

Nov. 20, 1945.

D. C. ROCKOLA ET AL

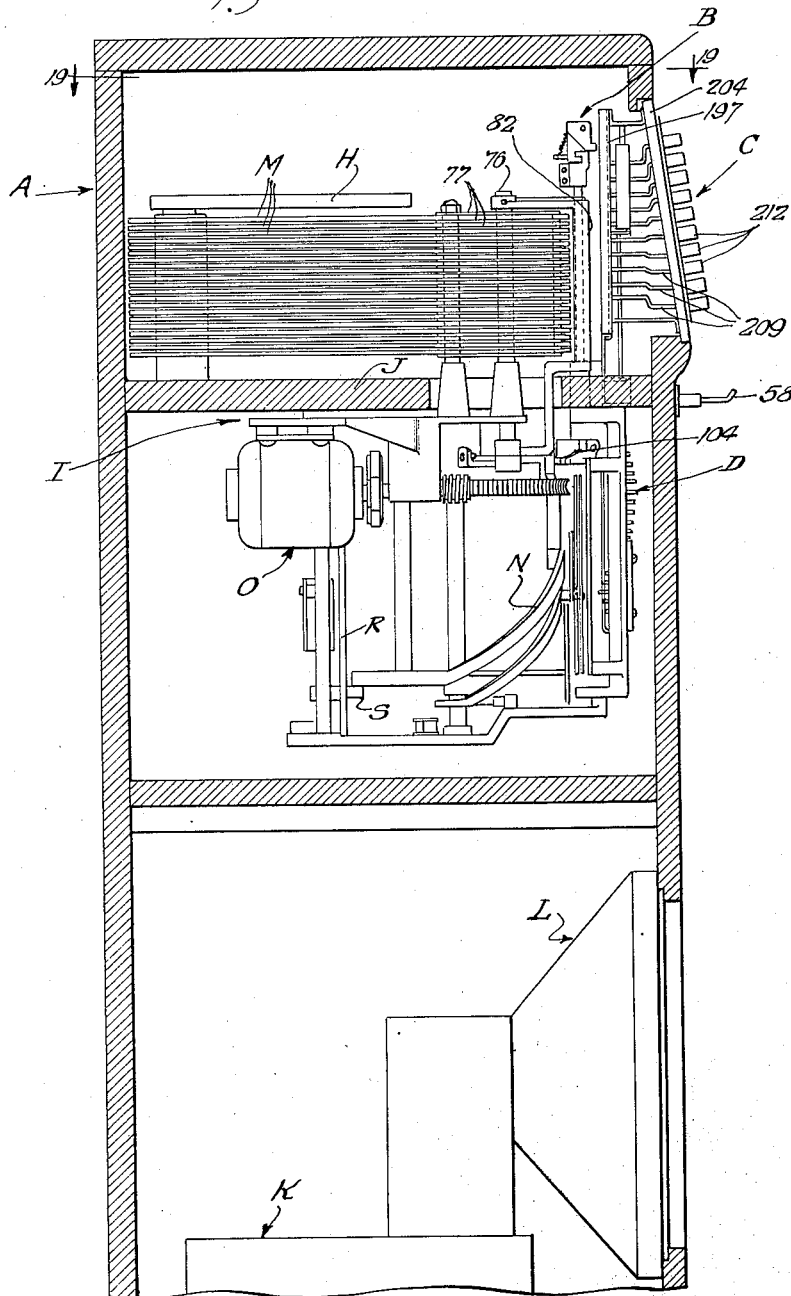
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PHONOGRAPH

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17 Sheets-Sheet 1

Fig. 1



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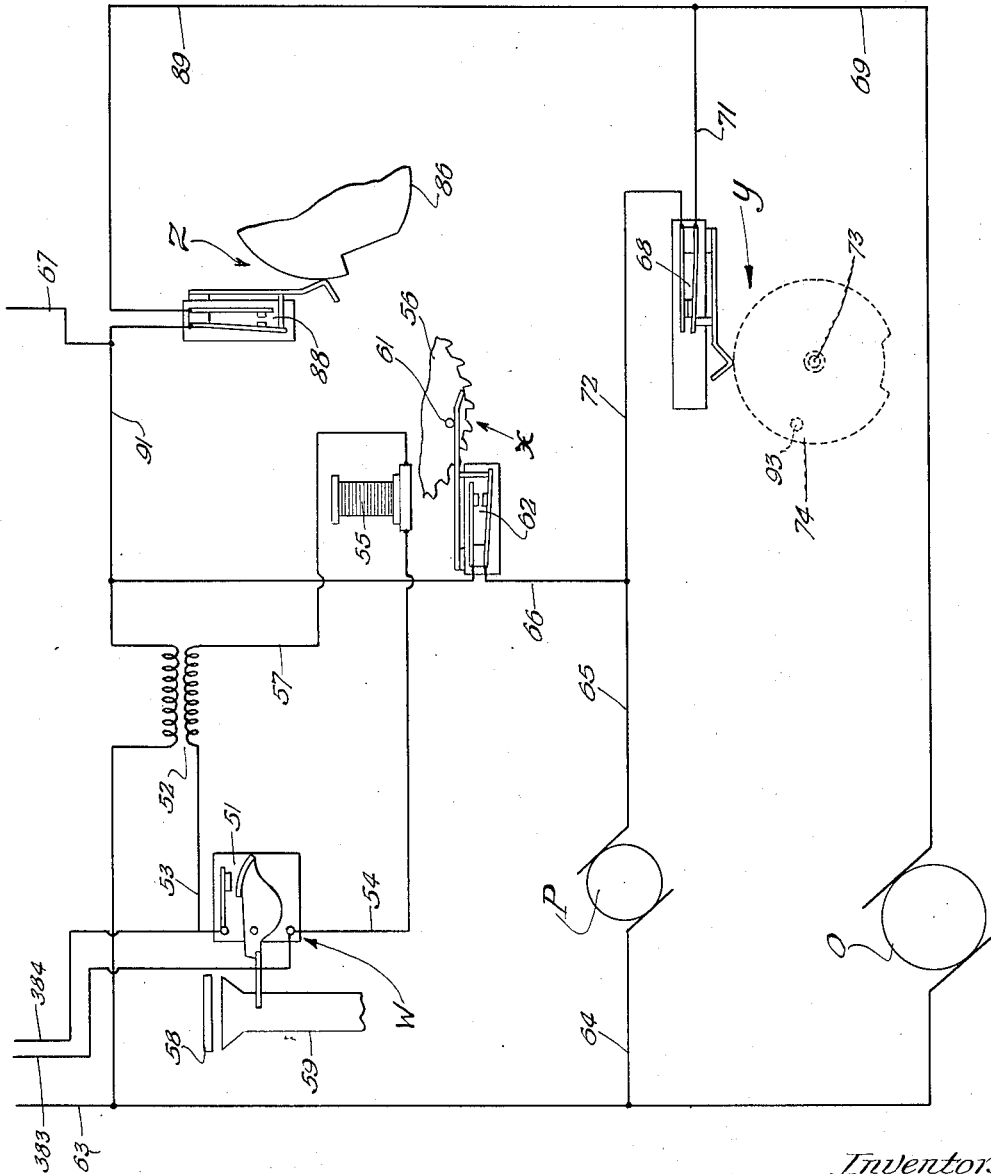


Fig. 2a

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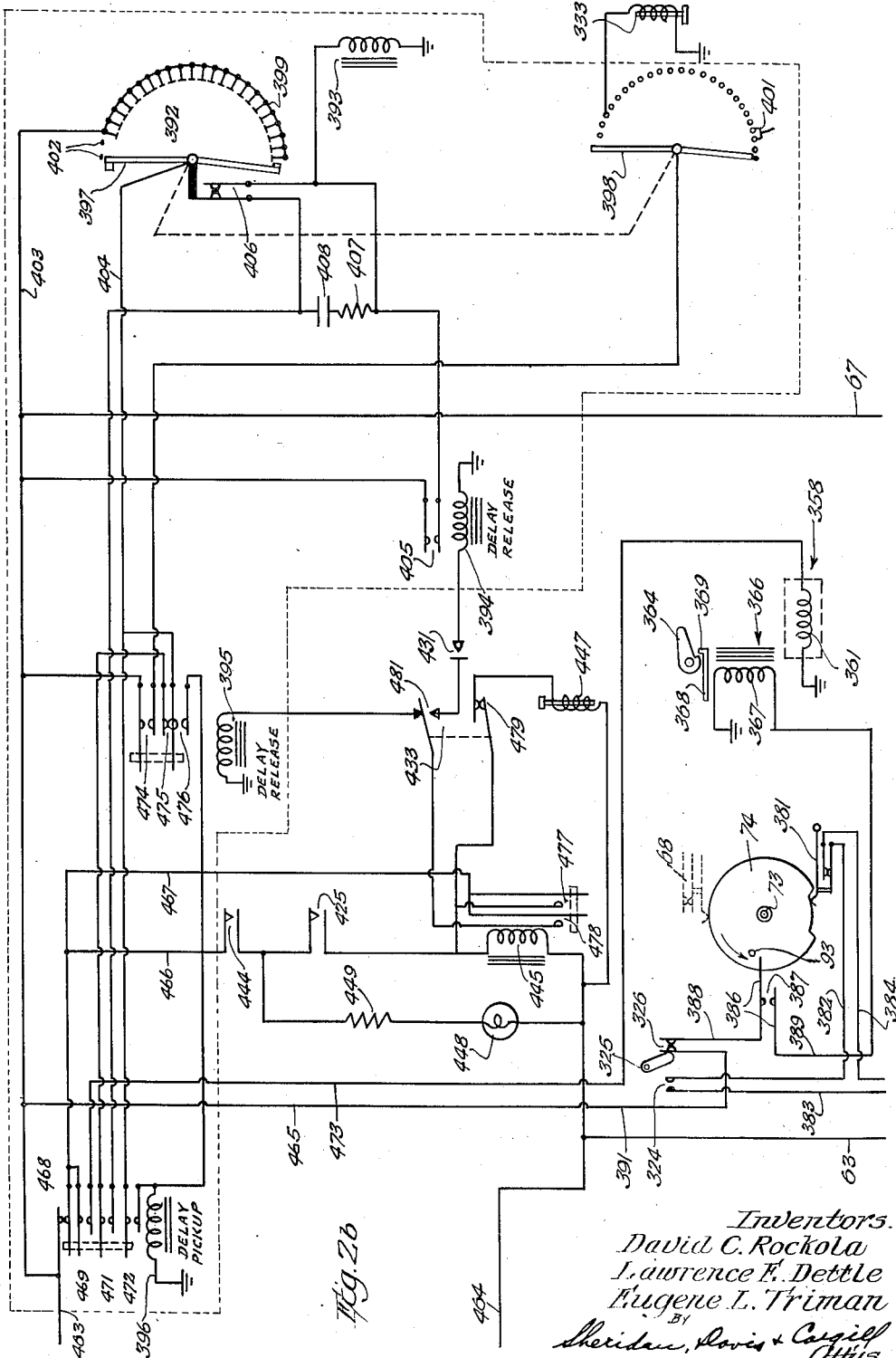
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17 Sheets-Sheet 3



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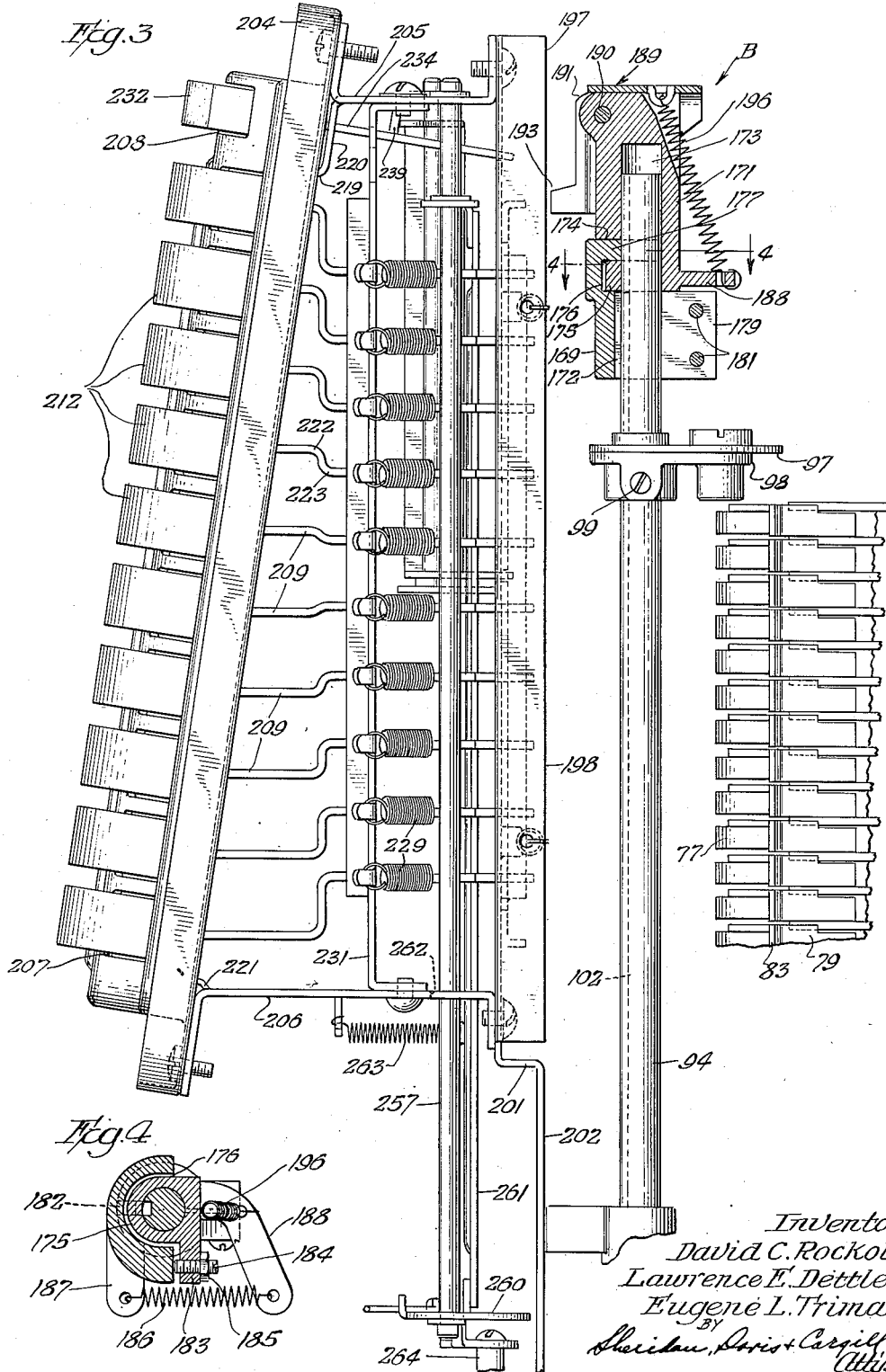
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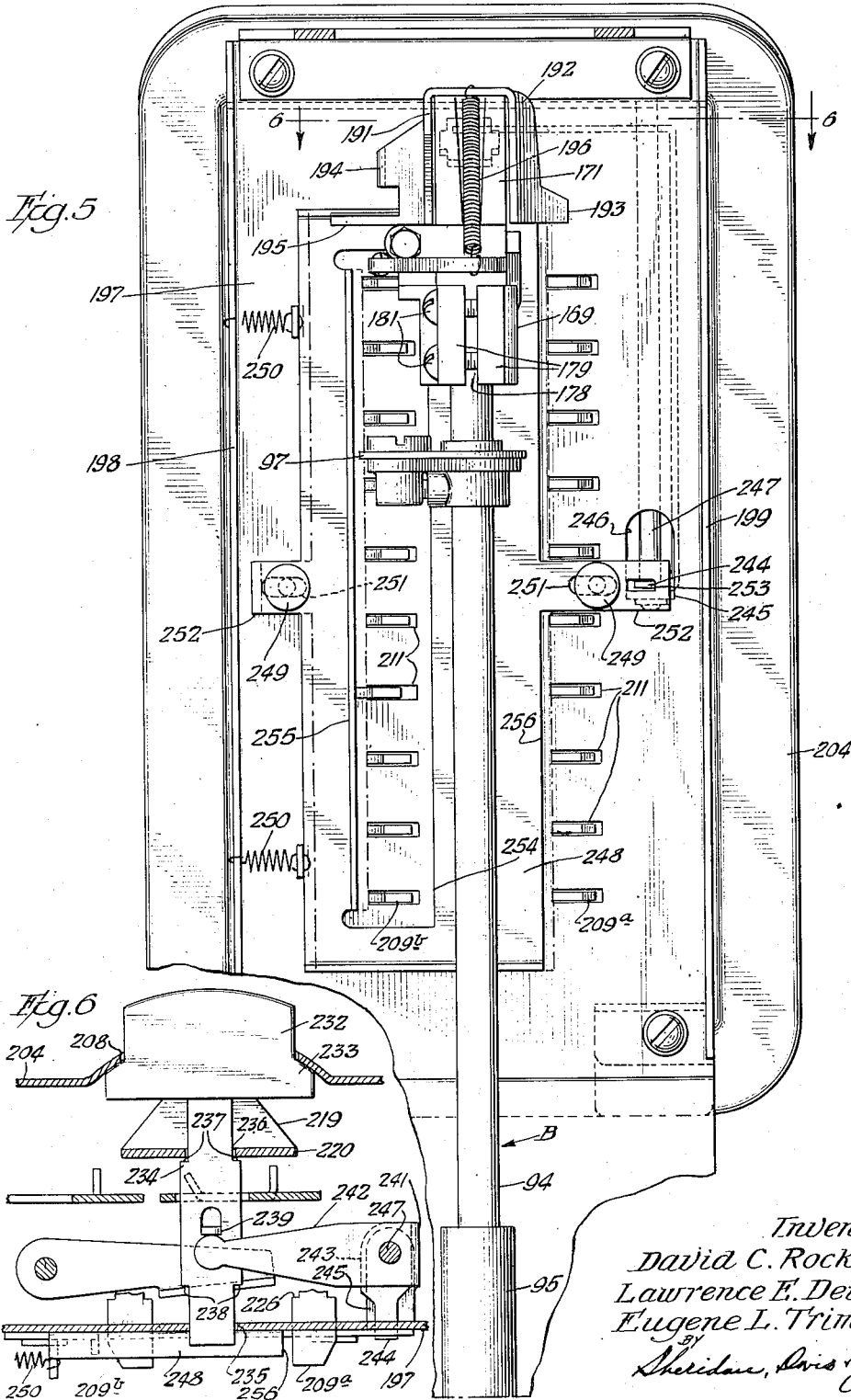
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17 Sheets-Sheet 5



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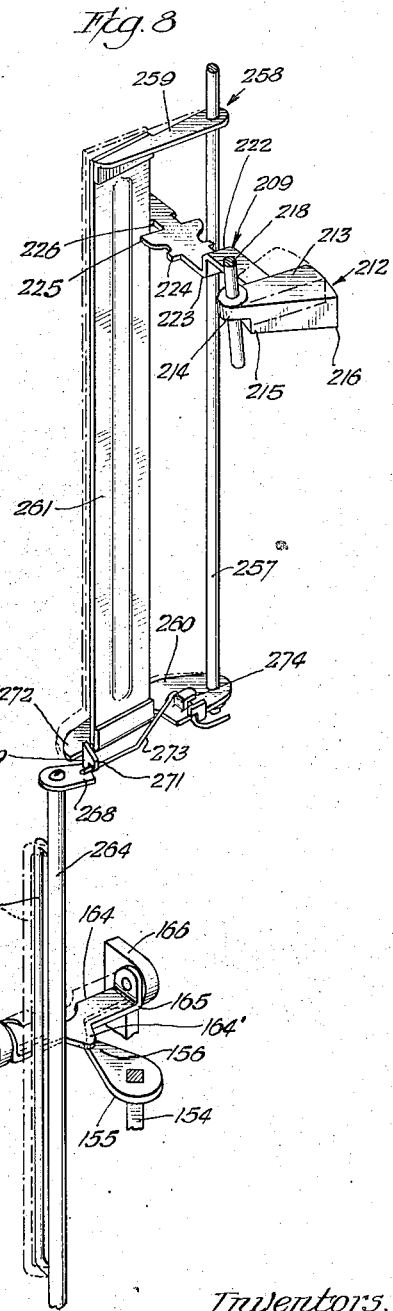
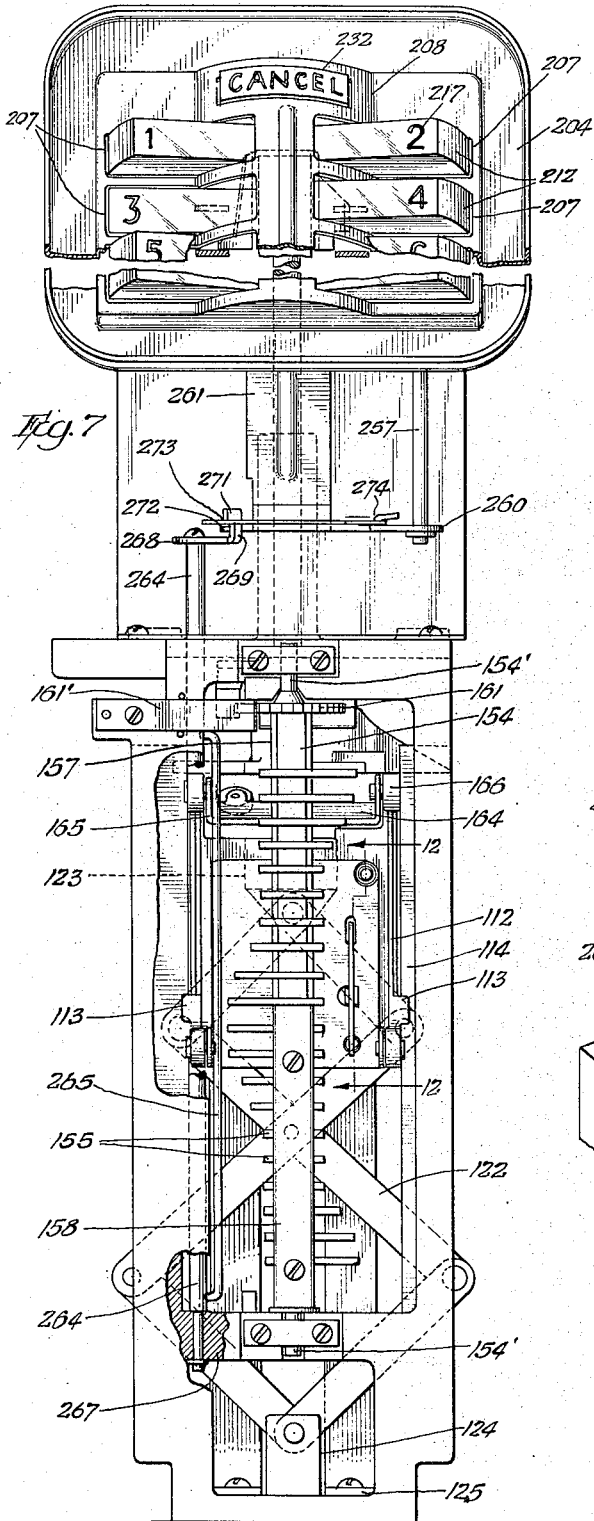
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17 Sheets-Sheet 6



