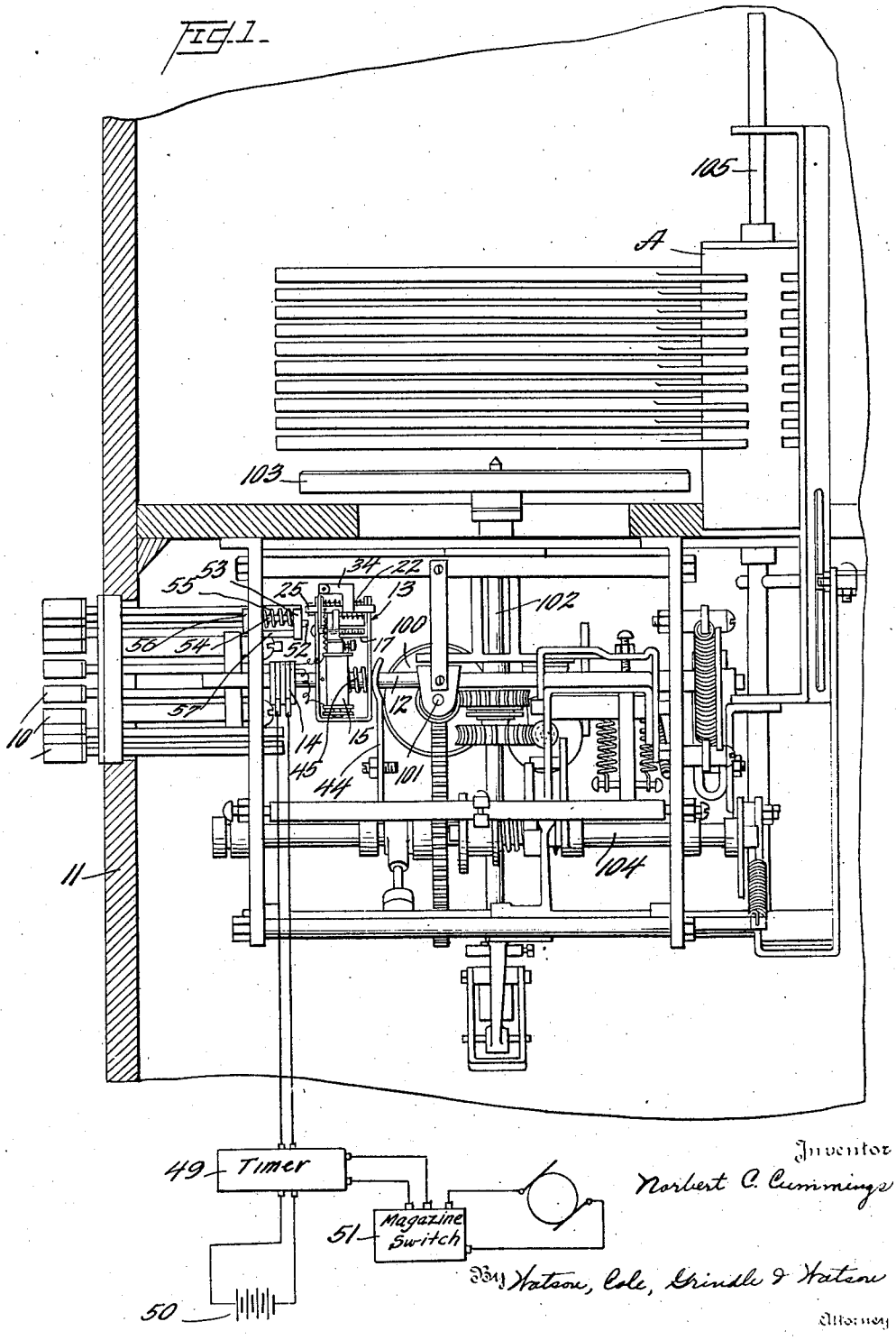
May 6, 1941. N. C. CUMMINGS 2,240,609

AUTOMATIC PHONOGRAPH RECORD SELECTING MECHANISM

Filed Oct. 16, 1939 5 Sheets-Sheet 1

FIG. 1.



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FIG. 2.

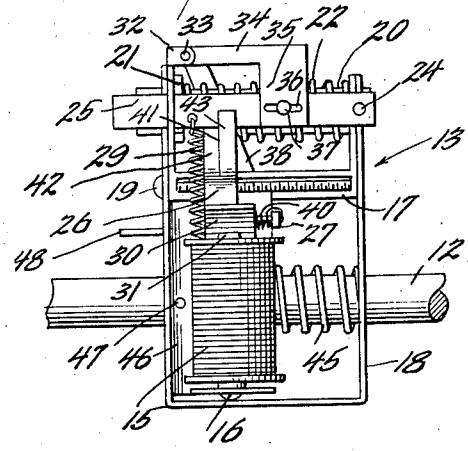


FIG. 4.

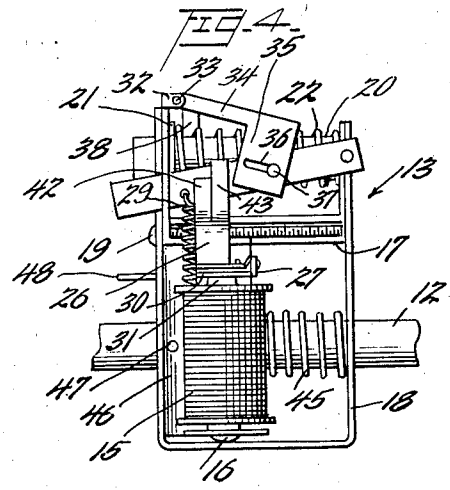


FIG. 3.

