March 19, 1929. R. W. LOVERING 1,705,985

TIME CONTROLLED APPARATUS

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Fig. 1.

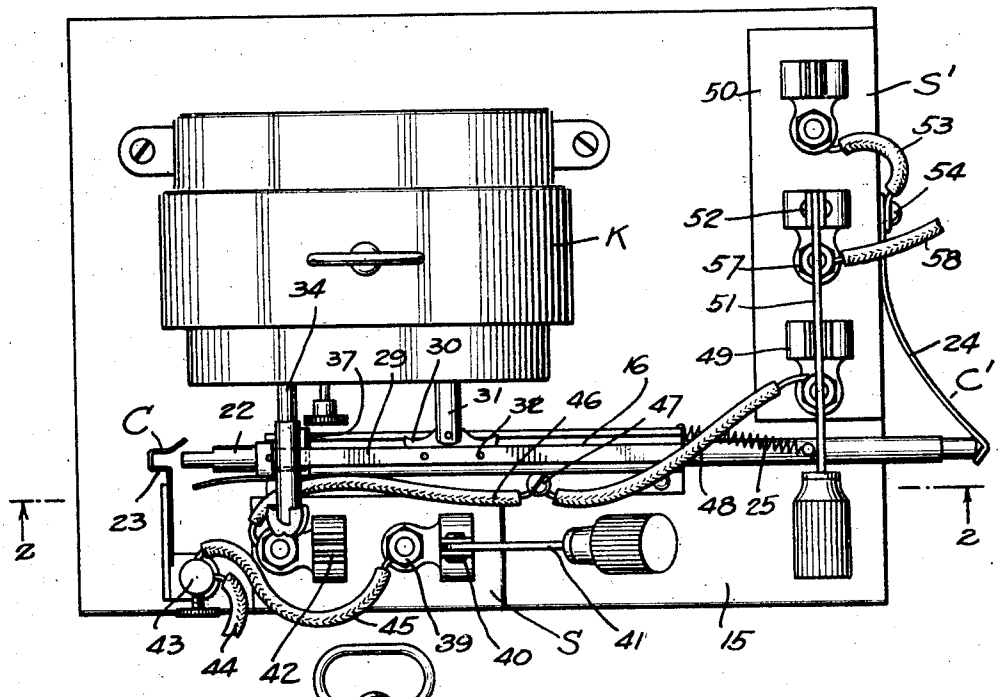
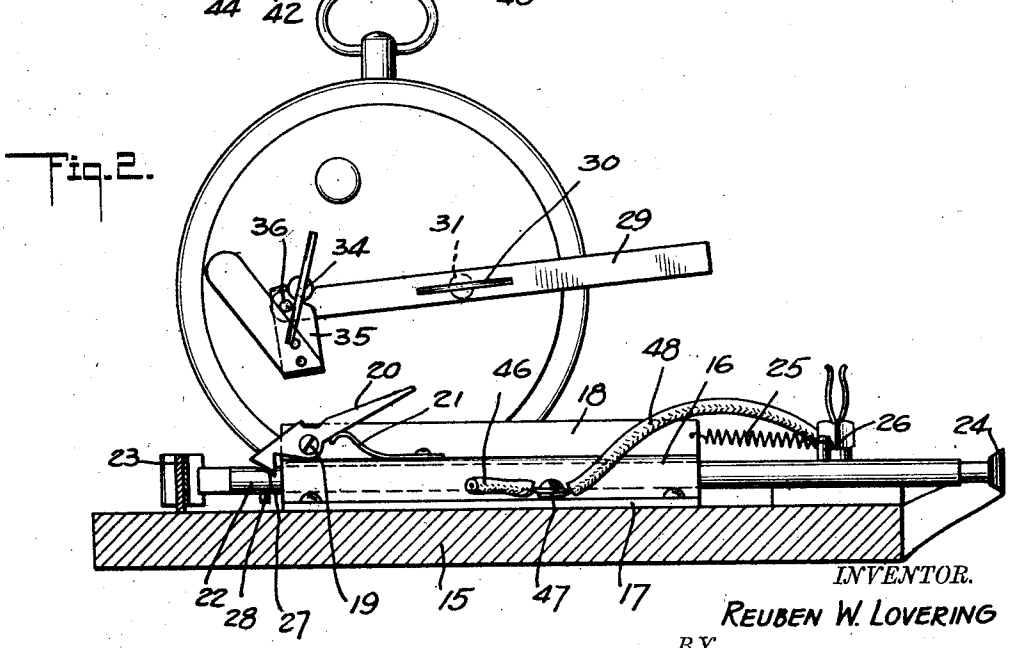


Fig. 2.



