J. MENCHEN.

RECORD LIFTER.

APPLICATION FILED NOV. 23, 1918.

1,347,548.

Patented July 27, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

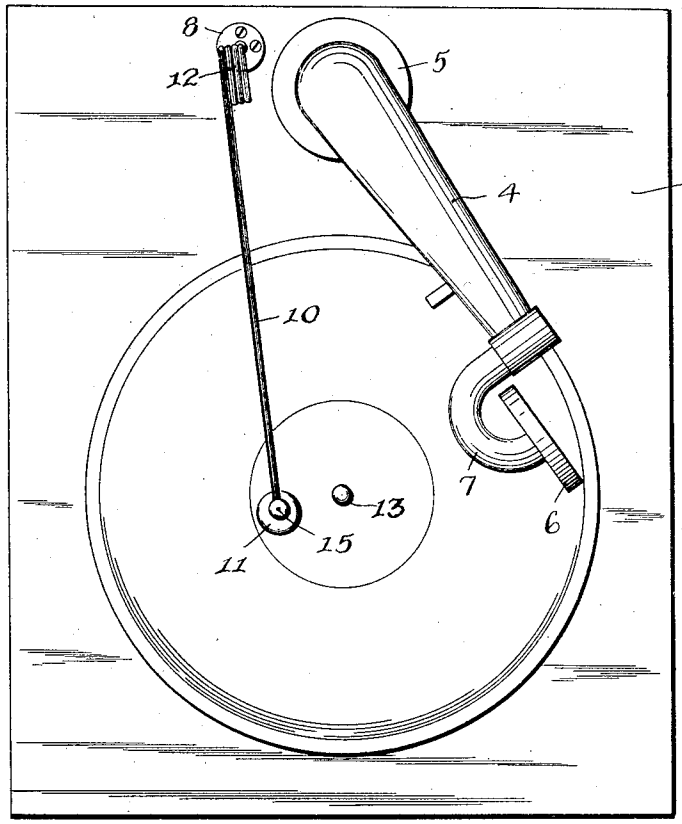
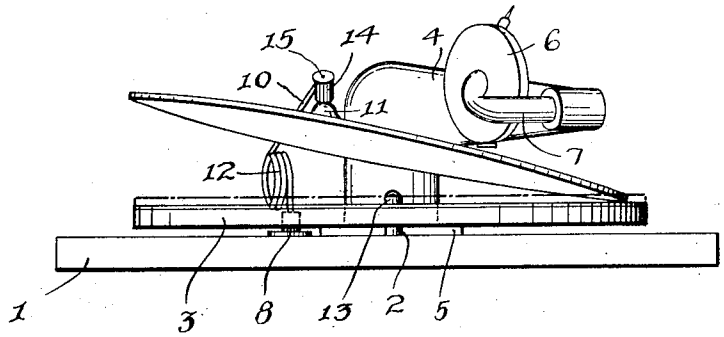


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

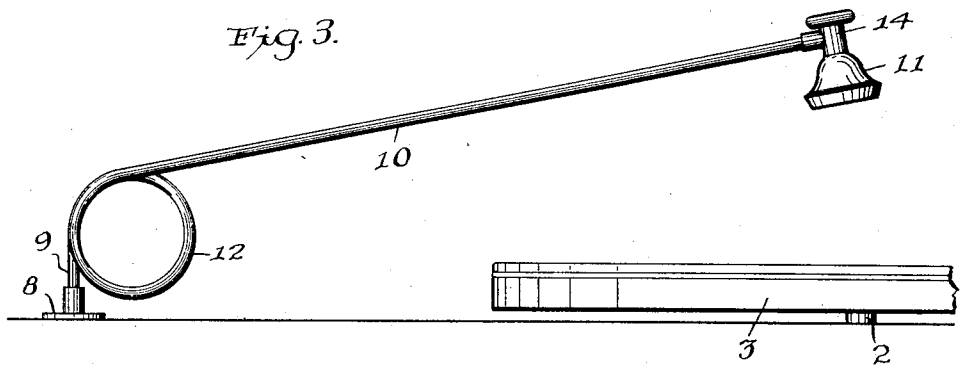


Fig. 4.