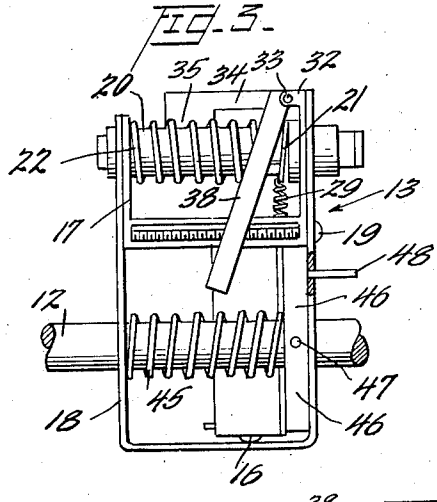


FIG. 5.

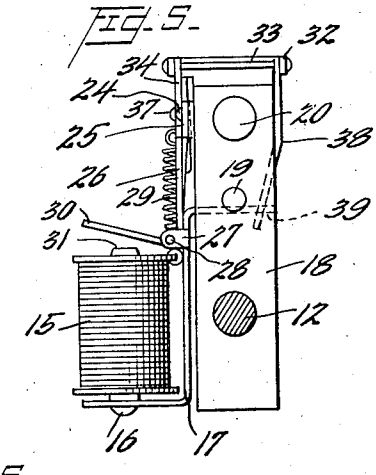
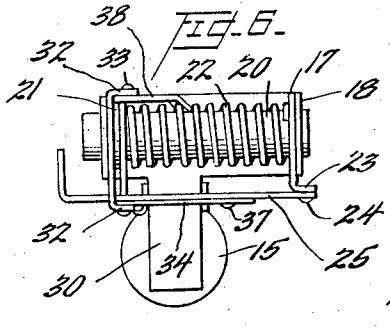


FIG. 6.



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AUTOMATIC PHONOGRAPH RECORD SELECTING MECHANISM

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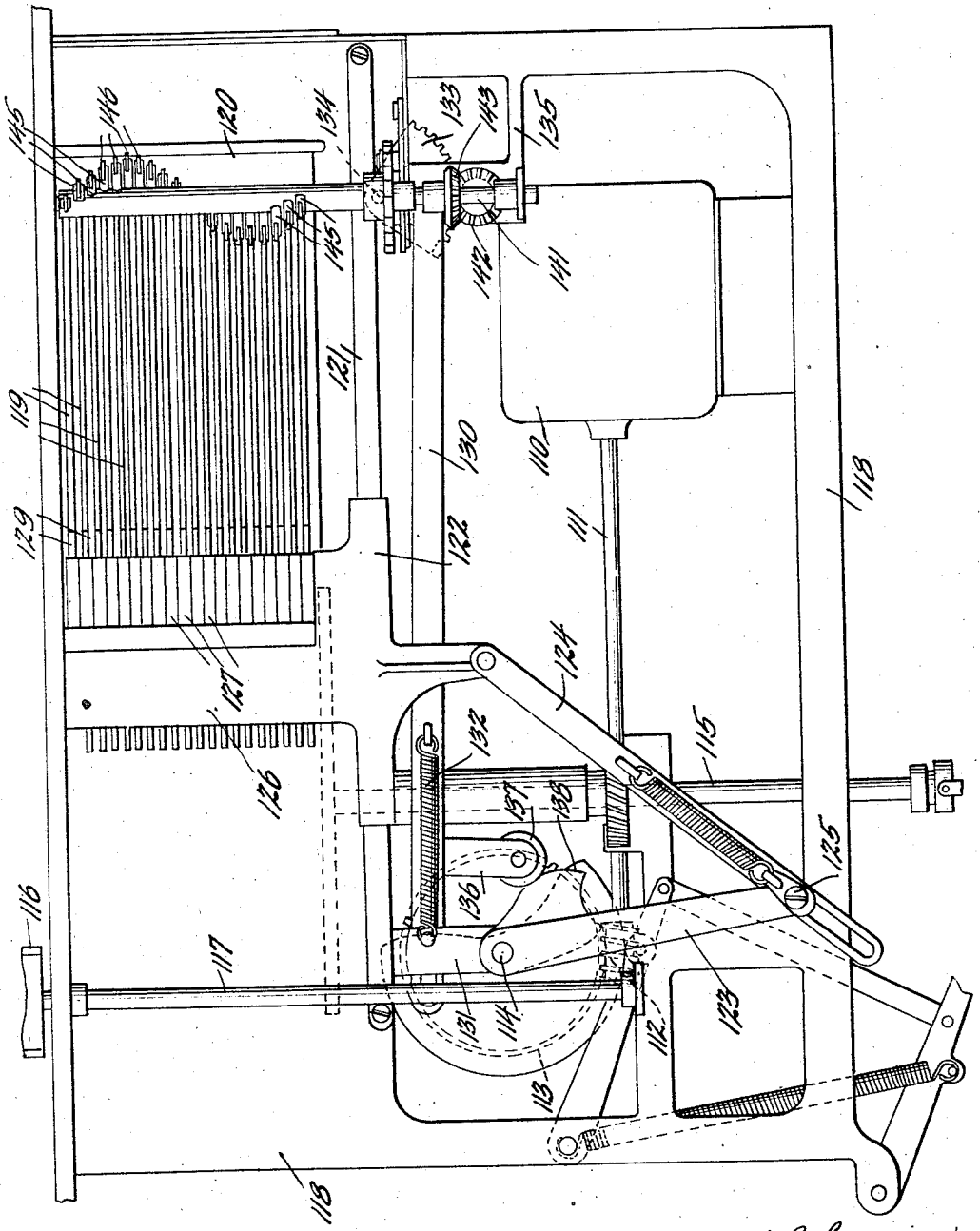


FIG. 7.

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AUTOMATIC PHONOGRAPH RECORD SELECTING MECHANISM

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FIG. 8.

