April 15, 1941. T. TSUCHIYA 2,238,612

APPARATUS FOR PUTTING PHONOGRAPH RECORDS IN ORDER AFTER USE

Filed Feb. 1, 1939

FIG. 1.

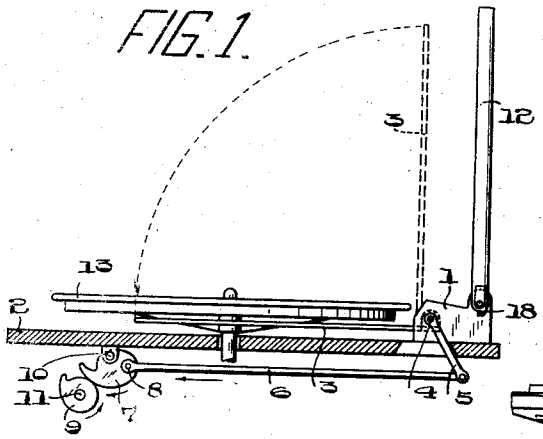


FIG. 3.

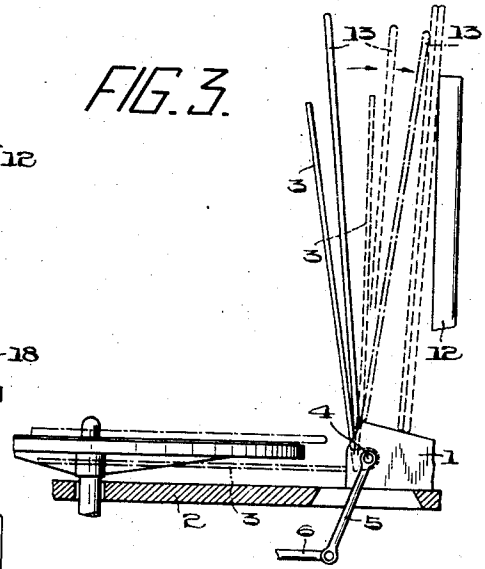
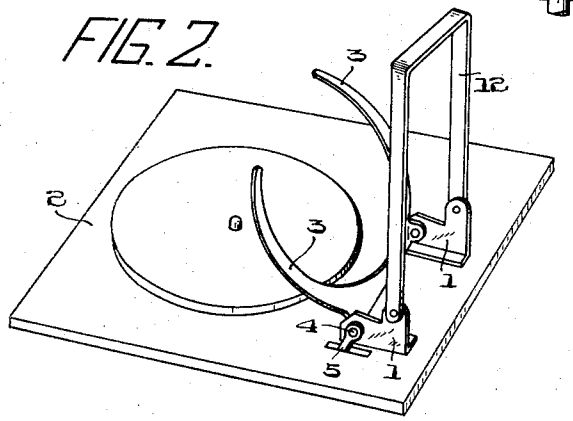


FIG. 2.



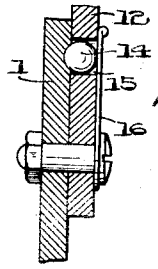


FIG. 6.

FIG. 4.

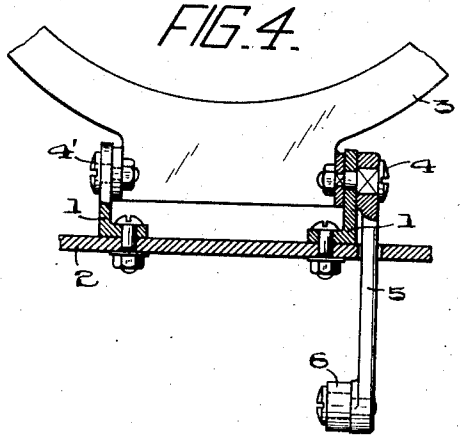
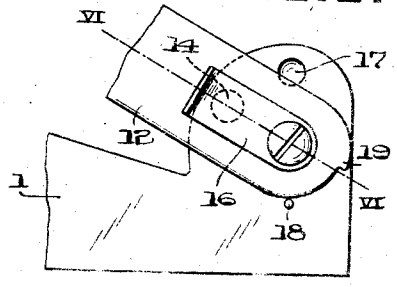


FIG. 5.



INVENTOR:
TSURUKICHI TSUCHIYA
BY
Haseltine Lake & Co.
ATTORNEYS

Patented Apr. 15, 1941 2,238,612

UNITED STATES PATENT OFFICE

2,238,612

APPARATUS FOR PUTTING PHONOGRAPH RECORDS IN ORDER AFTER USE

Tsurukichi Tsuchiya, Shintomi-Cho, Kyobashi-ku, Tokyo, Japan

Application February 1, 1939, Serial No. 254,043

5 Claims. (Cl. 274—1)

The present invention relates to an apparatus for putting phonographic records in order after use, which consists in providing boards or support means having inclined portions or surfaces at the front upper sides and a record supporting frame pivoted to the backs, side by side on the upper side wall of the casing of a talking machine, holding the lower end of a record in the included angle formed by the said inclined portions or surfaces of the boards and a crescent-shaped arm pivoted to the front parts of the said boards or supports when the said arm turns with the record on it, and thus putting the records slowly in order after use on the said boards, the record supporting frame being able to rise and fall freely.

One of the objects of this invention is to provide an improved construction of an apparatus for putting records in order after use, in which the previously-played records are put in order on boards by a simple means by lifting a record as it is carried on a crescent-shaped arm and transferring it in succession on to the boards.