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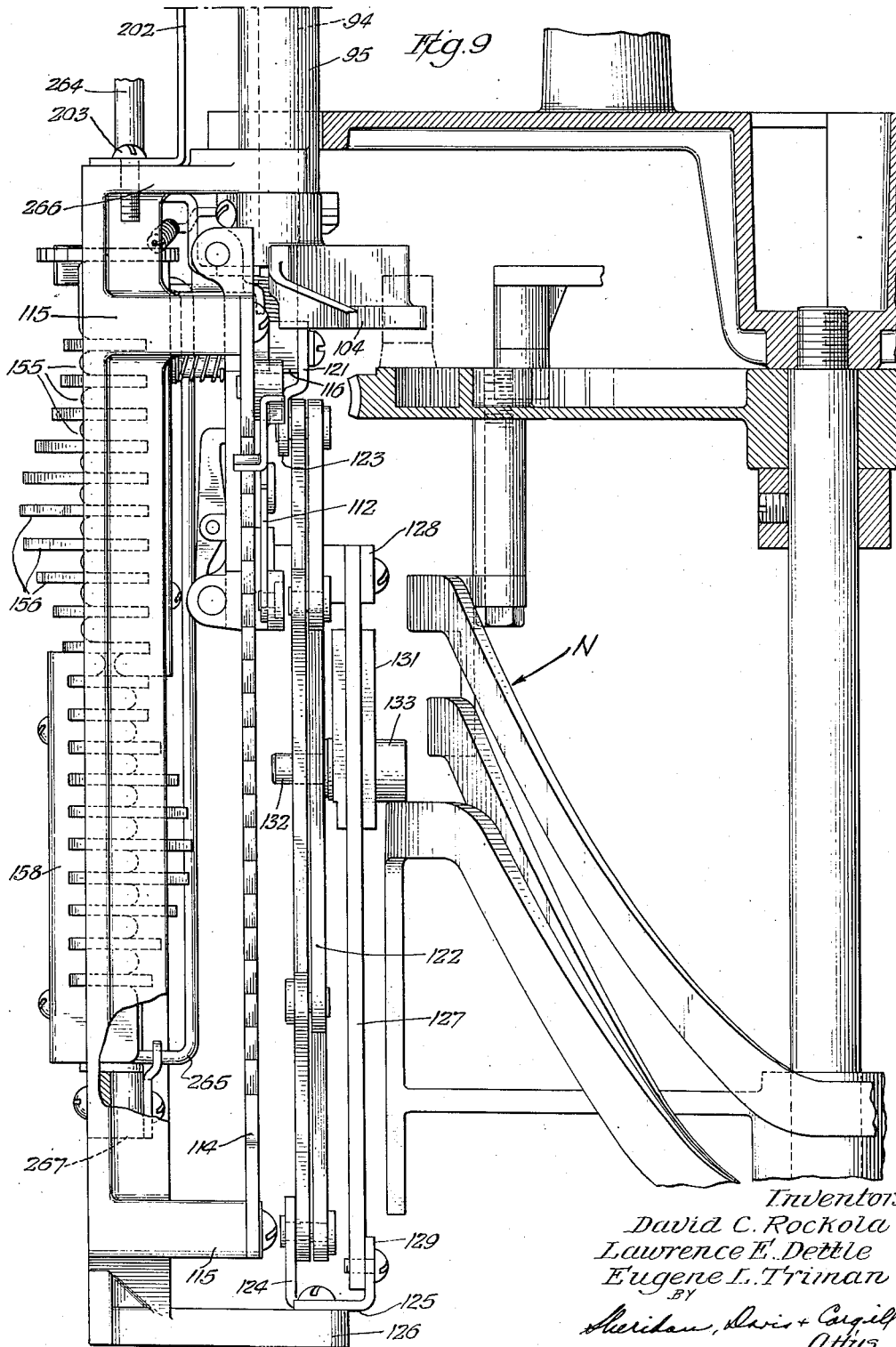
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17 Sheets-Sheet 7



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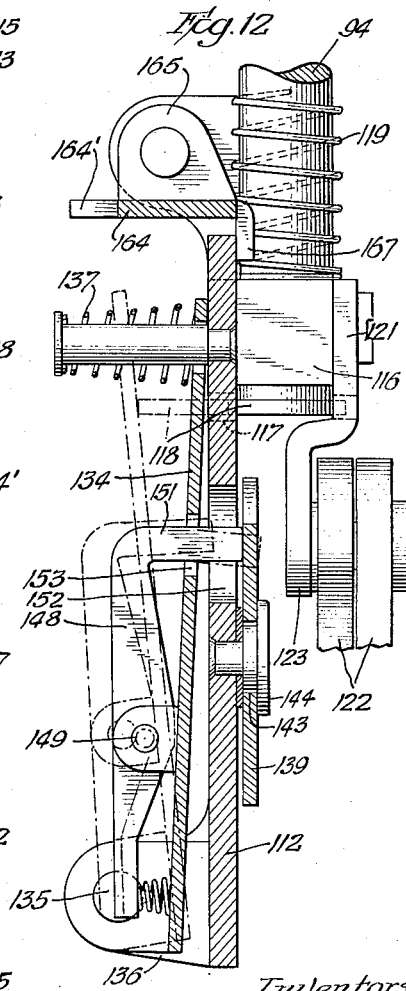
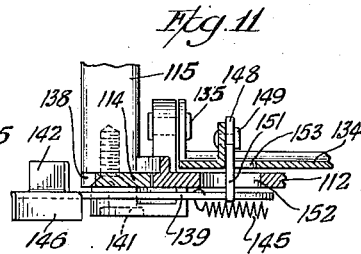
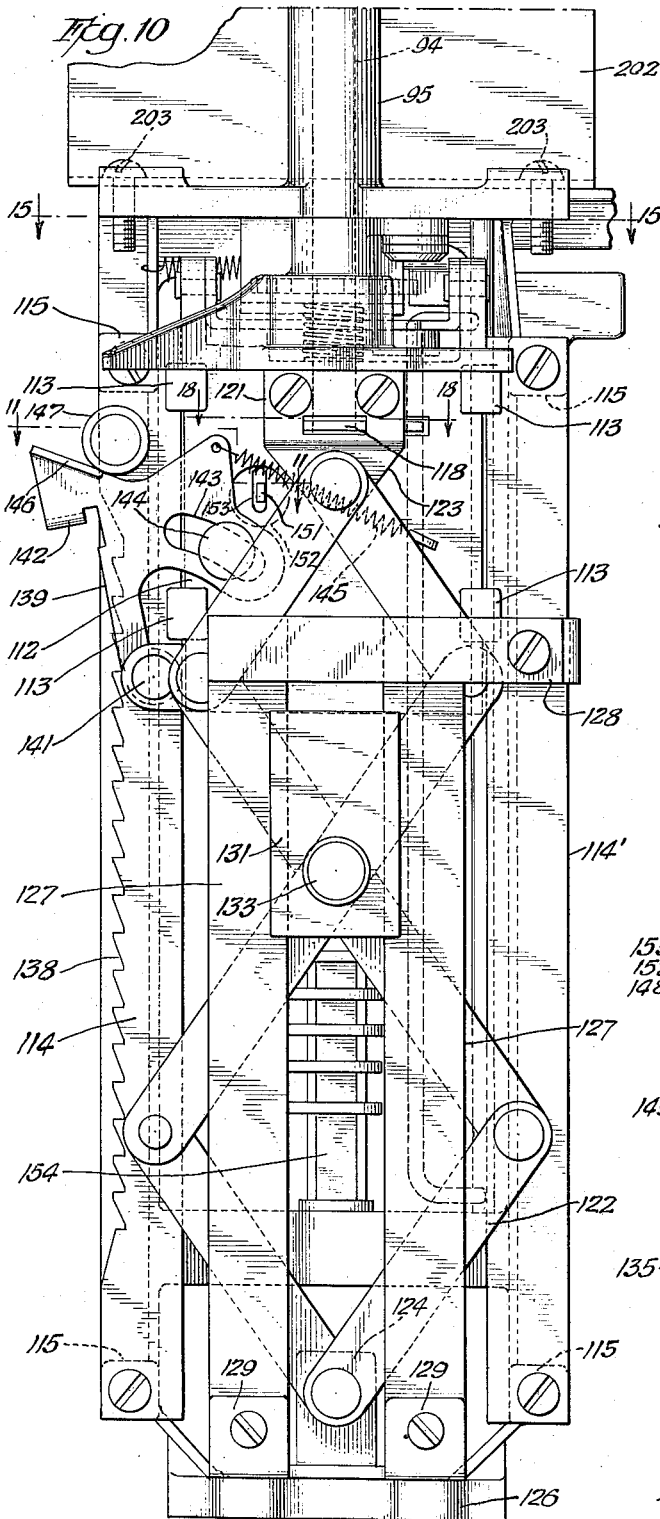
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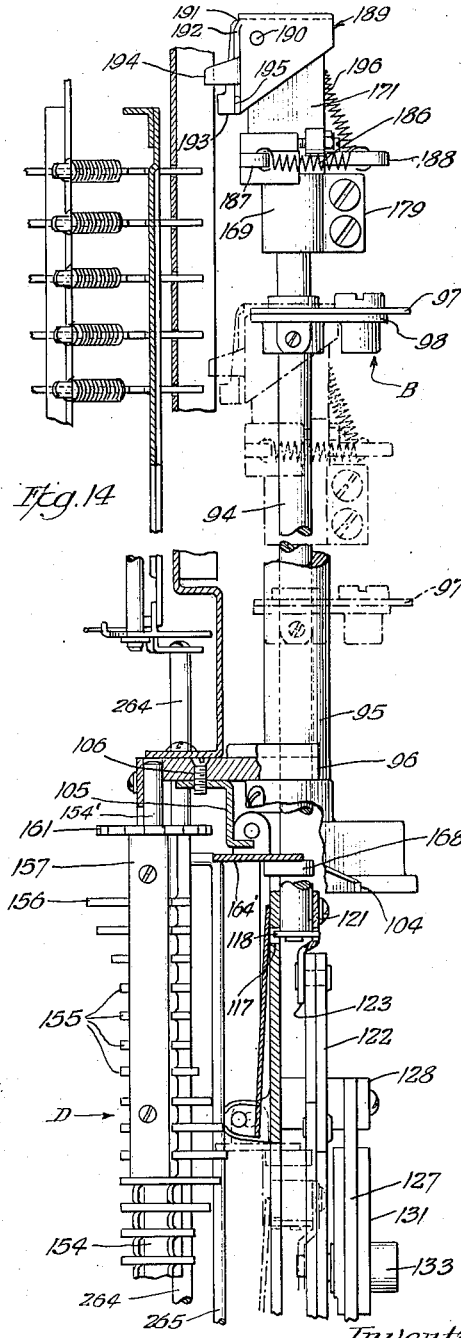
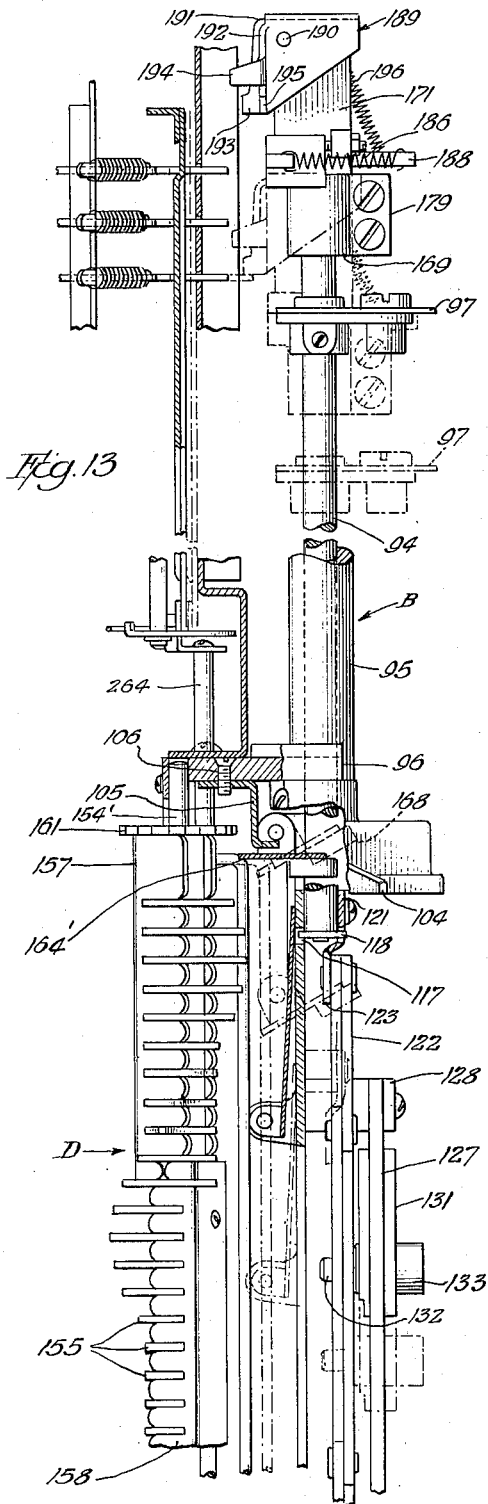
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17 Sheets-Sheet 9



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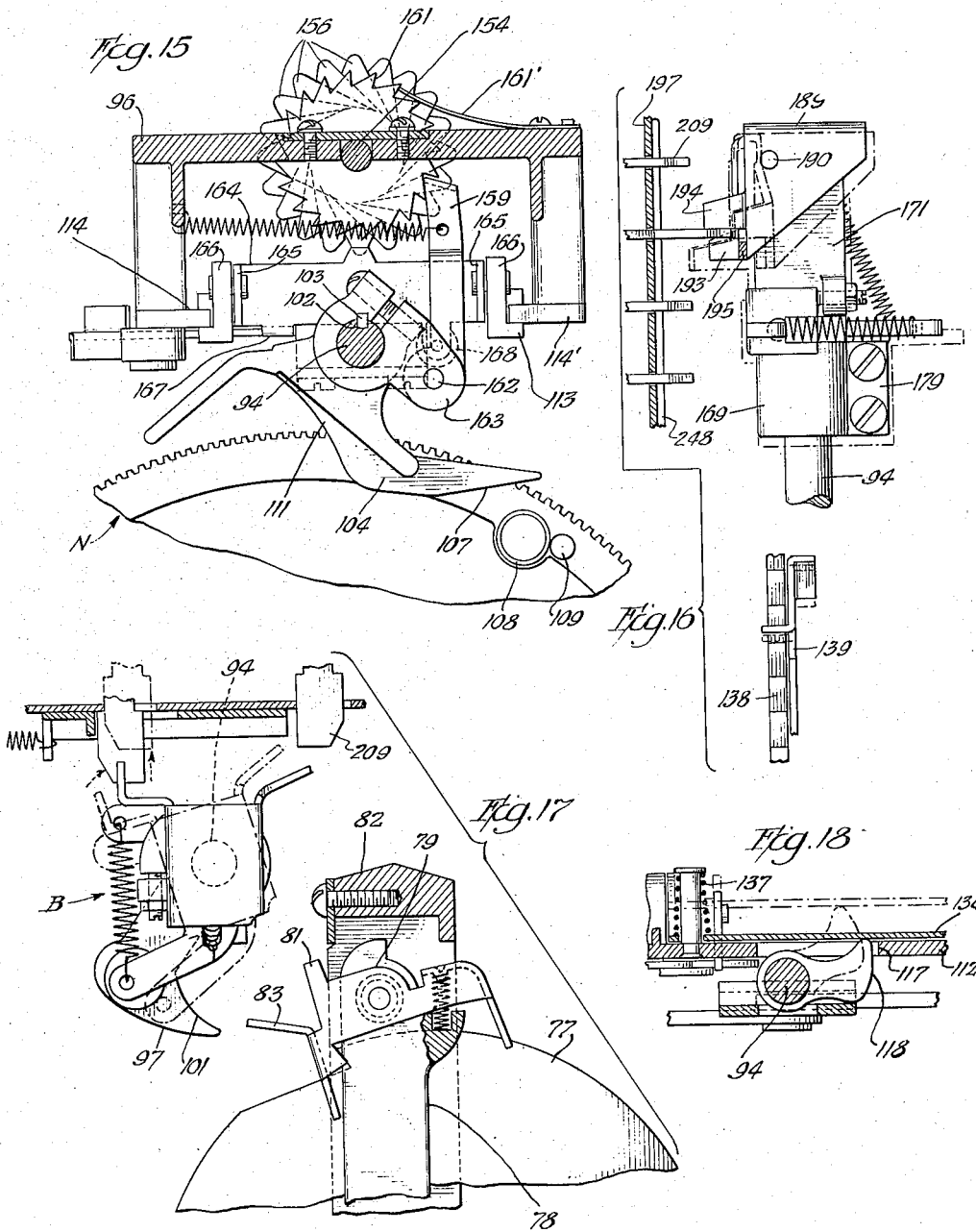
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17 Sheets-Sheet 10



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Fig. 19

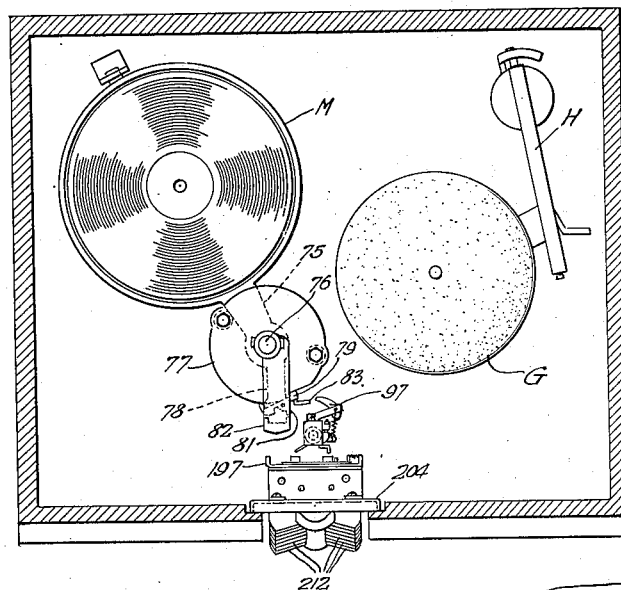
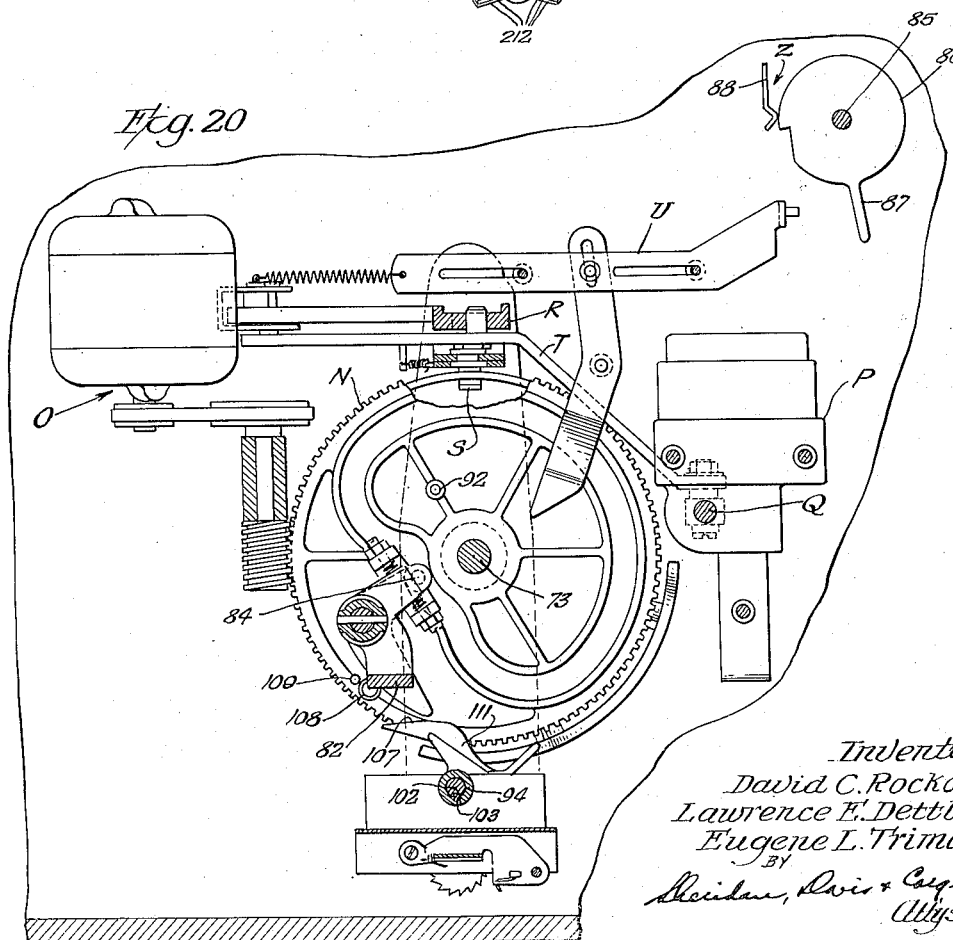


