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H. J. OYLER

2,378,653

REMOTE CONTROL FOR SELECTIVE AUTOMATIC PHONOGRAPHS

Filed June 24, 1940

3 Sheets-Sheet 1

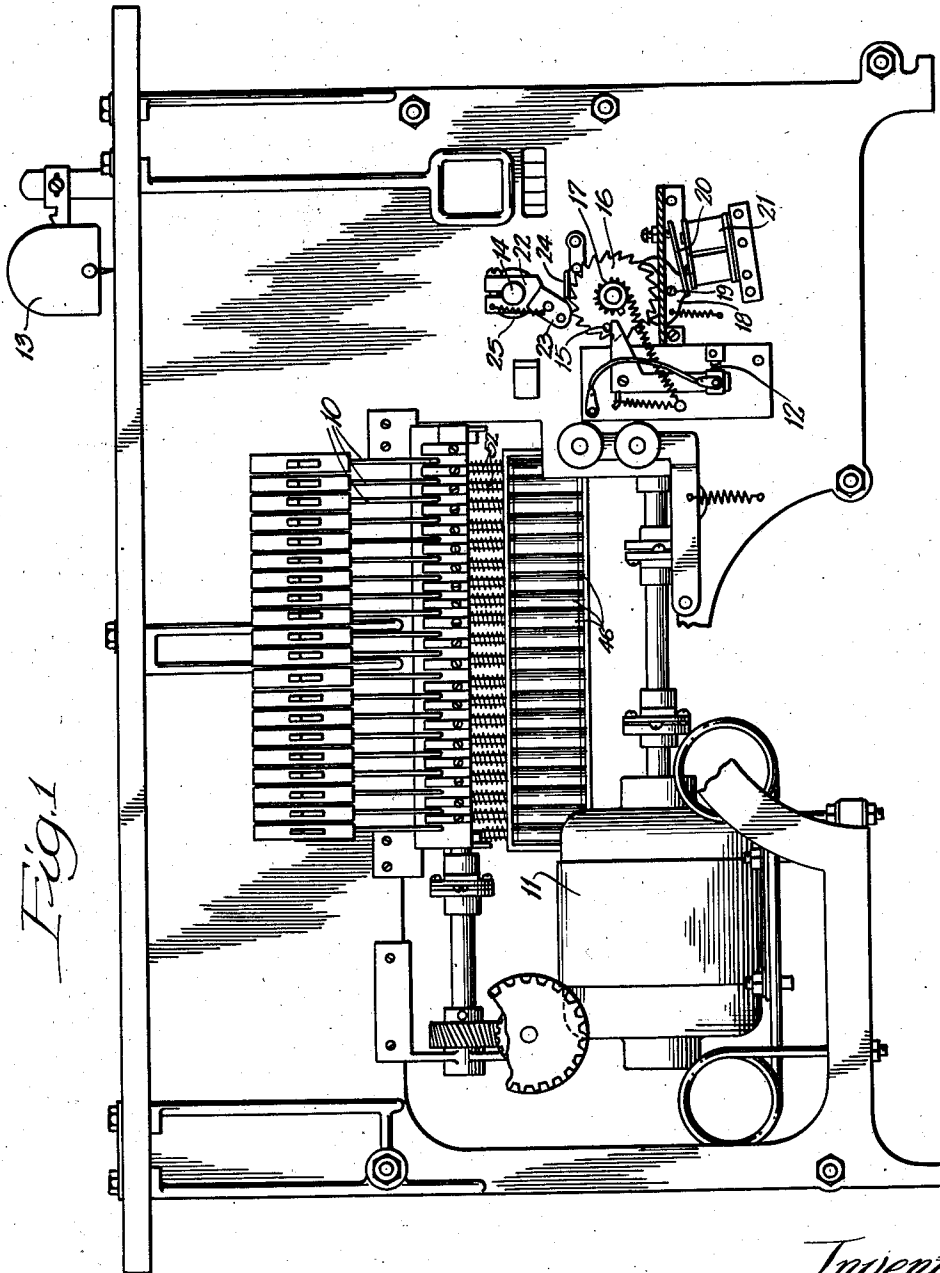


