

Sept. 2, 1958

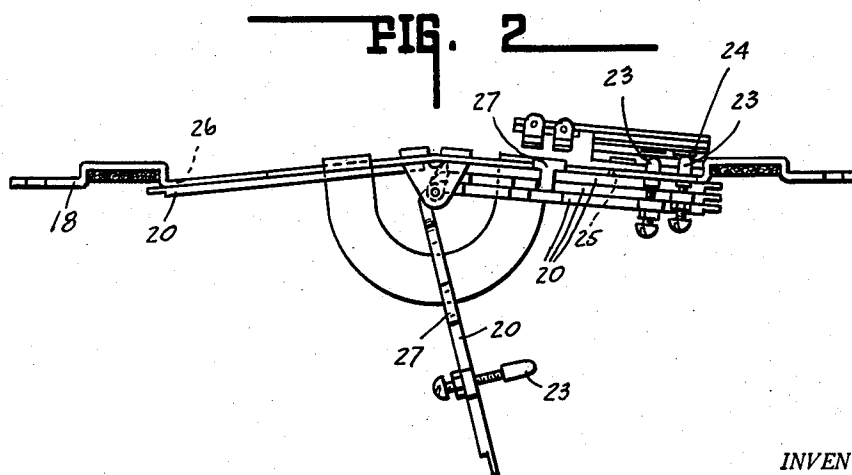
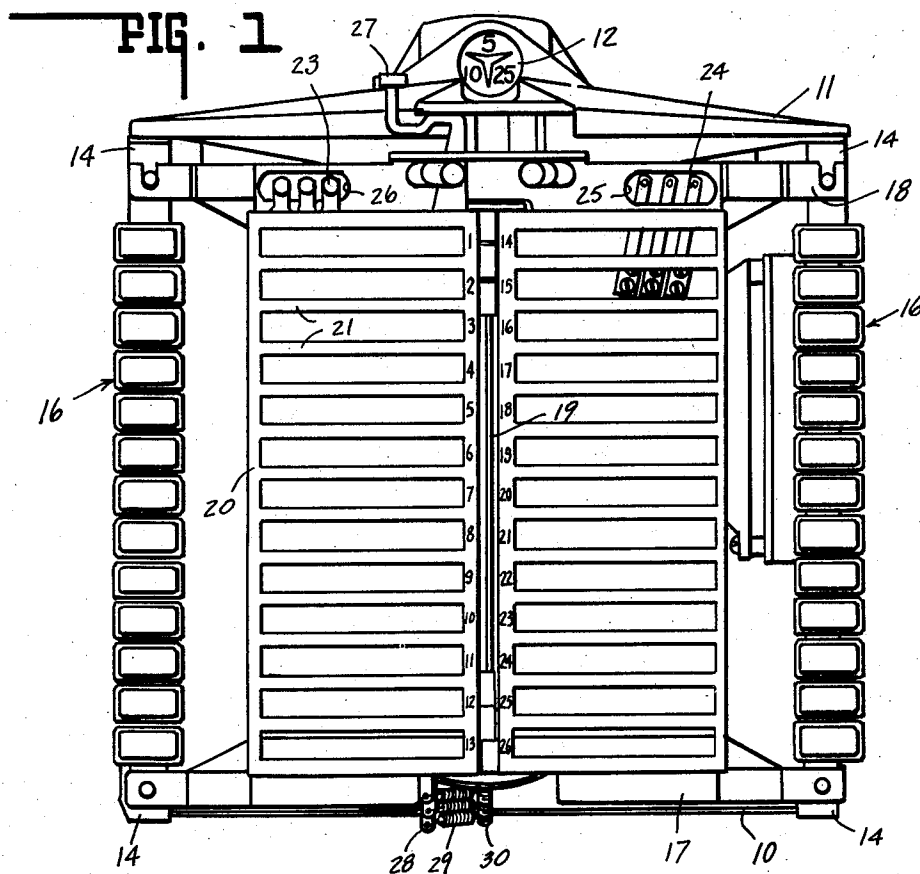
R. G. GAUL

2,850,134

MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Filed July 6, 1953

5 Sheets-Sheet 1



INVENTOR.

ROBERT G. GAUL.

BY

*Lockwood, Galt, Woodard & Smith*  
ATTORNEYS.

Sept. 2, 1958

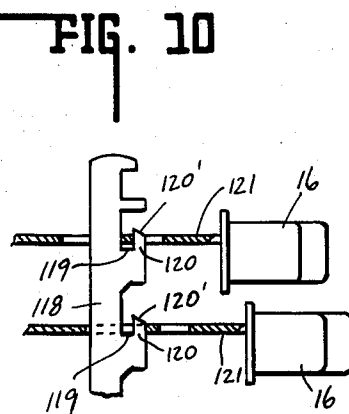
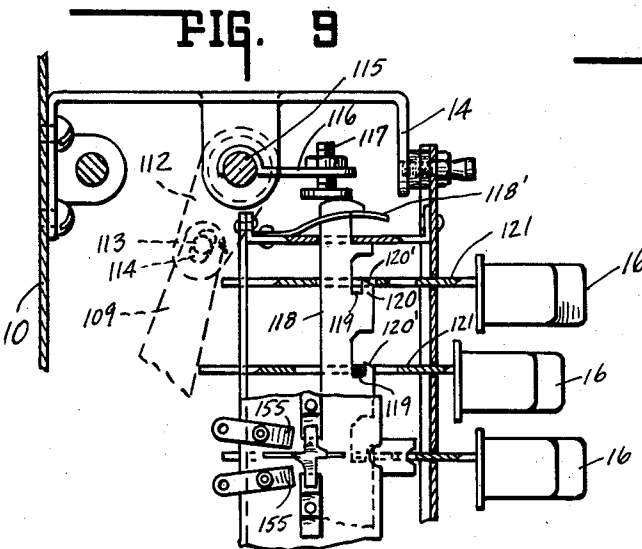
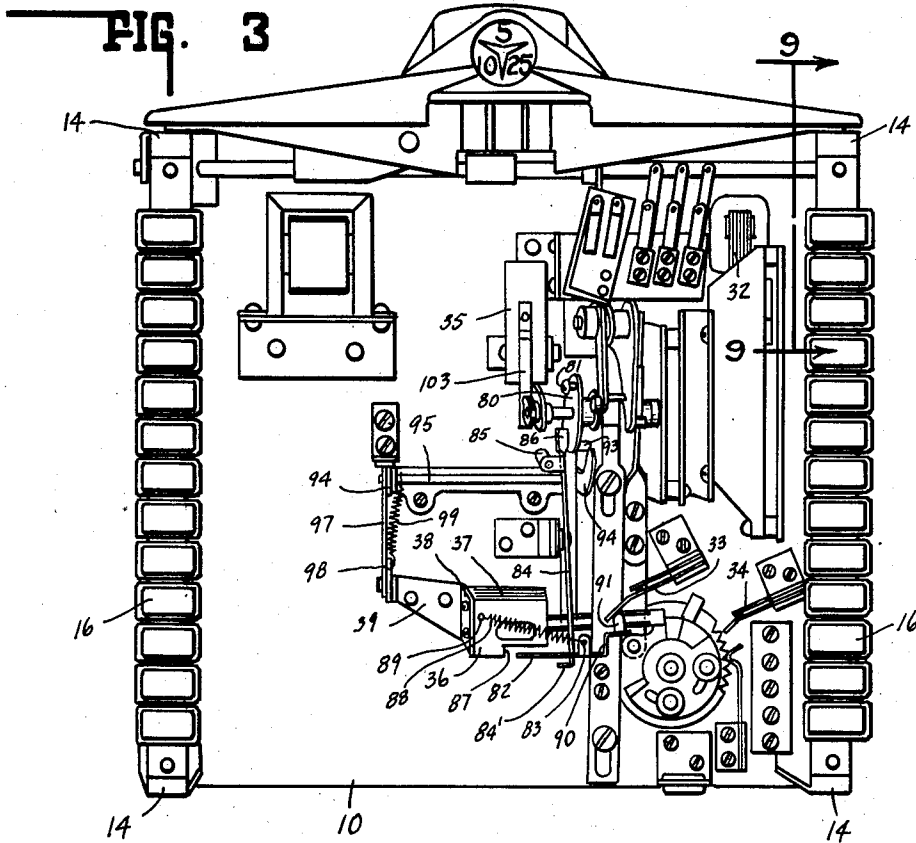
R. G. GAUL