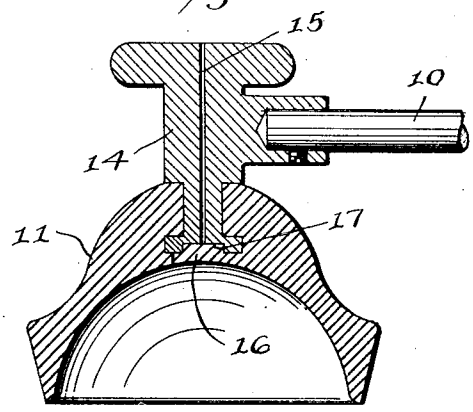


Fig. 5.

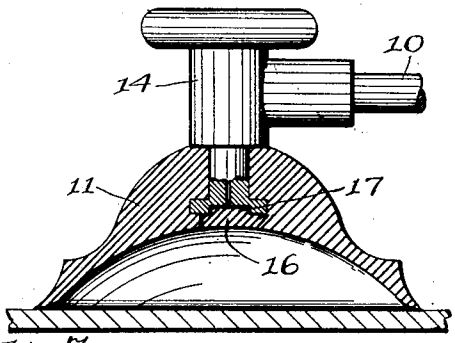


Fig. 6.

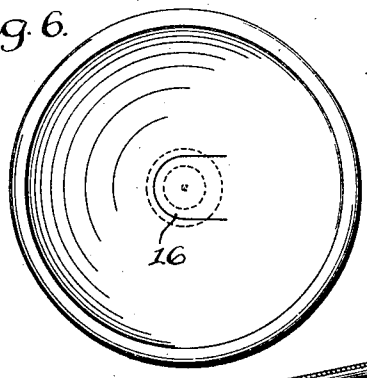


Fig. 7.

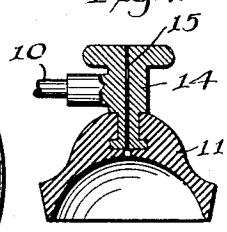


Fig. 8.

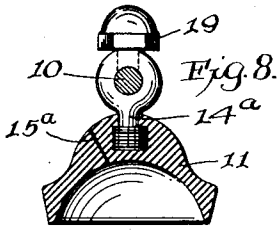
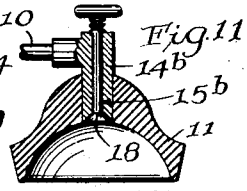


Fig. 11.



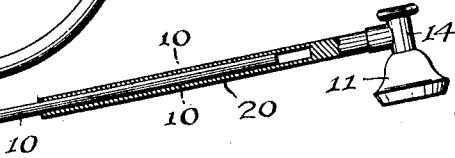


Fig. 9.

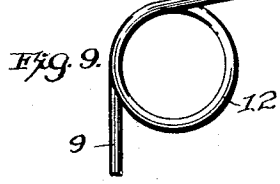


Fig. 10.



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JOSEPH MENCHEN, OF NEW YORK, N. Y., ASSIGNOR TO VACUUM RECORD LIFTER, LTD., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RECORD-LIFTER.

1,347,548. Specification of Letters Patent. Patented July 27, 1920.

Application filed November 23, 1918. Serial No. 263,822.

To all whom it may concern:

Be it known that I, JOSEPH MENCHEN, a citizen of the United States, and resident of the borough of Manhattan, in the city, county, and State of New York, have invented a new and useful Record-Lifter, of which the following is a specification.

The object of the invention is to provide simple and convenient means for lifting plate records from the turntables of talking machines. In my prior application, Serial No. 208,660, filed December 24, 1917, I have disclosed a resilient, collapsible, suction-cup record-lifter applied to the reproducer. In the present invention the lifter is separate from the reproducer mechanism, and may be applied to any type of machine.

