Sept. 2, 1941. D. ROBINS 2,254,546

AUTOMATIC PHONOGRAPH

Filed June 22, 1940 3 Sheets-Sheet 1

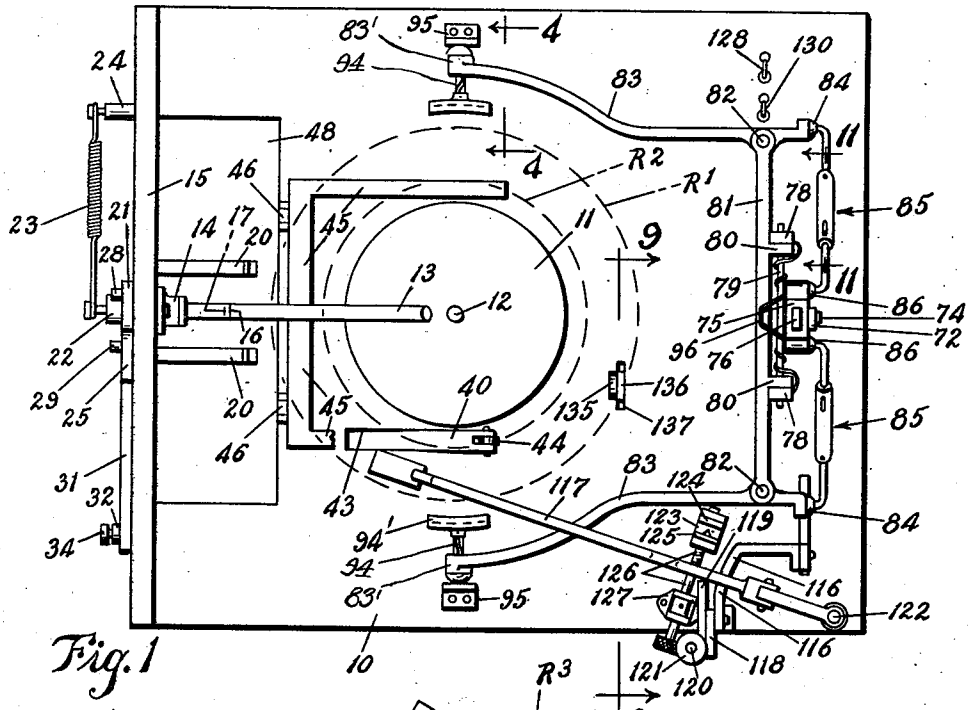


Fig. 1

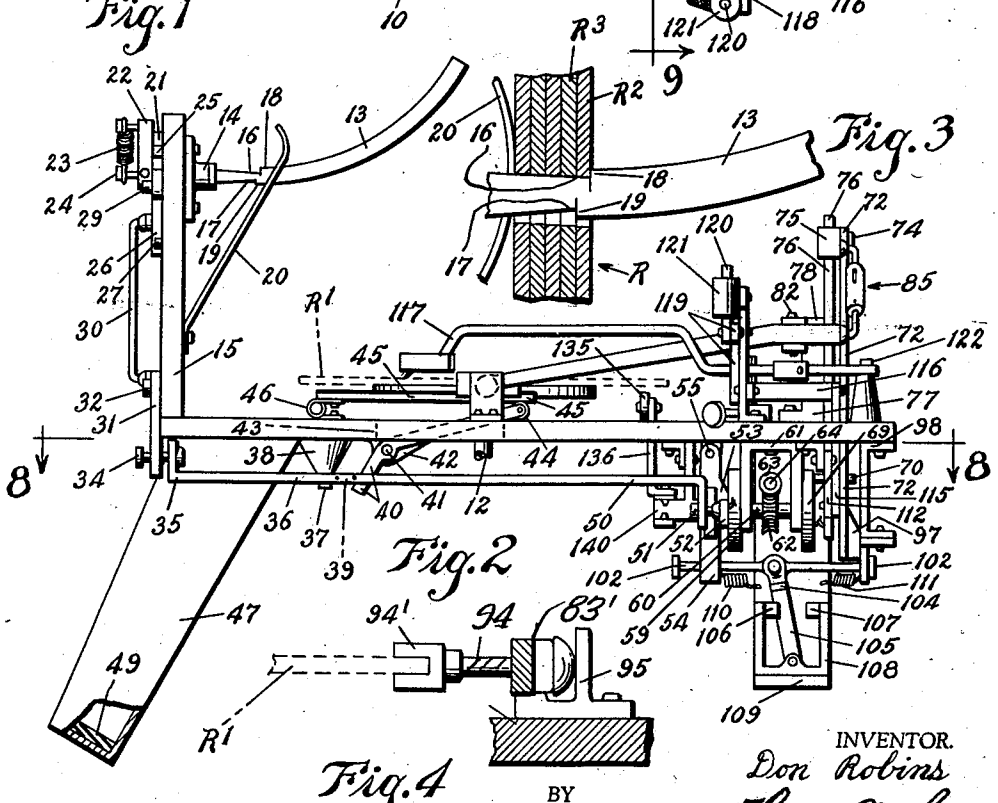


Fig. 2

Fig. 3

Fig. 4

INVENTOR.
Don Robins
BY
Henry Moltz
ATTORNEY

Sept. 2, 1941. D. ROBINS 2,254,546

AUTOMATIC PHONOGRAPH

Filed June 22, 1940 3 Sheets-Sheet 2