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Fig. 3.

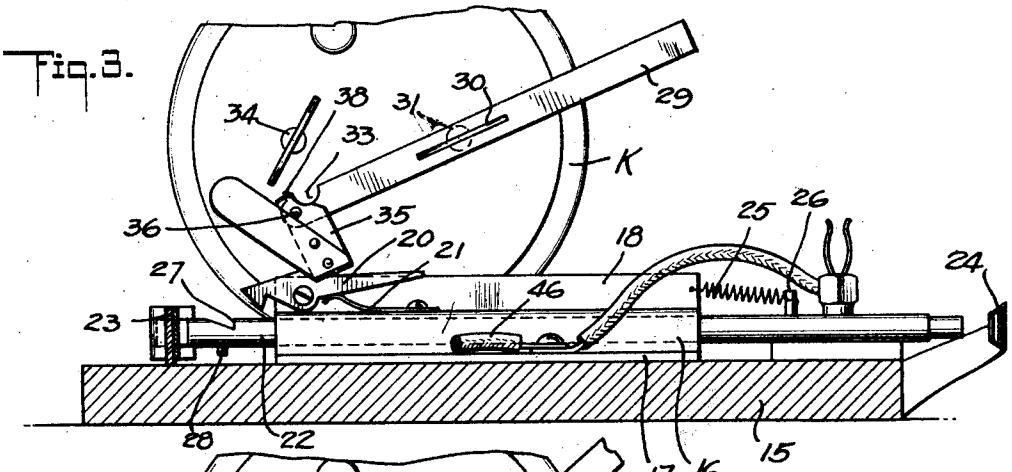


Fig. 4.

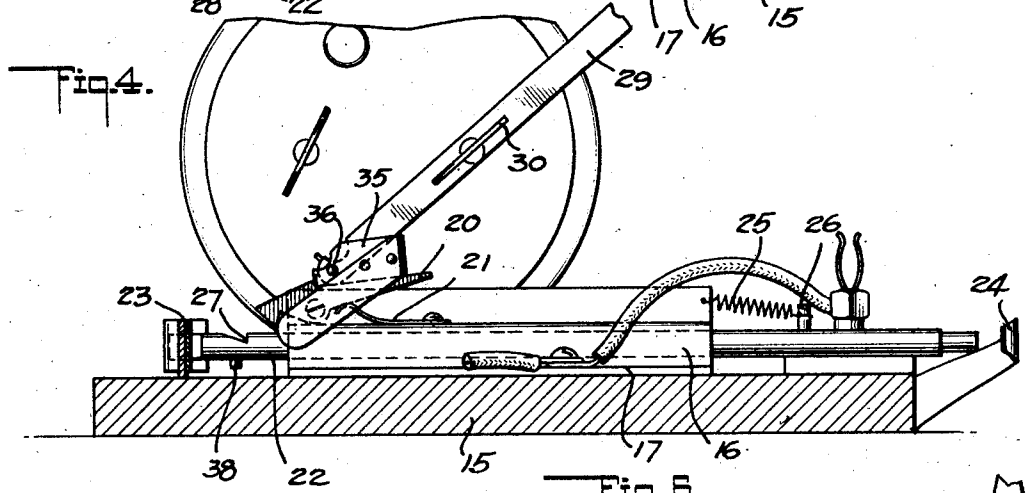


Fig. 5.

