

June 29, 1937.

J. M. ALLEN
REMOTE CONTROL APPARATUS
Filed Aug. 27, 1936

2,085,624

2 Sheets-Sheet 1

Fig. 1.

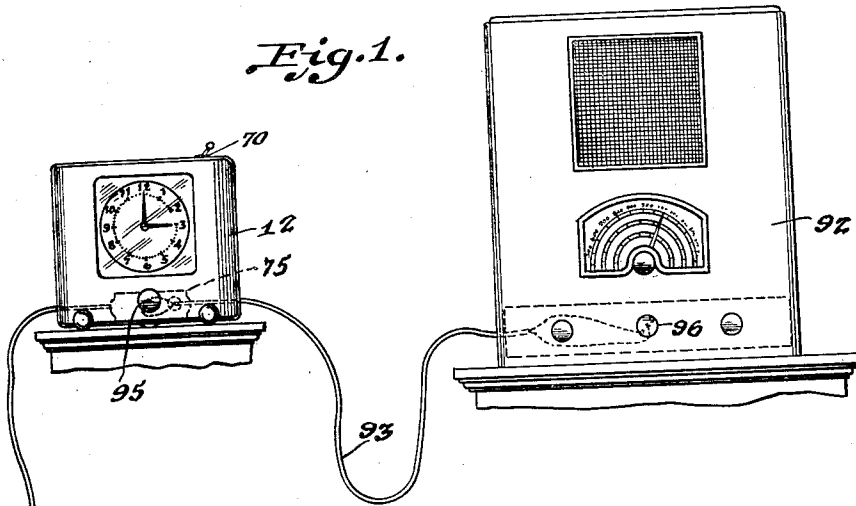


Fig. 2.

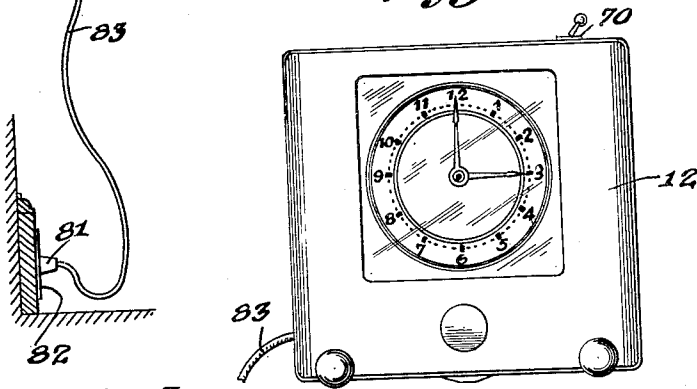


Fig. 3.

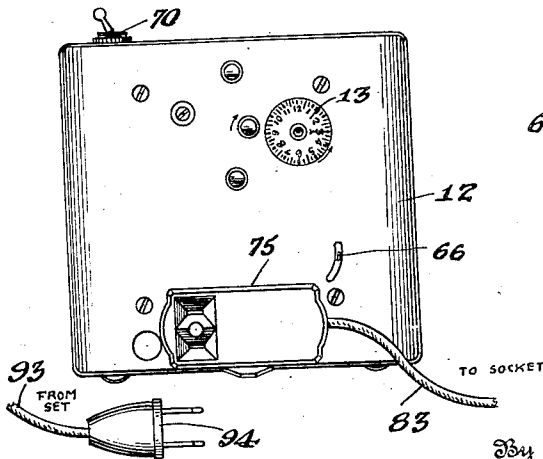
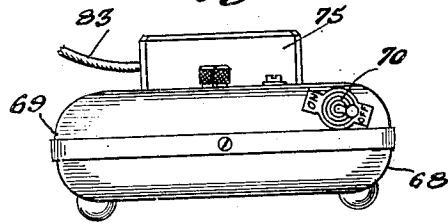


Fig. 4A

Fig. 4.