The other object is to provide a record supporting frame which is used in putting records in order after use on the boards. It is constructed in such a manner that it can rise and fall freely, if desired.

The accompanying drawing shows a preferred form of the apparatus exemplifying the present invention:

Figure 1 is a side view of the apparatus constructed in accordance with this invention;

Figure 2, a perspective view when a crescent-shaped arm has been turned upward;

Figure 3, an enlarged view showing the manner of operation;

Figure 4, an enlarged view of a part of the crescent-shaped arm, parts thereof being broken away;

Figure 5, an enlarged side view of a rerord supporting frame, parts thereof being broken away and

Figure 6, a section of the record supporting frame taken along the line VI—VI of Figure 5.

In the drawing, 1 represents the support means or boards having inclined portions or surfaces at the front upper sides and provided side by side on the upper side wall 2 of the casing of a talking machine. A crescent-shaped arm 3 is pivoted to the front parts of the said boards 1 by shafts or studs 4 and 4'. To the said shaft 4 is rigidly secured one end of a rotatable rod 5. 6 is an actuating connecting rod with one end pivoted to the rotatable rod 5 and the other end to the small axis 8 of a crank cam 7. 9 is a cam for operating the said crank cam; and 10, the shaft of a crank cam. 11 is the shaft of the operating cam; and 12, a frame for supporting a record 13.

The above record supporting frame 12 has a U-shape and has its both lower ends pivoted to the backs of the said boards respectively. Close to the said pivoted parts is a slot 15 containing a ball 14 which is always pressed against the board by a plate spring 16 secured to the pivot. When the supporting frame 12 takes a vertical position, the ball 14 is fitted into the depression 17 of the board 1 and at the same time a stop pin 18 is engaged with a projection 19 at the lower part of the frame and keeps the frame in a vertical position. Thus, when this supporting frame stands straight, it can support the record as the latter is carried on to the boards, and when it has done its work, it may be folded on the casing simply by folding it down frontward.

The following is the explanation of the manner of operating the apparatus according to this invention:

First, when the motive power from the prime mover is transmitted to the cam operating shaft 11 in the usual way, the operating cam 9 is rotated to actuate the crank cam 7, so that the actuating connecting rod 6 and the rotatable rod 5 associated with this gearing are drawn to the left in the direction as indicated by an arrow in Figure 1 and consequently the crescent-shaped arm 3 secured to the shaft 4 which is fixed to the rotatable rod 5 is turned upward with the record 13 on it.

At this time, when the said arm 3 reaches the position as indicated by a full line in Figure 3, the record has its lower end held lightly in the included angle between the inclined portion or surface of the board or fixed support 1 and the lower part of the arm. Thus, its upper end is shifted from the arm 3 and becomes free. When the arm has turned further and passed the vertical position, the record tends to fall over lightly due to unstable equilibrium by the weight from above, but as it has its lower end held in the included angle between the inclined surface or incline and arm, it is limited in movement by this condition and falls slowly as indicated by a dotted line in Figure 3 till it stops for a moment at the position as indicated by a chain line at the right end or top of the incline portion of support 1, and as the previously-played records are delivered in succession by the following turning movements of the arm, they are pushed out

forward and laid in order on the board or support 1.

In this way, according to the present invention phonographic records may be put in order after use without sustaining any damage, by holding their lower ends by the inclined surfaces of the boards 1 and crescent-shaped arm 3 and making them lean slowly against the supporting frame 12.

I claim:

1. Apparatus for automatically transferring phonograph disk records from a turntable of a reproducing apparatus to a magazine or record storage means comprising a crescent-shaped record raising member pivoted to be swingable about an axis substantially parallel with the plane of the turntable from a position in which said record raising member at least partly surrounds said turntable below the level of the upper surface thereof to a substantially upright position and record storage means having mutually angularly disposed record supporting surface portions sloping at least in part away from the turntable for initially supporting a disk record in the angle formed between the record raising member during initial rising movement of the same and one of said record supporting surface portions sloping toward said turntable upon which the record raising member causes said record to ride, and said record storage means thereafter receiving the record upon a record supporting surface portion disposed at an angle to said sloping surface portion during the final portion of the rising movement of said record raising member.

2. Apparatus according to claim 1, wherein the mutually angularly disposed record supporting surface portions of the record storage means respectively slope towards and away from the turntable so as to form an angular peak or apex between, from which each record is caused to ride, there being stop means for receiving the record upon the surface portion sloping away from the turntable so as to store said record in substantially upright position against said stop means.

3. Apparatus according to claim 1, wherein the record storage means include two plates spaced apart and from the turntable and form support means to which the crescent-shaped record raising member is pivoted, there being means for actuating said latter member.

4. Apparatus according to claim 1, wherein the record storage means include two plates spaced apart and from the turntable, a frame pivotally attached to said plates so as to be swingable thereon from a position from said turntable to a substantially upright position so as to form a stop means against which records may be stored upon said storage means, a plural stop means upon said plates for determining the upright position of said frame and the position in which it projects over the turntable.

5. Apparatus according to claim 1, wherein the record storage means include two plates spaced apart and from the turntable and form support means to which the crescent-shaped record raising member is pivoted, there being means for actuating said latter member, upwardly projecting lugs upon said plates forming lower stop means for records deposited upon the record storage means and a swingable frame pivoted to said lugs so as to be swingable from a position in which it projects over the turntable to a substantially upright position in which it forms upper stop means for said records upon said storage means, there being also means for determining the upright position of said swingable frame and also the position thereof in which it projects over said turntable.

TSURUKICHI TSUCHIYA.