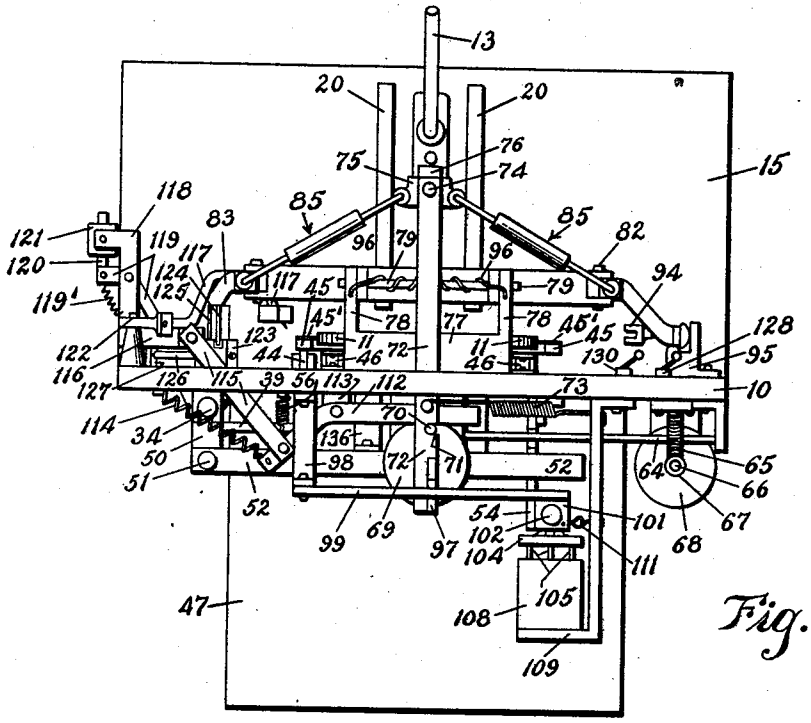


Fig. 5

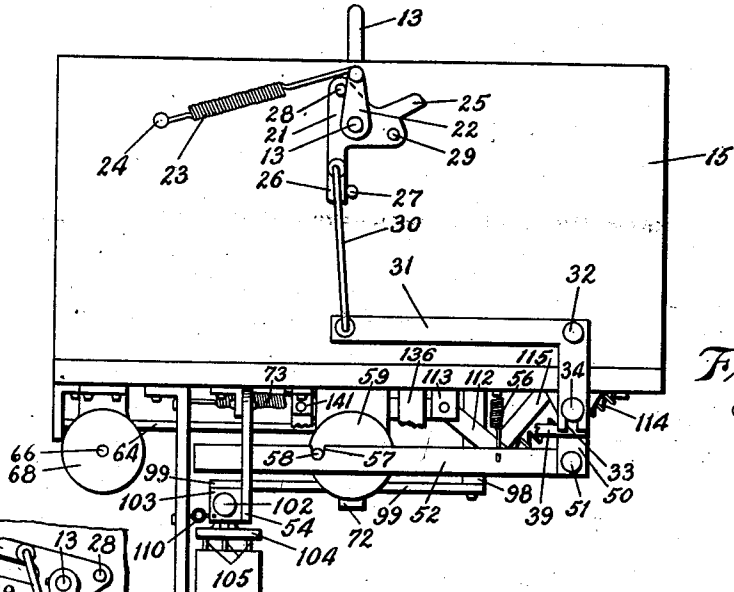


Fig. 6

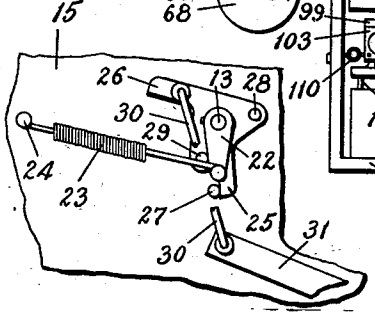


Fig. 7

INVENTOR.
Don Robins
BY
Henry Molz
ATTORNEY

Sept. 2, 1941. D. ROBINS 2,254,546

AUTOMATIC PHONOGRAPH

Filed June 22, 1940 3 Sheets-Sheet 3

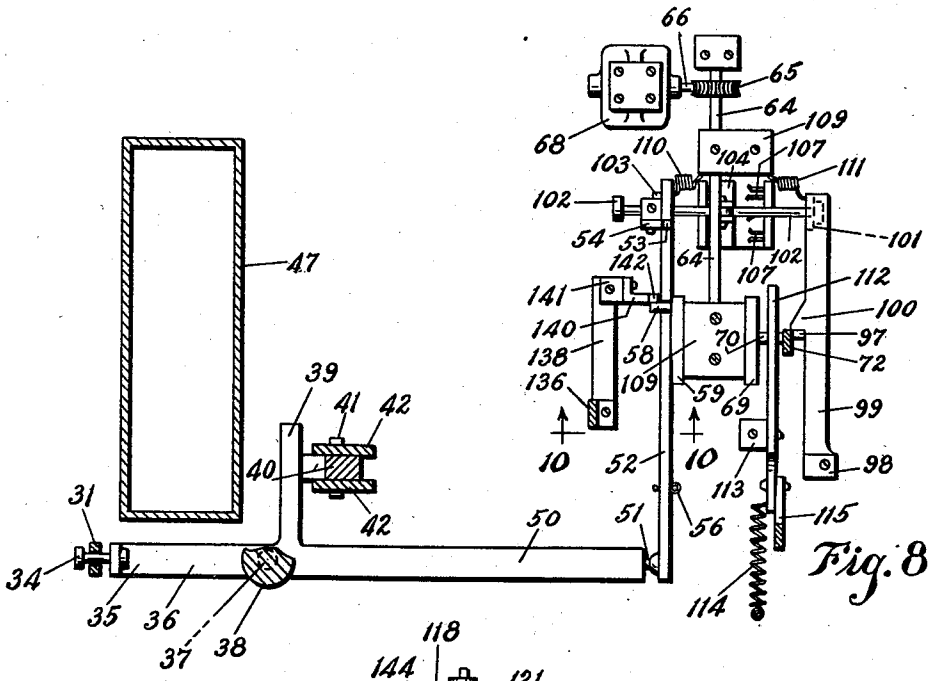


Fig. 8