Fig. 1

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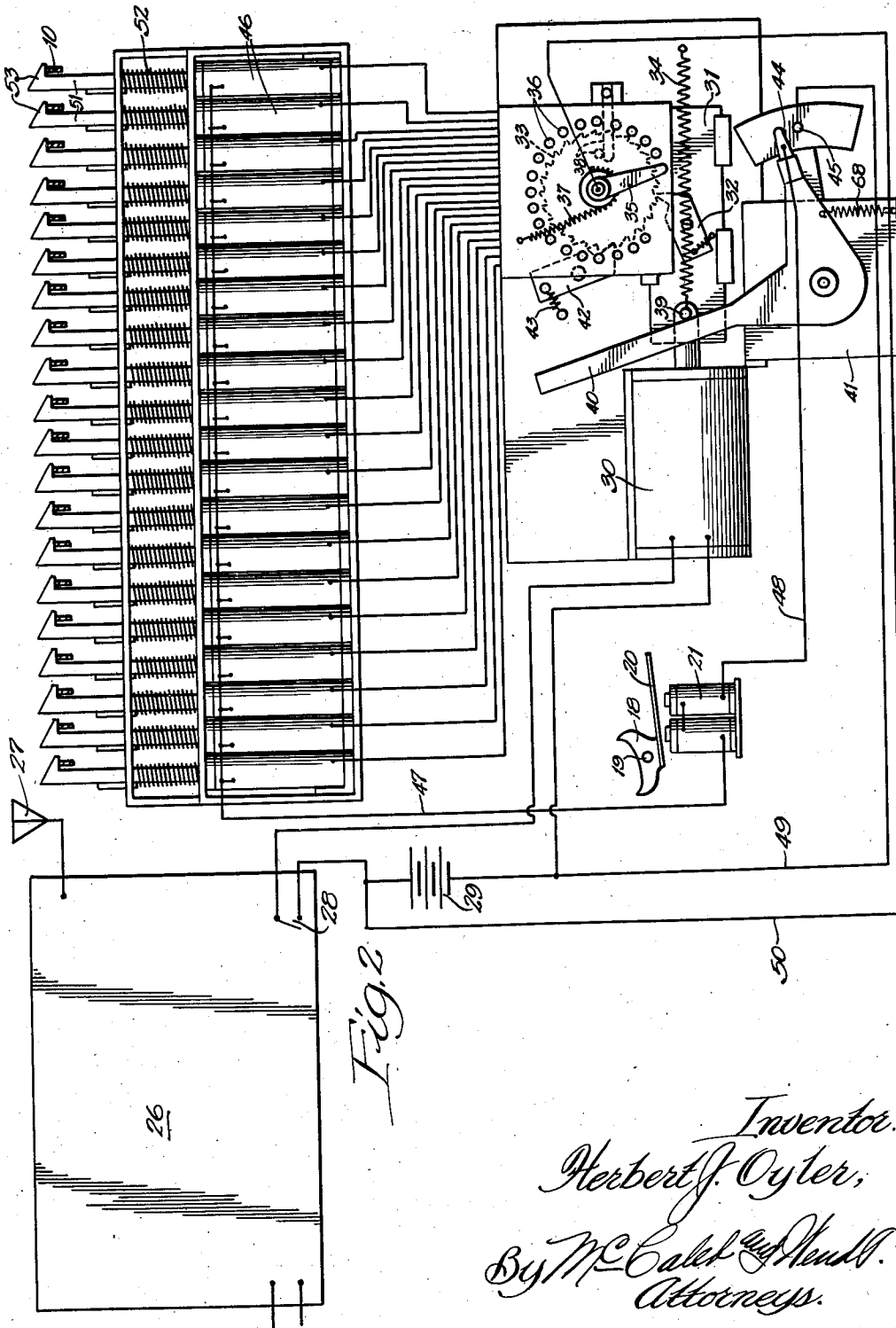
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3 Sheets-Sheet 2