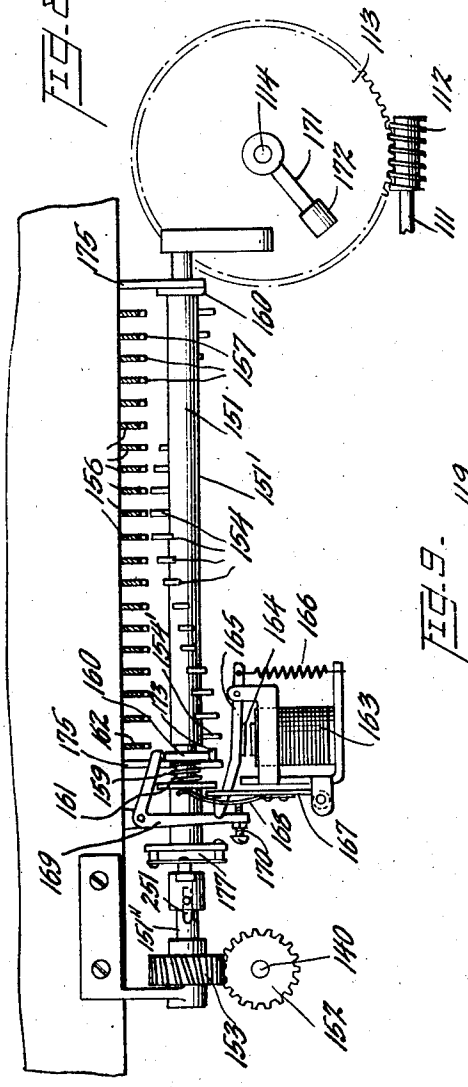


FIG. 10.

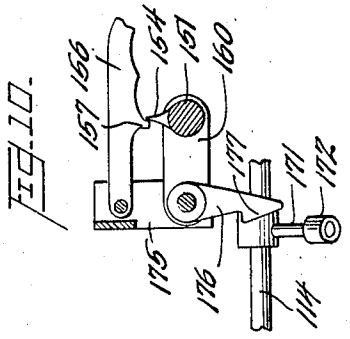
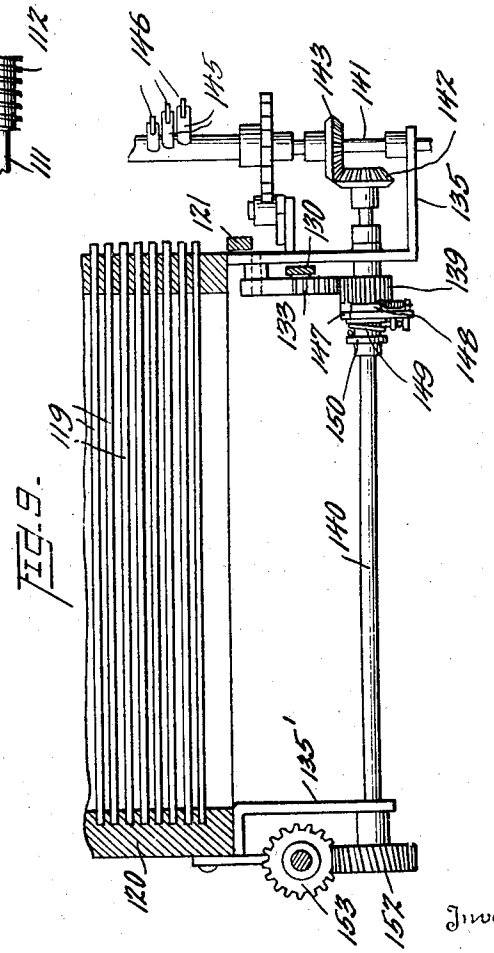


FIG. 9.



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AUTOMATIC PHONOGRAPH RECORD SELECTING MECHANISM

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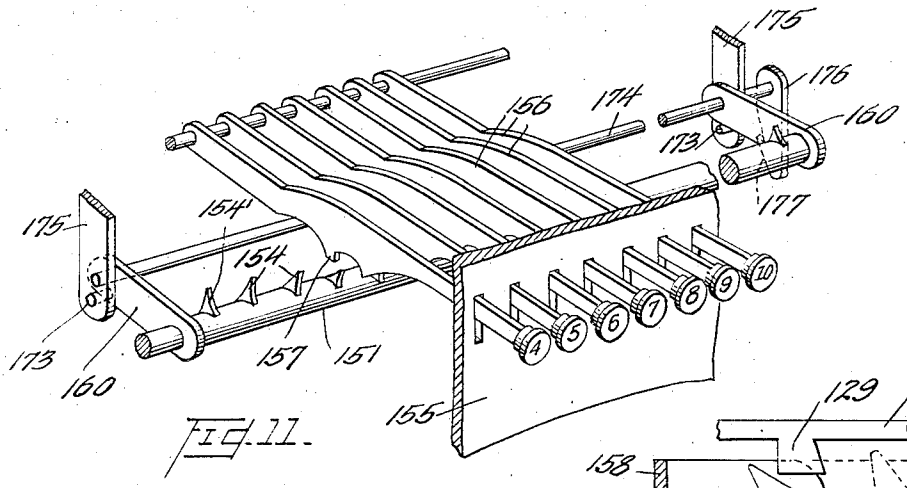


FIG. 11.

