Feb. 25, 1947. J. H. ANDERSON 2,416,425

AUTOMATIC PHONOGRAPH

Filed Sept. 4, 1945 2 Sheets-Sheet 1

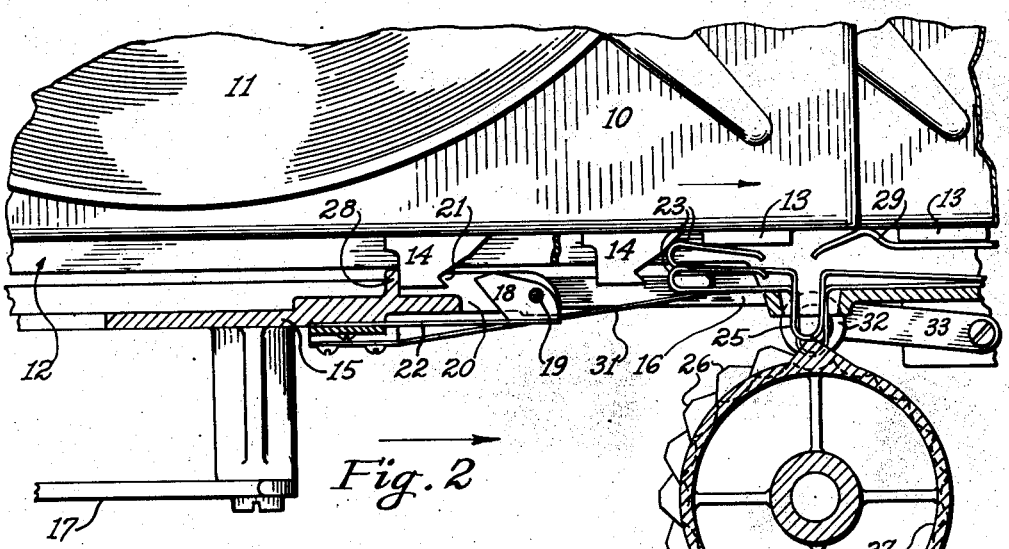

Fig. 2

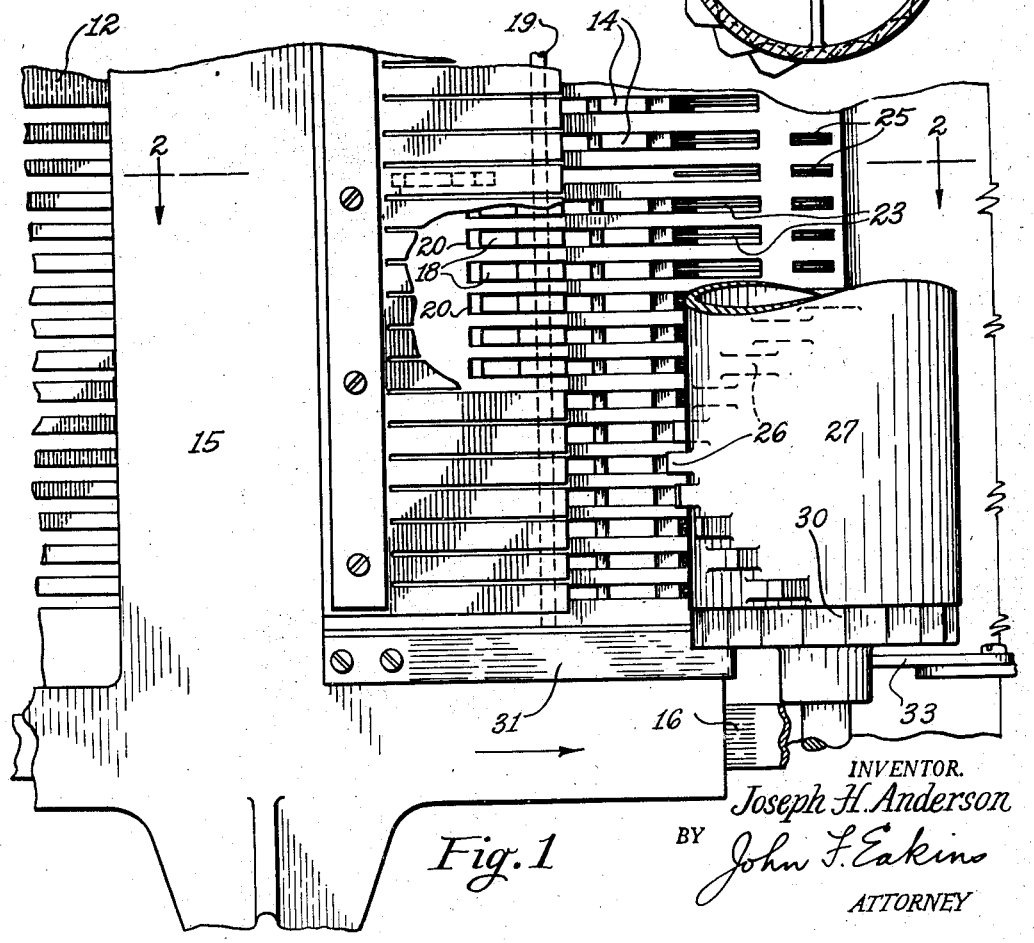

Fig. 1

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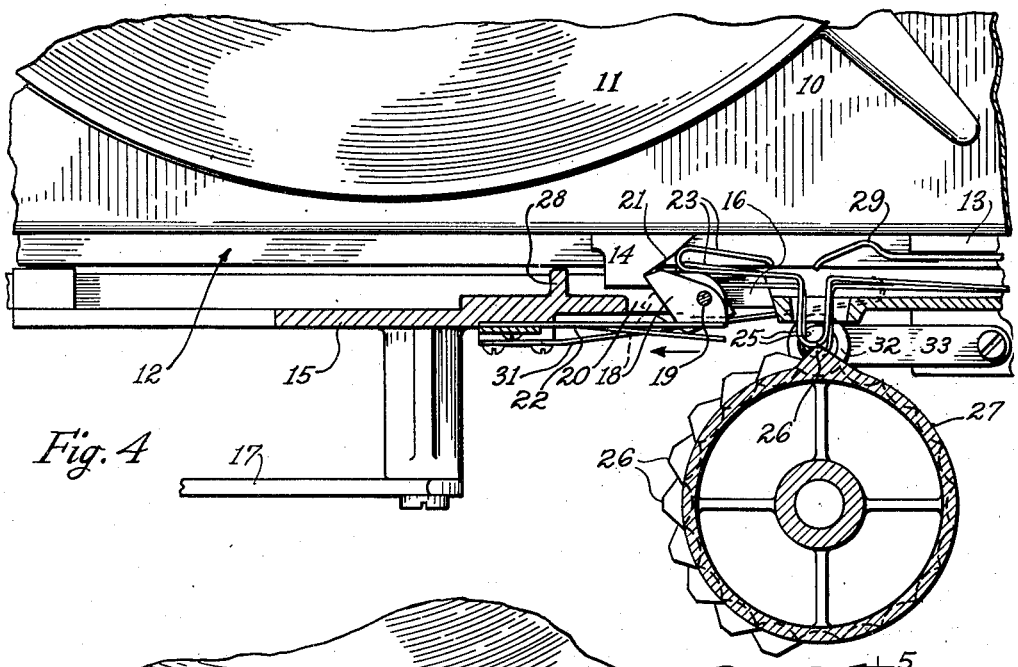