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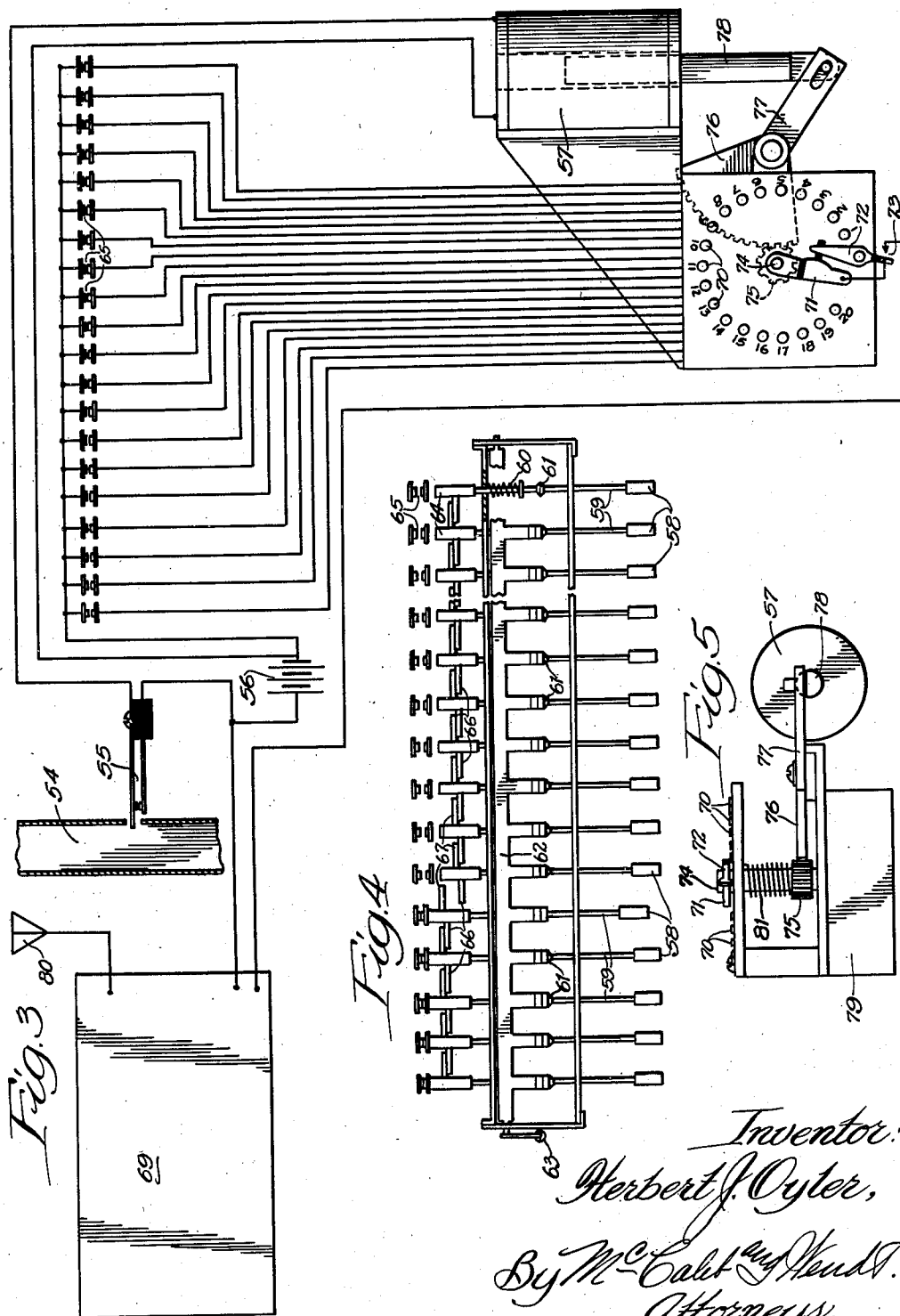
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REMOTE CONTROL FOR SELECTIVE AUTOMATIC PHONOGRAPHS

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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REMOTE CONTROL FOR SELECTIVE
AUTOMATIC PHONOGRAPHS

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Application June 24, 1940, Serial No. 342,038

11 Claims. (Cl. 177—353)

This invention relates to remote controls for selective automatic phonographs, and has for its primary object to provide an improved remote control whereby any desired selection or a plurality of selections may be paid for and selected at a remote position with respect to the phonograph.

A further object of the invention is to provide a remote control adapted to select recordings to be played and adapted to put the phonograph into operation by means of radio frequency impulses.

A further object of the invention is to provide an improved remote control for phonographs having an improved switching mechanism, whereby an appropriate number of impulses of radio frequency may be transmitted corresponding to the recording selected.

Other objects, advantages and capabilities of the invention will appear from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawings in which:

Fig. 1 is an elevational view of a phonograph adapted to be controlled by my remote control;

Fig. 2 is a diagrammatic view and wiring diagram of my improved control elements on the phonograph;

Fig. 3 is a similar diagrammatic view and wiring diagram of a control unit;

Fig. 4 is a diagrammatic plan view showing elements of my remote control unit; and

Fig. 5 is an elevation of the clockwork and associated mechanism of Fig. 3, as viewed from the lower side of that figure.