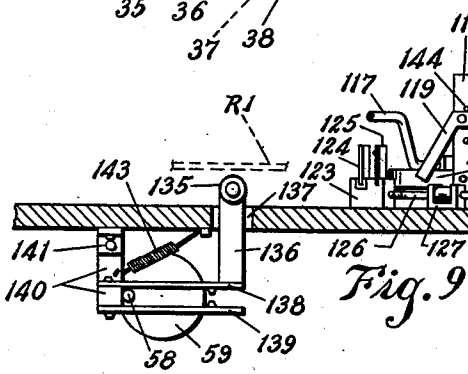


Fig. 9

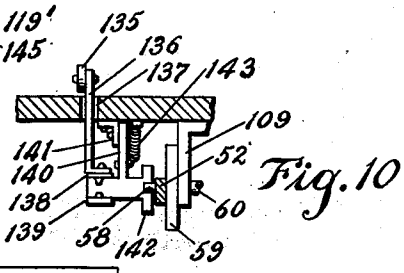


Fig. 10

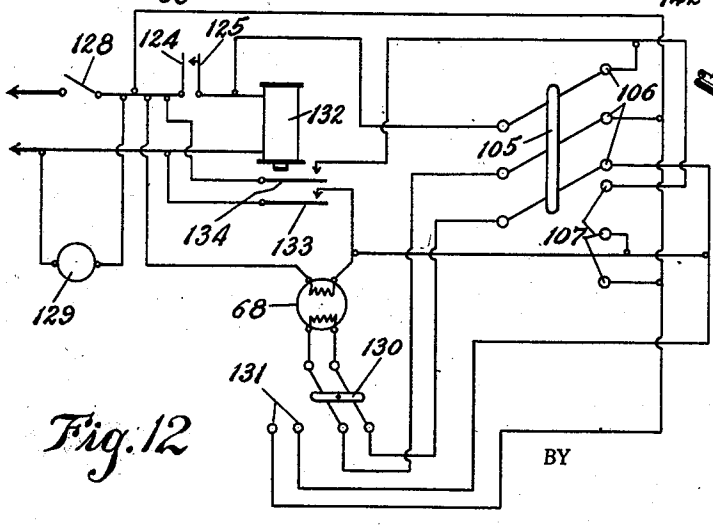


Fig. 12

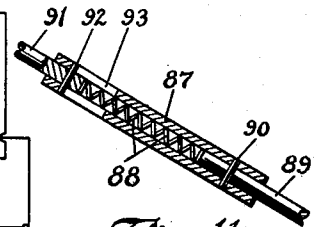


Fig. 11

INVENTOR.
Don Robins
BY
Henry Molz
ATTORNEY

Patented Sept. 2, 1941 2,254,546

UNITED STATES PATENT OFFICE

2,254,546

AUTOMATIC PHONOGRAPH

Don Robins, Burbank, Calif.