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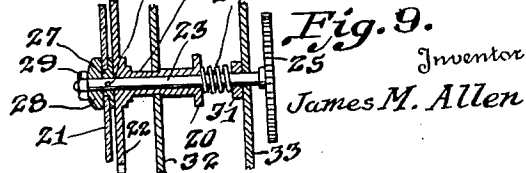
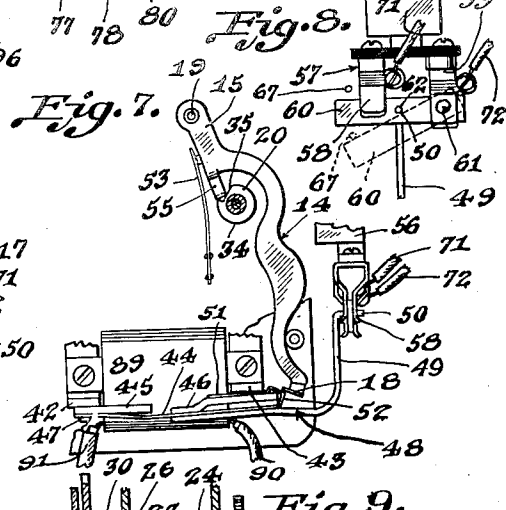
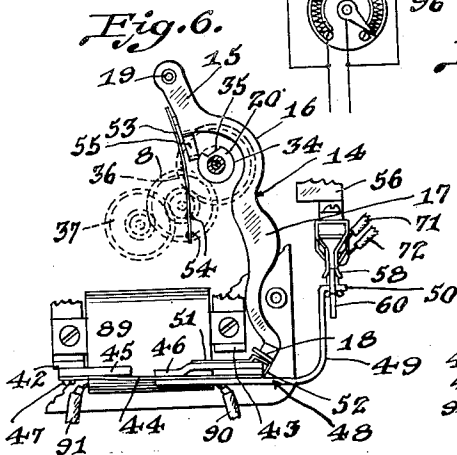
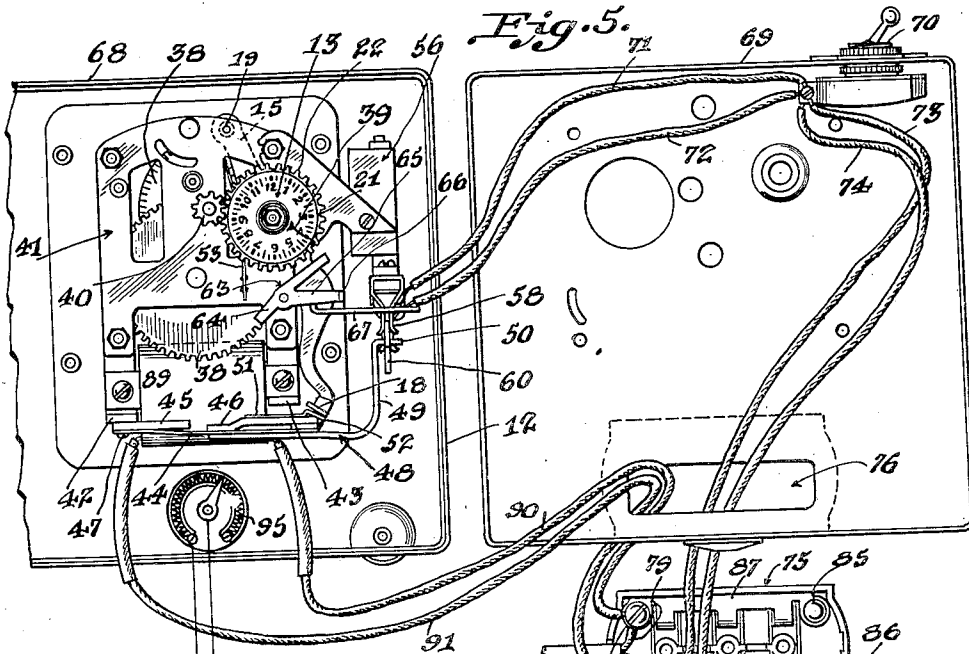
Attorneys

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UNITED STATES PATENT OFFICE

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REMOTE CONTROL APPARATUS

James Matthew Allen, Washington, D. C.