Referring to the drawings, the improved remote control is illustrated in connection with the multi-selective automatic phonograph known and extensively sold throughout the country as the "Symphonola," the phonograph being manufactured by J. P. Seeburg Corporation of Chicago. It will be understood, however, that the invention may be applied to other well-known multi-selective automatic phonographs. The automatic phonograph shown in the drawings is so well known that it need not be described in detail. It is sufficient to note that it comprises a plurality of manually operable selector levers 10, a motor 11, and a main switch 12. When the main switch 12 is closed, the motor operates and the record changing cycle becomes operative. It may be noted that the record changing operations, and the accompanying actuation of the turntable (not shown) and the player arm 13, are performed by a rotation of

the cam shaft 14, which is put into operation after each record is played and is latched out of operation at the beginning of the playing of a record. Means are provided, adapted to co-operate with the selector levers 10, so that the record corresponding to an actuated selector lever 10 is moved out and played when the motor 11 is put into operation.

The main switch 12 is normally open, being maintained in open position by means of a pin 15 on a ratchet wheel 16. The ratchet wheel 16 is biased away from switch closing position of the pin 15 by means of a spring 17. An escapement member 18, mounted on a pivot 19, is arranged to co-operate with the ratchet wheel 16. The escapement member 18 carries an armature 20, which is adapted to be attracted by an electromagnet 21. When the electromagnet 21 is energized momentarily, the escapement member 18 is oscillated so that the spring 17 may move the ratchet wheel through a distance corresponding to one tooth. This movement of the ratchet wheel withdraws the pin 15 from the main switch 12 so that this switch closes. The closing of the main switch sets the motor in operation. If the electromagnet 21 is energized a plurality of times, then the ratchet wheel 16 is moved by the spring 17 through a distance corresponding to a similar number of teeth. The cam shaft 14 carries an arm 22 upon which is pivotally mounted a striker member 23. This striker member co-operates with a stationary anvil 24. The arrangement is such that after a record has been played, the striker member 23 is moved by the cam shaft 14 until it clears the anvil 24, whereupon the striker member, under influence of the spring 25, strikes the ratchet wheel 16 and returns it toward initial position through a distance corresponding to one tooth on the ratchet wheel.

It is to be understood that if a certain number, for example three, selector levers 10 are depressed and the electro-magnet 21 is energized three times, then the phonograph will be put into operation so as automatically to play the three records corresponding to the three selector levers. When the playing of the third record is finished, the main switch 12 opens and the operation of the phonograph ceases. My improved remote control provides means whereby one or more of selector levers 10, selected by the operator, can be depressed and the electromagnet 21 energized momentarily a corresponding number of times. My remote control unit enables the operator to perform these operations from any

practical position desired, and in any degree of remoteness from the phonograph.

The mechanism upon the phonograph provided for the purposes of my invention comprises a radio receiver 26, which is tuned for reception of a definite radio frequency. The receiver 26 is provided with an antenna 27. The receiver may be of any desired internal construction, it being merely necessary to provide an output adapted to close a switch 28 each time that an impulse of the aforesaid radio frequency is received by the antenna 27. The switch 28 is in series with the battery 29 and with a solenoid 30. The armature of the solenoid is connected to a slidably mounted member 31, which carries a dog 32, which is biased towards a ratchet wheel 33. The member 31 is biased away from the solenoid by a spring 34. It will be noted that when the solenoid 30 is energized, the member 31 moves towards it, the dog 32 slipping past the teeth of the ratchet wheel 33. When the solenoid 30 is de-energized, the spring 34 moves the member 31 away from the solenoid and its dog moves the ratchet wheel 33 one tooth.

The ratchet wheel 33 rigidly carries a wiper arm 35, which is adapted to engage an arcuate series of contacts 36 during the rotation of the ratchet wheel 33. The ratchet wheel 33 and wiper arm 35 are biased towards the zero position of the wiper arm by means of a spring 37. This position is determined by suitable stops 38, one of which is stationary, the other being mounted on the ratchet wheel. The contacts 36 correspond in number to the number of selections for which the phonograph is adapted. In the present case that number is twenty. These contacts are arranged so that a one-tooth displacement of the ratchet wheel 33 from zero position brings the arm 35 into engagement with the first contact, so that two one-tooth displacements of the ratchet wheel 33 by the dog 32 bring the wiper arm 35 into engagement with the second contact 36, and so forth.

When the solenoid 30 is energized and the slidably mounted member 31 is moved towards it, an abutment 39 engages an arm 40 and displaces it to its full-line position in Fig. 2, tensioning the spring 68, which drives delay clockwork mechanism 41 during the return of the arm 40. This arm 40 is mounted on, and operatively connected to, the clockwork mechanism 41. The arm 40 is connected to this clockwork mechanism by means of a slipping clutch (not shown), which may be of any suitable known type, the connection being such that the arm 40 may be moved towards the solenoid 30 without affecting the clockwork mechanism, but its reverse movement is delayed and made gradual by its operative connection to the clockwork mechanism. Consequently, the arm 40 is moved to the left (Fig. 2) by the abutment 39 rapidly, but its return is relatively slow and gradual. When the solenoid 30 is energized in rapid succession, the arm 40 is maintained at its highest position until the series of energizations ceases.