In the drawings:

Figure 1 is a plan view of a phonograph uncovered, with the invention applied thereto;

Fig. 2 is a front elevation with the reproducer mechanism in inoperative position and the lifter in the act of raising a record from the turntable;

Fig. 3 is an enlarged side elevation of the lifter shown in relation to a portion of the turntable and record;

Fig. 4 is a vertical section through the cup on a still larger scale;

Fig. 5 is a similar view illustrating the cup partially flattened or collapsed in order to obtain a grip upon the record;

Fig. 6 is a bottom plan view of the cup;

Fig. 7 is a vertical section on a smaller scale through an alternative form of cup;

Fig. 8 is a vertical section through still another form;

Fig. 9 is a sectional side elevation of a form of lifter with telescopic arm;

Fig. 10 is a cross-section on the line 10—10 of Fig. 9; and

Fig. 11 is a vertical section through still another form of cup.

A phonograph case or cabinet is indicated at 1. Rising from it is the usual vertical shaft 2 bearing a turntable or record support 3. A hollow reproducer arm 4 is swiveled on a mounting 5 behind the turntable so as to swing laterally over the record in the usual manner. For purposes of illustration the reproducer mechanism is shown as of that type in which the swivel is constructed to sustain the arm against downward tilting, the sound-box 6 being carried by a gooseneck 7, which is swiveled on the forward end of the arm upon a transverse axis so that the sound-box and stylus can be thrown up and back to a supported, inoperative position.

A mounting 8, consisting desirably of a tubular stem having a basal screw-hole flange, is secured to the case or frame of the machine, also in rear of the turntable and toward one side of the reproducer arm swivel 5. The tube of this mounting receives the vertical rear extremity 9 of a lifter arm 10, which overhangs the turntable at the inactive side, that is to say the side which is not swept by the reproducer. On the forward extremity of the arm is a downwardly facing, open mouth, rubber suction cup 11, which, when the arm is depressed, is flattened out or collapsed upon the record, so as to grip and lift the same when the downward pressure is relieved. In the preferred embodiment the arm consists of a length of resilient wire rod, which is permanently bent to present the short vertical rear portion 9, a long straight arm portion which is normally upwardly inclined so as to hold the cup in an elevated position, and a connecting coil or flexible resilient bend 12.

The arm is preferably of such length as to enable the cup to act upon the smooth central portion of the record at a location at one side and slightly in front of the turntable post 13. Consequently when the arm and cup are depressed to seize the record and then permitted to rise, the record is tilted laterally and forwardy out from beneath the reproducer mechanism without striking the latter, in the manner indicated in Fig. 2, the flexibility of the cup permitting it to bend sidewise without releasing its grip.

Fig. 4 shows the rubber cup 11 vulcanized onto a stem 14, which projects upwardly in the direction of the axis of the cup. Said stem contains a small longitudinal opening 15, extending from its button-like top to the interior of the cup, and constituting one form of vent or vacuum-breaker, forming an important feature of the invention. As illustrated in Fig. 7, the vent may consist simply of a normally-open duct passing through the stem and the rubber at the top of the cup cavity. In such case, when the lifter has been forced down and caused

to grip the record, the upper end of the vent is closed by the finger, which prevents entrance of air while the record rises, the finger being then removed and permitting the record to drop into the other hand. Preferably, however a slightly delayed action is provided for, so that the vacuum will not be entirely relieved and the disk released immediately upon removal of the finger. This may be accomplished by merely piercing the opening through the rubber, without substantial removal of material, with the result that the hole is practically closed by its elastic wall and permits air to pass slowly, and consequently momentary displacement of the finger during the upward movement will not cause the record to fall prematurely. A more reliable construction is secured by leaving the rubber of the top of the cup unpierced at the lower end of the channel in the stem, and by partly cutting out a small flap 16, which is not secured to the stem but lies closely against it, substantially blocking the channel. For greater effectiveness the end of the stem is formed with a recess and the top of the flap with a corresponding protuberance 17, compelling the air which enters the cup to pursue a devious course, the flap being stiff enough so that it does not become unseated to any material degree.