Fig. 4

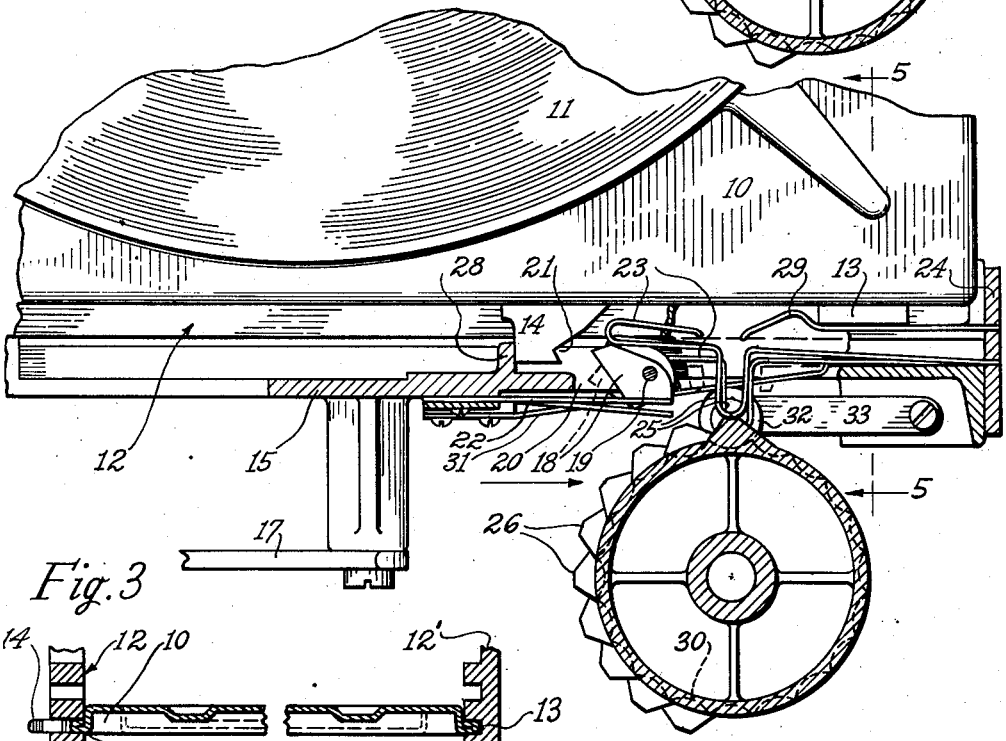

Fig. 3

Fig. 5

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AUTOMATIC PHONOGRAPH

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Application September 4, 1945, Serial No. 614,217