2,850,134

MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Filed July 6, 1953

5 Sheets-Sheet 2



INVENTOR.  
ROBERT G. GAUL.

BY  
*Lockwood, Galt, Woodard & Smith*  
ATTORNEYS.

Sept. 2, 1958

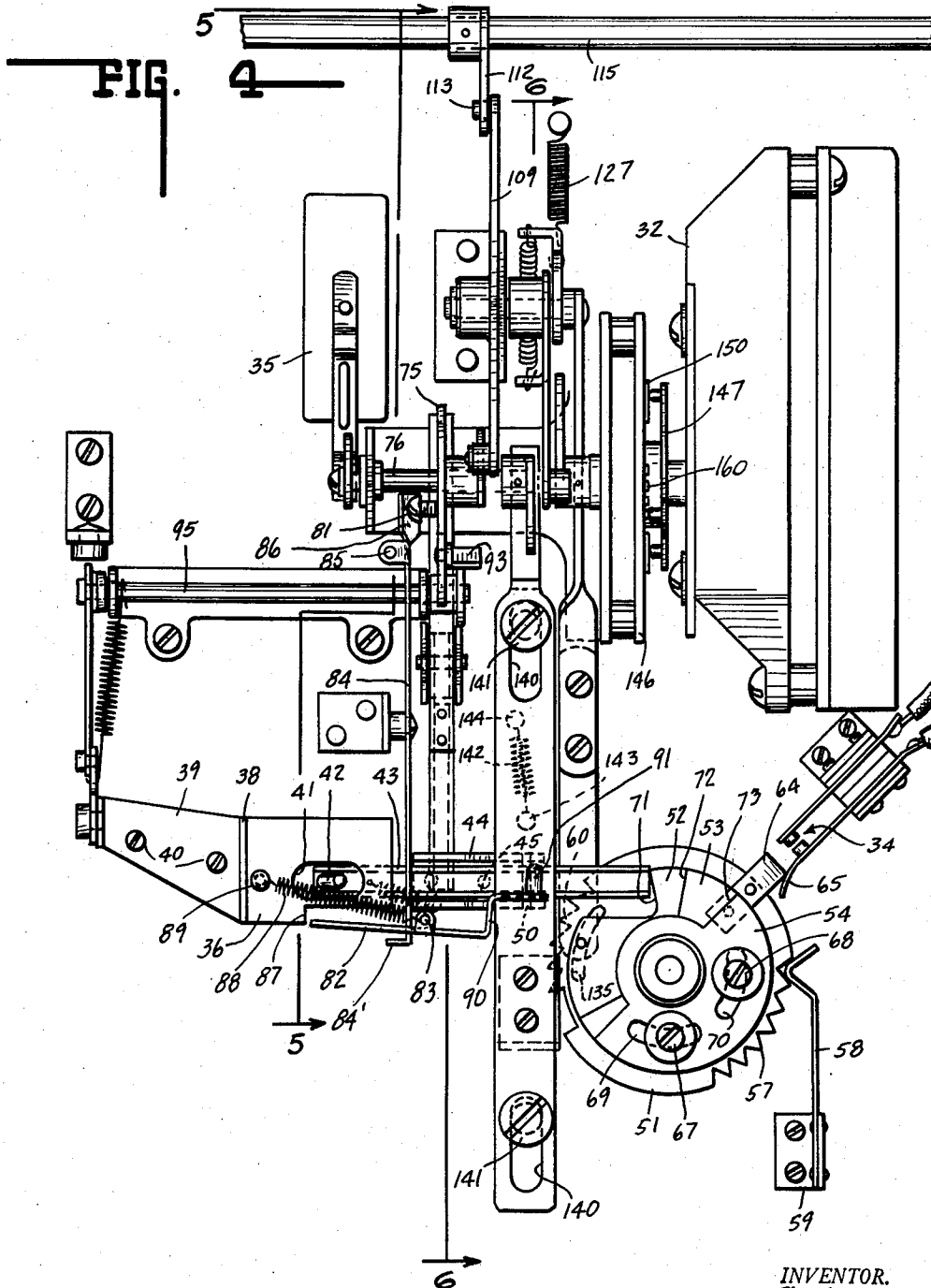
R. G. GAUL

2,850,134

MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Filed July 6, 1953

5 Sheets-Sheet 3



INVENTOR.  
ROBERT G. GAUL,

BY

*Lockwood, Salt, Woodward & Smith*  
ATTORNEYS.