Application June 22, 1940, Serial No. 341,858

8 Claims. (Cl. 274—10)

The primary purpose of my invention is the provision of a means for automatically conveying a record (either single or double faced) from the source of supply co-jointly provided for, to the phonograph table for playing, and upon completion of the playing, for removing the same from the table to a place of storage, also provided for. And, in the use of double faced records, upon completing the playing of one side thereof, for raising the record above the phonograph table, reversing it and re-placing on the table, removal following as above described upon completion of the playing.

A further object of the herein invention is the provision of a means whereby an assorted lot of records may be positioned for selective playing and without further attention, each record in turn being automatically conveyed to and from the phonograph table in the order of selection.

A further object of the herein invention is the provision of a device adaptable for playing all ordinary ten inch and twelve inch records, separately or intermixed as may be desired.

And a further object of the herein invention is the provision of a highly ingenious, quiet and smoothly operating mechanism, light in weight, practically fool proof and compactly arranged and assembled.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which:

Figure 1 is a plan view of the invention;

Figure 2 is an elevation of the same;

Figure 3 is an enlarged elevation of the record selective feed rod with fragments of a plurality of records shown thereon in cross section;

Figure 4 is a section on line 4—4 of Figure 1;

Figure 5 is an elevation of the right hand end of the invention as shown in Figure 1;

Figure 6 is an elevation of the left hand end of the invention as shown in Figure 1, with certain parts broken away and omitted;

Figure 7 is a fragmentary elevation of the invention shown in Figure 6, and illustrates a movement hereinafter described;

Figure 8 is a section on line 8—8 of Figure 2;

Figure 9 is a section on line 9—9 of Figure 1;

Figure 10 is a section on line 10—10 of Figure 8;

Figure 11 is a section on line 11—11 of Figure 1, and

Figure 12 is a control circuit diagram of the various electrically operating devices of the invention.

Similar letters and numerals of reference indicate like parts throughout the several views, thus the numeral 10 indicates a shelf within the phonograph cabinet and whereto are affixed (above and beneath) the component parts embodying the herein invention.

A conventional phonograph turn table 11, driven by a motor (not shown), is attached to the shaft 12 of the motor adjacent the upper surface of the shelf 10.

The records chosen to be played are designated in general as R (Figure 3). They are placed on a record selective feed rod 13 by means of the conventional center hole in each record. The order in which they are placed on this rod, determines the order in which they will be played. Thus the first record placed upon the rod will be the last record played, and by the same token, the last one placed thereon will be the first one played.

Said rod 13 is affixed to the mechanism at one end only, being there journaled in a bearing 14 attached to an upright wall 15 secured upon and adjacent one end of the shelf 10. It is further provided with a notch 16 adjacent said bearing 14 and another notch 17 diametrically opposite said notch 16 but slightly nearer the bearing 14. It functions to retain and release the records, one at a time as is hereinafter more fully explained.

The records, one or more, are urged against a shoulder 18 by leaf springs 20, each having one of their ends attached to the wall 15.

The rod 13 projects through said wall 15 and has a trigger plate 21 rotatable thereon which is retained between the wall and a toggle arm 22 secured upon the end of the rod. The toggle arm 22 is urged into either one of two positions by a spring 23 attached at one end to said arm and at the other end to a pin 24 secured in the wall 15. The trigger plate 21 is provided with lugs 25 and 26 for limiting the rotation of said plate by contact with a pin 27 fixed in the wall 15 in the path of said lugs.

The arm 22 is limited in its movement by pins 28 and 29 respectively set in the trigger plate at the terminals of the arm movement. The lug 26 of the trigger plate is connected by a link 30 to one leg of a bell crank 31 pivoted at 32 upon the wall 15. The other leg of the bell crank is slotted at 33 to receive a pin 34 fixed in one end 35 of a T-shaped lever 36 pivoted at 37 to a boss 38 provided on the bottom of the shelf 10.

A stem 39 of the lever 36 is positioned to en-

gage an end of a lever 40 pivoted at 41 between lugs 42 provided on the bottom of the shelf 10. The lever 40 extends upwardly through a slot 43 in the shelf and is provided with a roller 44 for engagement with a record lifter 45 U-shaped, with the bottom portion of the U hinged at 46 to the shelf 10 adjacent a record receptacle or storage box 47 positioned beneath an opening 48 in the shelf 10. The open end of the U straddles the periphery of the turn table 11 to facilitate on action hereinafter explained.

The lifter 45 is provided with a felt pad or other suitable covering 45' to prevent the records from being scratched and damaged. The box 47 is lined at its bottom with a resilient padding of suitable substance to take up the force of drop of the records as they are released into the box.

The lever 36 is provided at its other end 50 with a pin 51 which terminates in a ball and socket joint to connect said lever with one end of a draw bar 52 which is free at the other end to move arcuately unless impeded by a shoulder 53 of a lever 54 pivoted at one end 55 to the shelf 10.

The draw bar 52 is normally urged by a spring 56 so that a notch 57 in said bar engages a crank pin 58 fixed to a wheel 59 having a shaft 60 journaled in a bearing hanger 61 secured to the shelf 10.