While the combination of manual control of the vent with momentarily delayed action following removal of the finger is preferred, delayed action alone may be relied upon, making the vent entirely automatic. This is the case in Fig. 8, where the vent consists merely of a strangled perforation 15^a through the thick part of the rubber wall of the cup, at one side of the stem 14^a. This perforation is of such character that the vacuum does not become sufficiently relieved to let go of the record until it has been raised to the desired elevation by the spring arm.

The vent may be embodied in still other ways. Fig. 11 shows a construction disclosed in my prior application aforesaid but not there claimed, the same comprising a relatively large opening 15^b in a stem 14^b, with a spring-closed plunger valve 18, having a beveled or conical head on its lower end coöperating with a similar seat at the end of the opening. In this instance the stem of the valve projects slightly above the holder stem 14^b, so that it may be unseated by the finger. With such a valve the cup may be placed in free communication with the atmosphere when it is forced upon the record, thus reducing the strain upon the walls, and then before the lifting commences the finger may be taken off, causing the cup to grip. After the record has been raised the valve is again unseated, whereupon the record is disengaged.

Fig. 8 also illustrates the fact that the stem 14^a may be formed with an eye, enabling it to be adjusted on the arm and held thereto by a set-screw 19.

In Figs. 9 and 10 the arm is provided with a telescopic sleeve 20, which carries the cup, turning of the sleeve and cup being prevented by the longitudinal rib and corrugation 21 seen in Fig. 10. This enables the lifter to be adjusted in or out, or to be pushed back out of the way. In any of the forms the arm may be swung laterally upon its mounting, so that the cup may be positioned over the desired part of the record, or swung entirely clear of the turntable if desired.

From the foregoing it will be understood that in order to remove a record from the turntable, it is merely necessary to push downward on the lifter until the cup grips the record, then, when the pressure is relaxed, the resilience of the arm automatically raises the cup and record in the manner already described. With the form of vent shown in Figs. 4 and 7, the stem of the cup follows the hand in the upward movement, so that the finger naturally bears upon the top of the stem and keeps the vent closed until the other hand has been inserted beneath the record.

While certain preferred embodiments of the invention have been described in detail, it is to be understood that other forms are not excluded and that numerous changes and modifications may be made.

What I claim as new is:

1. A lifting device suitable for lifting disk records from the turntable of a phonograph, comprising an overhanging tilting arm, depressible, and having means for resiliently raising and sustaining it, and a flexible suction cup on said arm, said cup having a flexible open mouth and depending upon its collapsibility for its suction effect and being capable of flexing sidewise without releasing its grip.

2. A lifting device comprising a mounting, an arm consisting of a resilient rod supported at one end in said mounting and adjacent the same being coiled to form a spring hinge, and a collapsible suction cup on said arm.

3. A lifting device comprising a mounting, a tilting arm extending from said mounting and having resilient means for raising and sustaining it, and a collapsible suction cup on the arm.

4. A lifting device comprising a mounting, a resilient overhanging arm extending from said mounting, depressible and self-raising, and a collapsible suction cup on the arm.

5. A lifting device comprising a mounting, an arm swiveled on said mounting to swing laterally and being also tiltable verti-

cally and having spring means for raising and sustaining it, and a collapsible suction cup on the arm.

6. A lifter comprising a flexible suction cup having an open flexible mouth and depending upon its collapsibility for its suction effect, and provided with a delayed-action vent for relieving the vacuum and releasing the article when lifted.

7. A lifter comprising a flexible suction cup having an open flexible mouth and depending upon its collapsibility for its suction effect and having a vent passage adapted to be closed at its outer end by the finger and provided with means for delaying the entrance of air when the finger is removed.

8. A lifter comprising a collapsible resilient suction cup having an open mouth and a handle and a vent adapted to be closed by the finger, and mechanical means for supporting said cup in an elevated position and for permitting the same to be depressed, said means possessing resilience to raise the cup and cause it to follow the finger.

JOSEPH MENCHEN.