Fig. 20



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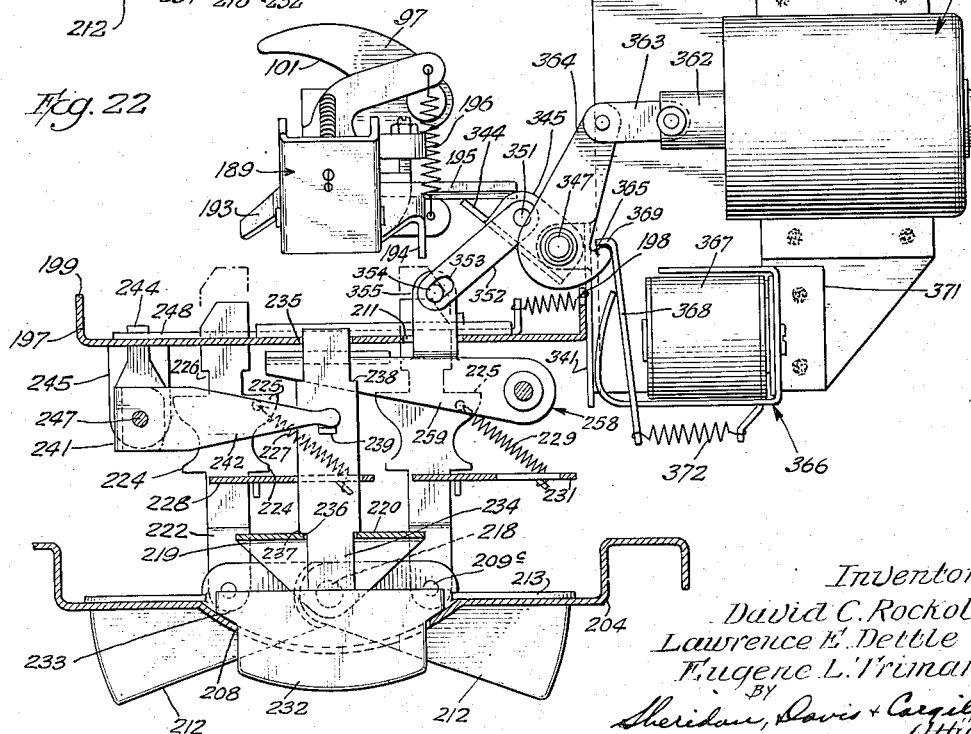
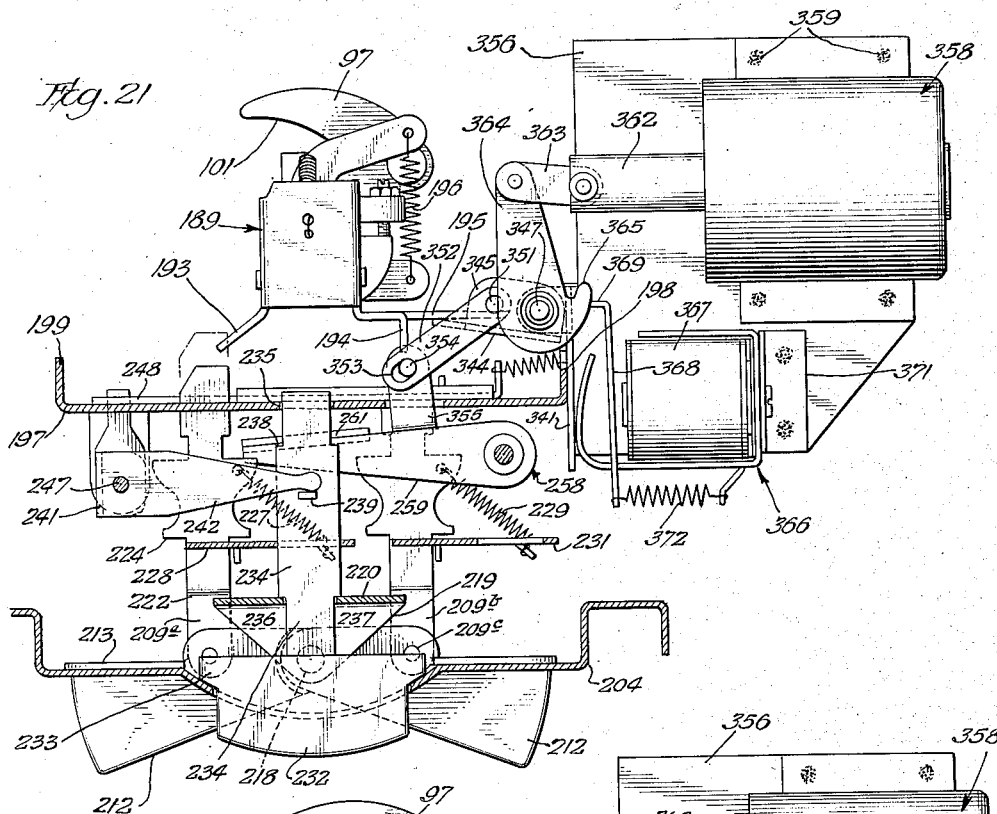
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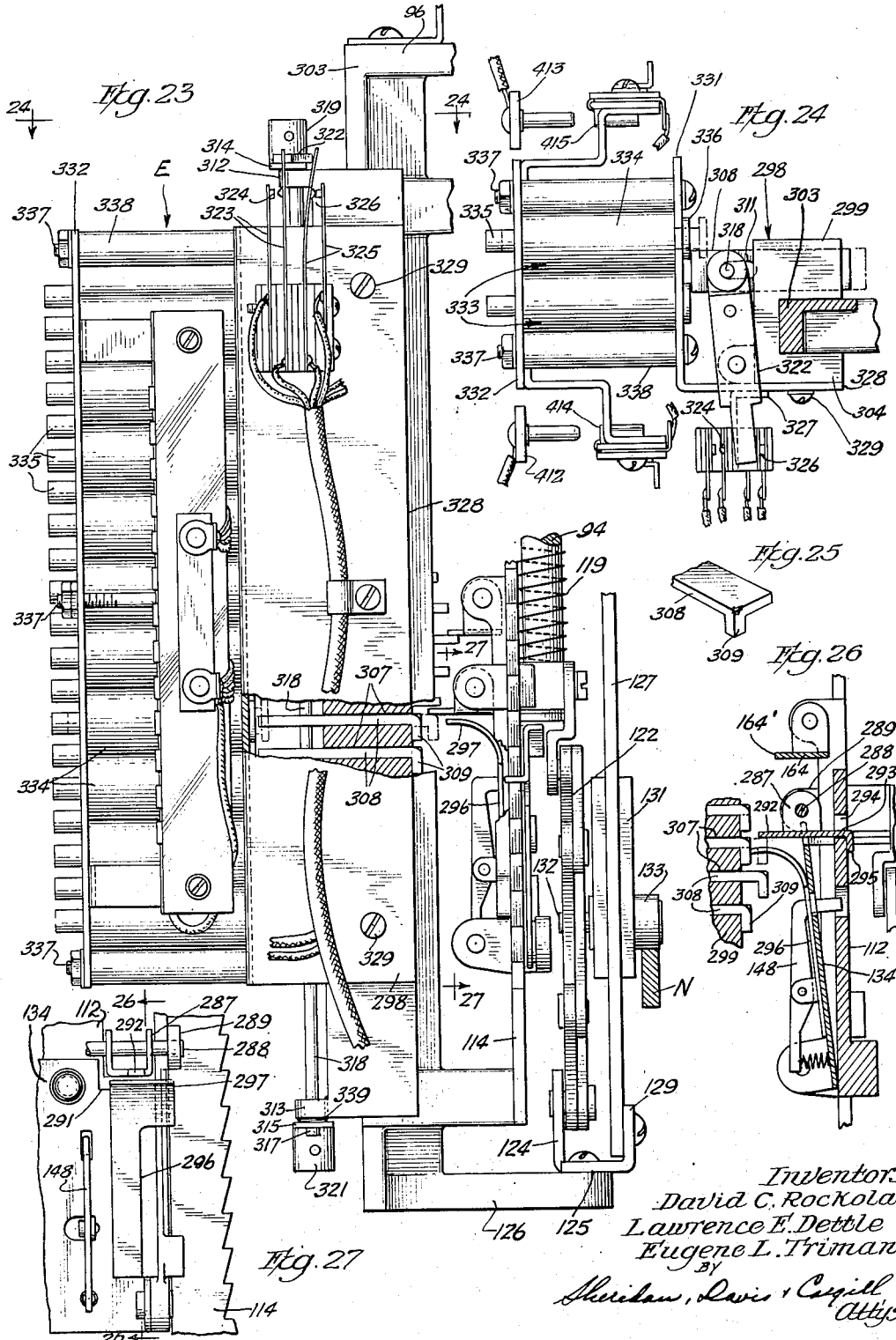
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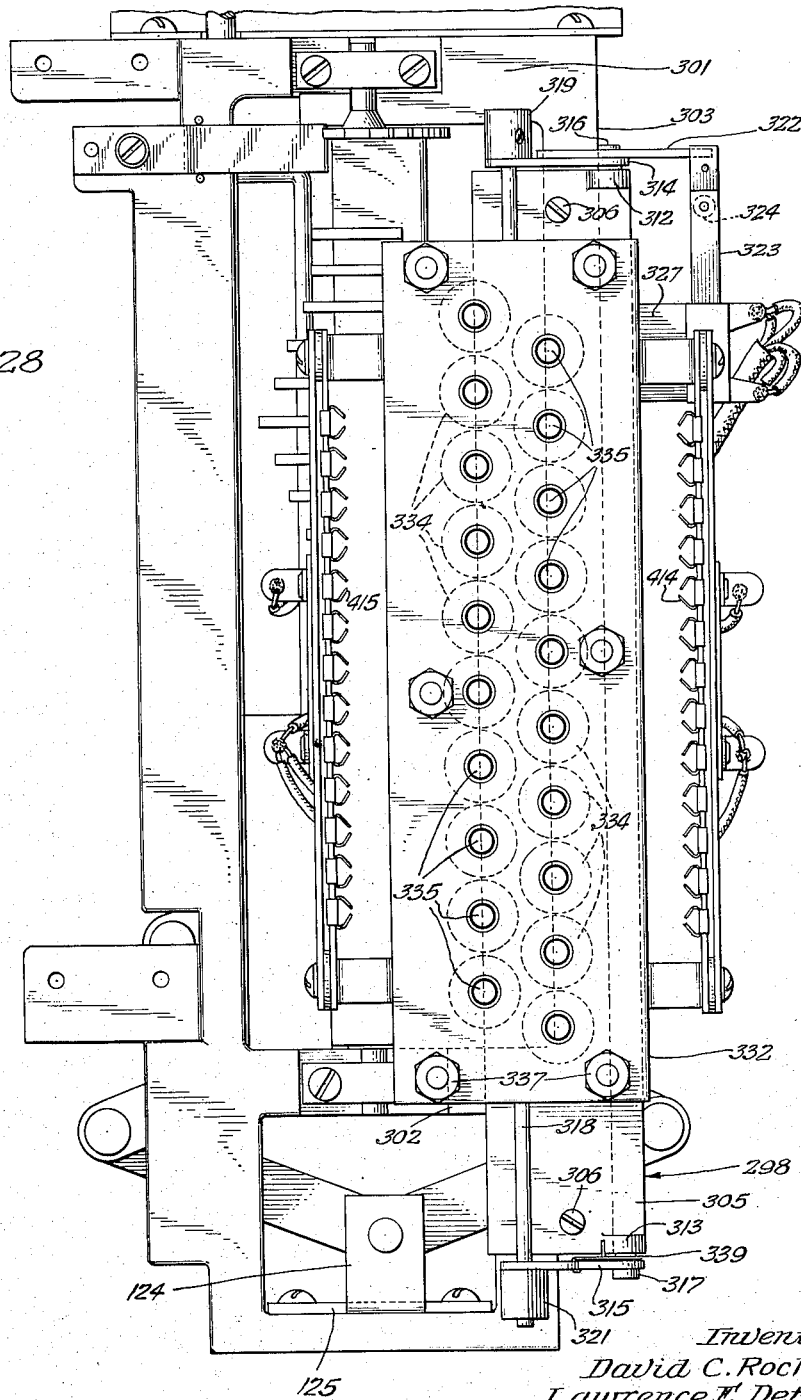
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PHONOGRAPH

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Fig. 28



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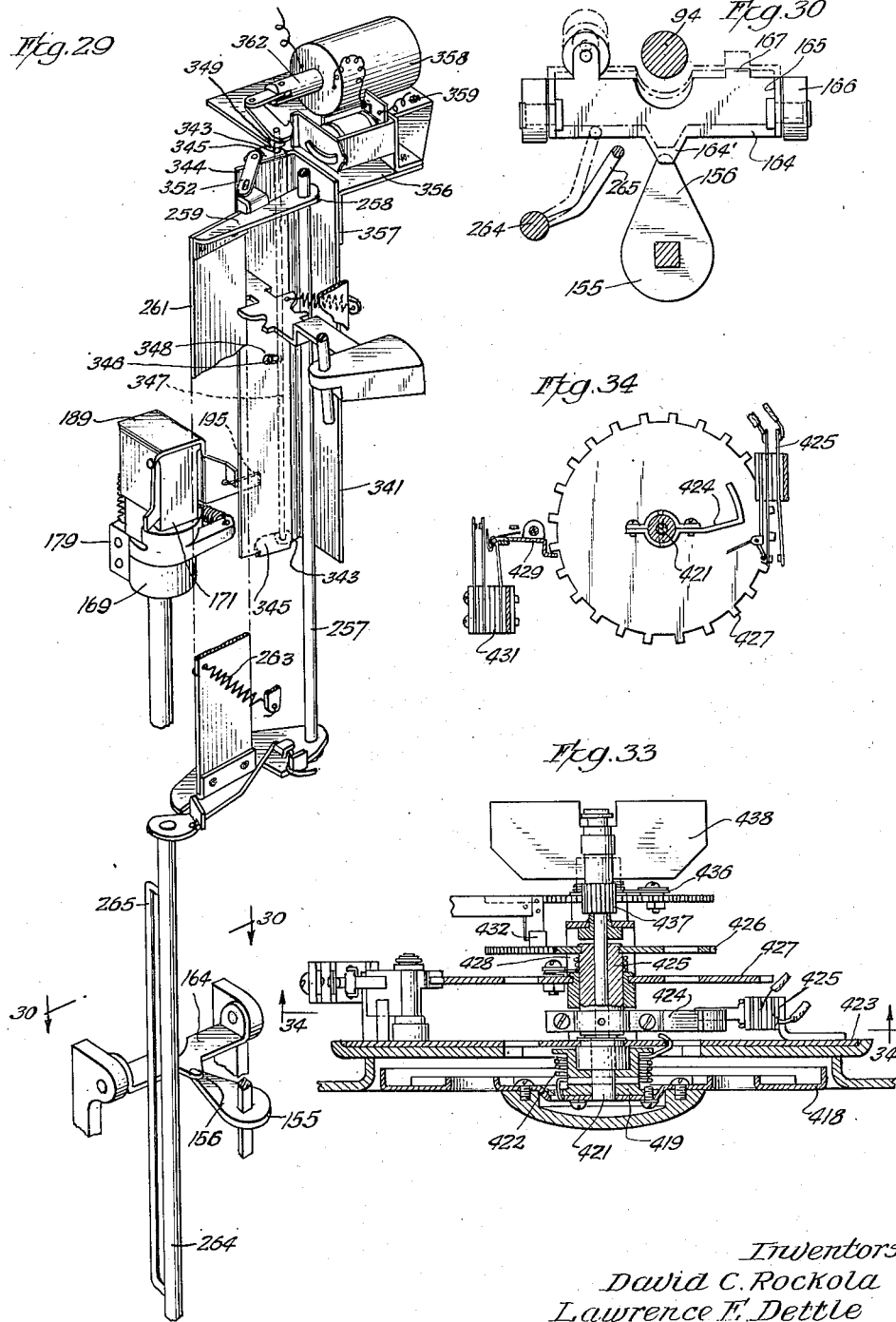
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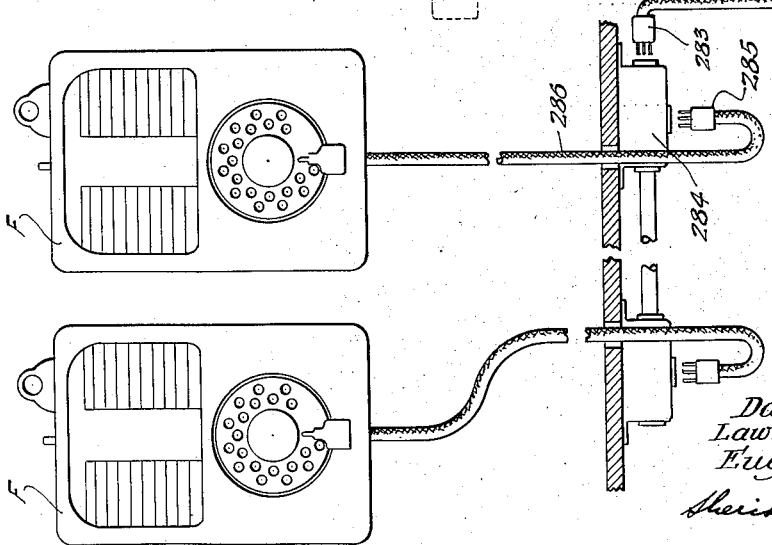
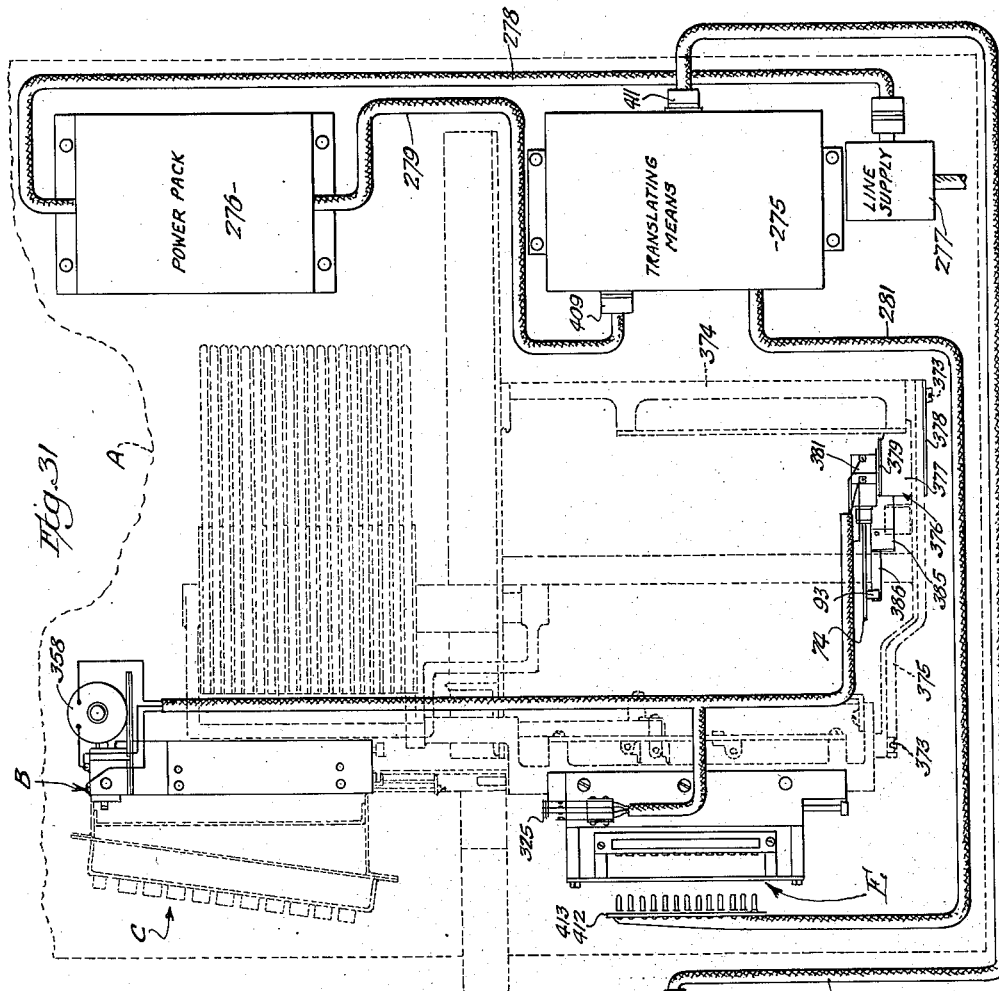
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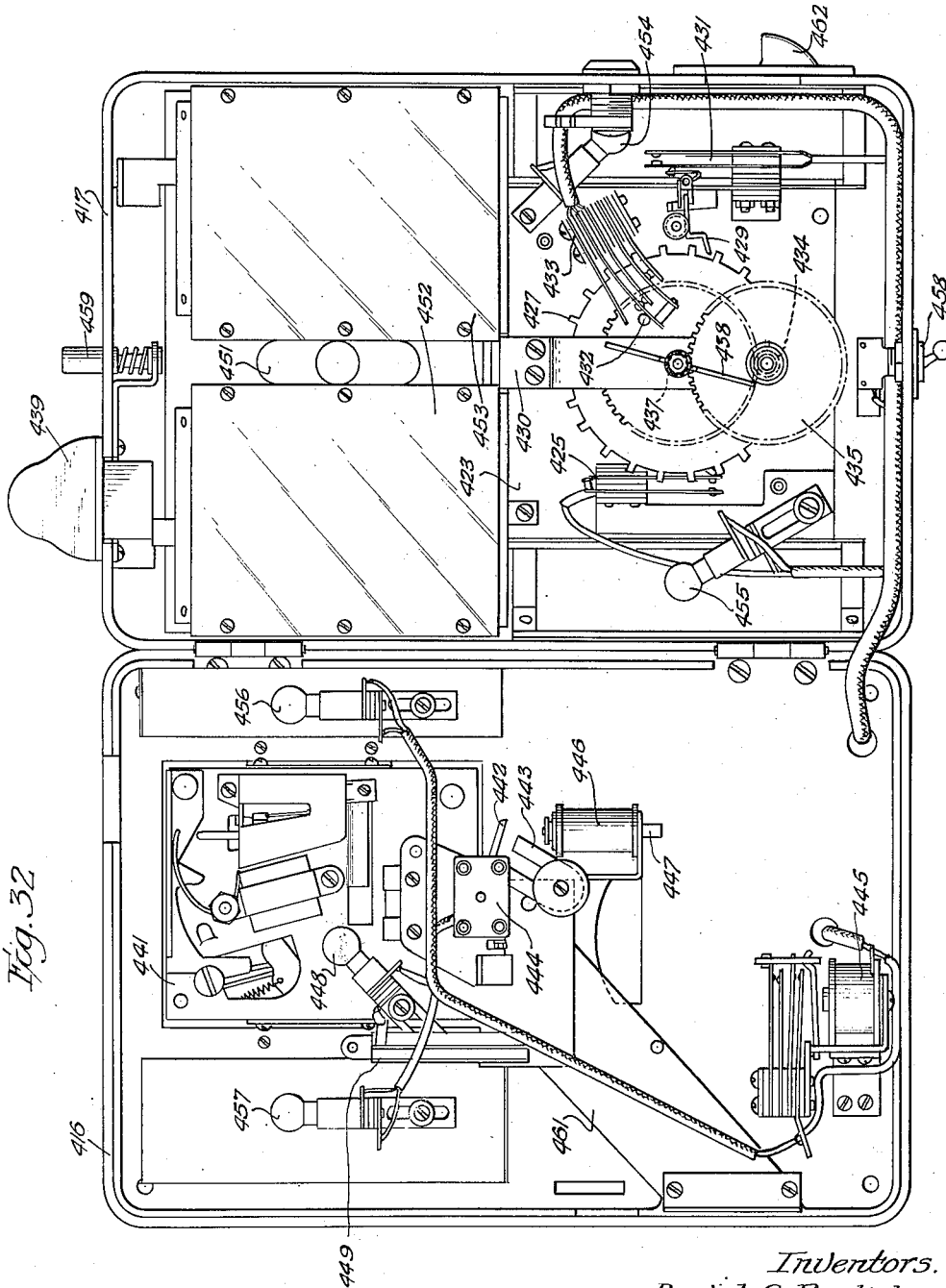


