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TIME SELECTOR FOR ELECTRICAL MECHANISMS

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Fig 1

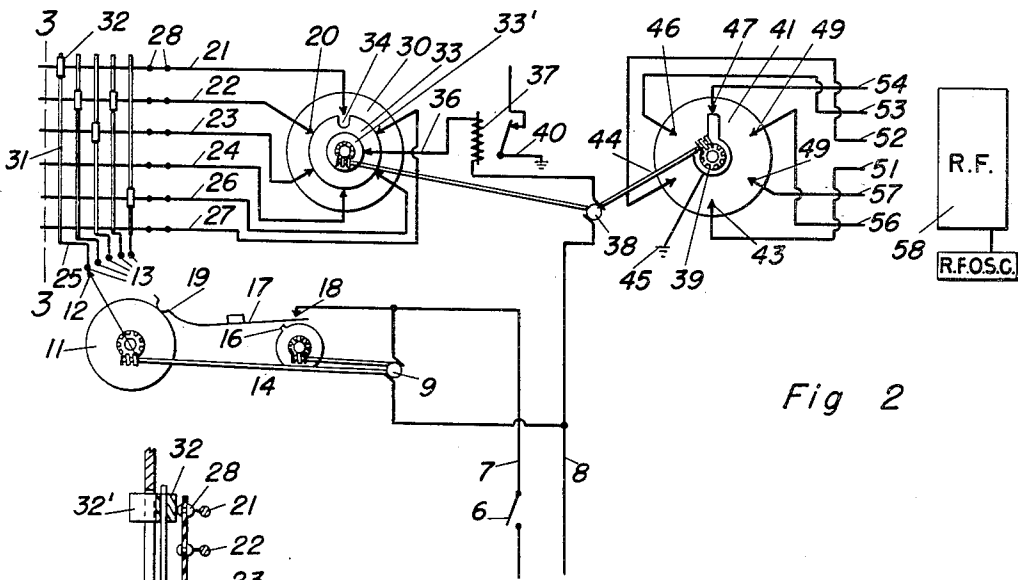
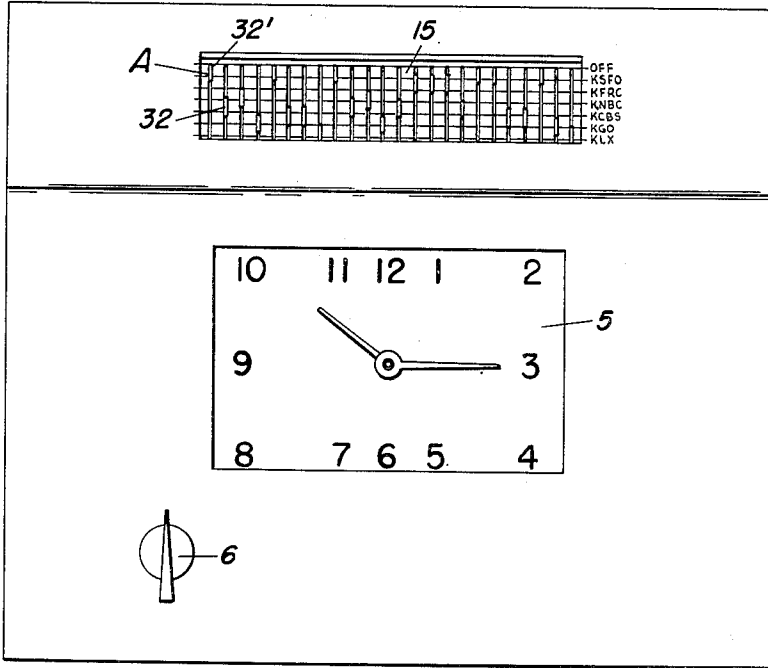


Fig 2

Fig 3

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TIME SELECTOR FOR ELECTRICAL MECHANISMS

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5 Claims. (Cl. 161—1)

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This invention relates to improvements in time selectors for electrical mechanisms and has particular reference to a time selector for electrical equipment, such as a radio, whereby the same may be turned on or off at various time intervals.

