to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a radio program annunciator, a pivoted 65 contact arm having contact means thereon, clock mechanism for turning said arm, a member having a jack, a plug adapted to be inserted in said jack, and a set of contacts comprising an "on" contact and an "off" contact having circum- 70 ferentially spaced portions normally out of the path of movement of the contact means on said arm, said "on" and "off" contacts having portions positioned in proximity to said jack to be actuated simultaneously by said plug upon inser- 75 tion of same in said jack so as simultaneously

to project the circumferentially spaced portions of both said contacts to position to contact the contact means on said contact arm in the movement of said arm and at circumferentially spaced positions.

2. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, a selecting board having a jack therein, a plug adapted to be inserted in said jack, a set of contacts secured to said selecting board and comprising an "on" contact and an "off" contact having circumferentially spaced portions normally out of the path of movement of the contact means on said arm, said "on" and "off" contacts having portions positioned in proximity to each other, with one of said proximate portions presented to said jack for engagement by said plug upon insertion of same into the jack and positioned to actuate the other contact so as simultaneously to project the circumferentially spaced portions of both said contacts to position to contact the contact means on said contact arm in the movement of said arm and at circumferentially spaced positions.

3. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, a member having a plurality of circumferentially spaced jacks, a plug adapted to be inserted selectively in said jacks, a plurality of sets of contacts, each set comprising an "on" contact and an "off" contact having circumferentially spaced portions normally out of the path of movement of the contact means on said arm and with the circumferentially spaced portion of one contact of each set substantially aligned with the circumferentially spaced portion of one of the contacts of the next adjacent set of contacts, the "on" and "off" contacts of each set having portions positioned in proximity to one of said jacks to be actuated simultaneously by said plug upon insertion of same in said jack so as simultaneously to project the circumferentially spaced portions of both said contacts to position to contact the contact means on said contact arm in the movement of said arm and at circumferentially spaced positions, the substantially aligned portions of the contacts of adjacent sets of contacts having circumferentially offset edges so that when said aligned portions are both projected the contact means on said contact arm will preferentially contact only one of the substantially aligned portions of adjacent contacts.

4. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, a set of contacts normally out of the path of the contact means on said arm, said set of contacts comprising an "on" contact and an "off" contact, a selecting board having a jack adjacent said set of contacts, a plug adapted to be inserted in said jack, one of said contacts being formed to be engaged by said plug and projected to position to contact the contact means on said contact arm upon insertion of said plug in said jack, and means for projecting the other contact of said set of contacts to position to contact the contact means on said arm by the same plug that projects said first contact.

5. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, an insulating ring, a plurality of spring retractive and annularly arranged contacts carried by said ring, said insulating ring having a plurality of annularly arranged jacks therein, and a plug adapted to

be inserted selectively in said jacks and operable upon insertion in any one of said jacks simultaneously to project a pair of said spring retractive contacts to position to contact the contact means on said arm in the movement of said arm, the projected portion of one contact of each set of contacts being offset circumferentially with reference to its associated contact in amount corresponding to the length of time the program is to be received.

6. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, an insulating ring, a plurality of spring retractive and annularly arranged contacts carried by said ring, said insulating ring having a plurality of annularly arranged jacks therein, and a plug adapted to be inserted selectively in said jacks and operable to project a pair of said spring retractive contacts to position to contact the contact means on said arm in the movement of said arm, the ends of the two contacts projected by said plug being spaced apart circumferentially.

7. In a radio program annunciator, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, an insulating ring, a plurality of spring retractive contacts carried by said ring and arranged annularly and in pairs, each pair of said contacts consisting of an "on" and an "off" contact, said insulating ring having a plurality of annularly arranged jacks therein, and a plurality of plugs each adapted to be inserted selectively in said jacks and operable to project a pair of said spring retractive contacts to position to contact the contact means on said contact arm in the movement of said arm, the ends of the contacts projected by said plugs being spaced apart circumferentially and disposed with respect to the contact means on said contact arm so that said contact means will preferentially contact one contact when two of said contacts are projected at the same position.

8. In a radio program annunciator, an insulating ring having a plurality of annularly arranged jacks therein, a pair of spring retractive contacts of generally inverted L-shaped form with one leg of each contact secured to said ring adjacent each jack and the other leg of each contact extending generally horizontally, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, a plug adapted to be inserted selectively in said jacks, one of the spring retractive contacts of each pair of said contacts having a hump to be engaged by said plug to project the generally horizontally extending portion of the contact into position to engage the contact means on said contact arm, and means for simultaneously projecting the other contact of said pair of contacts into position spaced circumferentially of its associated contact by the projection of said first contact by said plug.