Fig. 32

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UNITED STATES PATENT OFFICE

2,389,327

PHONOGRAPH

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Application April 28, 1941, Serial No. 390,774

33 Claims. (Cl. 274—10)

This invention relates to phonographs. It has for a general object the provision of a novel and improved multi-record phonograph which may be set locally to predetermine for play any one of the records, all or some of the records seriatum, or each of any plurality of the records, whether the records in the pluralities are arranged in numerical sequence or otherwise, and which may be set at a distance from the phonograph, or remotely, to predetermine any one of the records, or each of any plurality of the records, whether the records in the pluralities are arranged in numerical sequence or otherwise.

Another object of the invention is the provision in such a phonograph of a novel selector which is responsive both to local control, or predetermining means, and to one or more remote control or predetermining means and which will automatically select the record or records predetermined locally or remotely for playing one at a time in the phonograph.

A further object of the invention is the provision in such a phonograph of a remotely actuable selector control which will render the local selector control means ineffective but not inoperative while the selector is effecting a selection predetermined at a remote control station and thereafter for automatically restoring the effectiveness of a local selector control means whereby a record or the records meanwhile predetermined thereby will be automatically selected and played.

The invention has as another object the provision in such a phonograph of local selector control means which is automatically operable to cause the selector to select numerical sequences of records for play if an individual record or each of a plurality of records has not been predetermined by the local control means or any one of the remote control means.

A further object of the invention is the provision in such a phonograph of local selector control means which is automatically operable to cause the selector to select for play either the record next in numerical sequential order to the record last played or, if one or more records have been meanwhile selected and played, then to select the record removed from the last selected record by the number of records which have been meanwhile selected and played.

Another object of the invention is the provision in such a phonograph of a selector control means which is actuable by one or more electrical actuating units remotely positioned with respect to the phonograph and its selector control means.

A further object of the invention is the pro-

vision in such a phonograph of remote selector control actuating devices, each with a "busy signal" which is automatically operable to indicate periods during which the selector is under the control of one such device and therefore is not responsive to another such device.

Other objects of the invention include the provision of the novel arrangements and combinations hereinafter disclosed and claimed, as illustrated in the accompanying drawings wherein like reference characters relate to corresponding parts throughout the several views, and wherein:

Fig. 1 is a view of a phonograph embodying our invention, which shows the relation of certain of the principal parts thereof to each other;

Fig. 2 comprising Figs. 2^a and 2^b is an electric circuit diagram of the phonograph and the remote control actuating means;

Fig. 3 is a side view of a means for locally predetermining any record or each of any plurality of records;

Fig. 4 is a cross section taken substantially along the lines 4—4 of Fig. 3;

Fig. 5 is a rear view of the record predetermining means shown in Fig. 3;

Fig. 6 is a view of means for cancelling selections, the means shown in Figs. 3 and 5, as may be seen in the direction of the arrows 6—6 in Fig. 5;

Fig. 7 is a front view of a predetermining means shown in Figs. 3 and 5 and also of a means for predetermining a record or a series of records;

Fig. 8 is a detailed view showing a mechanism which permits the control means of Fig. 3 to supersede the operation of the predetermining means shown in a lower portion of Fig. 7;

Fig. 9 is a side view showing certain details of the means for predetermining a certain record or series of records and of the master cam;

Fig. 10 is a rear view of the selector means shown in Figs. 7 and 9;

Fig. 11 is a detailed view of a portion of the mechanism shown in Fig. 10 as viewed along the line 11—11;

Fig. 12 is a part sectional view of certain elements of Fig. 9 as seen from the line 12—12 in Fig. 7;

Figs. 13 and 14 are side views of certain details of the selector mechanism shown in Figs. 7, 9 and 10;

Fig. 15 illustrates the operation of the means for predetermining a certain record or series of records, and the operation of the master cam;

Fig. 16 shows certain details of the selector mechanism operating in conjunction with the

means for locally predetermining any record or each of any plurality of records;

Fig. 17 shows how the local selector operates in connection with the head of the selector mechanism and the record selector;

Fig. 18 shows certain details as seen along the line 18—18 in Fig. 10;

Fig. 19 is a view of the phonograph mechanism as seen from the line 19—19 in Fig. 1;

Fig. 20 is a top view of the master cam and related mechanism as seen from directly below the mounting frame of the phonograph;

Figs. 21 and 22 show the means for rendering ineffective, the means for determining a certain record or a series of records and the means for locally determining any record or each of a plurality of records, in response to actuation of a remotely positioned actuating means;

Fig. 23 is a side view of a remotely operable electric means for predetermining any record or each of any plurality of records;

Fig. 24 is a view of certain details of Fig. 23 as seen from the line 24—24;

Fig. 25 is a detailed view of one of the elements of Fig. 23;

Fig. 26 is a fragmentary cross section showing a detail of certain elements of Fig. 23 and is taken substantially along the lines 26—26 of Fig. 27;

Fig. 27 is a front view of elements shown in Fig. 26;

Fig. 28 is a front view of the selector means shown in Fig. 23;

Fig. 29 shows certain elements which are controlled so as to render ineffective the means for predetermining a certain record or series of records and the means for locally predetermining any record or each of any plurality of records;

Fig. 30 is a cross section taken substantially along the lines 30—30 of Fig. 29.

Fig. 31 is a schematic view of the relation of certain principal elements of the phonograph and the remotely positionable predetermining means;

Fig. 32 is a view of the interior of the remote means for predetermining the phonograph records;

Fig. 33 is a fragmentary cross section of the dial mechanism shown in Fig. 32; and

Fig. 34 is a view of the interrupter wheel and cooperating switches as seen in the direction of the arrows 34—34 in Fig. 33.

General

Illustrative of the invention the drawings, particularly Figures 1, 19, 20 and 31, show a multi-record phonograph A, a selector B therefor, a manually operable local control C for the selector B, and an automatically operable local control B for the selector B and an electrically operable control E for the selector, including the desired number of remotely positionable actuating means F for the last named control. By means of such controls any record, or each of any plurality of records in the phonograph may be predetermined locally or remotely and, if neither the manually operable local control C, nor the electrically operable control E is operated, the automatically operable control D will predetermine one record or a plurality of records in numerical sequence. The predetermined record or records will be automatically selected by the selector B and played in the phonograph, one at a time.

Automatic multi-record phonographs are known to the art, the type shown at A, by way of illustration, being substantially identical to that shown in United States Letters Patent No. 2,159,-

834, of Paul H. Smyth, Jr., dated May 23, 1939. Since the illustrated phonograph has been disclosed in detail in that patent, it is unnecessary to repeat the detailed disclosure thereof herein. It might be well, however, by way of explanation and to facilitate obtaining a clear understanding of the invention, briefly to point out the general structural features and operation of that phonograph.

Phonograph

The illustrated phonograph comprises record reproducing means, including a turntable G and a record reproducer or sound pick-up H suitably supported on a chassis I above a mounting panel J. Suitable amplifier means K and a loud speaker L are operably associated with the reproducer to play or reproduce phonograph records. The turntable G is movable for moving a record to and from playing relationship with the reproducer H and in such movement cooperates with record storage means, including a plurality of movable record carriers or trays M to provide means for changing records.

Below the mounting panel J the chassis I carries a master cam N, driving means, for example, an electric motor O, for driving the cam N, turntable rotating means, for example, an electric motor P, engaging a shaft Q that carries the turn table at its upper end and that is movable toward and away from the reproducer, a reciprocable slide R having a cam follower S and a turntable reciprocating arm T, cam operable reproducer return means U for returning the reproducer to its starting position upon the completion of the playing of a record, and phonograph control devices W, X, Y and Z.

It will be understood that the motors O and P are electrically connected in circuit with the control devices W, X, Y and Z which, as shown diagrammatically in Figure 2, are adapted to start and stop each motor as required for the playing and changing of one or more records. The control device W comprises a master switch 51 controlling an electrical circuit including in series a suitable source of energy 52, conductor means 53, the switch 51, conductor means 54 and electromagnet 55 adapted to operate a suitable pawl (not shown) to cause the operation of a ratchet 56 of the control device X and conductor means 57. Preferably, but not necessarily, the switch 51 is coin operated and, as shown, is associated with a slidable coin freed receiver 58 for delivering a coin to a coin slide or chute 59. The coin delivered by the receiver 58 to the chute 59 moves along the chute and normally closes the switch 51 to energize the electromagnet 55.

A pin or stud 61 on the ratchet 56 normally holds a resilient switch 62 open. When the ratchet 56 is operated the pin 61 releases the switch 62, permitting it to close under the force of its own resiliency, thus closing a circuit including the turntable rotating motor P. That circuit includes in series a line conductor 63, conductor means 64, the turntable rotating motor P, conductor means 65 and 66, the switch 62 and a line conductor 67. The turntable rotating motor P is thereby connected in circuit with a suitable source of electrical energy, across line conductors 63 and 67, as will presently be explained, which energizes the motor P to cause it to rotate the turntable.

When the switch 62 is thus closed it also connects the cam driving motor O in circuit with the energizing line conductors 63 and 67 through a normally closed resilient switch 68 of the con-

trol device Y. That circuit comprises the line conductor 63, the cam driving motor O, conductor means 69, conductor means 71, the switch 68, conductor means 72, the conductor means 66, the switch 62 and the line conductor 67. The master cam N is thereby rotated, as may be seen in Figures 1 and 20, thus rotating its shaft 73 on which the master cam is fixed, and rotating a notched disc 74 fixed on the cam shaft 73 and constituting a part of the control device Y. The master cam N thus rotated operates apparatus for moving a record carrier to and from cooperative relation with the turntable G, operates apparatus for moving the turntable to and from playing relation with the reproducer H and contributes to the timing of those operations in such a manner that a record or a plurality of records successively, whether arranged in numerical sequence or otherwise, may be moved from storage position to playing position and, after playing, returned to the storage position.

In such phonographs each record carrier M is of ring-shape or equivalent configuration, having an outwardly extending arm 75 for pivotally or otherwise movably mounting the carriers in stacked or column relation and in the illustrated phonograph, Figures 1 and 19, the carriers are pivotally mounted on a post 76 between successive discs 77 fixed in column relation on the post 76. The arm 75 of each record carrier has a portion 78 extending beyond the pivot post 76 for pivotally carrying latch members 79. The latch members 79 interlockingly and releasably engage with respectively adjacent discs 77 for releasably latching the record carriers in column or stacked relation at one side of the turntable, as is also apparent from Figure 17, and each latch member is provided with a member 81, also shown in Figure 17, engageable with the record carrier moving means 82 and an operating member 83 for releasing the corresponding record carrier and drivingly coupling it with the record carrier moving means.

The master cam N, rotating as described above, engages cam followers 84 and S, Figures 19 and 20. The cam follower 84 is operatively connected to the record carrier moving means 82 and cooperates with the master cam N for driving the record carrier moving means to move any record carrier, the latch member 79 of which has been operated through its operating member 83 into engagement with the record carrier moving means to a position over the turntable. The rotating master cam N by engaging the cam follower S thereafter raises the reciprocable slide R which carries with it the turntable reciprocating arm T thereby to raise the rotating turntable G. During its rising movement, the rotating turntable passes through the ring-shaped record carrier M and removes the record therefrom. The master cam N continues the upward movement of the rotating turntable to move the record into playing engagement with the record reproducer H.

When the master cam N has thus been rotated sufficiently to bring the rotating turntable into playing position, the cam shaft 73 has rotated the notched disc 74, Figure 2, until the notch therein registers with the normally closed resilient switch 88 of the control device Y. The switch 88 thereupon opens under the force of its own resiliency, thus opening the circuit including the cam driving motor O. The cam driving motor O, but not the turntable rotating motor P, is thus de-energized, rotation of the master cam N is inter-

rupted and the reproducer H engages the record on the turntable.

In playing the record the reproducer travels inwardly toward the center of the record on the turntable, as will be understood by those skilled in the art. Such movement of the reproducer causes the rotation of a shaft 85, Figure 20, to the upper end of which the reproducer is fixed. The shaft 85 is drivingly engageable with a notched disc 86 supported at the lower end of the shaft. That notched disc 86 constitutes a part of the control device Z and has an operating projection 87 thereon which, during the rotation of the shaft 85 by the playing movement of the reproducer H, travels toward the reproducer return means U.

When the playing of the record is completed by the reproducer H the shaft 85 has rotated the notched disc 86 of the control device Z until the projection 87 is adjacent the reproducer return means U and the notch in the disc 86 is in registration with a normally open resilient switch 88, of Fig. 2. Upon such registration the switch 88 closes under the force of its own resiliency, thereby again connecting the cam driving motor O in circuit with the supply lines 63 and 67, and again causing that motor to rotate the master cam N, its shaft 73 and the notched disc 74 of the control device X. The circuit thus closed includes the line conductor 63, the cam driving motor O, the conducting means 69, conducting means 89, the switch 88, conducting means 91 and the line conductor 67.

When the rotation of the master cam is resumed as thus described, the cam follower S and the slide R are moved by the cam in a direction to cause the turntable reciprocating arm T to move the turntable G downwardly away from the reproducer H and back through the positioned record carrier M whereby to deposit the played record thereon. Meanwhile, and after the played record has thus been moved out of playing engagement with the reproducer H, the pin or stud 92 on the rotating master cam N engages the reproducer return means U and moves it to rotate the disc 86 by engagement with its projection 87 in a direction to return the reproducer to its initial or starting position.

During that rotation of the disc 86 the notch in the disc passes beyond the switch 88, thereby opening that switch, the periphery of the disc holding the switch open until the notch again registers therewith. The opening of the switch 88 does not, however, stop the cam driving motor O for the reason that before that switch has been opened the rotation of the master cam N and its shaft 73 has caused the rotation of the notched disc 74 of the control device Y sufficiently to move the notch in that disc out of registration with the switch 88, thus closing that switch. The periphery of the disc 74 holds the switch 88 closed to keep the cam driving motor O energized during the remainder of the cycle of operation.

The cam driving motor O therefore continues driving the master cam N, its shaft 73 and the notched disc 74. When the rotating master cam N has completed its movement of the follower S, the slide R and the turntable reciprocating arm T in moving the turntable away from the playing position, a pin or stud 93 on the rotating notched disc 74 of the control device Y engages a spring held pawl (not shown) adjacent the ratchet 56, moves that pawl against the action of its spring and then releases the pawl. As soon as the pin 93 releases the pawl the spring moves the pawl

in a direction to operate the ratchet 56, whereby the pin 61 on the ratchet engages the switch 62 and operates it to open the circuit of the cam driving and turntable rotating motors O and P.

The foregoing cycle may be repeated, if desired, by subsequent operations of the control device W, or, as will be seen by reference to Figure 2, a plurality of such cycles may be predetermined by depositing the proper coin value or a plurality of coins in the chute 59. For each unit of coin value or for each coin deposited in the chute 59 the switch 51 is closed once. In that manner a number of impulses equal to the number of coins or coin values deposited are impressed on the solenoid or electromagnet 55 thereby to advance the ratchet 56 with a step-by-step movement to move the pin 61 out of engagement with the resilient switch 62 a number of steps corresponding to the number or value of coins deposited.

At the end of each playing cycle the pin 93 of the control device Y will operate the ratchet 56 to return it one step toward its initial position. Thus the control device X, in response to the control device W, is operable to accumulate one or more playing cycles, depending upon the number or value of coins deposited and to cause the phonograph to operate for that number of cycles. The control device X is operated by the control device Y at the end of each playing cycle toward initial position to deenergize the motors O and P and stop the phonograph when it has operated a number of cycles corresponding to the number or value of the coins deposited in the chute 59.

Selector

When the record carriers M are in column or stack position, the operating members 83 of the latch members 79 are arranged one above another in vertical alignment and are selectively operable by the selector B. For that purpose the selector is vertically movable to positions corresponding to those of the latch operating members and is operable in any such position to engage the corresponding latch member with the record carrier moving means. The selector B is best shown in Figs. 1, 3, 5, 13, 14 and 17 and comprises a vertical shaft 94 slidably and rotatably journaled as at 95 in a selector control frame 96 suitably secured to the front of the chassis I. A selector cam or finger 97 is fixed on an arm 98 which by set screw 99 is adjustably secured on, to rotate with, the shaft 94. The arm 98 is thus adjustable longitudinally of the shaft to facilitate positioning the selector cam for engagement with any one of the latch operating members 83 when the shaft is moved vertically to the position for operating the corresponding latch member 79.

Upon operation of the selector the cam surface 101 provided on selector cam 97 is adapted to engage the operating member 83 of one of the latch members 79 and to cam the latch member about its pivot for releasing that latch member from engagement with the disc 77 and engaging the latch member with the record carrier moving means 82. When any such latch member is so operated, the corresponding record carrier is released and is movable by the record carrier moving means to and from its position of alignment with the turntable G.

The selector shaft 94 is provided with a keyway 102 extending longitudinally thereof for cooperation with suitable keying means 103 of a cam lever 104, shown in Fig. 15. The cam lever 104 is secured against reciprocable movement with the shaft at a level below the mounting panel J

and slightly above the master cam N by a bracket 105 secured as at 106, Figures 13 and 14, to the selector control frame 96. The keyway 102 and keying means 103 permit the selector shaft 94 to reciprocate longitudinally and provide a driving connection between the cam lever 104 and the selector shaft whereby the shaft may be rocked about its longitudinal axis when the cam lever is operated.