**Sept. 2, 1958**

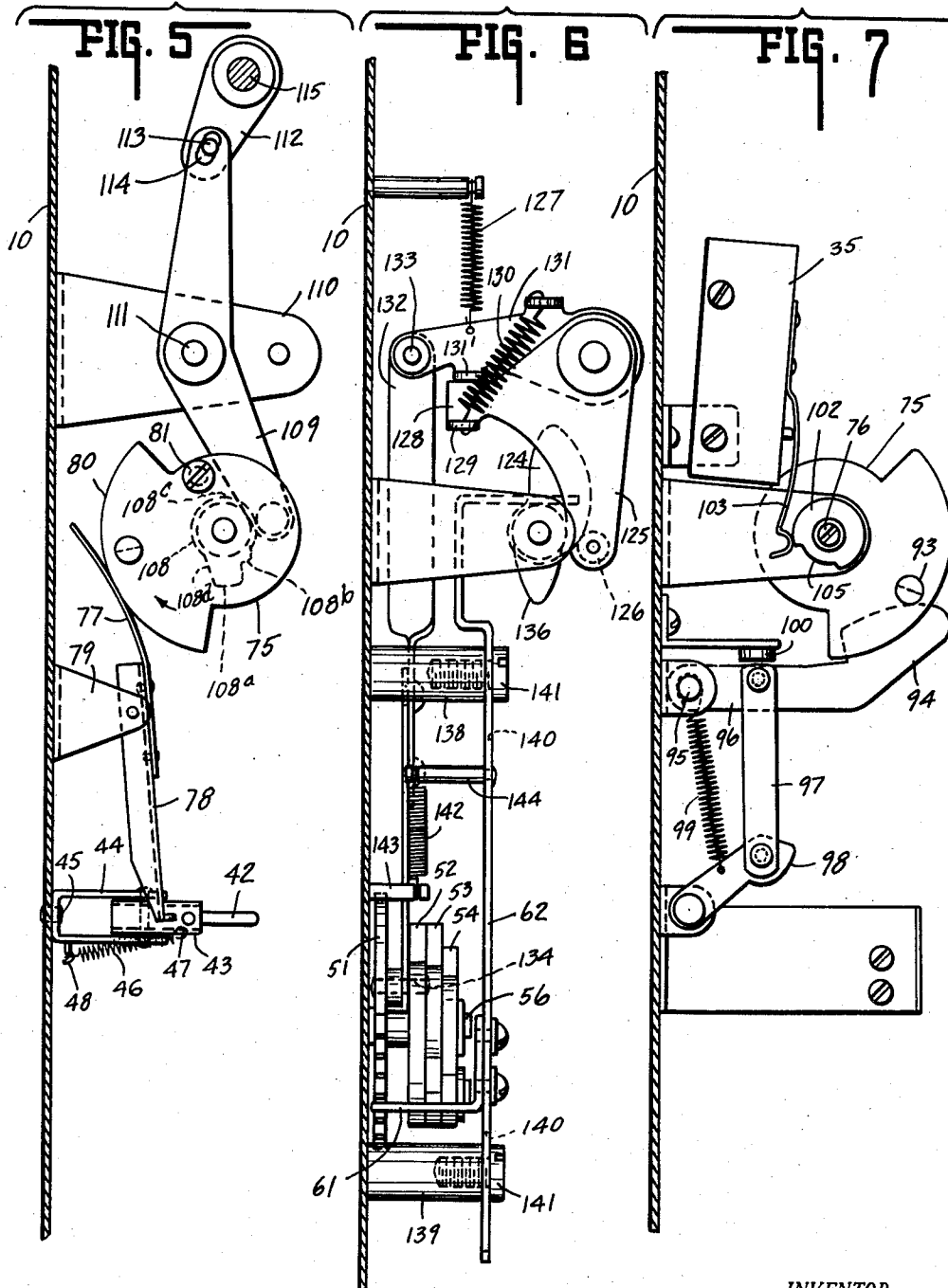
**R. G. GAUL**

**2,850,134**

MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Filed July 6, 1953

5 Sheets-Sheet 4



INVENTOR.  
ROBERT G. GAUL.

**BY**

BY  
Lockwood, Holt, Woodard & Smith,  
ATTORNEYS.

Sept. 2, 1958

R. G. GAUL

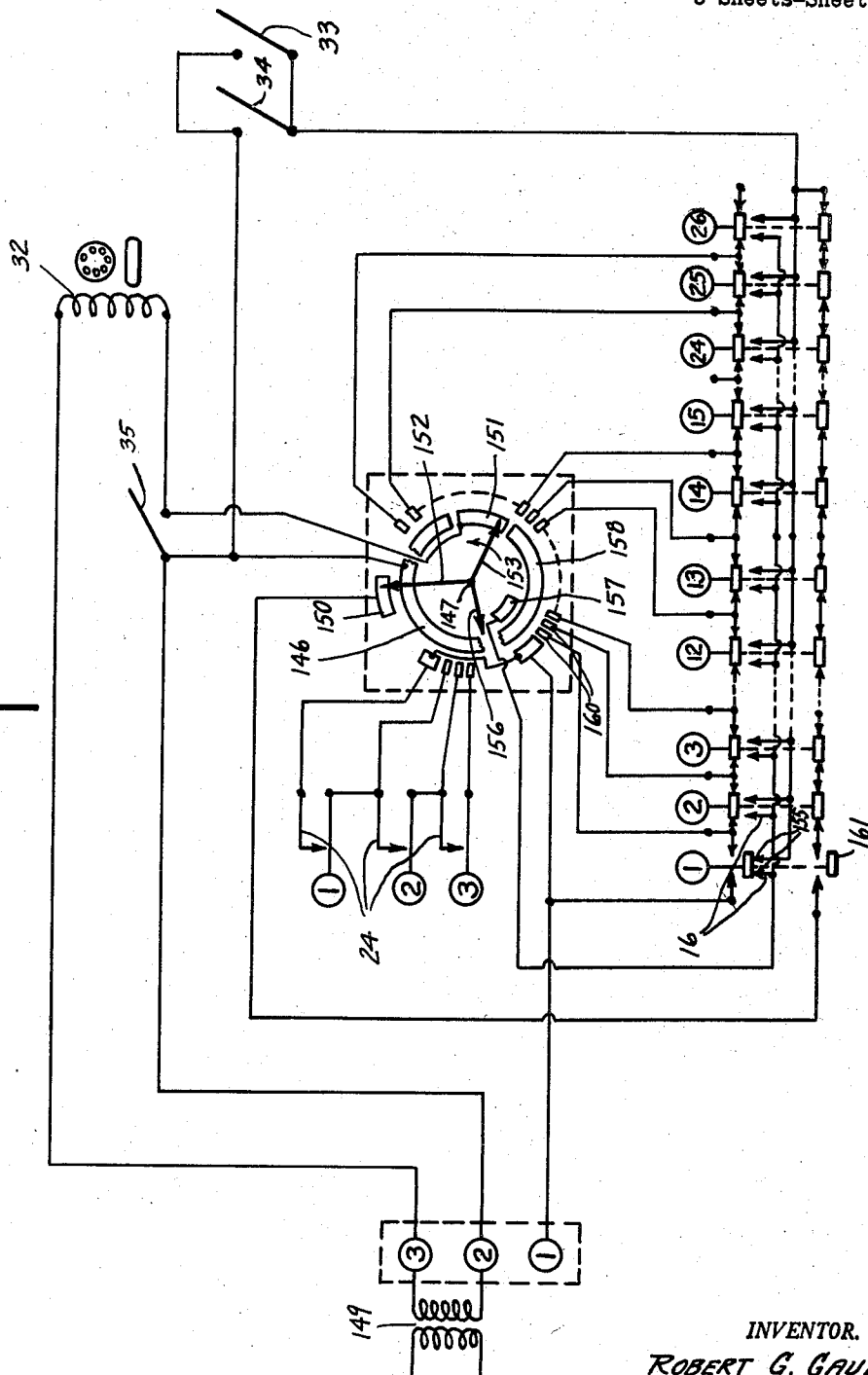
2,850,134

MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Filed July 6, 1953

5 Sheets-Sheet 5

FIG. 8



INVENTOR.

ROBERT G. GAUL.

BY

*Lockwood, Salt, Woodward & Smith*  
ATTORNEYS.

1

2,850,134

## MULTI-SELECTOR WALL BOX FOR AUTOMATIC PHONOGRAPH

Robert G. Gaul, North Tonawanda, N. Y., assignor to The Rudolph Wurlitzer Company, Chicago, Ill., a corporation

Application July 6, 1953, Serial No. 366,306

17 Claims. (Cl. 194—15)

This invention relates generally to remote control systems, and more particularly to a multi-selector wall box for automatic phonographs.