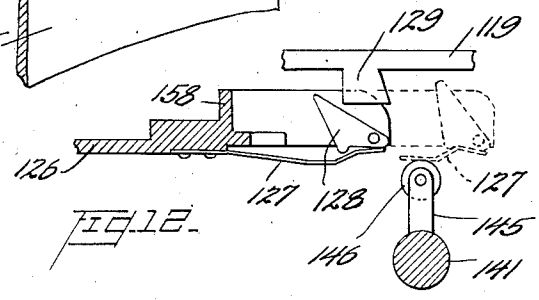
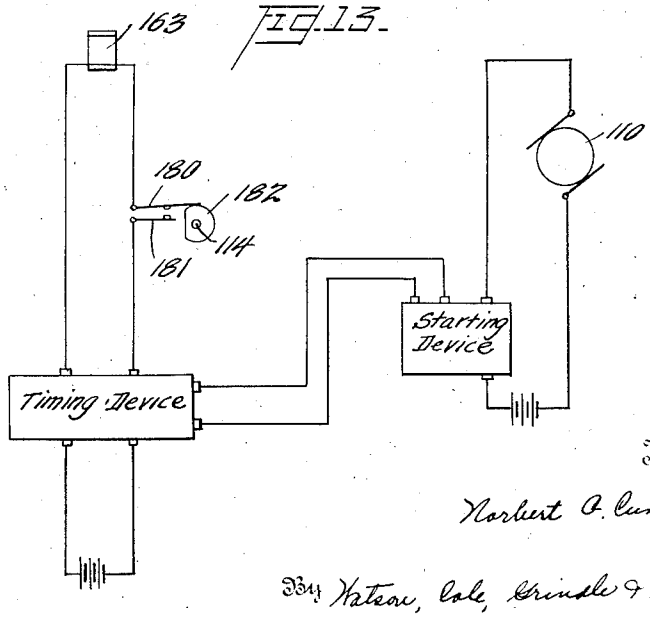


FIG. 12.

FIG. 13.



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Patented May 6, 1941 2,240,609

UNITED STATES PATENT OFFICE

2,240,609

AUTOMATIC PHONOGRAPH RECORD SELECTING MECHANISM

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Application October 16, 1939, Serial No. 299,744

9 Claims. (Cl. 274—10)

The present invention relates to automatic phonographs and is a continuation-in-part of my earlier application Serial No. 244,841. The invention relates particularly to phonographs of the type having means for supporting a plurality of phonograph records and means for selecting and playing a record or series of records. Many such phonographs are well known and have gone into wide public use in taverns, restaurants, dance halls and like places. Such phonographs comprise, generally, the usual turntable and sound-producing means, means for supporting a plurality of records in such a manner that the records may be selectively or serially disposed on the turntable, played, and returned to normal position, manually operable means whereby a patron may select a record or a group of records to be played, a motor for driving the aforesaid mechanism, and coin controlled means for closing the circuits to said motor and sound-producing mechanism.

The general object of the present invention is the provision of novel means, in combination with the known selecting mechanism of such phonographs, for automatically and periodically starting up the phonograph and causing a particular record to be played.

A further object of the invention is the provision of a mechanism of the type described which will not interrupt a record which is being played at the time when the automatic selecting device is energized, but which will permit the playing of such record to be completed, after which the pre-selected record associated with the present invention will be played. The device of the present invention is so constructed and arranged that, if the pre-selected record is played intermediate a series of records which have been manually selected by a patron, the remaining records of the series will be played following the playing of the pre-selected record, without the necessity of any further manipulation by the patron or others.

A further object of the present invention is the provision of a device of the type described which is simple in construction, inexpensive, and may be quickly and easily installed in the phonograph.

Certain of the automatic phonographs now in wide use include record selecting mechanism which comprises a movable member adapted by the extent of its movement to control the selection of a record, and means for selectively stopping the movement of such movable member in accordance with the desires of the patron. Therefore, it is an object of the present invention to provide means for automatically and periodically actuating said movable member, and means for stopping said movable member in the position corresponding to the particular record which it is the purpose of the present invention to play. To this end it is a further object of the present invention to provide, in a phonograph of the type described, selecting means comprising a movable member and a plurality of manually operative selector elements cooperative with said movable member for selectively limiting the movement of the latter, an auxiliary selector element adapted to engage the movable member and limiting its movement for selecting a particular record, and means for periodically establishing a cooperative relation between the movable member and the auxiliary selector element.

A further object is the provision of an automatic selecting device in accordance with the foregoing object, together with means for temporarily interrupting the cooperative relation of the movable member and the manually operative selector elements.

Another object is the provision, in a phonograph of the type described, of an automatic selecting and actuating device which will be prevented from operating during the brief period in which the phonograph is changing a record in response to an manual selection, but will go into operation immediately thereafter and thus insure that the pre-selected record will be played following the record which has been manually selected.

Other and further objects, features and advantages of the present invention will be apparent to one skilled in the art from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a side elevational view of a phonograph mechanism embodying the present invention;

Figure 2 is a side elevational view, on an enlarged scale, of that portion of the mechanism which comprises the principal features of the present invention;

Figure 3 is a view similar to Figure 2 but showing the mechanism in a different operative position;

Figure 4 is a side elevational view, looking from the opposite direction, of the mechanism of Figure 2;

Figure 5 is an end elevation of the device of Figures 2–4;

Figure 6 is a top view of the device of Figures 2–5;

Figure 7 is a rear elevation of a portion of the

mechanism of a different type of phonograph than that illustrated in Figure 1, to which a modified form of the present invention is applied;

Figure 8 is a longitudinal vertical section of a portion of the mechanism illustrated in Figure 7, showing the record selecting mechanism with the present invention applied thereto;

Figure 9 is a view partly in section and partly in elevation, showing a portion of the record selecting mechanism of Figure 7;

Figure 10 is an enlarged detail view showing a portion of the mechanism of Figure 8;

Figure 11 is a perspective view of a portion of the mechanism of Figure 8, illustrating partly the manually operative selector elements;

Figure 12 is a detail view illustrating a portion of the record selecting mechanism of Figure 7; and

Figure 13 is a conventional circuit diagram illustrating the electrical circuits employed in connection with the modification illustrated in Figures 7–12.

In order to facilitate an understanding of the invention, reference is made to the embodiments thereof shown in the accompanying drawings and detailed descriptive langugage is employed. It will nevertheless be understood that no limitation of the invention is thereby intended and that various changes and alterations are contemplated such as would ordinarily occur to one skilled in the art to which the invention relates.

As best seen in Figure 1, the instant invention, in its first illustrative embodiment, is shown as applied to a phonograph of the type described in Patent No. 2,002,236, granted to R. I. Wilcox, but it is understood that the present invention may be equally well applied to other types of phonographs.