The cam lever 104 has a cam surface 107 engageable by a cam follower or stud 108 on the master cam N and a stud or pin 109 also on the master cam N for rotating the selector shaft in a direction to cause the selector cam 97 to operate one of the latch members 79, as already described. The cam lever 104 also has a cam surface 111 contiguous with the cam surface 107 for permitting and controlling the rotation of the cam lever and the selector shaft in the opposite direction after the pin 109 in rotating with the master cam N has moved beyond the cam surface 107.

A reciprocable plate-like slide member 112, Figures 7, 9, 10 and 15, is provided with a plurality of bifurcated lugs 113 at its opposite sides for slidably engaging the inner faces of a pair of spaced guide rails 114 and 114' suitably secured to rearwardly projecting studs 115 of the selector control frame 96. The rear face of the slide plate 112 is formed with a pair of spaced lugs 116, one of which is shown in Figures 9 and 12, above a rectangular aperture 117 in the slide plate 112 to facilitate rotatably securing the selector shaft 94 to the slide plate 112.

In securing the selector shaft 94 to the slide plate 112, the lower end of the shaft is arranged between the lugs 116 in such a manner that an arm 118 fixed on the shaft is positioned below the lugs 116 and extends into the aperture 117 whereby the shaft and slide plate will reciprocate together. If desired, a coil spring 119 may be arranged on the shaft 94 above the lugs 116 for engagement therewith and with the cam lever 104 for yieldably impeding the upward movement of the selector at its upper limit of travel and for resiliently assisting and starting the selector downwardly during each operating cycle of the phonograph. A strap 121 may be bridged between the rear ends of the lugs 116 for retaining the lower end of the selector shaft between the lugs during its operation. The arm 118 is rockable with the shaft 94 and during the rotation of the shaft for moving the selector cam 97 to operate a latch member 79 whereby to select a record, the outer or free end of the arm 118 swings through the aperture 117 to a position forwardly of the slide plate 112 for a purpose which will be described presently.

Rearwardly of the slide plate 112 is a collapsible, expensible or lazy tong linkage 122 which is secured at its upper end to a depending portion 123 of the strap 121 and at its lower end to a forward upstanding lug 124 of a bracket 125 which in turn is secured on a rearwardly extending portion 126 of the selector control frame 96. Spaced rearwardly from the lazy tong linkage 122 is a pair of spaced vertical guide rails 127 which are secured in spaced relation at their upper ends by a bracket 128 to the guide rail 114' and at their lower ends to rearward upstanding lugs 129 of the bracket 125. The guide rails 127 slidably carry a grooved rail engaging block or member 131 which is pinned or otherwise secured as at 132 to an intermediate pivot of the lazy tong linkage 122 and at its opposite side is provided

with a cam roller or follower 133. That cam roller 133 is adapted to be engaged by the master cam N for operating the slide member 131 to raise the selector sufficiently to move the selector cam 97 above the level of the uppermost latch member 79 while the turntable is being lowered. The elevated position of the selector cam just described is the normal starting position and it is held in that position by the cam N engaging the cam roller 133 until the phonograph is started. The rearwardly extending portion 126 of the selector control frame serves to limit the downward travel of the selector when plate 112 engages that portion 126 and the lazy tong linkage 122 cushions the downward travel of the selector.

Thus the selector is operable to move the selector cam 97 between an upper level above the uppermost latch member 79 and a lower position level with the lowermost latch member 79 and to move the selector cam 97 in a latch member operating direction for engaging one of the latch members 79 with the record carrier operating means 82 whereby to select the record in the corresponding record carrier. In moving the selector cam 97 in the last-mentioned direction, the arm 118 moves through the aperture 117 in the slide plate 112 and swings the upper end of a plate 134, Figure 12, pivoted as at 135 to forwardly extending lugs 136 at the lower end of the slide plate 112 forwardly about its pivot. The upper end of the pivoted plate 134 is resiliently secured to the forward face of the plate 112 by a pin and spring assembly 137 which permits such pivotal movement of plate 134 when the cam lever 104 is operated to rotate the selector shaft in a selecting direction and which automatically rotates the selector shaft 94 in the opposite direction when the cam stud 108 rotates beyond engagement with the cam lever surface 107 to return the selector to its non-selecting or initial position. In other words, when the selector after selection is released by the cam stud 108 the pin and spring assembly 137 moves the upper end of the plate 134 rearwardly to rotate the arm 118, the selector shaft 94, and the selector cam 97 about the axis of the selector shaft 94 to their initial positions.

For supporting the selector at the elevations respectively corresponding to the latch members 79, the guide rail 114 is formed with a rack 138 along one of its longitudinal edges. The selector is supported at the elevation corresponding to the lowermost latch member 79 by engagement of the slide plate 112 on frame portion 126, as may be seen from Figures 9 and 10. The rack 138 is provided with one fewer supporting teeth than there are latch members. A rockable pawl plate 139 is pivotally mounted as at 141 on the rear face of the slide plate 112. That plate 139 is stamped or otherwise formed with a pawl 142 engageable with the rack 138 and is provided with an arcuate aperture 143 through which the shank of a headed pin or rivet 144 passes, the pin being anchored in the plate 112. Thus the pawl 142 is rockable about the pivot 141 between limits determined by the length of the arcuate aperture 143. A suitable spring 145 tends to swing the plate 139 in a direction to move the pawl 142 into engagement with the rack 138 for supporting the selector in an elevated position.

The pawl 142, Figure 10, is provided with a cam rack or projection 146 at its upper side for engaging a stud or roller 147 on the rail 114 when the selector is elevated to its uppermost posi-

tion whereby to move the pawl against the action of the spring 145 out of direct engaging position. A spring urged lever 148 is pivoted as at 149 on the forward face of the pivoted plate 134 and is provided at its upper end with a rearwardly extending finger 151 registering with aligned apertures 152 and 153 in the pivoted plates 112 and 134 respectively. The purpose of the lever 148 is to hold the pawl 142 out of engagement with the rack 138 until the finger 151 with the plate 134 is moved forwardly when the cam lever 104 is actuated to move the selector shaft 94 in a selecting direction.

During the elevation of the slide plate 112, the selector shaft 94 and the selector cam 97, pawl 142 slides along the rack teeth at the uppermost position of the selector assembly. The cam projection 146 engages the stud 147, thus moving the pawl plate 132 sufficiently to clear the aperture 152. The finger 151 thereupon springs rearwardly through apertures 152 and 153 and dogs the pawl plate 139 in that position wherein pawl 142 disengages the rack.

During the lowering of the slide plate 112, the pawl 142 does not, therefore, engage the rack 138. When the pivoted plate 134 is, however, swung forwardly, as already described, for rotating the selector shaft 94 and the selector cam 97, the spring urged lever 148 moves forwardly disengaging the pawl plate 139. The spring 145 thereupon swings the pawl plate to move the pawl 142 into supporting engagement with the rack 138 whereby to support the slide plate 112, the selector shaft 94, and the selector cam 97 in their respective elevated positions.

Predetermining a certain record or a series of records

The local selector control D, Figures 7, 8, 9, 13 and 14, is automatically operable to stop the downward movement of the selector shaft 94 at one or more such positions depending upon the number or value of the coins deposited in the chute 59 of Figure 2. It comprises a vertical shaft 154 journaled in the selector control frame 96 forwardly of the pivoted plate 134. Shaft 154 in this instance is square in cross section with round end portions 154' and carries a plurality of plates 155, there being one such plate for each record carrier. Each plate 155 has a projection or finger 156 and the plates are fixed on to rotate with the shaft. An upper channel-shaped member 157 and a lower channel-shaped member 158 displaced 180° about the shaft with their parallel faces slotted at equal intervals provide for equal vertical spacing of the fingers 155 along the shaft. The plates 155 are constructed so that when mounted on the shaft 154 the fingers of succeeding plates are equally spaced angularly about the shaft. Thus the fingers 156 are arranged helically about the shaft 154.

The square shaft 154 is rotatable with a step by step movement by a spring held pawl 159, Figure 15, rockable with the selector shaft 94 and a ratchet 161 fixed on the upper end of the shaft 154. Secured on the selector control frame 96 is a resilient detent 161' which engages the ratchet 161 to permit rotation thereof in one direction by the pawl and to prevent rotation in the opposite direction. The pawl 159 is pivoted as at 162 on a lug 163 of the cam lever 104, Fig. 15. Each time the cam lever 104 is actuated by the cam stud 108 to move the selector cam 97 in a selecting direction, the pawl 159 operates the ratchet 161 to rotate the shaft 154 sufficient-

ly to move the next succeeding finger 156 into the path of a horizontal pivoted plate 164. The plate 164 is swingably carried at the upper end of the slide plate 112 by upstanding arms 165 at opposite ends of the plate 164 pivoted to upstanding lugs 166 at opposite sides of the slide plate 112. A depending finger 167 at the rear side of the plate 164 is engageable with the upper portions of the slide plate 112 for limiting the rotation of the plate 164 in one direction, and a weight 168 at the rear side of the plate tends to return the plate to its horizontal position when it is displaced therefrom.

As the slide plate 112 moves upwardly the pivoted plate 164 will engage any one of the fingers 156 projecting rearwardly from the shaft 154 and will be swung downwardly from a horizontal position by such engagement, as shown by the dotted line representations of plate 164 in Figures 8 and 13. When during such upward movement the plate 164 rises above the engaged finger 156, the weight 168 returns the plate to its horizontal position. Thus when the slide plate 112 and the selector cam 97 are moving downwardly, the pivoted plate 164 is in a horizontal position and will be arrested by the rearwardly projecting finger 156. Such stopping of the plate 164 stops the downward movement of the slide plate 112 and the selector shaft 94, thus stopping the selector cam 97 at the elevation of the latch operating member 83 controlling the record carrier corresponding to the effective finger 156.

With the selector in such position, when the cam roller 169 operates the cam lever 164 and rotates the cam shaft 94, the selector cam 97 operates the latch member to effect selection. The arm 118 causes the pivoted lever 148 to release the pawl plate 139, as may be seen by the dotted line representation in Figure 12. The pawl 142 thereupon moves to supporting engagement with the rack 138, Figure 10, and remains there until the master cam N elevates the selector after the playing of the selected record and the pawl 159, Figure 15, indexes the ratchet 161 to rotate the shaft 154 sufficiently to bring the next succeeding finger 156 into the path of the pivoted plate 164. Thus all or some of the records, depending upon the number or value of the coins deposited, can be predetermined, selected and played serially.

Locally predetermining any record or each of any plurality of records

Mounted on the upper end of the selector shaft 94, Figs. 3 to 5, are a lower shaft clamping sleeve or member 169 and an upper selector control member carrying means 171 which are formed with a selector shaft receiving passage 172 extending longitudinally through the sleeve 169 and with a longitudinally extending selector shaft recess 173 in the means 171. The sleeve 169 and the means 171 are interlockingly secured together against relative movement along the selector shaft by a slot 174 in and transversely of the means 171 providing a horizontal arcuate lug 175 at the lower end of the means 171, which is receivable in an arcuate slot 176 below a horizontal lug 177 at the upper end of the sleeve 169.

The sleeve 169 is provided with a slot 178 through a side wall extending longitudinally thereof and communicating with the shaft receiving passage 172 and at opposite sides of the slot 178 with spaced laterally projecting flanges 179 extending longitudinally of the sleeve. By screws 181 or other suitable means extending through

one of the spaced flanges 179 and threaded into the other flange 179, the sleeve 169 is clamped on the selector shaft 94 and is fixed for rotation therewith by a screw or other key means 182 extending through a side wall of the sleeve and into the longitudinal key-way 182 in the selector shaft 94. By loosening the screws 181 the sleeve 169 and hence the means 171 interlocking therewith as described above may be removed from the selector shaft by sliding them upwardly and may be moved or adjusted longitudinally of the selector shaft to a desired elevation within limits determined by the length of the recess 173.

The selector control member carrying means 171 is provided at the slot 174 with a lug 183 extending laterally from a side of the means 171 and carrying at its outer end a screw 184 threaded therethrough and provided with a lock nut 185. The adjustable screw 184 is engageable and cooperates with the lug 177 for transmitting the rotation of the sleeve 169 to the means 171 during rotation of the selector shaft 94, whenever the selector cam 97 is moved in a direction to operate one of the latch members 79. For permitting limited relative rotational movement between the sleeve 169 and the means 171 a suitable spring 186 connects a laterally extending lug or arm 187 at the upper end of the sleeve with a laterally extending lug or arm 188 at the lower end of the means 171.

Astride the upper end of the selector control member carrying means 171 is a selector control member 189 stamped or otherwise formed of saddle-like shape and pivoted as at 190 at its upper forward end to the means 171. The saddle-shaped selector control member 189 is formed with its spaced side walls at their forward ends extending laterally outwardly as at 191 and 192, respectively, and with a forwardly projecting finger 193 at the lower side of the outwardly extending portion 192 at a level below that of a finger 194 on the portion 191 and a laterally or outwardly extending finger or projection 195 at the lower side of the outwardly extending portion 192. A suitable spring 196 is secured at its opposite ends to the rear end of the selector control member in such a position that the fingers 193 and 194 are horizontal and extend forwardly from the forward end of the selector control member.

Thus in the downward movement of the selector, the selector shaft 94 and the selector cam 97 may be stopped at any desired elevation by suitable means engageable by one or the other of fingers 193 or 194. During upward movement of the selector, if any such means is engaged by either finger 193 or 194, the saddle shaped selector control member 189 will be swung forwardly about its pivot 190 permitting the engaged finger 193 or 194 to slide by such means, whereupon the spring 196 returns the selector control member to its normal or initial position. The finger 195 may be employed to swing the saddle shaped selector control member 189 forwardly and downwardly about its pivot 190 to such a position that the fingers 193 and 194 will not be effective to engage such means for positioning the selector cam in a selecting position.

The lower sleeve 169, the selector control member carrying means 171 and the selector control member 189 cooperate with means operable at the phonograph to stop the selector cam 97 at any of its selecting positions whereby any record may be predetermined, or each of any plurality of records may be predetermined for selection and

playing. The novel means illustrated comprises a frame including the rear frame member 197 having inwardly extending side margins or walls 198 and 199, an inwardly extending bottom wall 201 (Fig. 3) and a supporting portion 202 depending from the bottom wall 201 and secured as at 203, Fig. 10, on the selector control frame 96 forwardly of the selector shaft 94. The rear frame member 197, when so secured to the selector control frame 96, extends upwardly therefrom throughout the travel of the selector control carrying means 171, is spaced forwardly therefrom and serves as a support for a front frame member 204 which may be secured, at an inclination to and in spaced relation forwardly of the rear frame member, by an upper connecting bracket 205 and a lower connecting bracket 206. The brackets 205 and 206 may be stamped or otherwise formed of suitable shape and are of such relative dimensions that the front frame member 204 from its lower end to its upper end is held in a rearward inclination. The front frame member is stamped or otherwise formed of any suitable configuration which may be of generally rectangular shape with a plurality of suitably shaped apertures 207 arranged in two vertical rows or columns, and a rectangular aperture 208 in the upper end of the frame member 204, there being one aperture 207 for each of the record carriers and the corresponding apertures 207 in the two columns preferably being in horizontal alignment.

A plurality of stamped or suitably formed reciprocable strips 209, each for controlling one of the record carriers M, are reciprocable, one or more at a time, to and from positions for stopping the selector cam 97 at the elevation of a desired latch operating member 83, or successively at the respective elevations of the latch operating members 83, shown in Figs. 17 and 19. The strips 209 are arranged in two spaced vertical columns or rows 209^a and 209^b, Figures 5 and 31, and those of each row, beginning at the lower end thereof, are of progressively diminishing lengths, the corresponding strips in the two rows being of the same length. They are secured in such an arrangement for reciprocable movement by arranging their inner or rear ends in a plurality of rectangular apertures 211 which are stamped or otherwise suitably formed in the rear frame member 197 in two vertical rows or columns. The two rows of apertures 211 are spaced apart sufficiently to permit the strips in the row 209^a to cooperate with the finger 193 and those in the row 209^b to cooperate with the finger 194 of the selector control member 189 for stopping the selector cam 97 at a desired elevation, or successively at desired elevations. The outer or forward end of each strip 209 is pivotally secured as at 209^c to a key or finger piece 212 operable to move the strip into the path of the finger 193 or the finger 194 as the case may be.

In the illustrated embodiment of the invention the keys 212 are molded or otherwise formed of a translucent plastic or other suitable material and are hollow. They are provided with open rear sides (not shown), laterally extending marginal flanges 213 (Figs. 21 and 22) at the open sides, mounting lugs 214 extending or projecting from relatively narrow end portions 215 from which the keys flare outwardly or diverge to provide relatively wide end portions 216, and numbers or other indicia 217 suitably applied inside the wide end portions of the hollow keys and visible through the front sides thereof. Each mounting lug 214 is flush at one face thereof with

the flange 213 and is about half as thick as the over-all thickness of the key. The keys are pivotally arranged in superposed relationship on a pivot post 218 and alternately extend laterally in substantially opposite directions to the post 218. The post 218 is anchored at its upper end in the forwardly projecting portion 219 of a lug 220 depending from the bracket 205 and at its opposite end in a horizontal lug 221 projecting forwardly from the bracket 206. The post 218 is thus held in a rearward inclination, rearwardly of the front frame member 204 in such a position that the wide end portions of the keys project forwardly through the two rows of apertures 207 in the front frame member. The arrangement provides a manual inclining rearwardly from its lower end with two rows of keys operating the strips 209 to predetermine the record or records to be selected and played.

The strips 209 are made in pairs, the corresponding strips in the rows 209^a and 209^b being identical. Because of the rearward inclination of the manual the strips in each row are of progressively greater length from the top to the lowermost strip. Intermediate its ends each strip 209, as shown in Figures 3, 8, 21 and 22, is offset laterally along spaced transverse lines 222 and 223 sufficiently to permit connecting each strip with the corresponding keys 212 without inclining the strip rearwardly of the offset portion. Each strip is provided with a pair of lugs 224 extending laterally from its opposite margins. Each strip is provided also with another pair of lugs 225 also extending laterally from its opposite margins and rearwardly spaced from the lugs 224. Between the lugs 225 and the rear end of each strip a pair of slots 226 are provided in the opposite margins of each strip. The strips 209 are thus symmetrically formed so that any strip of either row is interchangeable with the corresponding strip of the other row.

A suitable spring 227 is connected at one end to one of the lugs 225 of each strip in the row 209^a and at its other end to a vertical strip 228 arranged between the rows 209^a and 209^b and secured at its opposite ends to the brackets 205 and 206. The springs 227 normally yieldably hold the strips in the row 209^a in such position that the lug 224 at one side of each such strip engages the vertical strip 228 and the peripheral flange 213 of each key 212 and the corresponding row of keys engages the front frame member 204. In that manner the forward movement of the strips in the row 209^a and the keys 212 thereof is limited and the rear ends of the strips are normally yieldably held out of the path of the forwardly projecting finger 193 of the selector control member 189. Similarly a spring 229 is connected at one end to one of the lugs 225 of each strip in the row 209^b and at its other end to a vertical strip 231 arranged at the side of the row 209^b opposite the strip 228 and secured at its opposite ends to the brackets 205 and 206. The springs 229, the strips in the row 209^b, the keys 212 thereof and the vertical strip 231 cooperate in the same manner as described above for the springs 227, the strips in the row 209^a, the keys 212 thereof and the vertical strip 228, but the rear ends of the strips in the row 209^b are normally yieldably held by the springs 229 out of the path of the forwardly projecting finger 194 of the selector control member 189. The springs 227 and 229, besides yieldably holding the strips 209 in their forward positions, normally tend to spring the strips horizontally or laterally about their

pivotal connections with the keys 212. Thus when any strip is moved longitudinally rearwardly by the operation of its key sufficiently to move the rear end of the strip into the path of the finger 193 or the finger 194, one of the slots 226 in the strip registers with the aperture 211 in the rear frame member 197. In that position the spring swings that strip laterally to move the rear side of the slot to such a position that it will engage the rear frame member 197 and releasably lock the strip and its key in that position for predetermining a record.

Thus, in the downward movement of the selector shaft 94 the lower side of the finger 193 is engageable on the rear end of any strip in the row 209^a which has been moved to a record predetermining position and the lower side of the finger 194 is engageable on the rear end of any strip in the row 209^b which has been moved to a record predetermining position to stop the selector cam 97 at the level of the latch operating member 83 corresponding to the predetermined record. The fingers 193 and 194 projecting from the selector control member 189 at different levels, as already explained, cooperate with the corresponding strips 209 at substantially the same elevations in the rows 209^a and 209^b to stop the selector cam 97 at the levels of different latch operating members 83. During the upward movement of the selector shaft 94 if any strip or strips 209 at record predetermining position are engaged by the finger 193 or 194, depending upon which of the rows 209^a, 209^b the strip or strips are in, the selector control member 189 will thereby be swung forwardly about its pivot 190 to permit the engaged finger 193 or 194 to slide or escape by such strip or strips.