When the arm 40 is in its normal position, it engages a dog 42 so as to hold this dog out of engagement with the ratchet wheel 33. The dog 42 is biased toward the ratchet wheel 33 by a spring 43. Consequently, when the arm 40 is moved towards the solenoid 30 in the manner just described, the dog 42 engages the ratchet wheel 33. It will thus be understood that when the solenoid 30 is energized momentarily for a definite number of times, for example five times, the

arm 40 is elevated out of contact with the dog 42 during the series of energizations, and the dog 32 moves the ratchet wheel 33 through a distance corresponding to five teeth thereon and moves the wiper arm 35 into engagement with the fifth contact 36. The dog 42 holds the ratchet wheel 33 and the wiper arm 35 in this position until the clockwork mechanism 41 returns the arm 40 into a position in which it actuates the dog 42 and removes it from the ratchet wheel 33. Just before the dog 42 is disengaged from the ratchet wheel 33, an insulated arm 44, rigidly connected to the arm 40, makes engagement with a stationary contact 45. After this contact is made and after the clockwork mechanism 41 moves the arm clear of the stationary contact 45, the dog 42 is removed out of engagement with the ratchet wheel 33 so that the ratchet wheel 33 and the wiper arm 35 return to normal or initial position.

Each contact 36 is connected to an individual solenoid 46 arranged for co-operation with the corresponding selector lever 10. These solenoids 46 are connected to a common wire 47. This wire is connected to the electromagnet 21, the other side of this magnet being connected by a conductor 48 to the arm 44. One side of the battery is connected by a conductor 49 to the stationary contact 45. The other side of the battery is connected to the wiper arm 35 by conductor 50.

Each solenoid 46 is provided with an armature 51, which is biased upwardly by a spring 52. Each armature 51 is connected to a hook member 53, which is adapted to overhang the corresponding selector lever 10. It will be understood that when a solenoid 46 is energized, its armature 51 moves downwardly against the action of the spring 52, and that the hook member 53 engages the corresponding selector lever 10 and moves it downwardly. When the solenoid 46 is deenergized, the spring 52 moves the armature 51 and the hook member 53 upwardly so that the selector lever 10 may be returned to initial position by the automatic operation of the phonograph.

The operation of the mechanism described above is as follows: When the receiver 26 receives a certain number of impulses, for example five impulses of the appropriate radio frequency, the switch 28 closes momentarily five times. The solenoid 30 is energized five times. On the first energization of the solenoid 30, the arm 40 moves towards it and the arm 44 is moved past the stationary contact 45. It is to be noted that the engagement between the arm 44 and the contact 45 has no effect because the wiper arm 35 is in zero position and out of engagement with all the contacts 36. During the series of actuations of the solenoid 30, the arm 40 remains substantially in the position shown in Fig. 2. The five actuations of the solenoid 30 move the wiper arm 35 step by step until it is in engagement with the fifth contact 36, the dog 42 being rendered operative upon the first movement of the sliding member 31 to the left. The actuations of the solenoid 30 having ceased, the arm 40 returns relatively slowly towards its initial position, bringing the arm 44 into engagement with the stationary contact 45.

A circuit is now completed from the battery 29, through conductor 50, wiper arm 35, the fifth contact 36, the corresponding solenoid 46, conductor 47, electromagnet 21, conductor 48, arm 44, stationary contact 45, and conductor 49. Thus, the corresponding selector lever, that is, the fifth selector lever 10, is displaced downwardly and the ratchet wheel 16 is moved into posi-

tion to open the switch 12. The phonograph will now move out and play record number five. After this record is played, the cam shaft 14 is put into operation and the striker member 23 returns the ratchet wheel 16 to initial position, thus opening the switch 12 and bringing the operation of the phonograph to an end.

If, during the playing of the fifth record, another series of impulses, for example three impulses, were received by the receiver 26, the third solenoid 46 would be energized and the third selector lever 10 would be displaced downwardly, and at the same time the electromagnet would be momentarily energized. In this event, the completion of the playing of the fifth record would not stop the phonograph. The fifth record would be returned to the stack and the third record would be moved out and played. It will be understood that the actuation of the ratchet wheel 16 by the striker member 23, after the playing of the fifth record, would not open the switch, since the two actuations of the escapement member 18 resulting from the two series of impulses would have moved the ratchet wheel 16 two spaces away from switch closing position. Of course, it will be understood that any number of, or all of, the twenty selections may be selected and played before the phonograph stops.