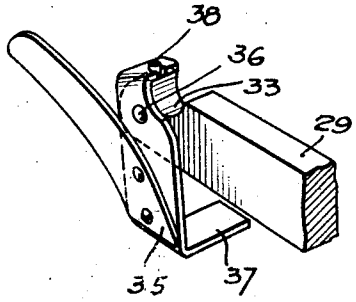
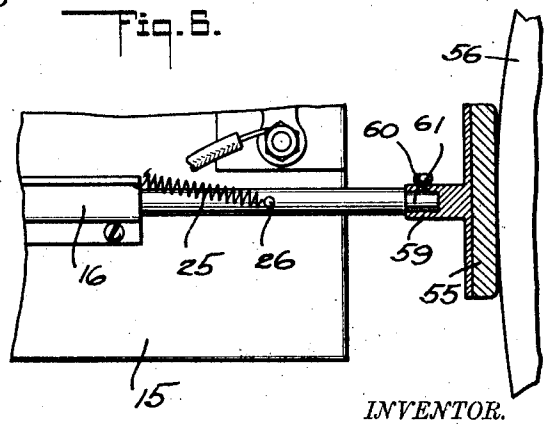


Fig. 6.



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UNITED STATES PATENT OFFICE.

REUBEN W. LOVERING, OF LOS ANGELES, CALIFORNIA.

TIME-CONTROLLED APPARATUS.

Application filed July 25. 1925. Serial No. 46,092.

My invention relates to and has for its purpose the provision of a time controlled apparatus particularly adapted, although not necessarily, for use in connection with radio receiving sets to automatically start or discontinue the set at a predetermined time.

It is also a purpose of my invention to provide a time controlled apparatus which permits the use of a conventional form of clock, and which is adaptable to a phonograph to effect automatically the starting thereof at any predetermined time.

I will describe only one form of time controlled apparatus embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings

Figure 1 is a view showing in top plan one form of time controlled apparatus embodying my invention.

Figures 2, 3 and 4 are vertical sectional views taken on the line 2—2 of Figure 1 and showing the several positions which the movable parts of the apparatus are adapted to occupy in the operation thereof.

Figure 5 is an enlarged fragmentary perspective view showing the limiting lever and its mounting embodied in the apparatus shown in the preceding views.

Figure 6 is a fragmentary plan view showing the apparatus as adapted for release of a turntable of a phonograph.

Similar reference characters refer to similar parts in each of the several views.

As illustrated to advantage in Figure 1 my invention in its present embodiment essentially consists of a pair of circuit controllers C and C′ one or the other of which is adapted to be actuated at a predetermined time through the alarm mechanism of a conventional form of clock K. Switches S and S′ are provided for the circuit controllers C and C′, respectively, which provides a control for arbitrarily actuating either one circuit controller or the other whereby in the adaptation of the apparatus to a radio receiving set, a set may be started or discontinued at will and at a predetermined time through a setting of the alarm mechanism of the clock.

Referring specifically to the drawings, my invention comprises a flat base 15 of insulating material and upon which is secured a guiding sleeve 16 formed of metal or other conducting material and provided with a base flange 17 by which the guide sleeve can be firmly secured to the base. The sleeve is also formed with an upstanding flange 18 upon which is pivotally mounted as indicated at 19 a pawl 20 normally urged by a spring 21 to latching position with respect to a conducting rod 22 slidably mounted in the guide sleeve 16. This conducting rod 22 constitutes the movable contact of both circuit controllers C and C′, the stationary contacts 23 and 24, respectively of the circuit controllers C and C′ being arranged to be engaged or disengaged by the rod 22. By means of a spring 25 secured to the flange 18 at one end and to a pin 26 on the rod at the other, the rod is normally urged in the direction of the stationary contact 23, and in such urged position is adapted to engage the contact 23 and to disengage the contact 24. In this extreme position of the rod the circuit controller C is closed while the circuit controller C′ is open. For purpose of clarity, I will hereinafter refer to this position of the rod as the second extreme position, the rod being capable of occupying another extreme position, which I term the first extreme position. In this first extreme position the rod engages the contact 24 and disengages the contact 23, and is latched in this position and against the action of the spring 25 by means of the pawl 20, the bill of the latter engaging within a shouldered notch 27 in the rod as clearly illustrated in Figure 2. In setting the rod to be engaged by the pawl the positioning of the notch with respect to the pawl is facilitated by means of a stop pin 28 formed on the rod to engage the guide sleeve 16 as will be understood.