The strips 209 releasably locked in record predetermining position are releasable either manually or automatically. This is accomplished by swinging each such strip in such position about its pivotal connection 209^c with its key 212 until the rear side of the slot 226 disengages the rear frame member 197, whereupon the spring 227 or 229 automatically returns the strip 209 and its key 212 to the initial position, that is to say, the forward or non-predetermining position. For manually releasing any strip or strips 209, releasably locked in record predetermining position, a cancellation key 232, also shown in Fig. 6, preferably of the same material as that employed in the keys 212, is slidably arranged in the aperture 208 at the upper end of the front frame member 204 and is provided with a peripheral flange 233 about its rear side, rearwardly of the front frame member 204, to limit forward or outward movement of the key. The key 232 is suitably secured to the forward or outer end of a strip 234, slidably supported in apertures 235 and 236 in the rear frame member 197 and the depending lug 220, respectively. As illustrated, the strip 234 is above the uppermost strips 209 and between the rows 209^a and 209^c of strips, and thus does not interfere with the up-and-down movement of the selector control member 189.

The strip 234 is stamped or otherwise formed with marginal shoulders 237 rearwardly of the depending lug 220 for limiting forward movement of the strip, and with marginal shoulders 238 spaced rearwardly of the shoulders 237 and forwardly of the rear frame member 197 for limiting rearward movement of the strip, and with an upstanding lug 239 for operating releasing means for the strips 209 each time the cancellation key

232 is pushed inwardly or rearwardly. Such strip releasing means comprises a rock lever 241 having at its upper end a laterally extending arm 242 and at its lower end a laterally extending tab 243 with a finger 244 projecting rearwardly from the tab 243. The lever is arranged between the upper bracket 205 and a lug 245 struck out to project forwardly from the rear frame member 197 about mid-way between its upper and lower ends, Figure 5, and at the side of the rows 209^a of the strips 209 opposite the row 209^b, thus providing an aperture 246 in the rear frame member 197 above and adjacent the lug 245. A pin 247 passing through to upper bracket 205, the arm 242, the tab 243 and the lug 245 serves to pivot the rock lever 241 in such position that the upper arm extends laterally into the path of the upstanding lug 239 on the cancellation strip 236 for operation thereby and that the finger 244 extends rearwardly through the aperture 246 in the rear frame member 197.

Adjacent the rear face of the rear frame member 197 a rectangular plate 248 is mounted for horizontal sliding movement transversely of the frame member 197 by headed pins or rivets 249. A suitable number of springs 250 secured at one end to the plate 248 and the other end to the side wall 198 of the rear frame member 197 yieldably hold the plate in such a position that through the plate's connection with the rock lever 241 the springs urge the arm 242 into engagement with the upstanding lug 239 for yieldably holding the strip 236 and its cancellation key in their forward position.

The pins 249 pass through elongated apertures 251 in the lugs 252 extending from opposite margins of the plate 248 and are anchored in the rear frame member. One of the lugs 252 is of sufficient length to connect with the finger 244, the lug being provided with an aperture 253 in which the finger is inserted for that purpose.

The plate 248 is stamped or formed as shown in Figure 5 with a longitudinally extending aperture 254 of a length greater than the length of the rows 209^a and 209^b of the strips 209 and of a width greater than the width of the rear ends of the strips 209. The width of the plate 248 and the width of the aperture are such that when the plate is mounted at the rear face of the frame member 197 a side 255 of the aperture is spaced from the ends of the strips 209 in the row 209^b by such a distance that when any strip 209 in that row is moved to its record predetermining position the lateral swinging movement of the strip permitted by the slot 226 and caused by the spring 229 will bring the rear end of the strip into engagement with the side 255 of the aperture 254; and a side 256 of the plate 248 is spaced from the ends of the strips 209 and the row 209^a by such a distance that when any strip 209 in that row is moved to its record predetermining position the lateral swinging movement of the strip permitted by the slot 226 and caused by the spring 227 will bring the rear end of the strip into engagement with the side 256 of the plate.

The strips 209 are automatically releasable from record predetermining position, preferably one at a time, as each predetermined selection is effected. When the finger 193 or 194 engages on one of the strips 209 in its record predetermining position the selector shaft 94 is thereby stopped and supported at a position such that the selector cam 97 is at a level for operating the corresponding latch member 97. The pawl 142, Fig.

10, moving vertically with the selector shaft 94 is thus stopped at a level such that when released the pawl will be between succeeding or adjacent teeth of the rack 138. As the selector shaft 94 is actuated by the cam lever 104 to move the selector cam 97 in a latch operating direction, the fingers 193 and 194 swing with the shaft and if either is engaging one of the strips 209 it will be swung sufficiently to disengage that strip, thus freeing the selector shaft from its supported relationship with the strip 209.

Meanwhile, such movement of the shaft 94 is transmitted to the arm 118 which swings the pivoted plate 134 and the spring urged lever 148 forwardly, Fig. 12, thus disengaging and releasing the pawl plate 139, whereupon the spring 145 swings the pawl plate to move the pawl 142 into resilient engagement with the rack 138 between adjacent teeth thereof. As soon therefore as the effective finger 193 or 194 disengages the supporting strip 209 the shaft 94 gravitates so that the pawl 142 engages on the lower of the two rack teeth between which it was positioned by the finger 193 or 194 and the cooperating strip 209.

At that position the finger 193 or 194 is in horizontal alignment with the strip 209 on which it had just previously engaged to stop the downward movement of the selector shaft. Thus when the shaft 94 is permitted to and does rotate to its initial non-selecting position, as already described, the finger 193 or 194 rotating with the shaft engages with the end of the strip 209 which had just previously been effective to stop the downward movement of the shaft and swings the strip about its pivotal connection 209^c until the rear side of the slot 226 disengages the rear frame member 197, whereupon the spring 227 or 229 automatically returns the strip 209 and its key 212 to their forward or initial positions.

Whenever the manually operable local selector control C, which includes the strips 209, is operated to predetermine one or more records it operates novel means for rendering the local selector control D ineffective until the selection of each predetermined record is effected, whereupon that means is automatically restored. Upon the restoration of that novel means the local selector control D again becomes effective to predetermine the record next following the last record played, or a group of records beginning with the record next following the last played record, depending upon the number or value of the coin or coins deposited in the coin control apparatus.

The novel means for interrupting the effectiveness of the local selector control D may be seen in Figures 3, 7, and 8, and, as mentioned above, comprises a vertical rod 257 suspended at its upper end from the upper bracket 205 between the rear frame member 197 and the vertical strip 231 and depending through the lower bracket 206. That rod 257 serves as a pivot for an upper bail-like assembly 258 having an upper horizontal arm 259, a lower horizontal arm 260 and a vertical strip 261 extending between the arms 259 and 260. The arms 259 and 260 are pivotally secured at the upper and lower ends of the rod 257 in such a manner that the strip 261 is arranged forwardly adjacent the rear frame member 197 and extends from below the bracket 206 upwardly through an aperture 262 therein and between the rows 209^a and 209^b of the strips 209 to above the uppermost strip 209.

A spring 263 secured at one end to the lower

face of the bracket 206 and at its opposite end to the strip 261 yieldably holds the strip 261 spaced forwardly of the rear frame member 197 when none of the strips 209 is in its inner or record predetermining position with the longitudinal margins of the strips 261 in the path of the lugs 225 at the inner or opposed sides of the strips 209 in the rows 209^a and 209^b.

Another vertical rod or pin 264 is provided intermediate its ends with a bail-like member 265 extending longitudinally thereof. The pin 264 is journaled in upper and lower horizontal ledges 266 and 267, Fig. 9, extending rearwardly from the selector control frame 196 and extends upwardly above the upper ledge 266 to about the level of the lower arm 260 of the bail-like assembly 258. When so mounted the bail-like member 265 is normally adjacent the forward edge of the pivoted plate 164 and is co-extensive with the vertical travel thereof. By swinging the rod or pin 264 in a direction to swing the bail-like member 265 rearwardly, the bail-like member will engage the forward edge of the pivoted plate 164 and swing it downwardly about its horizontal pivot to raise the weight 168, Figs. 13, 14, at the rear side of the plate 164 and to move the finger 164' to such a position that it will not engage any of the fingers 155.

For so swinging the pin 264 and the bail-like member 265, the pin at its upper end is provided with a laterally extending arm 268 having an upstanding lug 269 with a forwardly extending finger 271 at its upper end. The upstanding lug 269 engages at its rear side with the forward edge of a projection 272 extending on an end of the arm 260 at the side of the vertical strip 261 opposite the rod 257 and is engaged at its forward side by a spring or other resilient member 273 suitably secured as at 274 on the arm 260 and extending into engagement with the lug 269 under the finger 271.

Thus when any strip 209 is moved to its record predetermining position, one of the lugs 225 engages the vertical strip 261 of the upper bail-like assembly 258 and moves it rearwardly against the action of the spring 263. The upper bail-like assembly 258 is held in that position by the effective lug or lugs 225 as long as any one of the strips 209 is in its record predetermining position. In so swinging the upper bail-like assembly 258 rearwardly the spring 273 thereon resiliently urges the upstanding lug 269 rearwardly, thus turning or rotating the pin 264 in a direction to swing the bail-like member 265 rearwardly. In so swinging rearwardly the bail-like member 265 engages the forward edge of the pivoted plate 164 and swings it downwardly about its horizontal pivot sufficiently to move the finger 164' to such a position that it will not engage any of the fingers 155 during the up and down movement of the plate 164 with the selective shaft 94.

It will be observed that so long as any strip 209 is in its record predetermining position the upper bail-like assembly 258 is held by the lug 225 in its rearward or inner position and through the spring 273 resiliently urges the lower bail-like member 265 rearwardly to move the plate 164 and its finger 164' toward an ineffective or non-selecting position. If the finger 164' is in engagement with one of the fingers 155 when one or more of the strips 209 are moved to record predetermining position, the movement of the finger 164' to ineffective position is for the time being prevented by such engagement. Instead the spring 273 yields to permit rearward movement of the

upper ball-like assembly 258 whereby to permit predetermination of any one or each of any plurality of records for selection and play after the playing of the record selected by the prior engagement between the fingers 164' and 156.

Thus after selection of the record corresponding to the finger 156 engaged by the finger 164' and when the selector shaft 94 is next elevated sufficiently to disengage the finger 164' from the finger 156, the spring 273 will then move the lower ball-like member 265 in a direction to move the finger 164' to its ineffective or non-selecting position and will hold it in that position until the operated strips 209 or the last of the operated strips 209 is returned to its initial or non-predetermining position. When that occurs the spring 263 swings the connected ball-like assemblies forwardly to release the pivoted plate 164 whereupon the weight 168 by gravity restores the plate 164 and its finger 164' to the initial position or the position in which the finger 164' will cooperate with the fingers 156 for selecting records.

Remotely predetermining any record or each of any plurality of records

The selector B is also adapted to be controlled from one or more remotely positionable control means or stations. That is accomplished by the electrically operable selector control E preferably in the phonograph, Figs. 23 to 28, and 31, a desired number of the remotely positionable actuating means F, translating means 275 for interpreting signals received from the actuating means F and in response thereto, determining the corresponding operation of the selector control E and the phonograph, and a suitable electric power supply or pack 276 adapted to receive energy from a usual electric energy supply line or other suitable source 277 through an electric cable 278. As shown in Fig. 31 the power pack 276 supplies energy to the remote control system or apparatus through a cable 279 extending between the power pack and the translating means 275. The translating means 275 is connected to the remote actuating means F by a cable 282, appropriate cable fittings 283, 284 and 285 and a cable 286.

For so adapting the selector B for remote control a substantially U-shaped member 287 is swingably carried by a horizontal pin 288 supported at its ends in forwardly extending lugs 289 at opposite margins of the slide plate 112 (Figs. 26 and 27) and near the upper end of the pivoted plate 134. The U-shaped member 287 depends from the pin 288 into a corner slot 291 provided in the upper end of the pivoted plate 134 at the side thereof adjacent the guide rail 114. As illustrated the connecting portion of the U-shaped member is provided with a forwardly extending finger or other projection 292 and a rearwardly extending portion 293, the latter extending through an aperture 294 in the slide plate 112 and having its end rearwardly of the slide plate 112, bent or otherwise downwardly formed for engagement with the rear face of the slide plate 112 as shown best at 295 in Fig. 26.

The arrangement is such that gravity tends to rotate the finger 292 about the pin 288 in a clockwise direction as viewed in Fig. 26 and the engagement between the portion 293 of the U-shaped member 287 and the rear face of the slide plate 112 prevents such rotation of the finger 292 beyond a horizontal position. The finger 292 is however capable of rocking movement about the pin 288 to and from its horizontal position. When

the U-shaped member is rotated in a counter-clockwise direction, as viewed in Fig. 26, through an arc or angle determined by the diameter of the aperture 294, the U-shaped member when released will return by gravity to its normal position at which the finger 292 is horizontal. Suitably secured as by welding on the forward face of the pivoted plate 134 below the U-shaped member 287 is a strip 296 stamped or otherwise made to provide a forwardly curved or projecting upper end forming a reset projection 297 just below and substantially parallel to the finger 292. The finger 292 and the reset projection 297 cooperate with the selector control E for selectively interrupting the downward movement of the selector cam 97 at any predetermined selected position or successively at a plurality of such positions.

In its presently preferred form the selector control E comprises an elongated substantially channel-shaped member 298 adapted to be secured to and supported by the selector control frame 96. The channel-shaped member 298 is cast or otherwise formed with a side or face member 299 of such length as to be receivable between front transverse lugs 301 and 302 at the upper and lower ends of a front upright member 303 of the selector control frame 96; another side or face member 304 parallel to the side member 299 and spaced therefrom sufficiently to receive therebetween the upright frame member 303; and with a connecting member 305 extending between the side members 299 and 304. In mounting the channel-shaped member on the selector control frame 96, it is arranged in place with the connecting member 305 forwardly of the upright frame member 303 and with the side members 299 and 304 extending rearwardly from the connecting member at opposite sides of the upright frame member 303, the side member 299 being at the side of the upright member 303 facing the selector control D and supported at its lower end on the lower lug 302. Screws or other suitable securing means 306 are employed to secure the channel-shaped member 298 at its upper and lower ends to the upright frame member 303.

The side member 299 of the channel-shaped member 298 is provided with a plurality of horizontal guide ways or apertures 307. There is one such guide way 307 for each record carrier M and the guide ways are provided one above another in the side member 299 for a distance substantially coextensive with the up and down movement of the finger 292 and the reset projection 297. In each guide way a strip 308 stamped or otherwise suitably formed with an offset reset finger 309 at one end and an elongated aperture 311 near its opposite end is slidably carried with the reset finger 309 depending rearwardly of the rear face of the side member 299, and the strip 308 extending through the guide way and forwardly of the forward face of the side member 299.

The strips 308 are independently slidable rearwardly into the path of the vertically reciprocable finger 292 for selectively interrupting the downward movement of the selector shaft 94 thereby to stop the selector cam 97 at any predetermined selecting position or successively at a plurality of such positions. When the selector shaft 94 is rocked, as already described, to effect the selection after each such interruption of its downward movement, the reset projection 297 swings forwardly with the pivoted plate 134. During such forward swinging movement the selection is first effected and thereafter the reset projection

297 engages the reset finger 309 and moves the strip 308 previously cooperating with the finger 292 forwardly to its reset position.

At its upper and lower ends the connecting member 305 of the channel-shaped member 298 is provided with forwardly extending lugs 312 and 313 to which laterally extending arms 314 and 315 are pivotally secured by pins 316 and 317. The arms 314 and 315 carry a rod 318 extending through the elongated apertures 311 in the strips 308 and suitably secured at its opposite ends to the unattached ends of the arms 314 and 315 as by a collar and retaining screw assembly 319 at the upper end above the arm 314 and a collar and retaining screw assembly 321 at the lower end below the arm 315. The rod 318 cooperates with the reset finger 309 and the elongated aperture 311 of each strip 308 to limit the horizontal reciprocable movement of each strip 318 and also with the strips 308 to actuate a switch operating arm 322 suitably secured on and rockable with the laterally extending upper arm 314.

The switch operated by the arm 322 is of the multipoint type and comprises a pair of resilient strips 323 bearing engageable contacts 324 and another pair of resilient strips 325 bearing engageable contacts 326. Those strips 323 and 325 are suitably insulated from one another and from a supporting bracket 327 to which they are secured by any usual or suitable means. The bracket 327 is welded or otherwise secured to a face or leg portion 328 of an elongated angle member, the face portion 328 being secured as at 329 to the side member 304 of the channel-shaped member 298. That elongated angle member is stamped or otherwise formed with another face or leg portion 331 extending laterally and spaced forwardly of the channel-shaped member 298 and cooperates with a forward plate 332 for mounting remotely controlled means for moving strips 308 into the path of the finger 292.

Such means for moving the strips 308 into the path of the finger 292 comprises a plurality of electromagnets or solenoids 333, one for each strip 308 and each including a coil 334 and a reciprocable plunger 335. The plunger 335 of each solenoid extends axially through the coil and is provided with a head portion 336 at one end thereof outside the coil. The solenoid 333 are arranged and supported between the leg portion 331 and the forward plate 332 in two spaced vertical rows with those of one row staggered with respect to those of the other row. The plungers 335 are arranged with their head portions 336 rearwardly of the leg portion 331 and extend forwardly therefrom through the leg portion 331, the respective coils 334, and the forward plate 332 which is secured in spaced relation to the leg portion 331 by bolt and nut assemblies 337 and spacer sleeves or washers 338. The head portions 336 of one row of the solenoids 333 are thus engageable with one side of the forward ends of alternate strips 308 and those of the other row are engageable with the other side of the forward ends of the other strips 308.

If any strip 308 is moved rearwardly by the corresponding solenoid 333, it swings the rod 318 rearwardly against the action of a coil spring 339 arranged about the lower pin 317 and secured at its opposite ends to the lower arm 315 and the lower lug 313. Such movement of the rod 318 brings it into engagement with the connecting member 305 of the channel-shaped member 298, thus limiting the rearward movement of the

strips 308 to positions in which they project into the path of the finger 292. The rearward swinging movement of the rod 318 is transmitted to the switch operating arm 322 which in swinging rearwardly with the upper arm 314 closes the contacts 324 to start the motors O and P.

The rod 318 is held in that rearward position so long as any strip 308 is in the path of the finger 292 so that the contacts 324 remain closed until every strip 308 is in its forward position or has been returned thereto by the reset projection 297, whereupon the resiliency of the strips 323 and the spring 339 swings the rod forwardly to the forward limit of the elongated apertures 311. Such forward swinging movement of the rod 318 is transmitted to the switch operating arm 322 which in swinging forwardly with the upper arm 314 permits the resilient strips 323 to open the contacts 324 in circuit with the motors O and P and closes the contacts 326. The contacts 326 control means to be more fully described hereinafter for restoring the effectiveness of the local selector controls C and D after every previously operated strip 308 has been returned to its forward position out of the path of the finger 292.

As just suggested the local selector controls C and D are rendered ineffective automatically while the selector B is under the control of any one of the remotely positionable actuating means F. That is accomplished by means, Figs. 21, 22, 29, engageable with the laterally extending finger 195 of the selector control member 189 to swing it forwardly and downwardly about its pivot 190 to the ineffective position at which the fingers 193 and 194 will not engage the strips 209 even when any one of the strips is at a record predetermining position. Such means is operatively connected to the upper bail-like assembly 258 for swinging it in a direction to swing the bail-like member 265 rearwardly whereby to swing the pivoted plate 164 downwardly about its horizontal pivot sufficiently to move the finger 164' to the ineffective position at which it will not engage the fingers 156 even when any one of them is at a record predetermining position.

The means just referred to comprises an elongated plate 341 secured in an upright position to the side wall 198 of the rear frame member 197 and of such a width as to extend rearwardly thereof. The plate 341 is stamped or otherwise formed with a pair of laterally extending lugs 343 at the opposite ends and the rear margin thereof to facilitate pivotally securing thereto a similarly formed flat elongated strip 344. At the opposite ends and a side margin the strip 344 is provided with a pair of laterally extending lugs 345 and intermediate its ends and near a side margin the strip has a transverse elongated aperture 346.

The lugs 345 are arranged outwardly adjacent the lugs 343 and a rod 347 is inserted through aligned apertures in the lugs and is provided intermediate its ends with a pin 348 extending radially outwardly therefrom and through the aperture 346 in the strip 344. A pair of collar and retaining screw assemblies 349 or other suitable means are secured on the opposite ends of the rod 347 outwardly of the lugs 345. When the pivoted strip 344 is mounted as just described, the upright margin thereof opposite that bearing the lugs 345 is located forwardly adjacent the laterally extending finger 195 of the selector control member 189 and is vertically coextensive with the up and down movement of the finger 195. The upper lug 345 is provided with a pin 351 spaced from the rod 347 for pivotally attach-

ing to the lug one end of a link 352, the other end of which is provided with an elongated aperture 353 through which extends a pin 354 on a lug 355 on the upper arm 259 of the upper bail-like assembly 258. The lug 355 extends rearwardly from the arm 259 through an aperture in the upper portion of the rear frame member 197.

A plate 356 is horizontally arranged near the upper end of the plate 341 at the face of the plate 341 opposite the lugs 343 and is provided with a depending lug 357 welded or otherwise secured to the plate 341. On the plate 356 an electromagnet or solenoid 358 is mounted as by spot welds 359. The solenoid 358 includes an enclosed coil 361 about a reciprocable plunger 362, one end of which is pivotally connected to an end of a link 363. The other end of the link 363 is pivotally connected to an end of an arm 364 which is fixed at its other end on the upper end of the rod 347 to rotate therewith and which is provided at the latter end with a hooked projection or latch 365.