Application August 27, 1936, Serial No. 98,237

3 Claims. (Cl. 200—38)

This invention relates to a remote control apparatus designed primarily for use in connection with radio receiving sets, but it is to be understood that the apparatus, in accordance with this invention, is to be employed in any connection for which it may be found applicable.

The object of the invention is to provide, in a manner as hereinafter set forth, an apparatus of the class referred to including a time controlled circuit closing means which may be used for automatically cutting in a selected broadcasting station to a radio receiver.

Further objects of the invention are to provide, in a manner as hereinafter set forth, an apparatus of the class referred to which is comparatively simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, capable of automatically cutting in a selected broadcasting station to the receiver, and comparatively inexpensive to manufacture.

With the above ends essentially and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically described and are as illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is an elevation of the apparatus, in accordance with this invention, showing the adaptation thereof with respect to a radio receiving set,

Figure 2 is a front elevation of the apparatus upon an enlarged scale,

Figure 3 is a rear elevation of the apparatus,

Figure 4 is a top plan view thereof,

Figure 4a is a detail in elevation,

Figure 5 is an exploded view in elevation of the apparatus,

Figures 6 and 7 are fragmentary views in front elevation illustrating the releasing means for the actuating member employed for automatically closing and opening the time control switch and with Figure 6 showing said actuating member latched and Figure 7, released.

Figure 8 is an elevation of the time control switch, and

Figure 9 is a sectional detail.

The apparatus includes an electrically operated clock 12 which has as a part thereof a time setting mechanism 13 and a spring controlled de-

pressor member 14 formed of an upper pivotally supported part 15, a curved part 16 which merges at its upper end into the lower end of the part 15 and a lower part 17 which merges at its upper end into the lower end of the part 16. The lower terminus of the part 17 is formed with an angularly disposed nose 18. The part 15 is suspended from its pivot 19.

The mechanism 13 is of normal construction, such as the alarm setting mechanism of an alarm clock with this exception, that a cam 20 constitutes a part thereof. The mechanism 13 includes an axially apertured transparent disc 21 having its outer face in the form of a clock dial, a setting gear 22 spaced from and opposing the inner face of disc 21, a rotatable shaft 23, a controlling spring 24 encompassing shaft 22, a driving gear 25, a hub 26, a rabbeted collar 27, a stop collar 28 and a nut 29. The disc 21 is mounted in the rabbet of and extends outwardly from and is retained on collar 27 by the collar 28. The collars 27 and 28 are mounted on shaft 23. The collar 27 is anchored to the shaft 23 by a pin 30. A nut 29 threadably engages with one end of shaft 23 retains collar 28 on the latter. A hub 26 is integral at one end with and extends inwardly from the gear 22. The hub 26 is mounted on shaft 23 and has the cam 20 integral with the other end thereof. The gear 25 is carried by that end of shaft 23 opposite the end on which is mounted the nut 29. A collar 31 is mounted on shaft 23. The spring 24 is interposed between the cam 20 and the collar 31 and frictionally clamps gear 22 to collar 27. Under normal conditions the spring 24 provides for the bodily rotating of the gear 22 with the shaft 23. The hub 26 is of two outer diameters to provide a shoulder. That portion of reduced outer diameter of the hub 26 is mounted in a support 32. The shaft 23 extends rearwardly from hub 26 and through a support 33. The peripheral shoulder on hub 26 abuts support 32. The cam 20 has a high edge part 34, a lower edge part 35 of less length than the edge part 34 and a shoulder 36 at which the lower end of edge part 35 terminates. The other end of edge part 35 merges into edge part 34. The edge part 35 and shoulder 36 provide a notch. The gear 25 is operated from a train of gearing 37 driven from the clock train 38. The gear 22 has its outer face provided with a pointer 39 which is visible through disc 21. A toothed stem 40 is provided for setting gear 22 relative to disc 21.