The latching pawl 20 is adapted to be moved into released position with respect to the conducting rod 22 through the medium of the alarm mechanism of the clock K, an arm 29 being slotted to receive the key 30 of the alarm arbor 31, and pins 32 being extended through the arm to secure the key within the slot so that when the alarm arbor rotates the arm will likewise be rotated for the purpose of moving the pawl to released position. The normal position of the arm 29 is illustrated in Figure 2 wherein its notched end 33 engages the winding arbor

34 of the clock, and in this position of the arm the alarm arbor 31 is normally latched against rotational movement as will be understood by those familiar with clock mechanisms. As the arm 29 moves downwardly upon the release of the alarm mechanism its notched end will be moved into engagement with the pawl 20 thereby moving the latter against the action of the spring 21 to disengaging position with respect to the rod 22 so that the spring 25 can now act to move the rod from the first extreme position to the second. The active position of the arm 29 is clearly shown in Figure 4.

It is desirable to eliminate as much noise as possible in the operation of the apparatus, and I attain this by restricting the unwinding of the alarm mechanism. This is effected through the use of a limiting lever 35 pivotally mounted as at 36 on the notched end of the arm 29 (Figure 5) and provided with a right angle extension 37 which in the set position of the lever is adapted to engage the pawl 20 and thus move the latter to released position as the arm 29 swings downwardly. This set position of the lever is determined by a stop pin 38. In this manner the lever in projecting from beneath the notched end of the arm 29 reduces the movement of such arm necessary to engage and move the pawl 20 to released position thereby restricting the unwinding of the alarm mechanism. However, it is necessary in order to effect the proper latching of the arm in its uppermost position that the arbor 31 be permitted to further rotate, so the lever 35 through its pivotal mounting can be manually moved to the position shown in Figure 4 wherein the arm 29 can move further downwardly thus allowing further rotation of the alarm arbor.

The switches S and S′ are secured to the base 15, and the switch S comprises a binding post 39 upon which is pivoted as at 40 a blade 41 movable to engage or disengage a keeper contact 42. The stationary contact 23 is provided with a binding post 43 to which is connected a conductor 44 which constitutes one terminal of a radio receiving set (not shown). To this binding post 43 another conductor 45 is connected, and this conductor extends and is connected to the binding post 39. From the contact 42 a conductor 46 extends to a binding post 47 on the base flange 17 of the guiding sleeve 16, and a second conductor 48 extends from the post 47 to a keeper contact 49 of the switch S′. The switch S′ also includes a second keeper contact 50, and a contact blade 51 pivoted at the point indicated at 52 so as to be capable of movement to engage or disengage either of the contacts 49 and 50. A conductor 53 extends from the contact 50 to a post 54 secured to one edge of the base 15 and providing a mounting for the contact 24 of the circuit controller C′ so that the latter can be moved out of the path of movement of the conducting rod 22 to permit the application of a buffer 55 to the end of the rod 22 as clearly shown in Figure 6 for the purpose of normally holding the turntable 56 of a phonograph against rotation. The mounting for the blade 51 includes a binding post 57 to which is connected a conductor 58 the latter constituting the other terminal wire of a radio receiving set.

The operation of the apparatus is as follows: With the apparatus in the set position shown in Figures 1 and 2, the conducting rod 22 is in the first extreme position so that the circuit controller C is open while the circuit controller C′ is closed. However, it will be noted that the blade 51 of the switch S′ is in engagement with the keeper contact 49 thus rendering the circuit controller C′ inactive. The blade 41 of the switch S is out of engagement with the contact 42, and in this position of the switch the circuit controller C is rendered active. Assuming that the circuit controller C when closed is designed to start a radio receiving set, and when it is desired to start the set at a predetermined time, the alarm mechanism of the clock K is set so as to be released at a predetermined instant. With the apparatus set as shown in Figures 1 and 2, it will be clear that when the alarm mechanism is released the arm 29 is moved downwardly to the position shown in Figure 3 thereby causing the extension 37 of the lever 35 to engage the pawl 20 and thus release the rod 22 whereby the spring 25 will function to move the left hand end of the rod into engagement with the contact 23 all as illustrated in Figure 3. The circuit controller C is now closed so that the receiving set is set into operation. The circuit from one terminal wire 44 to the other terminal wire 58 may be traced as follows: binding post 43, contact 23, rod 22, guiding sleeve 16, flange 17, binding post 47, conductor 48, contact 49, blade 51 and binding post 57 to conductor 58.