Referring to Figure 1, the phonograph mechanism comprises generally a motor **100**, a motor shaft **101**, a vertical shaft **102**, carrying a turntable **103**, a cam shaft **104**, and a selector shaft **12**. There is also a record holding assembly indicated generally at A, the movements of the records into and out of playing position being effected through the medium of a vertical shaft **105**. The shafts **102**, **104**, **12** and **105** are driven from the motor shaft **101** in the manner fully described in said Patent No. 2,002,236, and this mechanism need not be further described herein, but it will be understood that when the expression "conventional" is hereinafter employed, it is intended to refer to the mode of operation set forth in said prior patent.

Referring to Figure 1, there is shown therein the customary manually operated selector elements **10** mounted in a chassis **11** in the customary manner. There is also shown a selector shaft **12** with a cancelling bracket assembly generally indicated at **13**, the shaft and assembly being similar to that shown in said Patent No. 2,002,236 but, as shown herein, having certain parts removed and others added to perform the functions of this invention as set forth in the objects of the invention stated above.

To carry out the present invention, there is provided a rotary contact device **14** affixed to the shaft **12** and electrically connected by flexible wires to an electromagnet **15** which is, in turn, mounted by means of a bolt **16** or the like upon an inner bracket **17** which is rigidly held within an outer U-shaped bracket **18** by means of a bolt **19**.

At the upper ends of the brackets and extending through the same is slidably mounted a contact shaft **20** which is yieldably held in normal position by means of a snap washer **21** and a coil spring **22** which bears against the inner side of the inner bracket **17** at one end and the snap washer **21** at the other end.

To an annular integral extension **23** at the upper end of the inner bracket **17** is pivotally mounted by means of a shoulder bolt **24** a normally horizontally extending stop arm **25** which, in normal condition, is held in position by means of a downwardly extending latch member **26** which is pivotally mounted upon ear extensions **27** protruding from the inner bracket **17** by means of a pin or shaft **28**.

The stop arm **25** is held against the latch **26** when in normal condition by means of a spring **29** which interconnects it and the inner bracket **17**.

Formed integrally with the latch **26** is an outwardly extending portion **30** which is adapted to overlie the core **31** of the magnet **15**. Pivotally mounted upon ears **32** by means of a pin **33** is a normally horizontally extending resetting arm **34** having a depending lug **35** which is provided with a longitudinally extending slot **36** in which is adapted to move a stud **37** which is affixed to the stop arm **25**.

The resetting arm **34** is secured to one end of the pin **33** and at the other end of the pin there is secured an actuating arm **38** which is bent inwardly at its lower end and which extends through a slot **39** as best shown in Figure 5.

A spring **40** abuts one ear **27** and is so mounted as to urge the latch **26** clockwise as shown in Figure 5 and its upper end against the stop arm **25** as best shown in Figure 2.

The upper end of the latch **26** is split vertically for a portion of its length as indicated at **41** and one of the two divided portions thus formed is cut to a shorter length **42** than the other and bent slightly inwardly to engage the lower side of the stop arm **25**, the longer portion **43** being adapted to abut the stop arm **25** and thus align the portion **42** with the bottom of the arm **25**.

A bracket assembly actuating arm **44**, which is actuated upon each rotation of the cam shaft, as fully described in said Patent No. 2,002,236, is adapted to move the assembly **13** against the action of a spring **45** which surrounds the shaft **12** and abuts the bracket **18** at one end and a bar **46** at the other end. The bar **46** is rigidly affixed to the shaft **12** by means of a pin **47** and carries adjacent one end a pin **48** mounted in parallelism with the shaft **12** and extending through an opening in the outer bracket **18**.

A timing mechanism **49**, a source of power **50** and a magazine switch or starting mechanism **51** are electrically interconnected by wires as indicated schematically in Figure 1. The function of the magazine switch is to control the circuit including the motor **100**, as set forth in said prior patent.

In operation, when the predetermined time period has elapsed, the timing device **49** will supply current momentarily to the magazine switch **51** and the magnet **15** by mechanisms in the timing device not shown herein and not forming a part of the present invention.

Such action, with respect to the magazine switch, starts the standard phonograph mechanisms into motion, and, with respect to the magnet **15**, energizes the same, thus causing the outwardly extending portion **30** of the latch **26** to move downwardly thereby releasing the latch from engagement with the stop arm **25**, thus

allowing the spring 29 to cause the stop arm 25 to move downwardly into the position shown in Figure 4.

In this position it will be apparent that the free end of the stop arm will now travel, upon rotation of the shaft 12, in a different orbit from that of the contact shaft 20, whereupon it will be seen that the free end of the arm must, upon sufficient rotation, engage an auxiliary selector element 52 carried by a plate 53 mounted upon the inner end of an auxiliary selector rod 54. A spring 55 surrounds the rod 54 and tends to urge it into inwardly extended position and the rod is limited in its inward movement by a snap washer 56. The plate 53 carries a locking rod 57 which is likewise slidably mounted in the chassis, thus preventing rotation of the rod 54.

When the stop arm 25 becomes engaged with the selector element 52, it will be seen that the cancelling bracket assembly 13 is caused to cease its rotation in exactly the same manner as when it engages with the manually operated selector elements 10.

When the stop arm is engaged with the element 52, the particular position of the shaft 12 will cause, in the conventional manner, the playing of a pre-selected record. When the stop arm is in normal condition, as shown in Figure 2, it will cause the phonograph to play whatever records are manually selected by pushing in the elements 10 in the customary manner.

It will readily be apparent that when, for example, a player has selected five records to be played by means of having deposited the necessary coins in the standard coil controlled apparatus and having pressed the proper number of selector elements 10, that if, for example, the phonograph is playing the second of the series of the manually selected records, when the timing device acts in the manner above set forth, the present invention will not interfere with the continued playing of such second record but will allow the same to complete its cycle and will thereupon interrupt the playing of the series to the extent of playing the pre-selected record and will thereupon complete the playing of the series when the arm 25 is returned automatically to its normal position, as shown in Figure 2, by utilizing the action of the arm 44 moving the cancelling bracket assembly 13 in the conventional manner.