4 Claims. (Cl. 274—10)

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This invention relates to automatic phonographs and particularly to selective phonographs, of the type in which a number of records are supported on individual record carriers and are moved out individually on their carriers for reproduction. A common carriage is employed to move a single record carrier from normal position for reproduction and back again and selector means are provided for connecting only one of the record carriers to the carriage so that only one record is carried out at a time. This selector means has an individual position for each record carrier and it may be associated with selector mechanism so that the user of the phonograph may predetermine the position of the selector means and thereby predetermine the record which is to be carried out for reproduction.

The principal object of the present invention is to provide an improved mechanism for connecting the individual carriers to the common carriage. The present invention is described in its application to the multi-record phonograph described and claimed in Patent No. 2,237,139, issued April 1, 1941, to Carl G. Freborg. It is to be understood however that the invention is equally applicable to automatic phonographs of other types in which individual record carriers are operatively connected to a common carriage for the outward movement of an individual record for reproduction.

The invention will readily be understood from the following description of a preferred embodiment thereof taken in conjunction with the accompanying drawings, in which:

Figure 1 is a fragmentary elevational view of a mechanism embodying the invention showing the common carriage approaching the connecting position;

Fig. 2 is a sectional plan view taken on the line 2—2 of Fig. 1;

Fig. 3 is a sectional plan view similar to Fig. 2 showing the common carriage in its fully returned position;

Fig. 4 is a similar view showing the manner in which the common carriage engages one of the record carriers; and

Fig. 5 is a sectional detail taken on the line 5—5 of Fig. 3, showing the manner in which a record carrier is supported.

Referring to the drawings the individual record carriers are the trays 10. Each tray has a recess which receives an individual record 11. The record trays 10 are supported for sliding movement in two side walls 12 and 12' of the chassis. The side walls have grooves which receive four lugs 13 on each tray. The record trays are preferably substantially square. The lugs 13 and grooves are smaller than the depth of the tray 10 as shown in Fig. 5. The grooves in the wall 12 extend through the wall so as to permit lugs 14 to project

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therethrough. The common carriage 15 is slidably supported on a bar 16 and at the upper end of the chassis and is adapted to be moved to the right by means of a link 17 into the position shown in Fig. 3 and then to the left to carry a tray 10 into alignment with record playing position.

The carriage 15 supports a plurality of pawls 18 which are pivotally mounted in slots 20 formed in the right-hand side of the carriage 15 as viewed in Fig. 1. These slots are in horizontal alignment with the lugs 14 and there is one pawl for each lug. The pawls are pivotally mounted in their slots by a vertical rod 19 carried by the carriage 15 and extending through openings in the pawls 18 and through the slots 20. Each lug is provided on its right-hand side with a V-shaped recess 21 which is adapted to receive the point of the pawl 18. As shown in Fig. 2 the pawls are biassed by springs 22 so that their points are in alignment with the V-shaped recesses 21. The springs 22 are flat springs which normally bear against a flat face of the pawl as shown in Fig. 2 and these springs may be integral, being part of a comb-shaped member which is secured to the outer side of the carriage 15. As the carriage moves to the right from the position shown in Fig. 2 into the position shown in Fig. 3 the pawls 18 are deflected to pass the lugs 14 and in the absence of restraining means which will be hereinafter described all the pawls would snap into alignment with the V-shaped recesses 21. All the pawls are thus restrained except one which does snap into alignment with the V-shaped recess 21, this being the top pawl shown in Fig. 3. A plurality of springs 23 carried by a bar 24 extend from the right of the chassis to a point just short of the normal position of the lugs 14 as shown in Fig. 3. These springs are so positioned that they normally engage the pawls 18 and prevent them from moving into register with the V-shaped openings 21.

Each spring 23 is provided with an outwardly directed hump 25. These humps are adapted to be engaged one at a time by projections 26 on a drum 27. The projections 26 are spaced in the vertical direction of the drum and there is one projection for each spring 23. The arrangement is such that only one projection engages a hump 25 at any time. The projections 26 have individual angular positions on the drum 27 and preferably they are arranged on the surface of the drum in the form of a helix. When a projection 26 engages a hump 25 the spring 23 is deflected inwardly so that it no longer restrains the corresponding pawl 18 and that individual pawl moves into register with the recess 21 of the corresponding record tray 10. Consequently when the carriage 15 is moved to the left by the link 17 the corresponding tray is carried with it into alignment with the record playing position. On the

return movement of the carriage, after the record has been reproduced, a shoulder 28 engages the left-hand side of the lug 14 of the displaced tray and returns it to normal position shown in Fig. 3. The bar 24 carries an array of springs 29 which engage the forward right-hand lugs 13 of the trays 10 resiliently to hold the trays against displacement except when an individual tray is moved out by the carriage 15.