The principal object of this invention is to provide an attachment which includes a switching arrangement wherein a plurality of independent switches may be pre-set and later connected through the actuation of the clock mechanism so as to control the flow of current to a radio, causing it function in a normal manner at a set time and for a selected station.

A further object is to produce a device which is economical to manufacture, one which is neat in appearance and one which may be readily transported.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a front elevation of my device, showing the plurality of switches, together with a clock face,

Fig. 2 is a schematic wiring diagram, and

Fig. 3 is a cross-sectional view of one of the switches taken in the line 3—3 of Fig. 2, as well as a portion of the slotted cover plate.

Radio programs are broadcast at definite time intervals, usually starting on the hour and running for 15-minute periods, or multiples thereof. It also often occurs that a person may wish to listen to a program at a certain time, but through being busy, neglects to do so. Or it may be possible that a person may wish to listen to several programs during the day. With my device it is possible to do so by pre-setting each contact in the switching arrangement at a definite position so that at a certain period the radio will be turned on and at the desired station to be listened to.

For instance, assuming that there are five local stations, then a person can listen to any one of those five stations over a period of twelve or twenty-four hours, as the case may be, depending on the number of switches.

In the illustration shown in the drawings in Fig. 1, I have shown twenty-four switches. It is of course understood there may be any number of switches so that the divisions of time may represent ten minutes, fifteen minutes, half hours, or any other division desired. In the present instance the twenty-four switches would be sufficient for half-hour programs over a twelve-hour period.

Also in Fig. 1 it will be noted that each of these switches may be moved vertically in a slot so as to come to rest at any one of six positions, the top position being off, and the other five positions

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being that where the switch is connected to one of the five stations in the community.

Referring to the accompanying drawings wherein, for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates clock, the face of which indicates the time of day. The numeral 6 refers to an off and on switch which is in turn connected to line wire 7, the other line wire being shown at 8, so that when the switch is opened or closed, current will flow through the device.

Referring now to Fig. 2, it may be noted that the clock motor 9 is adapted to drive a disc 11, through a reduction gear arrangement. This disc has a moving contact 12 attached thereto, adapted to move over contacts 13 arranged in circular formation, only five of which are shown in order to simplify the drawing.

The clock motor 9 receives its current from the wires 7 and 8, and serves to drive a disc 14 through a reduction gearing; this disc has upstanding lug 16, adapted to move the spring 17 against the contact point 18 connected to line wire 7.

This spring 17 also has contact, through end 19, with the disc 11 upon which it rests.

At 21, 22, 23, 24, 26 and 27, I have shown buss bars, each of which is connected to a series of horizontally arranged contacts 28, carried upon a panel 29.

Mounted in front of each vertical line of contacts 28 is a rod 31 upon which is mounted a slider 32. This slider has an insulated portion 32' which extends through the slots in the slotted cover plate 15. The slider engages one of the contacts 28, thus completing a circuit through the rod 31 and wire 25, to one of the contacts 13.

The buss bars 21 to 27 inclusive are each electrically connected to spaced contacts, such as shown at 20, mounted on a switch plate 30. A rotating portion 33 normally contacts all of these contacts 20, with the exception of one which will be opposite a cut-out portion 34, thus providing an open circuit to the particular contact 20 that the cut-out portion is opposite.

In order to mute the radio to which my device is connected so there will be no objectionable noises issuing from the loud speaker during the changing from one station to the other, I provide a muting device which consists of a relay 37 in the radio current supply circuit designated by the numeral 40.

This relay 37 has one side connected to the rotary portion 33' of the rotary portion 33 of the switch and has its opposite side connected to one side of a motor 38, and through the motor 38 to the line wire 8.