The arm 25 is returned to the normal position shown in Figure 2 by the bar 46 moving the actuating arm 38 to the position shown in Figure 3 through the movement of the cancelling bracket assembly 13, thus causing an upward movement of the resetting arm 34 through the movement of the pin 33 and at the same time causing the depending lug 35 to raise the arm 25 by means of the stud 37 and in this manner allowing the latch to again assume its normal position due to the action of the spring 40.

It will also be readily apparent to those skilled in this art that the principle herein disclosed, namely that of automatically removing the stop mechanism from its normal position so that it may be engaged elsewhere without interference with the manual operation of the phonograph in order to become engaged in a predetermined position with relation to the playing mechanism and thus causing the phonograph to play periodically a predetermined record, is capable of modifications with respect to other conventional automatically played phonographs without departing from the spirit of the invention or the scope of the claims herein made.

One such modification is illustrated in Figures 7–13, and will now be described. Referring to Figure 7, which illustrates a portion of the mechanism of a phonograph of somewhat different type from that illustrated in Figure 1, the reference character 110 designates a motor, the shaft 111 of which carries a worm 112 meshing with a worm wheel 113 secured on the cam shaft 114. The turntable shaft 115 is also driven from the motor shaft 111 in any suitable manner, the particular means employed for this purpose forming no part of the present invention. Similarly, the tone arm 116 is carried on a shaft 117 which is driven from the motor shaft 111 in the conventional manner, the details of which form no part of the present invention.

The motor, the several shafts mentioned above, and the mechanism to be hereinafter described, are supported in conventional fashion on a frame designated generally by the reference character 118. A plurality of phonograph records are supported on record carriers 119 which are slidably mounted in a framework 120, and are adapted to be shifted into and out of playing position by mechanism now to be described. The latter mechanism comprises generally a guide bar 121 secured at its respective ends to the frame 118, and a shifting frame 122 which is slidably mounted on the guide bar 121 and is adapted to be reciprocated thereon by means of a crank 123 secured on the cam shaft 114, and pitman 124, pivotally connected to the shifting frame 122 and having a lost motion connection with the crank 123 as at 125. The shifting frame 122 is provided with an upwardly extending bracket 126 to which are secured a plurality of spring arms 127, one for each record carrier 119, the details of which are best seen in Figure 12. Each spring arm 127 is provided with a catch 128 pivotally secured thereto and adapted for engagement with a lug 129 provided on the edge of each record carrier 119, as hereinafter described.

A reciprocating member 130 has a pin and slot connection on a bracket 131 depending from the frame 118, and is normally urged to the left (Figure 7) by a spring 132. At its opposite end, the member 130 is pinned to a segment gear 133, which is pivoted as at 134 to the vertical portion of a bracket 135 formed on or secured to the frame 118. The member 130 is formed with a downwardly extending bracket 136 provided at its lower end with a cam follower roller 137 for engagement with the cam 138 secured on cam shaft 114. From the foregoing description it will be apparent that as the cam shaft 114 rotates the member 130 is first forced to the right against the tension of spring 132 and is then retracted to the left by said spring, oscillating the segment gear 133 as it moves back and forth. This movement takes place once during each cycle of the cam shaft 114 and hence once during each complete cycle of operation of the phonograph, including the record selecting mechanism.

The segment gear 133 meshes with a pinion 139 which is loosely mounted on shaft 140 which is journalled in the laterally extending portion of the bracket 135 and in a second bracket 135' depending from the frame 120. A vertical shaft 141, supported on and journalled in a laterally extending portion of the bracket 135 is driven from the shaft 140 by means of bevelled gears 142 and 143 (Figure 9). The shaft 141 is provided with a spiral series of arms 145, each of which

carries a small roller 146 at its outer end, each roller 146 being disposed at the level of one of the record carriers 119. A clutch plate 147, loosely mounted on the shaft 140, carries a spring-pressed dog 148, the nose of which is adapted to engage the teeth of the pinion 139 so that the plate 147 will be positively rotated by the pinion 139 in one direction, but will remain stationary when the pinion 139 rotates in the opposite direction. Plate 147 also carries a friction element comprising a short coil spring 149, the coils of which embrace a friction sleeve 150 secured on the shaft 140.

A selector shaft 151 (Figures 8 and 11) is driven from the shaft 140 by means of gears 152 and 153, and is provided with a spiral series of projections 154, each such projection corresponding to one of the record carriers 119, and likewise to one of the rollers 146 carried on the shaft 141. Pivoted adjacent the selector shaft 151 and extending outwardly through the front wall 155 of the phonograph casing there are disposed a plurality of selector elements 156 which are adapted to selectively engage the projections 154 on the selector shaft 151 for the purpose of halting the rotation of the latter at a predetermined point for the purpose of selecting the desired record. Each selector element 156 is provided with a downwardly extending projection 157 for engagement with the corresponding projection 154 of the selector shaft, the several selector elements being maintained in elevated or depressed position by frictional means (not shown). In the normal operation of the machine, when the motor 110 is energized by the deposit of a coin or otherwise, the cam shaft 114 is caused to rotate, which in turn causes the cam 138 to engage cam follower 137, causing the member 130 to be reciprocated. This movement of the member 130 oscillates the segment gear 133, rotating the shafts 140 and 151. If one of the selector elements 156 has been depressed, the projection 157 of such element will extend into the path of the corresponding projection 154 on the selector shaft 151, and when the projection 154 engages the projection 157, the shaft 151 is brought to a stop, the pinion 139 and the clutch plate 147 being permitted to continue to rotate, by reason of the slip clutch previously described, to the full extent caused by the outward movement of the member 130.