The frame structure supporting the clock train

38 is indicated at 41. The structure 41 at its bottom includes a pair of rearwardly extending spaced arms 42, 43. The latter is arranged at higher elevation than the former. Arranged below the arms 42, 43 is a resilient member 44 and positioned on the latter is a plate 45 and a plate 46 spaced from plate 45. The resilient member 44 and plate 45 are secured to the arm 42 by the holdfast means 47. The member 44 is secured to the lower face of the plate 46 and the latter is arranged in spaced relation with respect to the arm 42. Secured to the lower face of member 44 and extending from one end thereof is an angle-shaped shifting element 48 for a purpose to be referred to. The element 48 includes an upstanding portion 49 terminating in a right angularly disposed upper terminal portion 50. Interposed between the plate 46 and the member 43 as well as secured to the upper face of the plate 46 is a metallic strap 51 formed to provide an inclined abutment 52. The nose 18 of the depressor member 14 is for engagement with the abutment 52 for the purpose of depressing member 44 carrying the shifting element 48 therewith to the position shown in Figure 6 and for holding it in such position for a pre-determined period until the time setting mechanism is operated to an extent to provide for the cam 20 coacting on member 14 to shift it to the position shown in Figure 7. When member 44 is shifted to the position shown in Figure 7, the shifting element 48 is released and it will be caused to move upwardly due to the action of the member 44. The arm 42 constitutes a stop for limiting the upward movement of the member 44 and element 48.

There is associated with the member 14 an upstanding controlling spring 53 having its lower portion anchored at 54 with the structure 41. The member 14 has its pivoted end arranged above shaft 23 rearwardly with respect to the gear 22. The member 14 is substituted for the alarm actuating mechanism of an alarm clock. The lower end of part 15 of member 14 is provided with a depending offset angle-shaped holding member 55 which coacts with the high edge part 34 for maintaining the member 14 in position to depress member 44 against the action of controlling spring 53 which bears against the part 15 of member 14 during the rotating of the cam. The holding member 55 during the rotation of the cam will eventually engage the notch in the cam whereby pressure of the spring 53 will move part 15 of member 14 and the latter will assume the position shown in Figure 7 to release the element 48 whereby element 48 will be elevated due to the action of member 44. The holding member 55 will be retained in notch in cam 20 for a pre-determined period that is to say until the time setting mechanism is actuated to such an extent as to provide for the cam rotating to cause member 55 to ride on the high edge part of cam 20 thereby causing member 14 to depress member 44 and lower element 48.

Supported from the structure 41 is a hanger 56 for a knife switch 57 including a pair of bifurcated posts 58, 59. The blade of switch 57 is indicated at 60 and pivoted at one end, as at 61 to the post 59. The blade 60 has an opening 62 and extending through the latter is the end 50 of the element 48 whereby blade 60 and element 48 are connected together. On the upward movement of the element 48, the blade 60 is shifted from the dotted line position shown in Figure 8 to the full line position thereby closing the circuit which will be referred to.

On the downward movement of element 48 the blade 60 is shifted from full line position to dotted line position. The blade 60 is shifted from dotted line position to full line position automatically by the time setting mechanism.

The blade 60 is shifted from full line position to dotted line position automatically from the time setting mechanism.

The blade 60 is shifted from full line position to dotted line position, that is to say to open the switch when the latter is not to be opened and closed automatically, by a manually operated element 63 consisting of a forked member 64 pivoted upon the structure 40 and provided on one of its tines 65 with an extension 66 which projects outwardly from the back of the clock. The tine 65 has connected thereto a bar 67 disposed at right angles to the extension 66 and positioned above one end of the blade 60. When the extension 66 is shifted downwardly, the bar 67 is carried therewith and engages blade 60 to move the latter from circuit closing position to circuit opening position and to retain it on such position as long as desired.

The clock 12 includes a housing formed of two sections detachably connected together. The sections are indicated at 68, 69. The former is the front section and the latter the rear or back section. The section 68 carries the structure 41. Section 69 has connected with the top thereof a manually operated circuit opening and closing switch indicated at 70. The switch 70 extends outwardly of and depends from the top of section 70.