The principal object of the invention is to provide a multi-selector wall box for automatic phonographs having mechanism responsive to coins of different denominations for effecting remote selection of one or more records for playing in an automatic phonograph.

Another object of the invention is to provide in a multi-selector wall box a plurality of rotatable leaf members bearing the names of a plurality of record selections, said leaf members being operable to effect a preliminary selection of groups of records, thereby to simplify the selection circuit and the act of making a desired selection.

Another object of the invention is to provide in a multi-selector wall box for automatic phonographs a plurality of leaf members bearing different groups of phonograph selections, and cooperating push button members for effecting selection of a given record of a selected group, said leaf members being operative to change the selective function of the cooperating push buttons, whereby each push button may be utilized to effect selection of a plurality of records of the selected group.

Still another object of the invention is to provide in a multi-selector wall box for automatic phonographs having a plurality of push button record selecting devices, a coin controlled mechanism for controlling the number of push buttons and selections which may be operated in accordance with the denomination of the coin.

A further object of the invention is to provide in a multi-selector wall box for automatic phonographs having a plurality of push button selecting devices, a coin controlled mechanism for permitting only one push button to select a record during a selection cycle.

A still further object of the invention is to provide, in a multi-selector wall box for automatic phonographs having a plurality of push button selector devices, a control mechanism adjustable to provide selection of a variable number of records in response to insertion of a coin of given denomination.

In accordance with this invention there is provided a multi-selector wall box for automatic phonographs, a record selector circuit, a set of push button switches operatively associated with said selector circuit for selecting one record at a time in a given group of records, and a plurality of leaves bearing the names of record selections in said phonograph, operatively associated with said push button switches, said leaves including switch structure operatively associated with said selector circuit to effect cooperation of said push button switches with different groups of records.

In accordance with another feature of the invention there is provided a multi-selector wall box for automatic phonographs comprising a plurality of push button selector switches and a control mechanism operative by a coin to permit operation of one or more of said push buttons sequentially and at fixed minimum intervals.

2

In accordance with still another feature of the invention there is provided a multi-selector wall box for automatic phonographs comprising a plurality of push button switches adapted to effect selection of records to be played, and a coin operated control mechanism having an adjustable element adapted to vary the number of push button switches which may be operated after insertion of a coin of given denomination.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a front view of a multi-selector wall box for automatic phonographs as provided by this invention.

Fig. 2 is a top plan view of the record selection leaf structure shown in Fig. 1.

Fig. 3 is a perspective view of the wall box illustrated in Fig. 1 with the record selection leaf structure shown in Fig. 2 removed to reveal the push button control mechanism.

Fig. 4 is an enlarged front view of the push button control mechanism illustrated in Fig. 3.

Fig. 5 is a side view taken on line 5—5 of Fig. 4.

Fig. 6 is a side view of the control mechanism taken on line 6—6 of Fig. 4.

Fig. 7 is a side view of the control mechanism shown in Fig. 4 taken from the left of Fig. 4 with parts omitted for the sake of clarity.

Fig. 8 is a circuit diagram illustrating the control circuit of the wall box.

Fig. 9 is a partial cross section taken on line 9—9 of Fig. 3 showing the push button locking structure.

Fig. 10 shows the push button locking structure of Fig. 9 in the button locking position.

Referring to Fig. 1, the multi-selector wall box comprises a base 10 at the upper end of which is mounted a head plate 11 having a centrally disposed coin receiving slot 12. At each corner of the base plate 10 there is provided a post 14. Between the posts 14 are supported a pair of switch assemblies 16, each of which comprises a plurality of conventional push button switches which may be connected to the record selector circuit of an automatic phonograph, as will be described subsequently. Also supported on the posts 14 is a program page assembly comprising end frame members 17 and 18, a hinge pin 19 connecting the end frames and a plurality of program page members 20. The program pages consist of a plurality of card supporting members 21 for removably supporting cards which may bear the names of record titles on records supported in the automatic phonograph for playing therein.

Each program page includes at its upper edge a lug bearing a contact operating push rod 23. The push rods on each page may be spaced a different distance from the hinge point, whereby each push rod will engage a different pair of contacts 24 supported within the wall box immediately below the program pages. End frame 18 is formed to provide a pair of apertures 25 and 26 through which the push rods may project. Each program page is provided with an operating handle 27, and a lug 28 at the bottom thereof to which a spring 29 is attached for retaining the page members in either one of their extreme positions. Spring 29 is attached to a lug 30 which is offset with respect to hinge pin 19, whereby each spring will be tensioned to pull its associated page into one of its extreme positions.

Figs. 3 to 7 illustrate the coin controlled mechanism for unlocking the push button switches to permit one or a plurality of record selections to be made, depending upon the denomination of the coin which is inserted within the coin slot. The coin control mechanism also controls an impulse transmitter which operates the selector

mechanism within the automatic phonograph in accordance with the program page from which the selection is made and further in accordance with the push button aligned with a chosen selection.

For running the coin controlled mechanism through an operating cycle, there is provided an electric motor 32, the electrical circuit of which will be controlled by each of the switches 33, 34 and 35, together with the push button switches 16. For receiving coins of different denominations there is provided a coin gate chute 36 which includes three vertical slots 37, the foremost of which is dimensioned to receive a five cent piece, the middle one of which is dimensioned to receive a ten cent piece, and the rearmost of which is dimensioned to receive a twenty-five cent piece. The coin gate chute is mounted on a horizontal post 38 which includes a foot portion 39 riveted or otherwise fixed to base 10 by means of rivets 40.

Said chute 36 is provided with a horizontal throat 41 which receives a coin feeler pin 42 mounted to project forwardly from the end of a lever 43 in turn pivotally mounted in a channel bracket member 44 fixed to base 10 by rivets 45. The end of lever 43 bearing pin 42 is spring biased into a normally rearward position by means of a spring 46 hooked to lever 43 at 47 and to bracket 44 at 48. Lever 43 extends to the right of its supporting pivot pin 50 into the path of movement of a coin register assembly consisting of four disc members 51, 52, 53 and 54 mounted on a shaft 56 fixed to the base 10 for rotation thereon.

Disc member 51 comprises a ratchet wheel having a plurality of teeth 57 normally engageable with the spring 58 mounted on an angle iron 59 which is fixed to base 10. Spring 58 in cooperation with teeth 57 serves to hold disc member 51 in a series of stepped positions, as will be explained subsequently. The disc member 51 also includes a plurality of teeth 60 engageable by a pawl 61 mounted on a re-set slide 62, the operation of which will be described subsequently. Said disc member 51 also is provided with an arm 64 movable into and out of engagement with the contact arm 65 of switch 34 to open and close said switch, as will be hereinafter described.

The disc members 52, 53 and 54 are stacked over disc member 51 on shaft 56 in adjustable relation to one another, disc 52 having mounted thereon a pair of machine screws 67 and 68 projecting through slots 69 and 70, respectively, in discs 53 and 54, whereby discs 53 and 54 may be rotated on shaft 56 with respect to one another and with respect to disc 52. The purpose of this adjustment is to permit, for example, one or two plays for a five cent piece, or two or three plays for a ten cent piece, or five or more plays for twenty-five cents. It should be noted that disc 52 includes a stop shoulder 71 which is normally substantially in alignment with the right hand end of lever 43.