As the selector shaft 151, shaft 140 and shaft 141 are all positively interconnected by gearing, it will be obvious that the shaft 141 will rotate to exactly the same extent as the shaft 151, thus positioning the appropriate arm 145 and roller 146 towards the carrier 119 for the selected record. At the same time, the rotation of the cam shaft 114 causes the shifting frame 122 to move to the right, and as the spring arm 127 corresponding to the selected record passes beneath that roller 146 which extends directly toward the record carriers, as illustrated in Figure 12, the catch 128 is forced into position to engage the lug 129 on its retractive movement. Thus, as the frame 122 reaches the extent of its movement and starts to the left, the catch 128 engages the carrier of the selected record and moves it to the left into playing position. The record carrier remains in this position as the turntable is raised, engaging the record and moving it upward into engagement with the tone arm. After this movement has been completed, the rotation of the cam shaft 114 ceases, the rotation of the motor shaft 111 and turntable shaft 115 being permitted to continue until the record has been played. The details of the mechanism for carrying out these latter operations form no part of the present invention and will not be described herein. Upon the initiation of the next cycle of operation, for example by the deposit of a further coin, the carrier for the last record played is returned to normal position when the frame 122 moves to the right, a projection 158 on the frame 122 engaging the lug 129 of the carrier for that purpose.

A feature of the conventional machine of the type in question resides in the means whereby the manually operated selector elements are raised out of operative position after the records to which they correspond have been played. Such means comprise an arm 171 secured on the cam shaft 114 and provided on its end with a roller 172. The shaft 151 is journalled in arms 160 which are secured to rod 174 journalled in brackets 175 depending from the frame 118. The rod 174 carries a depending arm 176 formed with a cam surface 177 for engagement with the roller 172. The brackets 175 are provided, at their lower ends, with stop members 173 for supporting the arms 160 and selector shaft 151 in normal position. At the desired point in the rotation of the cam shaft 114 the roller 172 carried on the arm 171 engages the depending arm 176 and rocks it slightly in a counterclockwise direction as seen in Figure 11. By this movement the rod 174 is rocked, raising the shaft 151 slightly and thus elevating any selector element 156 which happens to be in engagement with a projection 154 on the shaft 151. The shaft 151 is provided with a flexible coupling indicated generally at 177 to permit of this movement.

The foregoing operations are conventional, being those normally carried out by phonographs of the type in question now on the market. In accordance with the present invention, additional mechanisms are provided for carrying out the stated objects, and such additional mechanisms will now be described.

Referring to Figure 8, it will be seen that the shaft 151 is formed of two portions 151′ and 151″, the adjacent ends of the respective portions having a pin and slot connection at 251, so that the portion 151′ which carries the projections 154 may move longitudinally with respect to the portion 151″. A helical spring 159 is interposed between the left-handarm 160, in which shaft 151 is journalled, and a collar 161 secured on the shaft portion 151′ and urges the shaft portion 151′ to the left in Figure 8. In accordance with the present invention, one of the usual selector elements 156 is removed from the machine or is rendered inoperative, and an auxiliary selector element 162 is secured in a position in which it is normally outside of the orbit of the nearest projection 154 on the shaft 151.

Mounted on a bracket suitably supported on the frame 118 there is provided an electromagnet 163, the armature 164 of which is secured on a pivoted latch member 165. The latter is normally maintained in elevated position by means of a tension spring 166. An arm 167 pivoted on the opposite side of the magnet 163 is provided with a slot through which the latch member 165 extends, and is normally maintained in the position illustrated in Figure 8 by engagement with the latch member. A leaf spring 168 carried by the arm 167, engages the collar 160, and normally maintains the shaft portion 151′ in its right hand position as illustrated in Figure

8, wherein the projections 154 are aligned with the selector elements 156. A bell crank lever 169 pivotally supported in the frame of the machine, has one arm extending to a point above the arm 160, and a depending arm provided at its lower end with a stop screw 170, the end of which engages the leaf spring 168 carried by the arm 167.

From the foregoing description it will be apparent that when the magnet 163 is energized, attracting the armature 164, the latch member 165 will be depressed, releasing the arm 167 and thereby releasing the pressure on the collar 161, permitting the spring 159 to move the shaft portion 151' to the left to such an extent that the projections 154 are moved out of alignment with the selector elements 156 and the left hand projection 154' is moved into alignment with the fixed auxiliary selector element 162. Thus, when the phonograph is energized, by means to be hereinafter described, the magnet 163 being simultaneously energized, the shaft portion 151' is moved to the left and the shaft 151 is caused to rotate until the projection 154' engages the auxiliary selector element 162, which corresponds to the predetermined record which it is desired to play at certain intervals. Thus, the predetermined record will be played regardless whether any or all of the manually operated selector elements 156 have been depressed.

In the embodiment according to the present invention, when the shaft 151 is raised in the manner described above, to reset the manual selector elements, the arm 160 engages the horizontal arm of the bell crank lever 169, rocking the latter in a counterclockwise direction, which causes the arm 167 to be moved to the right past the shoulder of the latch member 165. The latter then springs up and engages the outer surface of the arm 167, locking it in normal position. By the same movement, the leaf spring 168 urges the shaft portion 151' toward the right, into normal position, against the pressure of the spring 159. The entire mechanism is thus returned to normal position after each operation of the auxiliary mechanism provided by the present invention.

The electrical circuits employed in connection with the present modification are illustrated in Fig. 13 and are similar to those employed in connection with the modification of Figures 1–6 with the exception that a cam operated switch is interposed between the timing device and the electromagnet 163, to prevent the operation of the latter during the short interval when a record is being changed, thus preventing possible damage to the apparatus, or a possible failure of the device for playing a pre-selected record in accordance with the present invention. The cam switch referred to comprises a pair of spring contact arms 180 and 181, the upper arm having an extension which engages the periphery of a cam 182 carried by the cam shaft 114. The cam 182 is so formed that during that portion of the rotation of the cam shaft 114 in which the record changing operation takes place, the contact arm 180 is maintained out of engagement with contact arm 181. When the cam shaft 114 comes to rest, the contact arm 180 is permitted, by the flattened side of the cam 182, to engage the contact arm 181, closing the circuit from the timing device to the magnet 163. Thus the magnet is capable of being energized by operation of the timing device at all times except during the brief interval in which the cam shaft 114 describes a portion of a single revolution. In the event that the timing device operates to close the circuit during the brief period when the contact arms 180 and 181 are disengaged, the current impulse from the timing device will be of sufficient duration to extend beyond such brief interval and energize the magnet 163 after the contact arms 180 and 181 have been permitted to engage by rotation of the cam 182.