The shaft 60 carries a worm wheel 62 in mesh with a worm 63 carried by a shaft 64 which also carries a worm wheel 65 in mesh with a worm 66 carried by a motor shaft 67 driven by a motor 68 secured to the shelf 10.

A wheel 69 is secured to the other end of the shaft 60 and carries a crank pin 70 for engagement with a notch 71 provided in a vertical draw bar 72 urged against said pin by a spring 73.

The other end of the draw bar 72 not engaged by the pin 70 is pivoted at 74 to a sleeve 75 positioned to reciprocate upon a vertical bar 76 integral with or fixed at its lower end to a base plate 77 secured upon the top of the shelf 10.

The base plate 77 is provided with two vertical bearing posts 78 in which are journaled the respective ends of a rocker shaft 79 also journaled in lugs 80 of a hinge bar 81.

Each end of the hinge bar 81 is provided with a pivot pin 82 which functions as pivotal supports for a pair of record pick-up arms 83. The arms 83 are pivoted so that both ends thereof remain free to describe an arc, one end of each, however, is of a shorter radius than the other end. They are connected by means of a ball and socket type joint 84 to an adjustable linkage 85 in turn connected by a ball and socket type joint 86 to the sleeve 75.

The linkage 85 embodies a sleeve 87 housing a spring 88 and telescopically receiving a rod 89 suitably secured to the sleeve as by a pin 90, for example. The other end of the sleeve receives a rod 91 which is adjustably held therein by a pin 92 positioned in slots 93 provided in the sleeve. The spring 88 is positioned between the rod 89 and the rod 91 as more particularly shown in Figure 11.

The long-radius ends 83' of the arms 83 are provided with an internally threaded boss adapted to receive a screw 94 having a head at one end and a channel member 94' attached to the other end adjacent the turn table 11. Said ends 83' normally rest upon a pair of brackets 95 attached upon the shelf 10, and with the heads of the screws against said brackets as is hereinafter explained.

The ends 83' are urged downwardly toward the shelf 10 by a spring 96 positioned about the shaft 79 and bearing against the bar 51.

The draw bar 72 is provided at its lower end with a lug 97 having a beveled top surface.

A hanger 98 suspended beneath the shelf 10 pivotally supports one end of a lever 99 provided near its center with a lug 100 for engagement at certain times with the lug 97 as is hereinafter explained.

The other end of the lever 99 is provided with a lug 101 which serves as a bearing for one end of a rod 102 journaled therein. The other end of the rod 102 is journaled in a lug 103 provided at the lower end of the lever 54.

The center portion of the rod 102 is pivotally connected to a handle 104 of a three bladed knife switch 105. A plurality of contact clips 106 and a plurality of contact clips 107 are provided in the switch box 108 for engagement with the knife switch. The switch box 108 is suspended beneath the shelf 10 by means of a bracket 109.

Lever 54 is normally urged toward said bracket 109 by a spring 110 connecting said lever and said bracket, and lever 99 is normally urged toward said bracket 109 by a spring 111 connecting said lever and bracket.

A lever 112 is pivotally suspended at one side of its center to a hanger 113 attached beneath the shelf 10 and has one end extending over and exerting a continuous pressure against the crank pin 70 by reason of a spring 114 attached at one of its ends to the other end of the lever 112, and its other end to the bottom of the shelf 10.

A link 115 connects the spring attached end of the lever 112 to one end of an arm 116 underlying a portion of a phonograph pick-up arm 117. The other end of the arm 116 is pivotally connected to a bracket 118 attached upon the shelf 10.

A bell crank 119 is pivotally attached to the bracket 118 at a point higher than the pivotal connection of the arm 116 so that one leg of the bell crank tends to cross the arm vertically. The other end of the bell crank 119 is pivotally attached to one end of an armature 120 of a solenoid 121 attached to a right angled arm of the bracket 118. A spring 119' urges the bell crank 119 when released from the pull of the solenoid.

The phonograph pick-up arm 117 is pivoted at 122 in conventional manner.

A switch block 123 carrying spring contact members 124 and 125 is threadably attached by a screw 126 to a bracket 127 attached to the top of the shelf 10 so that manual turning of the screw adjusts the switch block with respect to the pick-up arm 117 as is hereinafter explained.

A roller 135 carried by a bracket 136 extending through a slot 137 in the shelf 10 is positioned above the shelf 10 for engagement with a twelve inch record placed upon the turn table 11 whenever the roller is moved into position as is also hereinafter explained.

The bracket 136 is secured to a flat spring member 138 positioned for engagement with a bar 139 for completing an electrical circuit, the entire mechanism being connected to a source of electrical current (not shown).

Bracket 136 and bar 139 are suitably secured to an arm 140 made of fibre or other insulating material, and pivotally hung from a bracket 141 secured to the bottom of the shelf 10. Said arm 140 is further provided with an extension 142 designed to be engaged by the pin 58 at certain times and by urging of a spring 143.