When there is a five cent piece in coin chute 36 or no coins at all, feeler 42 on lever 43 permits the lever to be pivoted into engagement with stop shoulder 71, thereby to prevent any rotation of the coin register disc assembly. Disc 53 is provided with a stop shoulder 72 which is operative when a ten cent piece stops pivotal movement of lever 43 in such a position that the end of the lever clears stop shoulder 71 so that the disc assembly can rotate until stop shoulder 72 engages the end of the lever. Disc 54 includes a stop shoulder 73 which is operative when a twenty-five cent piece is in the coin gate chute since a coin of this denomination prevents movement of the right hand end of lever 43 rearwardly into engagement with stop shoulder 71 and 72. Thus, the coin register disc assembly can rotate until stop shoulder 73 engages the end of lever 43.

From the foregoing it will be apparent that discs 53 and 54 can be adjusted with respect to disc 52 and with

respect to one another to increase the spacing between stop shoulders 71, 72 and 73, or to decrease such spacing. The way in which this adjustment permits variation in the number of records played per coin will be apparent from subsequent description.

For operating lever 43 and feeler 42 there is provided a cam 75 mounted on the shaft 76 driven by motor 32, the cam 75 engaging with a spring extension 77 mounted at one end of lever 78, which projects beneath lever 43 for movement forwardly and rearwardly. Lever 78 may be pivoted on a double bracket 79 fixed to base 10. The cam surface 80 of cam 75 has a radius sufficient to throw lever 78 forwardly to such an extent that feeler 42 may project forwardly within slot 41 through the middle of coin receiving chute of coin gate chute 36. When feeler 42 is moved forwardly to this extent, the opposite end of the lever 43 will have moved rearwardly into the plane of stop shoulder 71 on disc 52. If a ten cent piece or a twenty-five cent piece stops the forward movement of feeler 42, spring 77 bearing on cam surface 80 provides lost motion between lever 78 and cam surface 80.

The cam 75 is provided with a horizontally projecting lug 81, the function of which is to operate the coin gate 82 pivotally mounted at 83 on the end of lever 84, which in turn is pivotally mounted on a horizontal post 85 fixed to the base 10 and includes a cam surface 86 disposed at a slight angle with respect to the plane of lever 34 for camming engagement with the lug 81. Lug 81 imparts counterclockwise movement to lever 84 and coin gate 82 moving the gate out of engagement with coins in the coin gate chute 36, permitting them to drop into a coin box (not shown). For the purpose of normally retaining the left hand end of coin gate 82 in engagement with the abutment 87 on coin gate chute 36, there is provided a spring 88 fixed to the pivot 83 and a post 89 mounted on coin gate chute 36. The coin gate 82 includes as an integral part thereof an extension 90 having mounted thereon a contact operating member 91 of insulating material and extending into engagement with one of the contacts of switch 33 for closing those contacts when a coin rests on gate 82 within one of the chutes in coin gate chute 36. The contacts of switch 33 are normally open, but the weight of a coin within coin gate chute 36 pivots gate 82 in a counterclockwise direction, moving insulating member 91 into engagement with one of the contacts of switch 33 to close the switch. This starts motor 32 to initiate a record selecting cycle, as will be hereinafter described.

Cam 75 also includes a lug 93 movable into engagement with a lever 94 mounted on a shaft 95, which in turn is connected to a crank 96, a connecting rod 97 and a cam 98. This mechanism consisting of cam 94 and members 95, 96, 97 and 98 is biased into the normal position shown in Fig. 7 by means of a spring 99 secured between cam 98 and shaft 95 whereby the connecting rod 97 normally rests in contact with a stop 100 mounted on base plate 10. Said mechanism is provided for the purpose of cooperating with a coin rejection device (not shown) which operates to reject a coin when there is a previously inserted coin within the coin gate chute 36, but as it forms no part of this invention, it is not completely disclosed herein.

On the outer end of motor driven shaft 76 there is mounted a cam 102 operatively associated with the actuating spring member 103 of full cycle switch 35 which may be what is commonly called a "micro-switch" connected in the circuit of motor 32, as will be described subsequently. Cam 102 is mounted on the shaft 76 so that in idle position of the mechanism the depressed portion 105 engages the outer end of spring 103 in which position switch 35 is open.

In order to control the time interval during which one or more of the push buttons 16 may be operated, shaft

76 of motor 32 is provided with a cam 108 operatively associated with a lever 109 pivotally mounted on bracket 110 by means of a suitable pivot arrangement 111. Cam 108 is provided cam surfaces 108a, 108b, 108c and 108d. Lever 109 is connected at its outer end with a crank 112 by means of a pin 113 fixed in the end of crank 112 and projecting into slot 114 in lever 109. Crank 112 is mounted on a shaft 115 in fixed relation thereto, whereby cam 108 rotates lever 109 to impart rotational movement of a few degrees to shaft 115. Cooperating with the push buttons 16 and shaft 115 are a pair of locking mechanisms operative from each end of shaft 115 by means of a crank member 116 and a push rod 117.

The locking mechanism comprises the plate 118 slidably mounted in the push button support structure and having a plurality of notches 119 formed to provide a locking lug 120 having cam surface 120'. Plate 118 is biased to the position shown in Fig. 9 by a leaf spring 118'. Plate 118 extends through apertures formed in each of the push buttons, and each push button includes a cross bar 121 movable into and out of engagement with lug 120. Thus, surface 108a of cam 108 is normally positioned to engage the outer end of lever 109, thereby rotating shaft 115 to push plate 118 against spring 118' to such a position that lug 120 does not engage with or does not rest in the path of movement of the cross bars 121 on push buttons 16. As soon as operation of the mechanism starts, surface 108b of cam 108 engages lever 109, permitting the spring 118' to move the locking plate 118 upwardly far enough to align cam surface 120' of each lug 120 with cross bars 121 that any push button may be pressed inwardly camming plate 118 downwardly until bar 121 passes lug 120 after which plate 118 will move upwardly to lock the push button due to engagement of lug 120 and cross bar 121. Further rotation of cam 108 engages surface 108c thereof with lever 109 permitting spring 118' to move plate 118 further upwardly to the position shown in Fig. 10 where cam surfaces 120' pass beyond cross bars 121 to prevent operation of more of the buttons 16. At the completion of a selection cycle, surface 108d of cam 108 will have lifted the end of lever 109, thereby to effect backward motion of plate 118 to release cross bar 121 and therewith the operated push button. It is to be noted that during a record selection cycle lug 120 prevents inward movement of a push button other than the initially selected push button. This mechanism prevents selection and playing of more than a single record selection during a selection cycle.