It will be understood that the series of impulses referred to above and which actuate the mechanism previously described are produced by one or indeed any number of remote control units, the structure and operation of which will now be described.

My improved remote control unit may suitably be contained within a housing (not shown), which is provided with a coin chute 54, which chute is provided with a switch 55 which is adapted to be closed, in known manner, by an inserted coin. One side of this switch is connected to a battery 56, the other side being connected to a solenoid 57. The solenoid 57 is connected to the other side of the battery 56 so that the solenoid 57 is energized each time a coin of the appropriate denomination is inserted in the coin switch 54. My remote unit is provided with a series of buttons 58 corresponding in number to the number of selections for which the phonograph is arranged. These buttons are available to the operator, projecting through the wall of the housing. Each button 58 is mounted on a rod 59, mounted within the housing for axial movement. Each rod is biased outwardly by a spring 60 and each is provided with an annular projection 61. A fingered bar 62, which is pressed downwardly by a spring 63, is adapted to co-operate with the annular projections 61. When one of the buttons 58 is pressed inwardly, this annular projection 61 raises the bar 62 against the action of its spring 63. Consequently, any other rod 59 and button 58, which may have been pressed inwardly, is released and moved outwardly by its spring 60. When the annular projection 61 of the button now being pressed inwardly moves behind the bar 62, the bar descends and holds the button in its inward position until another button is pressed inwardly.

Upon the inner end of each rod 59 is mounted a sleeve 64 of insulating material, the innermost end of the sleeve being closed. The innermost end of the sleeve 64 is adapted to co-operate, when its rod 59 is moved inwardly, with a normally open leaf switch 65, there being one switch 65 for each rod 59. That is, in the present instance, there are twenty switches 65. Each

sleeve 64 is provided with a left-hand abutment 66 and a right-hand abutment 67. It is to be noted that the first sleeve 64 need not be provided with a left-hand abutment and that the last or twentieth sleeve 64 need not be provided with a right-hand abutment.

Each left-hand abutment 66 is located immediately in front of and in overlapping relation to the right-hand abutment of the sleeve 64 immediately to the left. Consequently, when one button is pushed in, its sleeve 64 is moved rearwardly and all the sleeves to the left of the actuated sleeve are moved rearwardly so that the switch 65 corresponding to the actuated button is closed, and all the switches 65 to the left of that actuated sleeve are closed. All the sleeves to the right of the actuated sleeve remain in their normal position and their switches remain open. The sleeves 64 are biased forwardly by weak pressure, which may be supplied, for example, by the adjacent leaves of the switches 65. Consequently, the sleeves 64 are returned to normal position and their switches 65 are opened when the bar 62 is again raised. For the sake of simplicity, it may be noted that if button number five is pressed inwardly, then the first five switches 65 on the left are closed, the other switches 65 remaining open. The switches 65 have one side connected in series and to one side of the battery. The other side of the battery is connected to a transmitter 69. The other sides of the switches 65 are connected individually to an arcuate series of contacts 70, these contacts, of course, corresponding in number to the number of records in the phonograph, in the present case twenty.

The contacts 70 are adapted to be engaged by a wiper arm 71, which normally occupies a zero position beyond the contacts. When the wiper arm 71 is in normal position, it engages a rocker arm 72, which controls the switch 73, this switch being open when the wiper arm 71 is in normal position. The wiper arm 71 is mounted on a shaft 74, which is biased to the initial position of the wiper arm by means of a spring 81 coiled around the shaft. The shaft 74 carries a gear 75, which is in mesh with the quadrant 76. This quadrant is pivotally mounted and carries a projecting arm 77, which is pivotally connected to the armature 78 of the solenoid 57. It will thus be seen that when the solenoid 57 is energized, its armature 78 moves upwardly and the quadrant 76 moves downwardly, rotating the wiper arm in clockwise direction past and beyond all the contacts. After the arm 71 has passed the contacts, it engages the rocker arm 72 and moves it to the left, closing the switch 73. The shaft 74 is connected to the clockwork mechanism 79 by a slipping clutch (not shown), so that the clockwork mechanism is unaffected when the arm 71 is swung around in clockwise direction. When the shaft 74 moves back in counterclockwise direction, under the influence of its tension spring 81, the clockwork mechanism is actuated and serves as a delay means so that the return of the wiper arm 71 is relatively slow. The transmitter 69 is connected to one side of the switch 73. The other side of the switch is connected to the wiper arm 71. When the switch 73 is closed and the wiper arm 71 is returning to initial position, the transmitter control circuit is completed through the battery, through each closed switch 65 and through the corresponding contacts 70, the wiper arm 71, and the switch 73. Consequently, during the return of the wiper arm 71 the control