Explanation of the foregoing and operation of the invention is as follows:

Assuming that a selection of records R are in place upon the rod 13 as shown in Figure 3, and a record R1 or R2 is in place on the turn table 11, a switch 128 is normally closed to electrically energize the phonograph motor designated as 129 in the wiring diagram, Figure 12.

Record R1 represents a twelve inch record, and record R2 a ten inch record.

If either comprises a double faced record, a switch 130 will be manually closed to the position shown in Figure 12. If a single faced record, said switch will be manually closed upon the contacts 131 instead, also shown in Figure 12.

The pick-up needle is then placed upon the record and the record played. When the playing has proceeded to its ending groove, the latter forces the pick-up arm 117 against the contact member 124 which in turn will be forced against the contact member 125 to energize a relay 132, close a relay switch 133 and energize motor 68.

A relay switch 134 is closed at the same time as the switch 133 for reasons hereinafter set forth.

The motor 68 thus energized (with the switch 105 in contact with clips 106) will turn the wheel 69 in a counter clockwise direction as is seen in Figure 5, and causing the pin 70 in the notch 71 to draw the bar 72 downwardly and therewith the sleeve 75 downwardly as well.

The linkage 85 will then press outwardly against the short-radius ends of the arms 83 causing the ends 83' to move inwardly toward the played record and engage it with the channel members 94'.

Because of the resistance set up by contact with the record, the screws 94 are driven back through the ends 83', the spiral thread of the screws in said backward movement causing a turn-over of the record simultaneously with its raising from the turn table, so that the un-played side of the record is turned upwardly, ready for playing upon its replacement on the turn table.

The thread of the screws are long so that the record is turned over just sufficiently to reverse the record as aforesaid, one screw having a right hand thread, the other a left hand thread.

Inasmuch as both ten inch and twelve inch records can be played intermixed if desired, a differentiation must be made in the inward movement of the ends 92. Said differentiation is adequately provided by the linkage 85.

When a twelve inch record has been turned over, the sleeve 75 will not yet have reached its downmost position as required to turn over a ten inch record, the difference, however, being taken up by the compression of the spring 88 between the end of the rod 89 and the end of the rod 91.

During the operation while the record is being turned over, the pin 70 is continuing its counter-clockwise movement, and because the spring 73 holds the notch 71 in engagement with said pin, the lug 97 of the bar 72 is pulled down below and then up behind the lug 100 of the lever 99. Continuing to move counterclockwise the pin 70 will force the bar 72 together with the lug 97 back toward the position shown in Figure 5, and causing the lug 97 to press against the lug 100 to force the lever 99 to move to the right as viewed in Figure 8 which by means of the lug 101 and the rod 102 pulls the knife switch 105 out of contact with clips 106 into contact with clips 107 and the lever 99 snaps back into the position shown in Figure 8 as the lug 97 passes the lug 100 by reason of the spring 111.

One of the blades of the switch 105 is in series with the actuating coil circuit (switch 134) of the two pole relay so that during the interval while the switch 105 is moving from clips 106 to clips 107, the actuating coil circuit is open and the relay is de-energized and opens the circuit (switch 133) of the motor 68.

The momentum of the motor 68 is used to complete the movement of the wheel 69 back to the position shown in Figure 5. Also during the operation required to turn over the record, but prior to the actual turning thereof, one end of the lever 112 follows the pin 70 downwardly by reason of the spring 114 which through the link 115 and the arm 116 lifts the pick-up arm 117 off the record and because of a further inclination of the arm 116 moving the pick-up arm 117 back toward the bracket 118 and thereby clearing the record of obstruction, the turn over of the record is made possible.

If the record thus turned over is of twelve inch size, it will press down upon the roller 135 causing the spring contact 138 to engage the bar 139 and thereby close an electrical circuit (not shown) so as to energize the solenoid 121 which will pull the free leg of the bell crank 119 closer to the bracket 118 or to the right as viewed in Figure 9, and against a stop 144.

It will be observed that during the operation for turning over a record, the pin 58 will have been moving clockwise away from the arm 140 so as to permit the spring 143 to pull the roller into engagement with the record, but after the record has been placed upon the turn table the pin will continue to move in a clockwise direction until the motor 68 is stopped and the pin 58 has resumed the position shown in Figures 9 and 10, thereby opening the electrical circuit controlling the movement of the solenoid.

The reason for moving the bell crank 119 as just described is to guide the phonograph pick-up arm 117 into proper relationship with the first playing groove of a twelve inch record. This is accomplished because as the pick-up arm 117 is raised by the inclination of the arm 116, said pick-up arm will slide over and down against the free end of the bell crank 119 and as the pin 70 resumes the position shown in Figure 5, the lever 112 will be forced upwardly to lower the arm 116 together with the pick-up arm 117, and causing the latter to slide down the bell crank into the proper groove on the twelve inch record.