The apparatus when associated with a radio receiver may include an automatically closed and automatically opened controlling circuit and a manually closed and manually opened controlling circuit for the power circuit of the said receiver and such circuits are shown. The said automatically closed and automatically opened controlling circuit for the power circuit of the radio receiver includes the conductors 71, 72, 73 and 74. The said manually closed and opened controlling circuit includes the conductors 73 and 74. The conductors 71, 72 extend from switch 57 to the switch 70. The conductors 73, 74 extend from switch 70 to a socket 75 which is attached to the section 69 of the housing. The conductors 73, 74 pass through an opening 76 and are connected to socket 75. The switches 57 and 70 are in parallel.

Extending from the posts 77, 78 of socket 75 are circuit conductors 79, 80 respectively connected to a plug 81 for engaging in a socket 82 attached to a power line not shown. The conductors 79, 80 are enclosed in a casing 83. The socket 75 includes another post 84, a pair of contacts 85, 86, a conductor 87 between post 77 and contact 85 and a conductor 88 between post 84 and contact 86. The circuit conductor 74 is connected to post 84. The conductor 73 is connected to post 78. Leading from the posts 77, 78 to the motor 89 of the clock are the circuit conductors 90, 91 respectively. The radio receiver 92 is shown as indicating a power circuit forming means arranged within a cable 93. The latter includes a plug 94 for extension into the socket 75 to electrically engage the contacts 85, 86. The power circuit is connected in a known manner to receiver 92. The apparatus when used in connection with a radio receiver is to be provided with a volume control which associates with the volume control of the receiver 92 and these controls are indicated at 95, 96. The control 95 is arranged

in the apparatus and the control 96 in the receiver. Circuit connections between the controls 95, 96 are indicated at 97 and extend through the cable 93. Control 96 is interposed in the circuit 5 97 which leads from the control 95. The arrangement is such that the volume may be controlled from the clock or the radio receiver.

When the switch 67 is automatically closed due to the action of the time setting mechanism with respect to the depressor member 14, the controlling circuit consisting of the conductors 71, 72, 73, 74 will be closed thereby providing for the operation of the radio receiver. When the switch 70 is manually closed, the controlling circuit provided by the conductors 73, 74 will be closed and the receiver made active.

The time setting arrangement which is connected to the member 14, element 48 and switch 57 provides means, when the apparatus is inset in connection with a radio receiver whereby a selected broadcasting station will be automatically cut in at a pre-determined time for a pre-determined period and automatically cut out at the end of such period.

25 The time setting mechanism corresponds in structure to and operates in the same manner as the well-known alarm setting and alarm actuating mechanism of clocks, with this exception that the cam 20 and holding member 55 are substituted for the alarm and alarm actuating means.

What I claim is:

1. A time controlled circuit closer for radio receiving apparatus and the like and including a knife switch, spring actuated switch operating means including a bar having a bevelled end, a pivoted depressor member having its free end bevelled and coacting with the first mentioned bevelled end in one position to depress the switch operating means and open the switch, a spring engaging the depressor and urging it out of switch opening position, and a clockwork driven rotary cam engaging said depressor member and having

a high portion moving the depressor member to switch opening position upon engagement of said high portion with the depressor member.

2. A time controlled circuit closer for radio receiving apparatus and the like and including a knife switch, spring actuated switch operating means including a bar having a bevelled end, a pivoted depressor member having its free end bevelled and coacting with the first mentioned bevelled end in one position to depress the switch operating means and open the switch, a spring engaging the depressor and urging it out of switch opening position, a clockwork driven rotary cam engaging said depressor member and having a high portion moving the depressor member to switch opening position upon engagement of said high portion with the depressor member, and manually controlled latch means engaging said switch to hold the same open.

3. A time controlled circuit closer for radio receiving apparatus and the like and including a knife switch having a blade provided with an opening intermediate its ends, a fixed post, a spring actuated bar having one end fixed to said post and provided at its other end with an upstanding arm having a laterally extending portion engaging in said opening, said bar being constructed and arranged to urge said blade to closed position, a depressor member extending upwardly from said bar and having a pivotal mounting at its upper end, said bar and depressor member having coacting inclined surfaces constituting means for depressing the free end of the bar and opening the switch in one position of the depressor member, a clockwork actuated rotatable cam engaging the depressor member and moving it to switch opening position in one position of the cam, and a spring engaging the depressor member and moving it out of switch opening position in a second position of the cam.

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