This motor 38 serves to rotate the rotary portions 33 and 33' of the switch through a reduction gear, and also serves to rotate, through a

reducing gear, a contact 39 of a second rotary switch 41.

This contact 39 is grounded as shown at 45, whereby when the contact 39 rotates, it will successively engage contacts 43, 44, 46, 47, 48 and 49, which contacts are in turn connected through wires 51, 52, 53, 54, 56 and 57 respectively to a standard radio frequency amplifier designated as a whole by the numeral 58, and from this, through the medium of a radio frequency oscillator, the radio set to which the device is connected will function and be tuned to the proper station selected.

The operation of my device is as follows:

Assuming that the device has been connected to a source of electrical energy and to a radio to be operated, then the user selects one of the switches, such as switch A, and moves it from the off position, as shown in Fig. 3, downwardly on the rod, so that it will contact 28 connected, for instance, to buss bar 22.

We will now assume that this particular switch A represents a period of time from 12 to 12:30, and that it is desired to select a station controlled by the buss bar 22.

The result of the moving of this switch downwardly will be that the clock motor 9, which is constantly rotating, rotates the disc 11 and the contact 12, moving it into engagement with contact 13, connected to the first rod 31, or what might be termed the 12-12:30 rod.

The disc 11 is so geared down that it makes only one revolution in the twelve hours. However, no current will be flowing between the contacts 12 and 13 until a second contact is made by the rotating of the disc 14, which causes the lug 16 to engage and move the spring 17 against the contact 18. Now current can flow from the wire 7 through the contact 18 to spring 17 and through the end 19 to the disc 11, thence through contact 12, to contact 13, and by wire 25 to rod 31, thence by slider 32 to contact 28 and buss bar 22, thence to contact 29, connected to buss bar 22, and through the rotating portions 33 and 33' of the switch 30, through wire 36 and relay 37, and through motor 38, to the other side of the line 8.

The completing of the electric circuit will cause the relay 37 to blank the radio circuit momentarily and at the same time to start the motor 38 rotating.

This motor 38 will accomplish two things. It first moves the rotary portions 33 and 33' of the switch 30 so as to move the cut-out portion 34 around until it is in alignment with contact 20 connected to buss bar 22, at which time the circuit will be opened and the motor 38 will stop rotating.

It will be here noted that as soon as the circuit is opened to the buss bar 22, there will no longer be any flow of current, even though the spring 17 is still in engagement with the contact 18 (due to the slow movement of the lug 16). There also is no flow of current between the contact 12 and the contact 13, and therefore it is free to move to its next contact 13 in the series without causing any interruption of the circuit.

This motor 38 simultaneously rotates contact 39 until it is in engagement with the contact 45 which will then be grounded through ground 45. This grounds the coil in the radio frequency amplifier to which it is connected and which coil has been pre-tuned to the particular station which the buss bar 22 represents.

The radio frequency amplifier referred to and

the various tuning coils therein, are common to all present-day push-button tuning, whereby the mere pushing of a button controls the frequency of input whereby the audio portion of the set will produce the signal received from a particular station.

By this time, the relay 37 has re-established the circuit to the radio, and the same will start to play and will continue to play until the clock motor 9 has moved the contact 12 to the next succeeding contact 13, and the disc 14 has rotated so as to again complete a circuit between the spring 17 and the contact 18.

At this time, a new circuit will be established, as before described, and if the second slider in the series has been moved from its top position downwardly until it is opposite one of the buss bars 22 to 27 inclusive, then a new circuit will be established in the manner before described.

However, if the second switch is left on off position, then the radio will be turned off until a new circuit has been established.

This same procedure will occur time after time throughout the day at either half-hour or fifteen-minute intervals, depending upon the number of sliders used for the twelve-hour period.