When the links 85 move downwardly past center, the outer ends of arms 83 are swung upwardly, this being permitted by the bar 81 turning on the pin 79, and simultaneously therewith, the channel members or jaws 94' with the record held therebetween, are lifted whereby to raise the record from the turntable and allow the reversing operation to take place.

When a ten inch record is placed upon the turntable, it will not contact the roller 135 (see Figure 1) so that the solenoid 121 will not be energized and the spring 119' will pull the free leg of the bell crank 119 to the left as viewed in Figure 9 until said bell crank engages a stop 145 and the pick-up arm 117 will be guided into the proper groove of the record for playing.

When either record has been completely played, the pick-up arm 117 will again cause the contact member 124 and the contact member 125 to engage to energize the relay 132 to close the relay switch 133 and energize the motor 68.

As the knife switch 105 has already moved into engagement with contacts 107, the motor is reversed to drive the wheel 69 in a clockwise direction as viewed in Figure 5, and the wheel 59 in a counter-clockwise direction as viewed in Figure 6.

The pin 58 being in engagement with the notch 57 moves the bar 52 to the right as viewed in Figure 6 to move the lever 36 in a clockwise direction as viewed in Figure 8, and causing the stem 39 to press against the lever 40 to raise the roller 44 against the record lifter 45 which moves about the hinges 46 to an angle where the record R1 slides off into the box 47 upon the resilient pad 49.

At the same time the record R1 is being tilted, the end of the lever 36 by means of the slot 33 and pin 34 is moving the bell crank 31, link 30 and plate 21, causing the pin 28 to press against the arm 22 until the plate 21 and pin 28 reach the position shown in Figure 7, whereupon the toggle action of the spring 23 snaps the arm 22 down against the pin 29 which acts as a stop because the lug 25 has stopped against pin 27, and thereby rotates the rod 13 so that it is in position to deliver a second record R2 upon the record lifter 45 which has been abandoned by the record R1.

The record R2 cannot slide off the lifter 45 because it has not yet left the end of the rod 13 which is pointed in alignment with the shaft 12 of the turntable 11.

One record only is released from the rod 13 at a time, and as follows:

The springs 20 press all the records forward toward the shoulder 18 until the rod 13 is rotated one-half revolution and causing record R2 to ride upon the shoulder 19 for release, but the next record R3 riding upon the notch 17 and against the shoulder 19 is thereby estopped from being released. When the rod 13 resumes the position shown in the drawing, the record R3 will ride upon the notch 16 and thus under pressure of the springs 20 be forced against the shoulder 18, ready for release at the next cycle of operation.

The rod 13 will resume the position shown in the drawing after releasing a record because the wheel 59 continues to rotate in a counter-clockwise direction and the spring 56 holding the notch 57 into engagement with the pin 58 for moving the bar 52.

As the bar 52 is resuming the position shown in the drawing, it moves over and down against the lug 53 moving the lever 54 to the left as viewed in Figure 2, so that the lug 103 pulls on the rod 102 to draw the switch 105 from the clips 106, and thereby momentarily breaking the circuit as hereinbefore described, stopping the motor 68 and leaving the mechanism set to repeat the cycle of operation.

The mechanism thus described may readily be constructed from materials obtainable in the open market and at no great expense.

In its simplicity, ease of operation, and structural characteristics, the herein invention differs materially from any the market affords.

I am aware that slight modifications may from time to time be made in the details of structure without departing, however, from the scope of the present invention, and as defined in the claims which are appended hereto. Hence, I do not limit my present invention to the exact description of construction herein disclosed, but what I do claim is:

1. In a phonograph, a supporting structure, a turntable thereon for supporting a disc record, and means for lifting the record from the turntable and reversing and replacing it on the turntable, including arms mounted for movement about vertical and horizontal axes on opposite sides of the turntable, record engaging jaws, screw threaded shafts fixed to said jaws and threadedly engaged with and rotatable relative to said arms when the jaws are pressed inwardly against the edge of the record, and means operating to first move said arms on their vertical axes to bring the jaws into contact with the record, and then move the arms about their horizontal axes for raising the jaws and lifting the record from the turntable while at the same time pressing said jaws and lifting the record for turning the shafts and jaws for reversing the record.

2. In a phonograph, a supporting structure, a turntable thereon for supporting a disc record, and means operating to lift the record from the turntable and reverse and replace it, including jaws for embracing the edges of the record on opposite sides of the turntable, arms supporting said jaws and mounted on said structure for movement to bring the jaws into and out of engagement with the record and to lift the record from and lower it back upon the turntable, and screw shafts fixed to said jaws and threadedly engaged with said arms for rotating the jaws about horizontal axes and thereby reversing the record responsive to inward pressure of the jaws against the edge of the record while the latter is lifted above the turntable.