It is important that a single projection 26 should engage a single hump 25 of a spring 23 to insure correct hitching of a single tray 10 to the carriage 15. The drum 27 is actuated into any of its various positions by selecting means with which the present invention is not concerned, for example the selecting means shown in the patent above referred to, and these positions determine which record is to be played. Rigid with the drum 27 and preferably integral therewith is a star wheel 30 having a recess corresponding to each selecting position of the drum 27. A strong oblique spring 31 carried by the carriage 15 is arranged to engage a roller 32 as the carriage 15 moves to its extreme right-hand position, forcing this roller into the corresponding recess of the star wheel 30. The roller 32 is carried on a pivoted arm 33 and the arrangement is such that when the roller 32 is nested in one of the recesses of the star wheel 30, the corresponding projection is in proper engagement with the hump 25 of the corresponding spring 23 so that the corresponding pawl 18 is free to move into register with the V-shaped recess of the corresponding record tray.

The phonograph is arranged to stop with the record tray of the last played record in its extreme left-hand position and the carriage 15 is also in its extreme left-hand position. Consequently when the machine is out of operation, when a record is being played or when the carriage 15 is in position except at the approaching of its extreme right-hand position the drum 27 may be actuated into a new selecting position.

It will thus be seen that I have provided an improved connecting means in which the reciprocating carriage is provided with a plurality of pawls each individual to an individual record, the pawls being normally biassed into connecting position. Individual means, specifically the springs 23 normally overcome the bias of the pawls, the springs 23 being effectively stronger than the springs 22. To insure connection of the corresponding record tray to the carriage it is merely necessary to displace the corresponding spring 23 from its normal position. This new structure obviates any necessity for critical adjustment of these springs. The only essential is that the spring 23 be strong enough to overcome the natural bias of the spring 22.

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

1. In an automatic phonograph comprising a plurality of individual movable record carriers and a displaceable carriage arranged to move any individual carrier out towards playing position and back to normal position, in combination, members on said carriage, each individual to and arranged to engage a corresponding carrier in one position of said carrier, means on said carriage biassing each individual member into carrier engaging position, stationary means individual to each member and normally effective in said one position of the carriage to displace the corresponding member out of carrier engaging position, and a selector means arranged to displace any single one of said stationary means to render it ineffective whereby only the corresponding record is carried out for reproduction.

2. In an automatic phonograph comprising a plurality of individual movable record carriers and a displaceable carriage arranged to move any individual carrier out towards playing position and back to normal position, in combination, a series of pawls on said carriage, each individual to and arranged to engage a corresponding carrier, means on said carrier biassing said pawls into carrier engaging position, individual springs corresponding to said carriers and normally engaging the corresponding pawl in one position of the carriage to move it against its biassing means out of carrier engaging position, and selector means arranged to move a single one of said springs out of engagement with its corresponding pawl whereby said corresponding pawl engages the corresponding carrier.

3. In an automatic phonograph comprising a plurality of individual movable record carriers and a displaceable carriage arranged to move any individual carrier out towards playing position and back to normal position, in combination, a series of pawls on said carriage, each individual to and arranged to engage a corresponding carrier, a set of individual springs on the carriage biassing said pawls into record engaging position, a second set of individual springs arranged to engage said pawls in one position of the carriage, the springs of the second set being sufficiently strong to displace the pawls out of carrier engaging position against the action of the springs of the first set, and selector means arranged to engage a single one of the springs of the second set displacing it out of engagement with a corresponding single pawl, whereby said single pawl engages the corresponding record carrier and the corresponding carrier is moved out by the carriage towards record playing position.

4. In an automatic phonograph comprising a plurality of individual movable record carriers and a displaceable carriage arranged to move any individual carrier out towards playing position and back to normal position, in combination, a series of pawls on said carriage, each individual to and arranged to engage a corresponding carrier, a set of individual springs on the carriage biassing said pawls into record engaging position, a second set of individual springs arranged to engage said pawls in one position of the carriage, the springs of the second set being sufficiently strong to displace the pawls out of carrier engaging position against the action of the springs of the first set, and a selector means including a rotary member having a plurality of projections individual to the record carriers, said projections having different angular positions relative to the axis of the rotary member whereby a single projection engages a single spring of the second set in any one position of the rotary member whereby only the corresponding record carrier is engaged by its corresponding pawl for movement out towards playing position by said carriage.

JOSEPH H. ANDERSON.