Assuming that the receiving set is in operation and it is desired to discontinue such operation at a predetermined time, it is first necessary to reset the apparatus which is effected by first allowing the arm 29 to complete its movement by moving the limiting lever 35 to the inactive position shown in Figure 4, when by subsequently elevating the arm 29 to its normal set position the alarm mechanism will function to latch the arm in such position. By now returning the rod 22 to the first extreme position the pawl 20 would automatically engage within the notch to hold the rod in such position wherein its right hand end is in engagement with the contact 24. By now swinging the blade 51 to engage the contact 50, and the blade 41

to engage the contact 42, the circuit controller C' is placed in the circuit of the radio receiving set, and such circuit controller being closed it will be clear that the set will now operate. The passage of current through the apparatus may be traced as follows: from binding post 43, through conductor 45, blade 41, contact 42, conductor 46, binding post 47, guiding sleeve 16, rod 22, contact 24, conductor 53, contact 50, blade 51, and binding post 57 to conductor 58.

Upon subsequent operation of the alarm mechanism, the rod 22 is released so that it can now move to its second extreme position wherein it disengages the contact 24 thus disrupting the circuit of the radio set so as to discontinue its operation.

In the adaptation of the apparatus to a phonograph, the contact 24 can be swung out of the path of movement of the rod 22 to permit the application of the buffer 55 thereto, such buffer being formed of rubber or other suitable material so that when in engagement with the peripheral edge of the phonograph turntable it will operate to prevent the rotation of the turntable. When the buffer is functioning in this manner the rod 22 is in the first extreme position so that upon operation of the alarm mechanism to release the rod, the buffer will be moved out of engagement with the turntable thereby permitting the latter to rotate and thus start the phonograph. The buffer 55 includes a socket 59 adapted to receive the shoulder end 60 of the rod 22 and to be secured thereon by means of a set screw 61.

Although I have herein shown and described only one form of time controlled apparatus embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

What I claim is:

1. In a time controlled apparatus, a stationary contact, a movable contact normally urged into engagement with the stationary contact, a pawl normally engaging the movable contact to retain the latter out of engagement with the stationary contact, an alarm mechanism, an arm secured to the arbor of the mechanism so as to be moved thereby when the alarm mechanism is released, said pawl being disposed in the path of movement of the arm so as to be engaged thereby and to be moved to released position with respect to the stationary contact, and a limiting lever on the arm to occupy one position in which it is interposed between the arm and pawl so as to reduce the movement of the arm necessary to actuate the pawl, and another position in which the arm is free to move into direct engagement with the pawl for the purpose described.

2. In a time controlled apparatus, a stationary contact, a movable contact normally urged into engagement with the stationary contact, a latch for securing the movable contact out of engagement with the stationary contact, an arm adapted to be secured to the alarm arbor of a clock so as to be moved thereby upon release of the alarm mechanism, to engage and move said latch to released position with respect to the movable contact, and means associated with the arm for reducing the amount of movement of the arm necessary to actuate the latch and to permit the normal movement of the arm to directly engage the latch when desired.

3. In a time controlled apparatus, a pair of stationary contacts, a movable contact mounted for movement between the stationary contacts and to occupy one extreme position in which it engages one stationary contact and disengages the other, and a second extereme position in which it disengages the first stationary contact and engages the other stationary contact, means for normally urging the movable contact to one extreme position, a latch for securing the movable contact in the other extreme position against the action of said urging means, an arm adapted to be secured to the arbor of an alarm mechanism so as to be moved thereby to engage and move the latch to released position with respect to the movable contact, and means associated with the arm for reducing the movement of said arm necessary to engage and actuate the latch.

4. In a time controlled apparatus, a pair of stationary contacts, a movable contact mounted for movement beween the stationary contacts and to occupy one extreme position in which it engages one stationary contact and disengages the other, and a second extreme position in which it disengages the first stationary contact and engages the other stationary contact, means for normally urging the movable contact to one extreme position, a latch for securing the movable contact in the other extreme position against the action of said urging means, an arm adapted to be secured to the arbor of an alarm mechanism so as to be moved thereby to engage and move the latch to released position with respect to the movable contact, and means associated with the arm for reducing the movement of said arm necessary to engage and actuate the latch, said means comprising a lever pivoted on the arm to occupy an extended position in which it is interposed between the arm and latch, and a folded position in which the arm is permitted to engage the latch.

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