The principle of operation of the modification just described is identical with that of the modification of Figures 1–6. That is to say, the timing device will periodically close the circuit to the starting device and also to the magnet 163, thus energizing the motor 110 and the magnet. The selector shaft 151 will thus be caused to rotate, the shaft portion 151' first being moved to the left so as to move the projections 154 out of alignment with the manually operated selector elements and the projection 154' into alignment with the fixed auxiliary selector element 162. Thus, each time the device is so energized, the record corresponding to the fixed selector element 162 will be caused to play, after which the apparatus will be returned to normal condition so that any of the remaining records may be manually selected and played.

The term "record," as employed in the foregoing description and in the appended claims, is intended to refer to sound recordings generally, whether such record takes the form of a disc, cylinder, ribbon, film, or any other known type of sound record adapted for reproduction by a phonograph or the like.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In an automatic phonograph of the type having a plurality of records and means for selecting and playing said records, said selecting means comprising a movable member and a plurality of manually operative selector elements cooperative with said movable member for selectively limiting the movement of the latter, a projection on said movable member adapted to move in an orbit, and means for periodically causing said movable member to move into a predetermined position corresponding to one of said records, said last means comprising means for periodically actuating said movable member, an auxiliary selector element arranged outside of the normal orbit of said projection, and automatic means for altering the orbit of said projection to cause the latter to engage said auxiliary selector element.

2. In an automatic phonograph of the type having a plurality of records and means for selecting and playing said records, said selecting means comprising a selector shaft adapted by the extent of its rotation to control the selection of a record, an arm carried by said selector shaft and adapted to move in an orbit, and a plurality of manually operative selector elements adapted to be selectively disposed in said orbit, an auxiliary selector element arranged outside of said orbit, a motor for driving the moving parts of said phonograph including said selector shaft, means for periodically energizing said motor, and means for simultaneously altering the position of said arm to cause it to move in an orbit which excludes said manually operative selector elements and includes said auxiliary selector element.

3. In an automatic phonograph of the type having a plurality of records and means for

selecting and playing said records, said selecting means comprising a selector shaft adapted by the extent of its rotation to control the selection of a record, an arm carried by said selector shaft and adapted to move in an orbit, and a plurality of manually operative selector elements adapted to be selectively disposed in said orbit, an auxiliary selector element arranged outside of said orbit, a motor for driving the moving parts of said phonograph including said selector shaft means for periodically energizing said motor, and means for simultaneously altering the position of said arm to cause it to move in an orbit which excludes said manually operative selector elements and includes said auxiliary selector element, said last means including spring means for urging said arm toward its altered position, a latch member adapted normally to maintain said arm in its normal position, and an electromagnet for actuating said latch to permit said arm to move to its altered position.

4. In a device according to claim 3, an electric circuit including a source of power and said electromagnet, a second circuit including a source of power and a magazine switch, and a timing device adapted to periodically, simultaneously and momentarily close said circuits.

5. In an automatic phonograph of the type having a plurality of records adapted to be selectively played, record selecting means comprising a movable member having a plurality of projections thereon adapted to move in separate orbits, a plurality of manually operative selector elements cooperative with the projections on said movable member for selectively limiting the movement of the latter according to the record selected, and auxiliary selector element disposed outside the normal orbits of said projections, and means for actuating said movable member and shifting it to cause the orbit of one of said projections to intersect said auxiliary selector element, whereby said last-mentioned projection is caused to engage said auxiliary selector element.

6. In an automatic phonograph of the type having a plurality of records adapted to be selectively played, record selecting means comprising a rotatable selector shaft having a plurality of projections arranged thereon in a spiral series, a plurality of manually operative selector elements cooperative with the projections on said movable member for selectively limiting the movement of the latter according to the record selected, an auxiliary selector element disposed outside the normal orbits of said projections, and means for actuating said movable member and shifting it to cause the orbit of one of said projections to intersect said auxiliary selector element, whereby said last-mentioned projection is caused to engage said auxiliary selector element.

7. A device according to claim 5, said last means comprising a motor for driving said phonograph including said record selecting mechanism, a magazine switch for controlling the supply of energy to said motor, spring means for shifting said movable member, latch means for maintaining said movable member in normal position, an electromagnet for releasing said latch means, and a timing device adapted to simultaneously close the circuits to said magazine switch and said electromagnet.

8. A device according to claim 5, said last means comprising a motor for driving said phonograph including said record selecting mechanism, a magazine switch for controlling the supply of energy to said motor, spring means for shifting said movable member, latch means for maintaining said movable member in normal position, an electromagnet for releasing said latch means, a timing device adapted to simultaneously close the circuits to said magazine switch and said electromagnet, and a switch in series with said electromagnet and controlled by the record selecting mechanism to open the electromagnet circuit during record-changing operations.

9. In an automatic phonograph of the type having a plurality of records and means for selecting and playing said records, a frame, a selector member rotatably supported on said frame, a plurality of manually operable selector elements movably mounted on said frame and adapted to be moved into engageable relation to said rotatable member for limiting the rotation of the latter according to the record selected, an auxiliary selector element supported on said frame adjacent said rotatable member in such relation thereto as not to be engageable therewith during normal operation of said rotatable member, and means for periodically shifting said rotatable member out of engageable relation to said manually operable selector elements and into engageable relation to said auxiliary selector element, and energizing said rotatable member.

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