As heretofore described, the coin register discs 51, 52, 53 and 54 are rotated during a selection cycle until the end of lever 43 engages with one of the stop shoulders 71, 72, 73. For effecting rotation of the coin register discs, there is provided a cam 124 mounted on shaft 76 of motor 32 and a cooperating lever 125 having a cam follower pin 126 and being pivotally mounted on bracket 110. Lever 125 is approximately L-shaped, and the free end 128 thereof includes a turned out ear 129 to which is fastened a spring 130. The other end of spring 130 is connected to a crank arm 131, also pivotally mounted on post 110. Thus, cam 124 tends to move lever 125 in a counterclockwise direction, exerting tension on spring 130 and tending to move crank arm 131 in a counterclockwise direction. The free end of crank arm 131 is connected to connecting rod 132 by means of a hinge pin 133 and is also connected to disc 52 by means of a pin 134 extending through disc 52, connecting rod 132 and downwardly through an annular slot 135 in disc 51.

When lever 125 is moved in a counterclockwise direction, spring 130 moves crank arm 131 in a counterclockwise direction imparting downward movement to connecting rod 132 and counterclockwise motion to the coin register discs. This motion continues until the end of lever 43 engages one of the stop shoulders 71, 72,

73 and if, for example, the end of lever 43 engages stop shoulder 71, spring 130 will absorb continued motion of lever 125, permitting the crank arm 131 to remain stationary. If on the other hand a ten cent piece or a twenty-five cent piece have been inserted in coin gate chute 36, the coin register discs will stop with stop shoulders 72 or 73 in engagement with the end of lever 44. In this case connecting rod 132 will have moved pin 134 to the lower end of slot 135, stepping the disc 51 three or five steps, respectively. At this point cam 124 will permit spring 127 to impart clockwise movement to lever 125 and likewise clockwise movement to crank arm 131 through engagement of the outer end of lever 125 with ear 131' on crank arm 131. Slot 135 in disc 51 permits the return movement of connecting rod 132 and discs 52, 53 and 54 without imparting return movement to disc 51.

In order to re-set disc 51 shaft 76 of motor 32 is provided with a re-set cam 136 which cooperates with a ratchet slide 62 slidably mounted on two horizontal posts 138 and 139. The outer end of ratchet slide 62 is slotted as at 140 to receive a cap screw 141, and the shank portion of screw 141 is of less diameter than the width of slot 140, whereby the slide 62 may have lateral motion with respect to screw 141, and the ratchet pawl 61 may slip downwardly past the teeth 60 in disc 51. In order to provide return motion of slide 62 as the cam 136 rotates away from the end of slide 62, there is provided a spring 142 secured between a post 143 mounted on base 10 and a post 144 mounted in slide 62, post 144 being out of line to the left of post 143, whereby spring 142 tends to pivot slide 62 about post 138 in a counterclockwise direction, thus tending to move the ratchet tooth 61 into engagement with teeth 60.

For controlling motor 32 and transmitting selection impulses to an automatic phonograph, there is provided a rotary impulse transmitting switch 146 having a three contact rotary arm 147 fixed on motor shaft 76 to be rotated thereby. Switch 146 is connected in the circuit illustrated in Fig. 8. This circuit comprises the motor 32 connected across a power supplying transformer 149 which may be located in the automatic phonograph. For controlling the operation of motor 32 there is provided a full cycle switch 35 connected in series with the winding of motor 32, the parallel connected key switch 34 and coin switch 33, the selector button switches 16, and the rotary impulse transmitting switch 146 connected in series with one another and in parallel across full cycle switch 35. The rotary impulse transmitting switch 146 comprises spaced stationary concentric segmental conductors 150, 151, 157 which cooperate with the conductor arms 152, 153 and 156 of the rotary switch arm 147 to control operation of motor 32 during a selection cycle. The program page switches 24 are connected to stationary contacts on the rotary impulse switch 146 to cooperate in the transmission of selection impulses to the automatic phonograph. The automatic phonograph selection circuit forms no part of this invention and, hence, is not shown herein.

In operation, the mechanism described herein is normally in a rest position wherein the rotary contacts 152 and 153 connect the stationary contacts 150 and 151. The cam mechanism at the same time is in such a position that the full cycle switch 35, key switch 34 and coin switch 33 are all open. The selector switch buttons 16 may be depressed since the selector switch latch bar is in the unlocked position. Cam 75 is in a rest position where cam surface 80 is out of contact with the spring member 77 so that the coin feeler 42 will be in a depressed position, and lever 43 is out of engagement with the accumulator wheel 51, 52, 53 and 54.

When a coin is dropped into the coin chute 12, it comes to rest within the proper slot in the coin gate chute 36 and is retained therein by the coin gate 82. However, the

weight of the coin pivots gate 82 into engagement with the stop member 84' on lever 84 in which position the contact operating member 91 will have closed the contacts of coin switch 33. This establishes the circuit from motor 32 through switch 33, the closed contacts of switches 16, stationary contact 150, the arms 152 and 153 of the rotary switch, stationary contact 151 to power source 149, thereby completing the circuit and causing motor 32 to rotate until such time as arm 152 moves off stationary contact 150. The opening of contact 150 stops motor 32, but during its rotation the selector switch latch bar will have been cam operated by cam 108, lever 109, crank 112 and shaft 115 to such a position that one of the push button switches 16 may be depressed and locked in a depressed position. The lug 93 on cam 75 will have operated lever 94, connecting rod 97 and crank arm 98 to block the coin chutes in the slug rejector mechanism (not shown) to prevent loss of coins which might be mistakenly inserted during the operating cycle.

When the push button switch is depressed, contacts 155, for example, are closed. The rotary contact 156 will have come to rest on segment 157 of switch 146 while contact 153 will still be connected with stationary contact 151. Thus, a circuit is established from the motor through stationary contact 151, arms 153 and 156 of the rotary switch 146, stationary contact 157, button switch contacts 155, and coin switch 33 to the power source 149, and motor 32 rotates. The rotary contact arms 152, 153 and 156 rotate with motor 32, arm 153 contacting the stationary contact 158 of switch 146, and arm 152 contacting the outer stationary contacts 160 to transmit a series of impulses to the selector mechanism of the automatic phonograph, thereby to select a record to be played. When the motor begins this period of its operating cycle, cam 105 on motor shaft 76 closes full cycle switch 35 by depressing the spring operating member 103, thereby to hold the motor circuit closed throughout the remainder of its operating cycle.

It will be noted that the button selector switches include a bank of contacts 161 and the circuit of this bank of contacts opens when contacts 155 are closed. The switch contacts of this bank are connected in series with the coin switch 33, and if a coin of more than one selection value were placed in the machine and the person making the selection held the selector button down throughout a complete selection cycle, inadvertent selection of the same number twice in succession is prevented.

Immediately after motor 32 commences the final period of its cycle, cam surface 80 of cam 75 depresses spring member 77 on lever 78, lifting lever 43 and coin feeler 42 up through the slot 41 in the coin gate chute 36. If a five cent piece is in the coin gate chute, feeler 42 permits lever 43 to rotate until the outer end of the lever is in the path of movement of stop surface 71 on accumulator disc 52. At this point cam 124 rotates lever 125 in a counterclockwise direction, but the end of lever 43 prevents any movement of the accumulator wheel 52 and similarly prevents any movement of the ratchet wheel 51, whereby the key switch 34 remains open.