9. In a radio program annunciator, an insulating ring having a plurality of annularly arranged jacks therein, a pair of spring retractive contacts of generally inverted L-shaped form with one leg of each contact secured to said ring adjacent each jack and the other leg of each contact extending generally horizontally, a pivoted contact arm having contact means thereon, clock mechanism for turning said arm, a plug adapted to be inserted selectively in said jacks, one of the spring retractive contacts of each pair of said contacts having a hump to be engaged by

said plug to project the generally horizontally extending portion of the contact into position to engage the contact means on said contact arm, and means for simultaneously projecting the other contact of said pair of contacts by the projection of said first contact by said plug, said last means being carried by one of said contacts and the ends of the generally horizontal legs of the two spring retractive contacts of each pair of said contacts being spaced apart circumferentially.

10. In a radio program annunciator, a dual face dial having an inner twelve hour clock face and a twenty-four hour dial face surrounding same, minute and hour hands cooperating with said twelve hour clock face, a conventional twelve hour clock movement for turning said hands, and a pointer driven by said clock mechanism in one-to-two ratio to the hour hand, said pointer extending out over and beyond said twelve hour clock face and co-operating at its outer end with the twenty-four hour dial face to indicate the times for different radio programs and whether they are in the same twenty-four hour period, the pointer which extends out beyond the twelve hour clock face for cooperation with the twenty-four hour dial face also extending out beyond the minute and hour hands and being disposed rearwardly of said minute and hour hands so as not at any time to conceal or be completely concealed by said minute hand or said hour hand.

11. In a device of the class described, a plurality of annularly arranged contacts, a bimetallic contact arm pivotally mounted at the center of said contacts, a contact on said bimetallic contact arm, clock mechanism for turning said arm, means for selectively actuating said first contacts to position for contact with the contact on said bimetallic contact arm, a circuit controlled by contact of said first contacts with the contact on said arm, heating means in said circuit adjacent said bimetallic contact arm and energized by closing of said circuit to break contact between said contact arm and said first contacts, a plurality of annularly arranged contacts arranged in the same radii as said first annularly arranged contacts and means on said first contacts and engageable with said last contacts for actuating said last contacts to position for contact with the contact on said bimetallic contact arm by the actuation of said first contacts.

12. In a radio program annunciator, a dual face dial having an inner twelve hour clock face and a twenty-four hour dial face surrounding same, minute and hour hands cooperating with said inner twelve hour clock face, a conventional twelve hour clock movement for turning said hands, a pointer driven by said clock movement in one-to-two ratio to the hour hand, said pointer extending out over and beyond the twelve hour clock face with its outer end cooperating with the twenty-four hour dial face to indicate the times for different radio programs and whether they are in the same twenty-four hour period, a glass cover for said dial, and a non-transparent ring incorporated in the glass cover and separating the twelve hour clock face from the twenty-four hour dial face, the pointer which extends out beyond the twelve hour clock face for co-

operation with the twenty-four hour dial face also extending out beyond the minute and hour hands and being disposed rearwardly of said minute and hour hands so as not at any time to conceal or be completely concealed by said minute hand or said hour hand.

13. In a radio program annunciator, a dual face dial having an inner twelve hour clock face and a twenty-four hour dial face surrounding same, minute and hour hands cooperating with said inner twelve hour clock face, a conventional twelve hour clock movement for turning said hands, and a pointer driven by said clock movement in one-to-two ratio to the hour hand, said pointer extending out over and beyond the twelve hour clock face with its outer end cooperating with the twenty-four hour dial face to indicate the times for different radio programs and whether they are in the same twenty-four hour period, the portion of said pointer extending over the twelve hour clock face being colored substantially similar to the twelve hour clock face and the outer end of said pointer being colored in contrast to said twenty-four hour dial face to be readily visible with respect thereto.

14. In a radio program annunciator, first contact means, second contact means operable selectively to contact said first contact means, a first circuit connected to said second contact means, a signal in said first circuit, a radio circuit, means operable selectively to close said radio circuit upon contact of said first contact means with said second contact means and to permit contact of said first contact means with said second contact means without closing said radio circuit, and means for optionally rendering said signal operative to give a signal when said radio circuit is closed by contact of said first contact means with said second contact means and for rendering said signal inoperative to give a signal when said radio circuit is closed by contact of said first contact means with said second contact means.

15. In a radio program annunciator, first contact means, second contact means operable selectively to contact said first contact means, a first circuit connected to said second contact means, a signal in said first circuit, a radio circuit having a plurality of sets of contacts therein and a cord assembly having contacts adapted for co-operation selectively with different sets of said last mentioned contacts, means operable to close said radio circuit upon contact of said first contact means with said second contact means when the contacts of said cord assembly are in co-operation with one set of contacts of the plurality of sets of contacts in said radio circuit and to permit contact of said first contact means with said second contact means without closing said radio circuit when the contacts of said cord assembly are in cooperation with another set of contacts in said radio circuit, and means for optionally rendering said signal operative to give a signal when said radio circuit is closed by contact of said first contact means with said second contact means and for rendering said signal inoperative to give a signal when said radio circuit is closed by contact of said first contact means with said second contact means.

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