It will thus be seen that I have produced a device which will accomplish all the objects above set forth.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

What is claimed is:

1. In a time controlled circuit closer, a series of parallel bus-bars, a series of spaced parallel conductive rods extending transversely of said series in spaced relation thereto, sliding contacts each slidably mounted on a respective rod for selective engagement with said bus-bars, a series of stationary contacts each connected to a respective rod, a movable contact traversing the series of stationary contacts, a rotary disc conductively connected with the movable contact and effecting its movement, clock activated means rotating said disc, a current supply line, and means intermittently effecting conductive connection between said disc and supply line.

2. In a time controlled circuit closer, a series of parallel bus-bars, a series of spaced parallel conductive rods extending transversely of said series in spaced relation thereto, sliding contacts each slidably mounted on a respective rod for selective engagement with said bus-bars, a series of stationary contacts each connected to a respective rod, a movable contact traversing the series of stationary contacts, a rotary disc conductively connected with the movable contact and effecting its movement, clock activated means rotating said disc, a current supply line, a rotary cam disc driven by said clockwork to effect one complete rotation during the movement of the movable contact from each fixed contact to the next in the series, a brush engaging the first disc, a fixed contact to which said supply line is connected, a movable contact conductively connected to said brush and normally open from the last mentioned fixed contact, and a lug on said cam disc closing the last movable contact of the last fixed contact.

3. In a time controlled circuit closer, a series of parallel bus-bars, a series of spaced parallel conductive rods extending transversely of said series

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in spaced relation thereto, sliding contacts each slidably mounted on a respective rod for selective engagement with said bus-bars, a series of stationary contacts each connected to a respective rod, a movable contact traversing the series of stationary contacts, a rotary disc conductively connected with the movable contact and effecting its movement, clock activated means rotating said disc, a current supply line, means intermittently effecting conductive connection between said disc and supply line, and means selectively controlled by current in said bars for selectively grounding the pretuned tuning coils of a radio receiver.

4. In a time controlled circuit closer, a series of parallel bus-bars, a series of spaced parallel conductive rods extending transversely of said series in spaced relation thereto, sliding contacts each slidably mounted on a respective rod for selective engagement with said bus-bars, a series of stationary contacts each connected to a respective rod, a movable contact traversing the series of stationary contacts, a rotary disc conductively connected with the movable contact and effecting its movement, clock activated means rotating said disc, a current supply line, a rotary cam disc driven by said clockwork to effect one complete rotation during the movement of the movable contact from each fixed contact to the next in the series, a brush engaging the first disc, a fixed contact to which said supply line is connected, a movable contact conductively connected to said brush and normally open from the last mentioned fixed contact, and means selectively controlled by current in said bars for selectively grounding the pretuned tuning coils of a radio receiver.

5. In a time controlled circuit closer, a series of parallel bus-bars, a series of spaced parallel conductive rods extending transversely of said series in spaced relation thereto, sliding contacts each slidably mounted on a respective rod for selective engagement with said bus-bars, a series of stationary contacts each connected to a respective rod, a movable contact traversing the series of stationary contacts, a rotary disc conductively connected with the movable contact and effecting

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its movement, clock activated means rotating said disc, a current supply line, a rotary cam disc driven by said clockwork to effect one complete rotation during the movement of the movable contact from each fixed contact to the next in the series, a brush engaging the first disc, a fixed contact to which said supply line is connected, a movable contact conductively connected to said brush and normally open from the last mentioned fixed contact, a lug on said cam disc closing the last movable contact of the last fixed contact, a third rotary disc, said third disc having a gap in its periphery, a series of fixed contacts spaced around said third disc for engagement with the unbroken portion of its periphery, conductive connections between the last series of contacts and respective bus-bars, a second supply line, a conductive connection between the second supply line and the third disc, a second clockwork means rotating the third disc, a grounded rotary contact driven by the last mentioned contact, a third series of fixed contacts wherewith said grounded contact successively engages, and conductive connections leading from the third series of contacts for connection to the pretuned tuning coils of a radio receiver whereby to selectively ground said coils.

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