Motor 32 continues to rotate until the cam surface 80 eventually moves out of contact with spring 77, permitting lever 78 to lower lever 43. Then, lug 81 moves into engagement with the cam surface 86 on lever 84, pivoting it in a counterclockwise direction and moving coin gate 82 out of the way of the coin in the coin gate chute, permitting the coin to drop into the coin box. Cam 75 will now have rotated to such a point that lug 93 thereon engages lever 94 to unblock the coin chutes in the slug rejector. Simultaneously therewith, cam 108 lifts lever 109 to effect release of the latch bar and a chosen selector switch button. After this operation is completed, cam 102 will have rotated to the point where surface 105 engages spring 103 and opens full cycle switch 35. This completes a cycle of operation where a five cent piece or a single selection coin is inserted in the coin gate chute.

If two plays or selections are to be provided for five cents, disc 52 may be adjusted to the position of disc 53.

If a ten cent piece or a two-selection coin is inserted in the coin gate chute, the coin feeler 42 will engage this coin in the centrally located chute of the coin gate chute, whereby the outer end of lever 43 will move into a position to engage stop surface 72 on disc 53. Such engagement will not occur, however, until after cam 124 has operated lever 125 and the connecting bar 132 sufficiently to effect rotation of disc 51 through two successive steps or until spring 58 rests in the third notch of ratchet 57. This operation moves switch operating member 64 out of engagement with the key switch leaf 65, permitting its contacts to close. The motor operates through the same complete cycle as described in connection with the use of a single selection coin except that cam 136 engages the left hand end of the slide 62, moving the slide and therewith the ratchet pawl 61 into engagement with the ratchet teeth 60 of wheel 51, moving this wheel one step or to such a position that spring 58 rests in the second notch of ratchet 57. Since the key switch 34 is closed, motor 32 is energized at the end of the cycle even though the full cycle switch 35 opens. Therefore, motor 32 starts another cycle of operation, coming to rest in the make selection position permitting the second push button switch to be operated to make a second selection of a record to be played. At the end of this selection cycle, pawl 61 is again operated to rotate accumulator wheel 51 back to its idle position where key switch 65 is opened, thereby terminating the operation of the cycle of the selection control mechanism.

If a five-selection coin such as a twenty-five cent piece is inserted in the coin gate chute, feeler 42 can enter slot 41 of coin gate chute 36 only to a minimum degree, whereby the outer end of lever 43 is raised to such a position that it does not engage stop shoulder 72 but permits the accumulator wheels to rotate until stop shoulder 73 is engaged. This permits the ratchet wheel 51 to rotate to such a point that spring 58 rests in the sixth notch of ratchet 57, again permitting key switch 65 to close. Thus a total of five selections may be made, one after the other, before switch 65 is again opened and the cycling of motor 32 is terminated.

As explained before, accumulator wheels 51, 52, 53 and 54 are adjustable with respect to one another so that either of the multi-selection coins may effect a variable number of selections. For example, a ten cent piece may effect selection of one or three different records instead of two, while a twenty-five cent piece may effect four or six selections instead of five.

While the invention has been described as comprising a wall box for controlling automatic phonographs, it will be readily apparent to those skilled in the art that the wall box and its mechanism may be installed in and made a part of an automatic phonograph.

The invention claimed is:

1. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch comprising a coin gate chute having spaced slots for receiving coins of different denominations, a coin gate pivotally mounted thereon normally to close said slots for retaining a coin therein and including an arm movable by a coin for closing said normally open coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a lever cooperating with said cam

shaft for opening said gate after one button operation, a button switch locking mechanism operatively connected to said cam shaft and including a locking bar associated with said buttons operative to lock an actuated button in actuated position and to lock all other buttons against actuation as soon as said rotary switch has been positioned for energizing said push button switches, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs having arcuately spaced stop shoulders, a lever including at one end a coin feeler movable across said slots different distances to detect coins of different denominations and including at the other end thereof a portion adjustable in accordance with coins of different denominations for movement into the way of said stop shoulders for permitting rotation of said accumulator a number of steps correlated to the coin denomination, thereby to hold said motor circuit closed for plural button operation, a cam and lever mechanism operatively associated with said cam shaft for operating said coin feeler lever, a cam on said shaft and a follower including lost motion mechanism operatively associated with said accumulator wheel to rotate the accumulator said number of steps, and a cam and lever mechanism operatively associated with said cam shaft for re-setting said accumulator one step for each operating cycle of said motor until said accumulator arm opens said key switch to terminate the selective operation of said motor and said push button switches.

2. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and closing said normally open switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a button switch locking mechanism operatively connected to said cam shaft and including a locking bar associated with said buttons operative to lock an actuated button in actuated position and to lock all other buttons against actuation as soon as said rotary switch has been positioned for energizing said push button switches, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for permitting rotation of said accumulator a number of steps correlated to the coin denomination, thereby to hold said motor circuit closed for plural button operation, a cam and lever mechanism operatively associated with said motor for operating said coin feeler lever, a cam on said shaft and a follower including lost motion mechanism operatively associated with said accumulator wheel to rotate the accumulator said number of steps, and a cam and lever mechanism operatively associated with said cam shaft for re-setting said accumulator one step for each operating cycle of said motor until said accumulator arm

opens said key switch to terminate the selective operation of said motor and said push button switches.

3. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and closing said normally open coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a button switch locking mechanism operative to lock an actuated button in actuated position and to lock all other buttons against actuation as soon as said rotary switch has been positioned for energizing said push button switches, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for permitting rotation of said accumulator a number of steps correlated to the coin denomination thereby to hold said motor circuit closed for plural button operation, mechanism operatively associated with said shaft for operating said coin feeler lever, and lost motion mechanism operatively associated with said shaft and said accumulator wheel to rotate the accumulator said number of steps.

4. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch comprising a coin gate chute having spaced slots for receiving coins of different denominations, a coin gate pivotally mounted thereon normally to close said slots for retaining a coin therein and including an arm for closing said normally open coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs having arcuately spaced stop shoulders, a lever including at one end a coin feeler movable across said slots different distances to detect coins of different denominations and including at the other end thereof a portion adjustable in accordance with coins of different denominations for movement into the way of said stop shoulders for permitting rotation of said accumulator a number of steps correlated to the coin denomination thereby to hold said motor circuit closed for plural button operation, a cam and lever mechanism operatively associated with said cam shaft for operating said coin feeler lever, a cam on said shaft and a follower including

11

lost motion mechanism operatively associated with said accumulator wheel to rotate the accumulator said number of steps, and a cam and lever mechanism operatively associated to said motor for re-setting said accumulator one step for each operating cycle of said motor until said accumulator arm opens said key switch to terminate the selective operation of said motor and said push button switches.

5. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and closing said normally open coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for permitting rotation of said accumulator a number of steps correlated to the coin denomination thereby to hold said motor circuit closed for plural button operation, mechanism operatively associated with said shaft for operating said coin feeler lever, and lost motion mechanism operatively associated with said shaft and said accumulator wheel to rotate the accumulator said number of steps.

6. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and actuating said coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs having arcuately spaced stop shoulders, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for movement into the path of said stop shoulders permitting rotation of said accumulator a number of steps correlated to the coin denomination thereby to hold said motor circuit closed for plural button operation, mechanism operatively associated with said shaft for operating said coin feeler lever, and lost motion mechanism operatively associated with said shaft and said accumulator to rotate the accumulator said number of steps.