When the solenoid coil 361 is energized, it attracts the plunger 362 pulling the end thereof connected to the link 363 toward the coil, thus rotating the arm 364 and thereby the rod 347 to cause the pin 348 to rotate the strip 344 sufficiently in a direction to engage and move the finger 195 thereby to swing the selector control member 189 forwardly and downwardly to its ineffective position. Such rotation of the strip 344 is transmitted through the upper lug 345, the pin 351, the link 352, the pin 354 and the lug 355 to the upper bail-like assembly 258 and swings it rearwardly, thus swinging the bail-like member 265 rearwardly thereby to swing the pivoted plate 164 downwardly to move the finger 164' to its ineffective position. Thus the local selector controls C and D are rendered ineffective and only the control E remains effective for controlling the selector B.

Another electromagnet or solenoid 366 including a coil 367 and a swingable armature 368 having at one end a flange or detent portion 369 is mounted on the plate 356 by a bracket 371 spot welded or otherwise secured to the plate 356. The solenoid 366 is mounted in such a position that the detent portion 369 of the armature 368 is urged by a spring 372 toward latching engagement with the latch 365 of the arm 364 and releasably latching that arm in the position rendering the local selector controls C and D ineffective while the selector B is under the control of any one of the remotely positionable actuating means F. When the solenoid coil 367 is energized, it attracts the armature 368 against the action of the spring 372 and moves the detent portion 369 sufficiently to disengage the latch 365 thereby to release the arm 364 and so released, the spring 196 returns the selector control member 189 to its effective position and the spring 263 returns the upper and lower bail-like assemblies 258 and 265 forwardly to permit the pivoted plate 164 by gravity to return the finger 164' to its effective position. That movement of the upper bail-like assembly 258 moves the pin 354 to the forward end of the aperture 353 in the link 352. This permits the spring 196 to return the selector control member 189 to its effective position and in so doing swings the plate 344 forwardly thereby through the pin 348 to rotate the rod 347 and the arm 364 to the position shown in Fig. 21.

Secured as at 373, Fig. 31, to and extending between the lower ends of the selector control frame 96 and a rear frame member 374 slidably supporting the slide R is a frame member 375 on which the lower end of the cam shaft 73 is

journaled and which carries the control device 1 which includes the switch 68. At its rear end the frame member 375 carries a member 376 stamped or otherwise formed with an upstanding side portion 377 connecting a lower horizontal plate portion 378 secured under the frame member 375 by the securing means 373 and an upper horizontal plate portion 379 extending laterally in the same direction as the lower plate portion from the side portion 377 and at the forward end thereof spaced above the frame member 375.

The upper plate portion 379 carries a switch 381 which is thus mounted in such a position that it is engageable by the periphery of the notched disk 74 for holding the switch open during the playing cycle of the phonograph. One terminal of the switch 381 is electrically connected by conducting means 382, Fig. 2b, with one of the contacts 324, the other contact 324 and the other terminal of the switch 381 by conducting means 383 and 384, respectively, being connected to opposite terminals of the coin operated switch 51. The series connected switch 381 and contacts 324 thus are in parallel with or shunt the coin operated switch 51 so that the phonograph may be started either by closing the switch 51 as already described or since the switch 381 is closed while the phonograph is not in use, by closing the contacts 324.

The side portion 379 of the member 376 has suitably secured thereto a bracket 385 carrying a pair of resilient strips 386 bearing engageable contacts 387. One of the strips 386 extends into the path of the pin 93 depending from the notched disk 74 for operation by the pin 93 to close the contacts 387 at the end of each playing cycle of the phonograph. One of the contacts 387 is electrically connected by conducting means 388 to one of the contacts 326 and the other contact 387 is connected by conducting means 389 to one terminal of the relay coil 367. The other contact 326 is connected by conducting means 391 to the line conductor 67 and the other terminal of the relay coil 367 is grounded as illustrated in Fig. 2b.

Thus whenever the operated strip 308 is returned to its forward position out of the path of the finger 292 and the contacts 326 are closed as hereinabove described, the contacts 387 will be closed by the pin 93 at the end of the playing cycle corresponding to the last strip 308 so returned to its forward position. In that manner the circuit including the relay coil 367 will be completed. The coil 367 will be energized and will attract its armature 368 thereby disengaging the detent portion 369 from the latch portion 365 of the arm 364 and releasing the arm 364. As has already been described, when that occurs, the selector control member 189 and the pivoted plate 164 will automatically return to their effective positions.

Remote control translating means

For interpreting signals received from the remote control actuating means F and in response thereto for determining the operation of the selector control E and the phonograph A, there is provided a translating means 275, shown in Figure 31. This translating means 275 comprises certain elements which may be of conventional form, the structure of which is well known in the art and which will not be shown in detail. The elements contained within the translating means 275, however, are represented schematically within the dotted line enclosure of Figure 2b.

This translating means comprises a rotary

switch 392 of the automatic telephone type, actuated by a solenoid 393 which is energized by means of a stepper relay 394. The operation of the rotary switch 392 is further controlled by a selector relay 395 and a cancel relay 396. The rotary switch 392 is provided with two switch arms 397 and 398 pivoted intermediate their ends for rotation together by a step-by-step movement resulting from the operation of the relay or solenoid 393 operating a ratchet mechanism. The switch arms 397 and 398 are each adapted to engage a plurality of electrical contacts 399, 401, respectively, which are arranged in arcuate position. During the operation of the rotary switch, first one end of each of the switch arms 397 and 398 engages the contacts 399 and 401 and when these arms have been advanced to the end of the arcuate groups of contacts, the other end of the arm begins to engage the contacts.

In the arrangement illustrated each of the arcuate groups of contacts 399 and 401 are twenty-five in number. All of the contacts 399 except the first two are electrically connected together. These first two contacts 402 remain open and will be referred to as "dead" contacts. The first two contacts of the arcuate group 401 are also dead contacts and the next twenty contacts are each connected to one of the selector magnets 333 shown in Fig. 23. The last two contacts of this same group are also left open circuit, and the third from the last contact is connected to the last contact energizing one of the relay selector magnets 333. The purpose of this connection will subsequently become apparent. The switch arm 398 is so constructed as to engage only one contact at a time. The switch arm 397, however, is so constructed that in passing from one contact to another the arm during its transition momentarily makes contact between two of the contacts, so that the circuit between conductors 403 and 404 is not broken by the operation of the rotary switch during the time that it moves from one contact to another, other than the first two dead contacts 402.

The stepper relay 394 is provided with a pair of contacts 405 which are closed each time that the coil of the stepper relay is energized. This supplies energy from the conductor 403 to the coil of the actuating relay 393 of the rotary switch 392, to ground. The coil on the actuating relay 393 is connected to a switch 406 which is opened each time that the coil of the solenoid 393 is energized. The contacts of the switch 406 normally short circuit a resistor 407 and a capacitor 408, the function of which will subsequently become apparent.

The selector relay 395 is of a type which has a time delay on the release operation, and is provided with a plurality of switch contacts which cooperate with the rotary switch 392 to perform certain functions. The cancel relay 396 is of the type which has a time delay upon initial operation, and is provided with a plurality of contacts which cooperate with certain of the contacts of the selector relay 395 and with the switch arm 397 and the contacts 399 of the rotary switch 392 to perform certain functions. The cancel relay 396 has certain other contacts which control certain circuits in the remote control actuating means F, shown in Figure 31.

The remote control translating means 275 is provided with suitable plug receptacles 409 and 411 which are connected to the cable 279 and the cable 282, respectively. The translating means 275 is further provided with a cable 281 which

terminates in two plug strips 412 and 413, each comprising an insulated strip and a plurality of prongs arranged in spaced relation longitudinally along the strip. One of the strips 412 and the prongs thereon cooperates with a series of contacts 414 shown in Figures 24 and 28 and indicated in Figure 31. Similarly, the contact strip 413 and the plugs thereon are arranged to cooperate with a series of contacts 415 shown in Figures 24 and 28. Each of the contacts in the series of contacts 414 and 415 are each connected to a different one of the magnet coils 334 of the electromagnets 333 shown in Figures 23 and 24, as well as Figure 28. From this will be apparent that the switch arm 398 and the contacts 401 serve to control selectively the energization of the coils of the electromagnets 333. The translating means 275 is connected by the plug 411, the cable 282, and suitable plugs such as 283, cable fittings 284, plugs 285 and cables 286 to one or a plurality of remote control actuating means F.

Remote control actuating means

The construction and operation of the remote control actuating means F may be better understood by reference to Figures 32 to 34 which show certain details of a preferred form of remotely positionable actuating means. In the embodiment shown this actuating means is enclosed within a casing having a base 416 which may be secured to a wall by any suitable means, and a top portion 417, each of these portions of the case supporting certain elements. On the exterior of the front or top member 417 of the case there is provided telephone dial structure 418 which comprises a dial having a certain number of finger apertures and a suitable stop, the structure of which is commonly known in the art. The dial structure 418 is secured to a sleeve 419 which is rigidly secured to a shaft 421 which extends to the interior of the case structure 417. The dial 418 is biased by a helical spring 422 which is anchored between the dial 418 and a plate 423 supported by the case portion 417. Thus when the dial 418 is actuated it will return to its original position by virtue of the action of the bias of the spring 422. The shaft 421 is further provided with a switch actuating arm 424 which cooperates with a normally open circuit switch 425. The shaft 421 is provided with a sleeve 425 which is rigidly attached to the shaft and which bears on the one extremity thereof a gear 426.

The sleeve 425 also serves as a bearing for an interrupter wheel 427 which is frictionally biased with respect to the gear 426 by means of a spring 428. The interrupter wheel 427, which is provided with a plurality of spaced lugs around the circumference, is arranged to engage a pawl 429 supported upon a stud extending outwardly from the plate 423. The pawl 429 is of such configuration that one end thereof is engageable by the lugs on the periphery of the interrupter wheel 427 and the other extremity of the pawl actuates a switch 431 which controls the energization of the stepper relay 394. The pawl 429 permits the wheel 427 to turn in a clockwise direction as viewed in Figure 32, but serves as a stop for any appreciable rotation of the interrupter wheel 427 in a counter-clockwise direction. Thus when the dial 418 is initially moved by inserting a finger or object within one of the apertures around to the cooperating stop, the interrupter wheel 427 is moved but a short distance until one of the

projections on the periphery engages the pawl 429 which then serves as a stop to retain the interrupter wheel 427 in that position. When the dial 418 is then released, the frictional engagement between the dial 418 by means of the shaft 421, the sleeve bearing member 425, and the gear 426, will come into operation by virtue of the action of the biasing spring 428. The interrupter wheel 427 then follows the return rotation of the dial 418 and the gear 426.

The gear 426 has mounted thereon a stud 432 which in the position of rest serves to hold a switch 433 in a particular position. Whenever the dial 418 is moved from its position at rest, the stud 432 is moved away from the switch arms of the switch 433 thereby permitting the switch to be actuated thus opening two circuits and closing another circuit. By means of a suitable bracket 430 secured to the plate 423 there is provided a bearing which supports a shaft upon which there is mounted a gear 434 which engages the gear 426, and which is mounted directly in back of another gear 435, shown by dotted lines in Figure 32, and which serves to transmit a driving force to the gear 435. The gear 435 is frictionally biased with respect to the shaft supporting the gear 434 by means of a suitable spring 436. The gear 435 engages a small gear 437 which is mounted so as to be freely rotatable on an extension of the shaft 421. The gear 437 is connected to a member having a pair of fan blades 438 attached thereto. When the dial 418 is actuated, the gear 426 is rotated, thus rotating the small gear 434 which transmits a driving force to the gear 435 which in turn transmits this force to the gear 437. The gears 437 and 435 are only frictionally related to the small gear 434 so that they may operate as a form of governor to control the speed at which the dial 418 and the interrupter wheel 427 returns to rest. The energy stored in the gear 435 during operation of the dial at times is of such force that it is desirable to permit the governor to continue momentarily after the dial has returned to rest, thereby preventing the fan blades 438 from being disconnected from the gear 437.

The case member 417 is provided at the top thereof with a coin chute 439 which in the closed position of the case cooperates with a coin mechanism 441 which may be of any one of the types commonly in use for this purpose. If the coin is not rejected by the coin mechanism 441, the coin drops so as to strike a pan 442 located so as to be held in position by a magnet 443. The arm or pan 442 is connected to the operating mechanism of an electrical switch 444 which controls the energization of the dial starter switch 425 and a wall box relay 445 mounted upon the case member 416. The wall box relay 445 is provided with a plurality of contacts which are connected to the switch 425 and the switch 433. A coin switch relay 446 is located adjacent the mechanism 444 and directly beneath the pan 442 so that upon energization of the relay 446, which is in solenoid form, the solenoid plunger will be moved in an upward direction so as to strike the pan 442 thereby releasing the pan from the action of the magnet 443 thus opening the switch 444.

An operation indicating light 448 is mounted from a bracket supported by the coin rejector mechanism 441, and is electrically connected with a resistor 449. This light illuminates certain indicia on the face of the cabinet of the actuating means telling the operator that if the light ap-

pears after a dial operation, the operator should please dial again. The particular relation of the illumination of this light 448 relative to the operation of the remote control actuating means to the rest of the apparatus will subsequently become apparent. This indicia 451, illuminated by the lamp 448, may be located in the central portion of the front of the cabinet 417 as shown in Figure 32. On either side of the indicia 451 there is provided a rack mounted upon the supporting members 452 and 453 which support informative matter describing the selections available on the phonograph. Each of these means which may comprise cards supported in a rack are located opposite suitable reference numerals which correspond to reference numerals appearing through the openings in the dial 418. The informative matter relative to the selections available is illuminated by a plurality of lamps 454 to 457 suitably located within the cabinet and controlled by an electrical switch 458 operable from the under side of the cabinet portion 417. A coin release operating member 459 is located adjacent the top of the case 417 so that when the case 417 is closed, upon the base 416, the lower extremity of the resiliently biased release member 459 will be in operative relation to the coin clearance bar of the coin mechanism 441. The coin is returned to the operator by means of a coin chute 461 which connects with a coin stop 462 located to the exterior of the case 417. Whenever the slug rejector refuses to accept a coin or slug, this coin or slug may be removed from the coin stop or tray 462.

The remote control actuating means is therefore preferably mounted upon a wall and is provided with an opening in the case 417 through which may be observed the informative matter carried by the trays in the members 452 and 453. The trays may be suitably illuminated by actuating the switch 458. The operator then makes his selection and observes the reference character or numeral adjacent his desired selection. By inserting a finger or other operating member in the dial opening of the dial 418 corresponding to this individual character, the dial is then turned until the stop is reached by the finger or actuating member. The dial then is released, thus causing impulses to be transmitted to the translating means 275, Figure 31, thus determining the next selection to be played by the phonograph. In the event that some other person is dialing at the same time, the lamp 448 will illuminate the indicia 451 thus informing the operator that he should dial again. Any desired number of selections may be dialed and the translating means 275 will be operated to select these records to be played by the phonograph.

In connection with the operation just previously described, it is to be particularly noted that if the selector dial 418 is advanced a slight distance which, however, is insufficient to bring the first opening in the dial up to the dial stop, certain operations occur which, however, have no effect upon the rotary selector switch 392. If the dial 418 is advanced slowly to a distance short of the dial stop corresponding to the first selection, the switch arm stud 432, shown in Figures 32 and 33, permits the circuit switch 433 to open the upper contact switch arm 481 thereby opening the circuit which is energizing the coil of the selector relay 395. The contacts 479 of the switch 433 are the next contacts to be broken, and subsequent thereto the lower contacts of the switch arm 481 are closed. Closing of the lower con-

tacts of the switch arm 481 closes a circuit leading to the interrupter switch 431 which is actuated by the interrupter wheel 427. The interrupter circuit switch 431, however, is not energized until the arm 424 on the dial shaft 421 has operated to close the switch 425 which completes a circuit for the energization of the wall box relay 445. These parts are thus so correlated in operation with respect to each other that the interrupter switch 431 is never supplied with energy while this switch is closed. The lever 429 which operates the interrupter switch 431, even if resting on one of the projections of the interrupter wheel 427 so as to close the interrupter switch 431, will be released by the initial rotation of the dial and the interrupter wheel 427 so that the end of the lever 429 falls between two of the projections of the interrupter wheel. As the interrupter wheel is rotated in a clockwise direction, in the arrangement shown in Fig. 34, the projection immediately beneath the extremity of the lever will engage this lever, thereby stopping further rotation of the interrupter wheel 427 while the dial 418 is moved until the operator's finger in the selected opening reaches the dial or finger stop. Unless the selector dial 418 has been revolved from its position of rest until at least the first opening in the dial 418 has reached or passed the finger stop, no preparatory action has been completed by the operation of the dial.

The operation occurring during the period when the dial 418 is returning to the position of rest has been described above. When the dial 418 reaches the position of rest the stud 432 again engages the switch arms of the switch 433 so as to close the contacts 479 and the upper contacts of the switch arm 481. The lower contacts of the switch arm 481 are now opened thereby de-energizing the circuit through the interrupter switch 431 and the stepper relay 394. The relay 445, which has been locked into closed position, has closed the contacts 478 thereby permitting the completion of a circuit through the upper contacts of switch arm 481 which supplies energy from the conductor 463 through the contacts 468 of the cancel relay 396, the conductor 467, contacts 478, switch arm 481, through the coil of the selector relay 395.

The selector relay 395 now comes into operation, first closing the contacts 474 which complete a circuit from the conductor 463 to supply energy to the switch arm 398 of the rotary switch 392. The switch arm 398 has previously been positioned upon a contact connected with a predetermined one of the electromagnets 333. The energization of one of the coils 334 of the electromagnet 333 causes the solenoid plunger 335 to be actuated which engages its corresponding selector strip 308 which is moved forwardly so as to be in the path of the selector mechanism which includes the member 292, shown in detail in Figures 23 and 26. The operation of the solenoid plunger of the magnet 333 against one of the members 308 causes the rod 318 to be actuated thereby operating an electric switch 325 carrying the contacts 324 and 326. The contacts 324 are thereby closed connecting together the conductors 383 and 384 which are connected through the switch 381 to the conductors 53 and 54 which receive energy from the transformer 52 and which are connected by the conductor 57 to the relay coil 55 which operates a pawl to move the ratchet 56. A pin or stud 61 on the ratchet 56 which normally holds the switch 62 open, is moved so

as to permit it to close thereby energizing the turntable motor P and the driving motor O. The operation of the phonograph then continues in the manner heretofore described.

The next contacts to be closed by the operation of the selector relay 395 are the next pair of contacts 476 which completes a circuit from ground through the coil of the cancel relay 396 to the switch arm 397, the rotary contacts of the switch 392, the conductors 403 and 463 thereby causing operation of the cancel relay 396.

The operation of cancel relay 396 first closes the contacts 472 which lock the coil of the cancel relay 396 into circuit by means of the switch arm 397 of the rotary switch 392. The next contacts to be closed by the cancel relay 396 are the contacts 469 and 471. The closing of the contacts 469 completes a circuit from the conductor 463 through the contacts 468, which have not yet been broken, the contacts 469, the conductor 473 to the coil 358 of the lock-out relay 381. It will be remembered that the lock-out relay 358, shown in Figures 31 and 21, produces actuation of the lever 364 which renders ineffective, by operation upon the selector 189, the local selector control device C mounted on the phonograph. The closing of the contacts 471 completes a circuit between the contacts 406 and the rotary selector switch 392 and the open contacts 475 of the selector relay 395. As the cancel relay 396 completes its operation, the contacts 468 are broken thereby cutting off the supply of energy to the remote control actuating means F thereby causing the coil of the selector relay 395 to become deenergized.

Upon deenergization of the selector relay 395 the contacts 476 are first separated thereby breaking the locking circuit for the coil of the cancel relay 396. The next contacts reopened are 474 which interrupt the circuit through the electromagnets 333 and switch arm 398 of the rotary switch 392. The contacts 475 close at the same time that the contacts 474 are interrupted.

The closing of the contacts 475 completes a circuit from the conductor 463, the conductor 403, the switch contacts 399, the switch arm 397, the contacts 475, the contacts 471 of the relay 396 through the contacts 406 to the coil of the solenoid 393 of the rotary switch 392. This energizes the solenoid 393 which operates upon the ratchet which rotates the rotary switch arms 397 and 398. Each time that the switch arms are advanced one position, the contacts 406 are interrupted thereby releasing the armature of the solenoid 393. This operation which continues to move the arms 397 and 398 around the rotary switch 392 continues until the switch arm 397 engages the dead contacts or open circuit contacts 402. The selector switch in this position is then ready for a new cycle of operation to be initiated from one of the remote control actuating means F. When the operation of the rotary switch 392 is stopped by the arm 397 engaging the open circuit contacts 402 the cancel relay 396 is deenergized so that current is again supplied to the various remote control actuating means by the closing of the contacts 468 of the deenergized relay 396.

When the dial 418 of the remote control actuating means F has returned to rest, the switch 433 is again actuated so as to close the switch contacts 479 thereby energizing the coin release solenoid 447 which operates to disengage the coin pan from the magnet 443 thereby opening the switch 444. This operation occurs only if

the dialing operation of the remote control operating means has been complete. In the event that the dialing operation is incomplete by reason of the dialing operation occurring from some other remote control means or for any other reason, the coin switch 444 will still be closed thereby completing a circuit through the resistor 449 thereby lighting the lamp 448 which illuminates the indicia 451 on the remote control means to instruct the operator to again perform the dialing operation.

In the above description throughout it will be noted that during the time that the selector magnets 333 are being energized the power supply to the remaining remote control actuating means F has been interrupted so that only one such control means can affect the rotary switch 392 at any time. When the phonograph completes the selection to be played, the switch 325 is actuated to close the contacts 326, and the cam member 74 by means of the stud 93 closes the switch 387 thereby energizing the release relay coil 367 to actuate the armature 368 so that the pawl 369 releases the lever 364 which has rendered ineffective the local selecting means C.