circuit of the transmitter 69 is closed a number of times, corresponding to the number of the button 58 which has been actuated. The transmitter 69 is provided with a transmitting antenna 80, and it is arranged to transmit an impulse of radio frequency energy each time that its control circuit is completed. Consequently, during the return movement of the wiper arm 71, a series of impulses of radio frequency energy are transmitted by the antenna 80, corresponding in number to the number of the button 58 which has been actuated. It is, of course, to be understood that the transmitter 69 is tuned to transmit the same radio frequency for which the receiver 26 is tuned.

The operation is as follows: Assuming that the operator desires to play record number five, he pushes button number five, thus mechanically closing the first five switches 65. Then he inserts a coin of suitable denomination in the chute 54, thereby closing the switch 55 and energizing the solenoid 57. The energization of the solenoid swings the wiper arm from its initial position in clockwise direction past all of the contacts 70. It is to be noted that the engagement of the wiper arm 71 with these contacts during the clockwise motion completes no circuit, since the switch 73 is open. At the end of the clockwise motion of the arm 71, the switch 73 is closed, and during the return or counterclockwise motion of the wiper arm, the control circuit of the transmitter is closed five times. Thus, when the returning wiper arm engages contact number one, the control circuit is completed through switch 73, wiper arm 71, contact number one, the corresponding switch number 1, and battery 56. A similar circuit is completed when the wiper arm engages each of the next four contacts. The circuit is not completed when the wiper arm engages the sixth or any subsequent contact 70, because the corresponding switches 65 are open. It will thus be understood that the transmitter 69 transmits five separate impulses of radio frequency energy. These impulses are picked up by the receiver 26 with the result that the motor 11 is started and the fifth selector lever 10 is moved downwardly so that record number five is moved out and played in the manner described above. If, during the playing of record number five, another button 58, for example, the third button, is actuated and a coin is inserted in the chute 54, three impulses will be transmitted and the third selector lever 10 is moved downwardly. At the same time, the ratchet wheel 16 is moved through the distance of another tooth away from its initial position so that both records will be played before the phonograph stops. It will be obvious that any desired number of records may be selected in this manner.

It will be understood that any desired number of remote control units may be provided and operated in this manner in connection with a single phonograph unit, all the records selected by all the operators being reproduced before the phonograph stops. The phonograph can, of course, be put into operation by actuation of any of the remote control units.

Although I have described my invention in connection with the specific details of a preferred embodiment thereof, it is to be understood that such details are not intended to be limitative of the invention except in so far as set forth in the accompanying claims.

Having thus described my invention, I declare that what I claim is:

1. In combination, a multi-selective automatic

phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, manually actuated means corresponding to and adapted to close said switch, and mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the corresponding means and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts each connected to one of said switches, a wiper arm adapted to move over said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency energy each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, a stepping relay controlled by said receiver, an arm movable by said relay to various positions depending upon the number of impulses received by the receiver, electromagnetic means on the phonograph individual to each recording, and means for completing a circuit through said arm to one of last said electromagnetic means to control the playing of the corresponding recording.

2. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, a series of manually actuated means corresponding to and adapted to close each switch, overlapping elements associated with each of said manually actuated means, the element of each manually actuated means overlapping the element of the preceding means of the series whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency energy each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, and means controlled by said receiver to select the corresponding recording.

3. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, manually actuated means corresponding to and adapted to close each switch, and mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency energy

time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, and means controlled by said receiver to select the corresponding recording.

4. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, manually actuated means corresponding to and adapted to close each switch, and mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a switch, means associated with said wiper arm whereby last said switch is closed at the end of the movement of said wiper arm in one direction and is opened at the end of the movement of said wiper arm in the opposite direction, a circuit including said actuated switches, said wiper arm and last said switch, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, and means controlled by said receiver to select the corresponding recording.

5. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, manually actuated means corresponding to and adapted to close said switch, and mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the corresponding means and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts each connected to one of said switches, a wiper arm adapted to move over said contacts, electro-magnetic means for moving said arm over all said contacts, spring means for moving said arm over all said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, a stepping relay controlled by said receiver, an arm movable by said relay to various positions depending upon the number of impulses received by the receiver, electromagnetic means on the phonograph individual to each recording, and means for completing a circuit through said arm to one of last said electromagnetic means to control the playing of the corresponding recording.

6. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, manually actuated means corresponding to and adapted to close said switch, and mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the cor-

responding means and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts each connected to one of said switches, a wiper arm adapted to move over said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, a stepping relay controlled by said receiver, an arm movable by said relay to various positions depending upon the number of impulses received by the receiver, a normally inoperative dog adapted when operative to hold said arm in any of said positions, electromagnetic means controlled by said receiver for rendering said dog operative, slow acting spring means for returning last said electromagnetic means to normal position, individual electromagnetic means corresponding to each recording, and means controlled by first said electromagnetic means for completing a circuit through said arm to the last said electromagnetic means corresponding to the position of said arm to control the playing of the corresponding recording.

7. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, a series of manually actuated means corresponding to and adapted to close each switch, overlapping elements associated with each of said manually actuated means, the element of each manually actuated means overlapping the element of the preceding means of the series whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a coin controlled electromagnetic means for moving said arm over said contacts, a circuit including said actuated switches and said wiper arm, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, and means controlled by said receiver to select the corresponding recording.

8. In combination, a multi-selective automatic phonograph, a remote control unit therefor, said remote control unit comprising a series of switches, each corresponding to a record in the phonograph, a series of manually actuated means corresponding to and adapted to close each switch, overlapping elements associated with each of said manually actuated means, the element of each manually actuated means overlapping the element of the preceding means of the series whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a coin controlled electromagnetic means for moving said

arm over said contacts in one direction, spring means for moving said arm in the opposite direction, a switch adapted to be closed by said arm at the end of its first movement and to be opened by the arm at the end of its opposite movement, a circuit including said actuated switches, said wiper arm, said contacts and last said switch, a radio frequency transmitter connected to said circuit and adapted to transmit an impulse of radio frequency each time the wiper arm engages a connected contact to complete said circuit, a receiver at the phonograph adapted to receive said impulses, and means controlled by said receiver to select the corresponding recording.

9. In a selector for an automatic phonograph having a plurality of individual members each displaceable to effect the selection of a corresponding recording and having a plurality of solenoids each cooperating with one of said members, in combination, a stepping relay comprising an arm and a plurality of contacts whereby said arm may be operatively connected to any one of said solenoids, a solenoid responsive to a sequence of impulses to locate said arm in cooperative relation with one of said contacts, means controlled by said impulser solenoid whereby the same is displaced from normal position when said impulser solenoid is energized, mechanical means for returning last said means slowly to normal position after the termination of a series of actuations of said impulser solenoid, switch means controlled by said displaceable means whereby a circuit is completed through one of said solenoids, and means tending to hold said arm in position into which it is displaced arranged to be rendered inoperative by said displaceable member on its return to normal position.

10. In a selector for an automatic phonograph having a plurality of individual members each displaceable to effect the selection of a corresponding recording and having a plurality of solenoids each cooperating with one of said members, in combination, a stepping relay comprising an arm

and a plurality of contacts whereby said arm may be operatively connected to any one of said solenoids, a solenoid responsive to a sequence of impulses to locate said arm in cooperative relation with one of said contacts, means controlled by said impulser solenoid whereby the same is displaced from normal position when said impulser solenoid is energized, clock work means for returning last said means slowly to normal position after the termination of a series of actuations of said impulser solenoid, switch means controlled by said displaceable means whereby a circuit is completed through one of said solenoids, and means tending to hold said arm in position into which it is displaced arranged to be rendered inoperative by said displaceable member on its return to normal position.

11. In a selector for an automatic phonograph having a plurality of individual members each displaceable to effect the selection of a corresponding recording, having a plurality of solenoids each cooperating with one of said members and having a magazine switch adapted to be energized for the reproduction of a plurality of recordings, in combination, a stepping relay comprising an arm and a plurality of contacts whereby said arm may be operatively connected to any one of said solenoids, a solenoid responsive to a sequence of impulses to locate said arm in cooperative relation with one of said contacts, means controlled by said impulser solenoid whereby the same is displaced from normal position when said impulser solenoid is energized, clock work means for returning last said means slowly to normal position after the termination of a series of actuations of said impulser solenoid, switch means controlled by said displaceable means whereby a circuit is completed through one of said solenoids and through said magazine switch, and means tending to hold said arm in position into which it is displaced arranged to be rendered inoperative by said displaceable member on its return to normal position.

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