12

7. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said push buttons and for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and actuating said coin switch to energize said motor and actuate said transmitting means for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to continually energize said motor for operating said transmitting means to transmit one series of pulses after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, coin feeler means for detecting coins of different denominations in said coin operated mechanism and including means adjustable in accordance with coins of different denominations for permitting rotation of said accumulator a number of steps correlated to the coin denomination thereby to hold said motor circuit closed for plural button operation, mechanism operatively associated with said shaft for operating said coin feeler means, and mechanism operatively associated with said shaft and said accumulator to rotate the accumulator said number of steps.

8. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a normally open coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and closing said normally open coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a button switch locking mechanism operatively connected to said cam shaft and including a locking bar associated with said button operative to lock an actuated button in actuated position and to lock all other buttons against actuation as soon as said rotary switch has been positioned for energizing said push button switches, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism, mechanism operatively associated with said shaft for operating said coin feeler lever, and means operatively associated with said lever, said key switch and said shaft for controlling said key switch in accordance with the denomination of a coin for plural button operation.

9. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and actuating said coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connect-

13

ed to said motor, a button switch locking mechanism operative from said cam shaft to lock an actuated button in actuated position and to lock all other buttons against actuation as soon as said rotary switch has been positioned for energizing said push button switches, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, and means including a cam feeler responsive to coins of different denominations for operating said key switch to permit plural button operation in accordance with the denomination of a coin.

10. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, a rotary switch having contacts for transmitting selector impulses to said selector circuits in response to operation of said push buttons and normally open contacts for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said rotary switch, a coin switch connected to said motor, a coin operated mechanism controlling said coin switch for receiving coins of different denominations and actuating said coin switch to energize said motor and rotate said rotary switch into position for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to continually energize said motor for operating said rotary switch through one revolution after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs adjustably mounted with respect to one another and having arcuately spaced stop shoulders, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for movement into the way of said stop shoulders for permitting rotation of said accumulator a variable number of steps correlated to the relative adjustment of said discs and to the coin denomination thereby to hold said motor circuit closed for operation of a variable number of buttons, mechanism operatively associated with said shaft for operating said coin feeler lever, and lost motion mechanism operatively associated with said shaft and said accumulator to rotate the accumulator said number of steps.

11. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said push buttons and for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to energize said motor for operating said transmitting means to transmit one series of pulses after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs adjustably mounted with respect to one another and having arcuately spaced stop shoulders, a lever including at one end a coin feeler for detecting coins of different denominations in said coin operated mechanism and including at the other end thereof a portion adjustable in accordance with coins of different denominations for movement into the way of said stop shoulders for permitting rotation of said accumulator a variable number

14

of steps correlated to the relative adjustment of said discs and to the coin denomination, thereby to hold said motor circuit closed for operation of a variable number of push buttons, mechanism operatively associated with said shaft for operating said coin feeler lever, and lost motion mechanism operatively associated with said shaft and said accumulator to rotate the accumulator said number of steps.

12. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said push buttons and for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to energize said motor for operating said transmitting means to transmit one series of pulses after another, a rotatable accumulator including an arm for normally holding said key switch open and rotatable by a multi-selection coin to permit closure of said key switch, said accumulator including stacked stop discs adjustably mounted with respect to one another and having arcuately spaced stop surfaces, a coin feeler for detecting coins of different denominations in said coin operated mechanism and including a portion adjustable in accordance with coins of different denominations for movement into the way of said stop surfaces for permitting rotation of said accumulator a variable number of steps correlated to the relative adjustment of said discs and to the coin denomination thereby to hold said motor circuit closed for operation of a variable number of buttons, mechanism operatively associated with said shaft for operating said coin feeler, and mechanism operatively associated with said shaft and said accumulator to rotate the accumulator said number of steps.

13. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said push buttons and for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said push button switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to energize said motor for operating said transmitting means to transmit one series of pulses after another, means operatively associated with said coin operated mechanism for detecting coins of different denominations, and adjustable means operatively associated with said coin detecting means, said key switch, and said shaft for controlling said key switch in accordance with the denomination of a coin to permit selection of a variable number of records for a given coin.

14. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of push button switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said push buttons and for energizing the circuits of said push buttons in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said push button switches, a cam shaft connected to said

15

motor, a key switch in circuit with said motor operable to energize said motor for operating said transmitting means to transmit one series of pulses after another, means operatively associated with said coin operated mechanism for detecting coins of different denominations, and means operatively associated with said coin detecting means, said key switch, and said shaft for controlling said key switch in accordance with the denomination of a coin for plural button operation.

15. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of selector switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said switches and for energizing the circuits of said switches in response to insertion of a coin in said apparatus, a motor for driving said transmitting means, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said selector switches, a cam shaft connected to said motor, a key switch in circuit with said motor operable to energize said motor for operating said transmitting means to transmit successive series of pulses, an accumulator including a member for normally holding said key switch open and movable by a multi-selection coin to permit closure of said key switch, said accumulator having offset spaced stop shoulders, a coin feeler for detecting coins of different denominations including a portion adjustable in accordance with coins of different denominations for movement into the path of said stop shoulders for permitting movement of said accumulator a variable number of steps correlated to the coin denomination, thereby to hold said motor circuit closed for operation of a variable number of selector switches, mechanism operably associated with said shaft for operating said coin feeler, and mechanism operably associated with said shaft and said accumulator to move the accumulator a predetermined number of steps according to the coin denomination.

16. Apparatus for controlling the selector circuits of an automatic phonograph comprising a plurality of selector switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector circuits in response to operation of said switches and for energizing the circuits of said switches in response to insertion of a coin in said

16

apparatus, a motor for driving said transmitting means to transmit a series of pulses, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said selector switches, coin feeling means operatively associated with said coin operated mechanism and movable to a degree corresponding to the coin denomination for detecting coins of different denominations, and means operatively associated with said coin detecting means and said motor and responsive to different degrees of movement of said coin feeling means for operating said motor to transmit one or more series of pulses in accordance with the denomination of a coin for plural selector switch operation.

17. Apparatus for controlling the selector mechanism of an automatic phonograph comprising a plurality of selector switches operable for selecting one or more records in said automatic phonograph, means for transmitting selector impulses to said selector mechanism in response to operation of said switches and for energizing the circuits of said switches in response to insertion of a coin in said apparatus, a motor for driving said transmitting means to transmit a series of pulses, a coin operated mechanism including a switch connected to said motor to energize said motor and actuate said transmitting means for energizing said selector switches, coin feeling means operatively associated with said coin operated mechanism and movable through different distances corresponding to the coin denomination for detecting coins of different denominations, and an accumulator operatively associated with said motor and having stop surfaces offset in one direction different distances with respect to one another to cooperate with said coin feeling means and offset in another direction with respect to one another to permit different degrees of movement of said accumulator in response to coins of different denominations for operating said motor to transmit one or more series of pulses in accordance with the denomination of a coin for selecting one or more records.

#### References Cited in the file of this patent

#### UNITED STATES PATENTS

|           |        |               |
|-----------|--------|---------------|
| 2,378,557 | Jensen | June 19, 1945 |
| 2,622,144 | Jensen | Dec. 16, 1952 |