3. In a phonograph, a supporting structure, a turntable thereon for supporting a disc record, and means operating to lift the record from the turntable and reverse and replace it, including jaws for embracing the edges of the record on opposite sides of the turntable, arms supporting said jaws and mounted on said structure for movement to bring the jaws into and out of engagement with the record and to lift the record from and lower it back upon the turntable, and screw shafts fixed to said jaws and threadedly engaged with said arms for rotating the jaws about horizontal axes and thereby reversing the record responsive to inward pressure of the jaws against the edge of the record simultaneously with said lifting of the record, and means operating to first move the arms to force the jaws into contact with the record, then move the arms to lift the jaws and raise the record from the turntable, while forcing said jaws against the record and whereby to effect operation of said reversing means, then moving the arms to lower the reversed record onto the turntable, and finally moving the arms to retract the jaws and release the record on the turntable.

4. In a phonograph, a supporting structure, a turntable thereon for supporting a disc record, and means operating to lift the record from the turntable and reverse and replace it, including jaws for embracing the edges of the record on opposite sides of the turntable, arms supporting said jaws and mounted on said structure for movement to bring the jaws into and out of engagement with the record and to lift the record from and lower it back upon the turntable, and screw shafts fixed to said jaws and threadedly engaged with said arms for rotating the jaws about horizontal axes and thereby reversing the record responsive to inward pressure of the jaws against the edge of the record simultaneously

with said lifting of the record, and means operating to first move the arms to force the jaws into contact with the record, then move the arms to lift the jaws and raise the record from the turntable, while forcing said jaws against the record and whereby to effect operation of the reversing means, then moving the arms to lower the reversed record back onto the turntable, and finally moving the arms to retract the jaws and release the record thus re-deposited on the turntable, and spring means operatively associated with said operating means and arms for yieldingly holding the jaws against the record whereby to accommodate records of varying diameters.

5. In a phonograph, a supporting structure, a turntable thereon, means for lifting a record from the turntable, reversing it and then replacing it on the turntable, including a bar rotatable on a horizontal axis on said structure, arms pivoted between their end at the ends of said bar and disposed on opposite sides of the turntable for movement towards and away from the record, jaws on said arms for embracing edges of the record when the arms are moved towards the record, screw shafts fixed to the jaws and threadedly engaged with said arms for causing the jaws to rotate and reverse the record upon pressure of said jaws against the record, and means operating to first move the arms on said pivots for moving the jaws against the record then turning said bar to raise the arms and jaws so as to lift the record from the turntable, then lowering said arms and finally retracting them and said jaws.

6. In a phonograph, a supporting structure, a turntable thereon, means for lifting a record from the turntable, reversing it and then replacing it on the turntable, including a bar rotatable on a horizontal axis on said structure, arms pivoted between their end at the ends of said bar and disposed on opposite sides of the turntable for movement towards and away from the record, jaws on said arms for embracing edges of the record when the arms are moved towards the record, screw shafts fixed to the jaws and threadedly engaged with said arms for causing the jaws to rotate and reverse the record upon pressure of said jaws against the record, and means operating to first move the arms on said pivots for moving the jaws against the record then turning said bar to raise the arms and jaws so as to lift the record from the turntable, then lowering said arms and finally retracting them and said jaws, said last named means including a motor, a draw bar on said structure, drive means between the motor and draw bar for moving the latter, and toggle links connecting said draw bar with said arms.

7. In a phonograph, a supporting structure, a turntable thereon, means for lifting a record from the turntable, reversing it and then replacing it on the turntable, including a bar rotatable on a horizontal axis on said structure, arms pivoted between their end at the ends of said bar and disposed on opposite sides of the turntable for movement towards and away from the record, jaws on said arms for embracing edges of the record when the arms are moved towards the record, screw shafts fixed to the jaws and threadedly engaged with said arms for causing the jaws to rotate and reverse the record upon pressure of said jaws against the record, and means operating to first move the arms on said pivots for moving the jaws against the record then turning said bar to raise the arms and jaws so as to lift the record from the turntable, then lowering said arms and finally retracting them and said jaws, said last named means including a motor, a draw bar on said structure, drive means between the motor and draw bar for moving the latter, and toggle links connecting said draw bar with said arms, each of said toggle links including telescopically engaged relatively movable sections and spring means between and resisting relative movement of said sections.

8. In a phonograph, a supporting structure, a turntable thereon, means for lifting a record from the turntable, reversing it and then replacing it on the turntable, including a bar rotatable on a horizontal axis on said structure, arms pivoted between their end at the ends of said bar and disposed on opposite sides of the turntable for movement towards and away from the record, jaws on said arms for embracing edges of the record when the arms are moved towards the record, screw shafts fixed to the jaws and threadedly engaged with said arms for causing the jaws to rotate and reverse the record upon pressure of said jaws against the record, and means operating to first move the arms on said pivots for moving the jaws against the record then turning said bar to raise the arms and jaws so as to lift the record from the turntable, then lowering said arms and finally retracting them and said jaws, and spring means for normally holding said arms in position to cause the jaws to engage the record when the arms are initially swung toward the record on their pivotal connections with said bar.

DON ROBINS.