It is to be understood, however, as will be readily apparent to those skilled in the art, that while we, for the purpose of readily and conveniently illustrating our invention, have shown the invention embodied in a particular mechanism and circuit, that our invention is not to be limited thereby, since it will be apparent that other and further modifications may be made in the circuit arrangements and in the instrumentalities to be employed as may be commensurate with the true spirit and scope of the appended claims.

What we claim is new and desire to secure by Letters Patent of the United States is:

1. The combination comprising a multirecord automatic phonograph, means in said phonograph for predetermining the playing of a record therein and for predetermining the playing of numerical series of the records therein, means mounted in said phonograph for predetermining the playing of any record therein and for predetermining the playing of each of any plurality of records therein, means responsive to the actuation of the second said means for rendering ineffective the first said means, means including an actuating device located at a distance from said phonograph for predetermining any record therein and for predetermining each of any plurality of said records, and means responsive to the actuation of the last said means for rendering the first said means and the second said means ineffective but not inoperative.

2. The combination comprising a multirecord automatic phonograph, means in said phonograph for predetermining the playing of any record therein and for predetermining the playing of each of any plurality of records therein, means including an actuating device located at a distance from said phonograph for predetermining the playing of any said record and for predetermining the playing of each of any plurality of said records, and means responsive to the actuation of the last said means for rendering the first said means ineffective without rendering it inoperative.

3. The combination comprising a multirecord automatic phonograph, means in said phonograph for predetermining the playing of a record therein and for predetermining the playing of a numerical series of records therein, means including an actuating device located at a dis-

tance from said phonograph for predetermining the playing of any said record and for predetermining the playing of each of any plurality of said records, means responsive to the actuation of the last said means for rendering the first said means ineffective without rendering it inoperative, and means automatically controlled by the foregoing means for causing said phonograph to play each record predetermined by the second said means and each record predetermined by the first said means while it is ineffective but not inoperative.

4. The combination comprising a multirecord automatic phonograph, means in said phonograph for predetermining the playing of a record therein and for predetermining the playing of numerical series of records therein, means in said phonograph for predetermining the playing of any said record and for predetermining the playing of each of any plurality of said records, means responsive to the actuation of the second said means for rendering the first said means ineffective without rendering it inoperative, and means automatically controlled by the foregoing means for causing said phonograph to play each record predetermined by the second said means and each record predetermined by the first said means while it is ineffective but not inoperative.

5. The combination comprising a multirecord automatic phonograph, means in said phonograph for predetermining the playing of a record therein and for predetermining the playing of numerical series of records therein, means in said phonograph for predetermining the playing of any said record and for predetermining the playing of each of any plurality of said records, means responsive to the actuation of the second said means for interrupting the effectiveness of the first said means, means including a device remotely positioned relative to said phonograph for predetermining any said record and for predetermining each of any plurality of said records, means responsive to the actuation of the last said means for interrupting the effectiveness of the first and second said means without rendering them inoperative, and means automatically controlled by the foregoing means for causing said phonograph to play each record predetermined by the last said means, each record predetermined by the second said means while ineffective, and each record predetermined by the first said means while ineffective.

6. The combination comprising a coin controlled automatic phonograph, means for automatically predetermining for playing a record in said phonograph and for automatically predetermining for playing numerical series of records in said phonograph in accordance with the value of coins received by said phonograph, manual means in said phonograph for predetermining the playing of any said record and for predetermining the playing of each of any plurality of said records, means responsive to the actuation of said manual means for rendering the automatic means ineffective, but not inoperative until the records predetermined by said manual means have been played, means including a control device located at a distance from said phonograph and predetermining the playing of any said record and for predetermining for playing each of any plurality of said records, and means responsive to the actuation of the last said means for rendering both the automatic means and the manual means ineffective but not inoperative until the records predetermined by the last said means have been played.

7. The combination comprising a coin controlled automatic phonograph, means for automatically predetermining for playing a record therein and for automatically predetermining for playing series of records in said phonograph in accordance with the value of the coins received by said phonograph, manual means mounted on said phonograph for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, means responsive to the actuation of said manual means for rendering the automatic means ineffective until the records predetermined by said manual means have been played, means including a coin controlled device located at a distance from said phonograph for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, means responsive to the actuation of the last said means for rendering ineffective but not inoperative said automatic and said manual means until the records predetermined by the last said means have been played, and means responsive to the total value of coins received by said phonograph and the remote predetermining means for causing said phonograph to play all of the records predetermined by each said predetermining means.

8. The combination comprising a coin controlled automatic phonograph provided with local means for predetermining one or more records to be played, means including a coin controlled control device remotely located for predetermining any record in said phonograph and for predetermining each of any plurality of records therein, means responsive to the actuation of the remotely located means for rendering said local means ineffective until each record predetermined by said remotely located means has been played, and means responsive to the total value of coins received by said phonograph and said remotely located device for maintaining said phonograph in operation until all records predetermined by each of said predetermining means are played.

9. The combination comprising a coin controlled automatic multirecord phonograph, local means therein for predetermining for playing any number of records in said phonograph, a dial operated mechanism adapted to be manually rotated through any of a number of angular distances each corresponding to a record in said phonograph, a circuit interrupter adapted to be actuated by said dial operated mechanism a number of times corresponding to each angular distance through which it is operated, means actuated by said dial operated mechanism for supplying electrical energy to said circuit interrupter, a selector switch electrically connected to said interrupter for actuation thereby in response to the impulses resulting from the operation of said circuit interrupter, means connected to said selector switch for controlling the operation of said phonograph, a relay controlling the application of energy to the last said means and to said selector switch whereby said dial operated mechanism is operable to predetermine for playing any record in said phonograph and to predetermine for playing each of any plurality of records therein, means responsive to the operation of said dial operated mechanism for rendering said local means ineffective until each record predetermined by said dial operated mechanism has been played, means including a second relay controlled by the first said relay for restoring said selector switch and the first said relay to their original conditions,

and means responsive to the completion of playing of the record or records predetermined by said dial operated mechanism for restoring the effectiveness of said local means.

10. The combination in a coin controlled multirecord phonograph of a reciprocable selector mechanism operable to select for playing any one record, any numerical series of records, and each of any plurality of records in said phonograph, a plurality of individually operable keys respectively corresponding to the records in said phonograph and having a common pivot, said keys being arranged in two rows at opposite sides of said common pivot, a plurality of stop members each operable by one of said keys, said stop members and said keys cooperating to control said selector mechanism by projecting a stop member for each operated key into the path of said selector mechanism whereby to predetermine for selection any number of said records, and means operated by said selector mechanism as each predetermined selection is effected for restoring the position of the corresponding stop member and key.

11. The combination in a coin controlled automatic multirecord phonograph of reciprocable selector mechanism adapted to select records to be played, means adapted to govern said selector mechanism for predetermining the playing of a record and for predetermining the playing of a series of records in accordance with the value of coins received by said phonograph, a plurality of selectively operable keys respectively corresponding to the records in said phonograph and pivotally mounted on a common member and extending therefrom in opposite directions, said member and said keys being arranged at an angle to the axis of said selector mechanism, a plurality of slide members corresponding in number to the number of keys, means responsive to the actuation of each said key to project the corresponding slide member into the path of said selector mechanism for predetermining the operation thereof, means responsive to the actuation of any said key for rendering ineffective said means for predetermining a record and a series of records in accordance with the value of coins received by said phonograph, means operated by said selector mechanism for restoring each slide and key as selection of the corresponding record is effected, and means responsive to the restoration of all of the selectively operated slides and keys for restoring the effectiveness of the first mentioned predetermining means.

12. The combination comprising an automatic phonograph, a plurality of record carriers arranged in stack formation, a reciprocable record selector mechanism movable through a range including a position corresponding to each record carrier, means mounted on said phonograph for predetermining for playing any record therein and for predetermining for playing each of any plurality of records therein, means including a control device remotely located for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, each of the predetermining means being operable to stop said selector mechanism at each position corresponding to a record predetermined thereby, and means for controlling the operation of said selector mechanism to cause said phonograph to play all of the records predetermined by each of said predetermining means in a definite order.

13. The combination comprising an automatic

phonograph, means for carrying a plurality of records in stack formation, a reciprocable record selector mechanism movable through a range including positions respectively corresponding to said records, means mounted on said phonograph for predetermining for playing any record therein and for predetermining for playing each of any plurality of records therein, means including a control device remotely located for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, each of the predetermining means being operable to stop said selector mechanism at the position corresponding to each record predetermined thereby, and means for controlling the operation of said selector mechanism to cause the phonograph to play all of the records predetermined by each said predetermining means in a definite order beginning with the uppermost predetermined record in said stack formation.

14. The combination comprising an automatic phonograph, a plurality of records arranged in stack formation, a reciprocable selector mechanism movable through a plurality of positions respectively corresponding to the records in said stack formation, means mounted on said phonograph for predetermining for playing any said record and for predetermining the playing of each of any plurality of said records, means including a control device remotely located relative to said phonograph for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, each of the predetermining means operating to stop said record selector mechanism at each position corresponding to a predetermined record, means responsive to the actuation of the second said means for rendering ineffective the first means until all records predetermined by the second said means have been selected, and means for controlling the operation of said selector mechanism to cause said phonograph to play all of the records predetermined by each of said predetermining means in a definite order.

15. The combination comprising an automatic phonograph, a plurality of records arranged in a stack, a reciprocable selector mechanism movable through a range corresponding to the length of said stack of records, means for automatically predetermining for playing a record and for predetermining for playing a series of records, manual means mounted on said phonograph for predetermining for playing any record and for predetermining for playing each of any plurality of records, means responsive to the actuation of said manual means for rendering the automatic means ineffective, means including an actuating device located at a distance from said phonograph for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, means responsive to the actuation of the last said means for rendering said automatic means and said manual means ineffective but not inoperative, and means for controlling the operation of said selector mechanism to cause the phonograph to play all of the records predetermined by each of the predetermining means in a definite order beginning with the uppermost predetermined record in said stack of records.

16. The combination comprising an automatic multirecord phonograph, local automatic means for predetermining for playing a record therein and for predetermining for playing a series of records therein, local manually operable means

for predetermining for playing any said record and for predetermining for playing each of any plurality of said records, means for mounting said automatic means and said manually operable means in said phonograph with said manually operable means above said automatic means, local means adapted when actuated to predetermine for playing any said record and to predetermine for playing each of any plurality of said records, manually operable remote means for actuating the last said local means, and a reciprocable record selector mechanism common to and adjacently arranged with respect to all of the previously mentioned predetermining means and adapted to be controlled thereby.

17. The combination comprising an automatic phonograph having a frame, a plurality of records arranged in stack formation above said frame, a reciprocable record selector mechanism movable through positions respectively corresponding to said records, means mounted below said frame for predetermining for selection a certain record and for predetermining for playing a series of said records, and means mounted above said frame for predetermining for selection any said record and for predetermining for selection each of any plurality of said records, both of the predetermining means being adapted to control said record selecting mechanism whereby each predetermined record is selected for playing by said phonograph.

18. The combination comprising an automatic phonograph, a source of energy, a control circuit for connecting said source of energy to said phonograph for at least one complete cycle of operation, means including a control device remotely located with respect to said phonograph for predetermining the playing of any record and for predetermining the playing of each of any plurality of records, a pair of switches serially connected in said control circuit, one of said switches being normally open and being closed in response to actuation of said record predetermining means, means holding said switch closed as long as any record predetermined by said predetermining means remains to be played, the other of said switches being normally closed, and means for opening said other switch during each complete cycle of operation of said phonograph whereby said control circuit will be actuated upon each completion of a cycle of operation.

19. The combination comprising an automatic phonograph, a source of energy, a control device for connecting said source of energy to said phonograph, a control circuit for said control device including a coin controlled switch, said control device being actuated in one direction a number of units of distance corresponding to the value of the coins received, means for predetermining the playing of any record and for predetermining the playing of each of any plurality of records, a normally open switch and a normally closed switch serially connected across said coin controlled switch, means responsive to the actuation of the predetermining means for closing said normally open switch, means holding said switch closed as long as any record predetermined by said predetermining means remains to be played, and means for opening said normally closed switch during each cycle of operation of said phonograph whereby said control device will be actuated at the end of each complete cycle of operation as long as said normally open switch remains closed.

20. In a coin controlled automatic phonograph, the combination of a control device operated in accordance with the value of the coins received by said phonograph, said control device operating to energize said phonograph for one or more complete cycles of operation in accordance with the number of times it is operated, coin controlled means for predetermining the playing of any record and for predetermining the playing of each of a plurality of records including a switch arranged to be closed upon predetermination of a record or a plurality of records, means closing said switch as long as any records predetermined to be played remain to be played, and switch means operated at the end of each complete cycle of operation of said phonograph, said latter switch means being connected between said control device and said switch of said coin controlled record predetermining means whereby said control device will be actuated once at the end of each complete cycle of operation of said phonograph thereby to control the energization of said phonograph for a number of complete cycles of operation corresponding to the total value of coins received by said phonograph and said coin controlled means.

21. In an automatic phonograph, the combination comprising means for predetermining the playing of any record and for predetermining the playing of each of a plurality of records including a switch, means responsive to the predetermination of one or a plurality of records for closing said switch and holding the same closed as long as any record predetermined by the predetermining means remains to be played, a control circuit for said phonograph including said switch and a normally closed switch connected in series therewith, a power circuit for said phonograph including a normally opened switch, said power circuit switch being closed in response to said control circuit, means operated at the end of each cycle of operation of said phonograph for opening said power circuit switch, and means operated by said phonograph for opening the second said control circuit switch during each cycle of operation and for closing said switch at the end of the complete cycle of operation whereby said control circuit will reclose said power circuit switch if any record predetermined by said first means remains to be played.

22. The combination in an automatic phonograph comprising a plurality of record carriers arranged in stack formation, a record selector mechanism operable to select any one of said record carriers and to select one at a time each of any plurality of said record carriers whereby to select for playing the record in each selected record carrier, means in said phonograph for controlling said selector, a plurality of remotely positioned actuating mechanisms for the selector control means each manually operable to predetermine for selection by said selector mechanism any one of said records and each of any plurality of said records, means in each said actuating mechanism for rendering all of the other said actuating mechanisms ineffective during manual operation of any one of them and for rendering them effective upon completion of the manual operation of the said one of said actuating mechanisms and before the playing of any record predetermined by the said one of said actuating mechanisms, means for operating said phonograph to play all records predetermined by each operated actuating mechanism and selected by said selector mechanism, and busy signal means

on each actuating mechanism automatically operable upon operation of the associated actuating mechanism during control of said selector mechanism by any of the other of said actuating mechanisms for indicating that said selector control mechanism is being actuated by another of said actuating mechanisms.

23. The combination in an automatic phonograph comprising a plurality of record carriers arranged in a stack formation, a reciprocable record selector mechanism operable to select any one of said record carriers and to select one at a time each of any plurality of said record carriers whereby to select for playing the record in each selected record carrier, means including slidable stop members and solenoids in said phonograph for controlling said reciprocable selector mechanism, actuating means for the selector control means located at a distance from said phonograph for predetermining for selection by said selector mechanism any one of said records and each of any plurality of said records, and means controlled in part by said stop members for operating said phonograph to play each record predetermined by the predetermining means and selected by said selector mechanism.

24. The combination in an automatic phonograph comprising a plurality of record carriers arranged in stack formation, a record selector mechanism operable to select any one of said record carriers and to select one at a time each of any plurality of said record carriers whereby to select for playing the record in each selected record carrier, means in said phonograph for controlling said selector, a plurality of remotely positioned actuating mechanisms for the selector control means each manually operable to predetermine for selection by said selector mechanism any one of said records and each of any plurality of said records, and means for operating said phonograph to play all records predetermined by each operated actuating mechanism and selected by said selector mechanism.

25. The combination comprising a reciprocable selector mechanism having a plurality of selecting positions at each of which said selector mechanism is operable to effect selection, means for reciprocating said selector mechanism throughout the range of said selecting positions, automatic control means for interrupting the movement of said selector mechanism in one direction at any one of said selecting positions and for interrupting the movement of said selector mechanism in the same direction at each of any orderly series of said selecting positions, a second control means for interrupting the movement of said selector mechanism in said direction at any one of said selecting positions and for interrupting its movement in such direction at each of any plurality of said selecting positions, a third control means for interrupting the movement of said selector mechanism in said direction at any one of said selecting positions and for interrupting its movement in such direction at each of any plurality of said selecting positions, local coin controlled actuating means for predetermining the movement of and the particular positions at which the movement of said selector mechanism will be interrupted by said automatic and second control means, and remotely located coin controlled actuating means for predetermining the movement of and the particular positions at which the movement of said selector mechanism will be interrupted by the third said control means.

26. The combination comprising an automatic

multirecord phonograph, means for locally predetermining the playing of any record therein and any plurality of records therein and for remotely predetermining the playing of any said record and each of any plurality of said records, means for operating the phonograph for a number of cycles of operation equal to the number of records predetermined locally and remotely, and a record selector controlled by the predetermining means and operable by the operating means to effect the selection of each predetermined record.

27. The combination comprising an automatic multirecord phonograph, means thereon for predetermining the playing of any record therein and any plurality of records therein, remotely located means for predetermining the playing of any said record and each of any plurality of said records, selector control means in said phonograph for each of the first and second mentioned means and respectively actuatable thereby, means for operating the phonograph for a number of playing cycles equal to the number of records predetermined locally and remotely, and selector means controlled by said selector control means and operable by the operating means to effect selection of all records predetermined by the first and second said means.

28. The combination comprising a multirecord automatic phonograph, a plurality of means each for predetermining the playing of one record and for predetermining the playing of a plurality of records, at least one of said means including actuating means located at a distance from said phonograph, means responsive to the operation of one of the predetermining means for rendering ineffective all of the other predetermining means without rendering any of said other predetermining means inoperative, and means automatically operable upon the playing of the last record predetermined by the said one of said predetermining means for restoring the effectiveness of all of the other said predetermining means, whereby all records predetermined by each of said predetermining means will be played.

29. The combination comprising a multirecord automatic phonograph, a plurality of means for predetermining the playing of a record and for predetermining the playing of a plurality of records, at least one of the predetermining means including actuating means located at a distance from said phonograph, a selector common to all of said predetermining means and adapted to select one at a time the predetermined records to be played, means responsive to the operation of that predetermining means including the remotely located actuating means for rendering ineffective but not inoperative all of the other predetermining means until the last record predetermined by the remotely actuated predetermining means has been played, and means for thereafter automatically restoring the effectiveness of all of the other predetermining means to cause the selection of records meanwhile predetermined thereby.

30. The combination comprising a plurality of individually movable members, selector means for selecting for movement said movable members, local means controlling said selector means for predetermining a said member to be moved and for predetermining a plurality of said members to be moved, remotely located means controlling said selector means for predetermining any said member to be moved and for predetermining each of any plurality of said members to be moved,

means for moving any said member predetermined by either of the predetermining means and for moving one at a time all of the said members predetermined by each of the predetermining means, and means responsive to the operation of the remotely located predetermining means for rendering ineffective but not inoperative the local predetermining means until each member predetermined by the remotely located predetermining means has been selected by said selector means, and for thereupon restoring the effectiveness of said local predetermining means to cause the selection of each member to be moved predetermined thereby.

31. The combination comprising a multirecord automatic phonograph, a plurality of selector control means for predetermining the playing of a record and for predetermining the playing of a plurality of records, at least one of said selector control means including actuating means located at a distance from said phonograph, a selector mechanism having selector devices respectively cooperable with said selector control means to select one at a time all of the records predetermined by each said selector control means, means responsive to the operation of that selector control means including the remotely located actuating means for moving the selector device corresponding to each of the other selector controlling means out of cooperative relationship therewith, means for holding each such selector device out of cooperative relationship while all records predetermined by the selector control means including the remotely located actuating means are played, and means for automatically restoring at least one of said selector devices to cooperative relationship with its said selector control means upon the playing of the last record predetermined by said selector control means including the remotely located actuating means.

32. In a multirecord automatic phonograph the combination comprising record storage means for a plurality of records, a record selector mechanism movable to positions respectively corresponding to the records in said record storage means, a plurality of reciprocable stop members corresponding in number to the number of records in said storage means and individually movable into the path of said selector mechanism to stop the same at the positions of the respectively corresponding records, means for operating said selector mechanism at each such position to effect the selection of the corresponding record, a plurality of electromagnets, one for each said stop member, adapted when energized to move the respective stop members into the path of said selector mechanism, means on said selector mechanism and operable therewith when it is operated to effect selection for moving each stop member out of the path of said selector mechanism as selection of the corresponding record is effected, and means adapted to selectively energize said electromagnets for predetermining any record and for predetermining each of any plurality of said records for selection by said selector mechanism and playing by said phonograph.

33. In a multirecord automatic phonograph, the combination of electromagnetically operable phonograph control means for accumulating predetermined numbers of playing cycles, electromagnetic means in said phonograph for operating said control means, means in said phonograph adapted to operate said control means for dispensing the accumulated playing cycles one at a time, coin operated switch means located in

said phonograph and arranged in circuit with said electromagnetic means for actuating said control means for a number of cycles determined by the coin value employed to operate said coin operated switch, other switch means located in said phonograph and electrically connected in parallel with said coin operated switch means for actuating said control means, and coin controlled

means located at a distance from said phonograph for actuating said switch means to cause the operation of said control means for a number of cycles determined by the coin value employed in the remotely located coin controlled means.

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