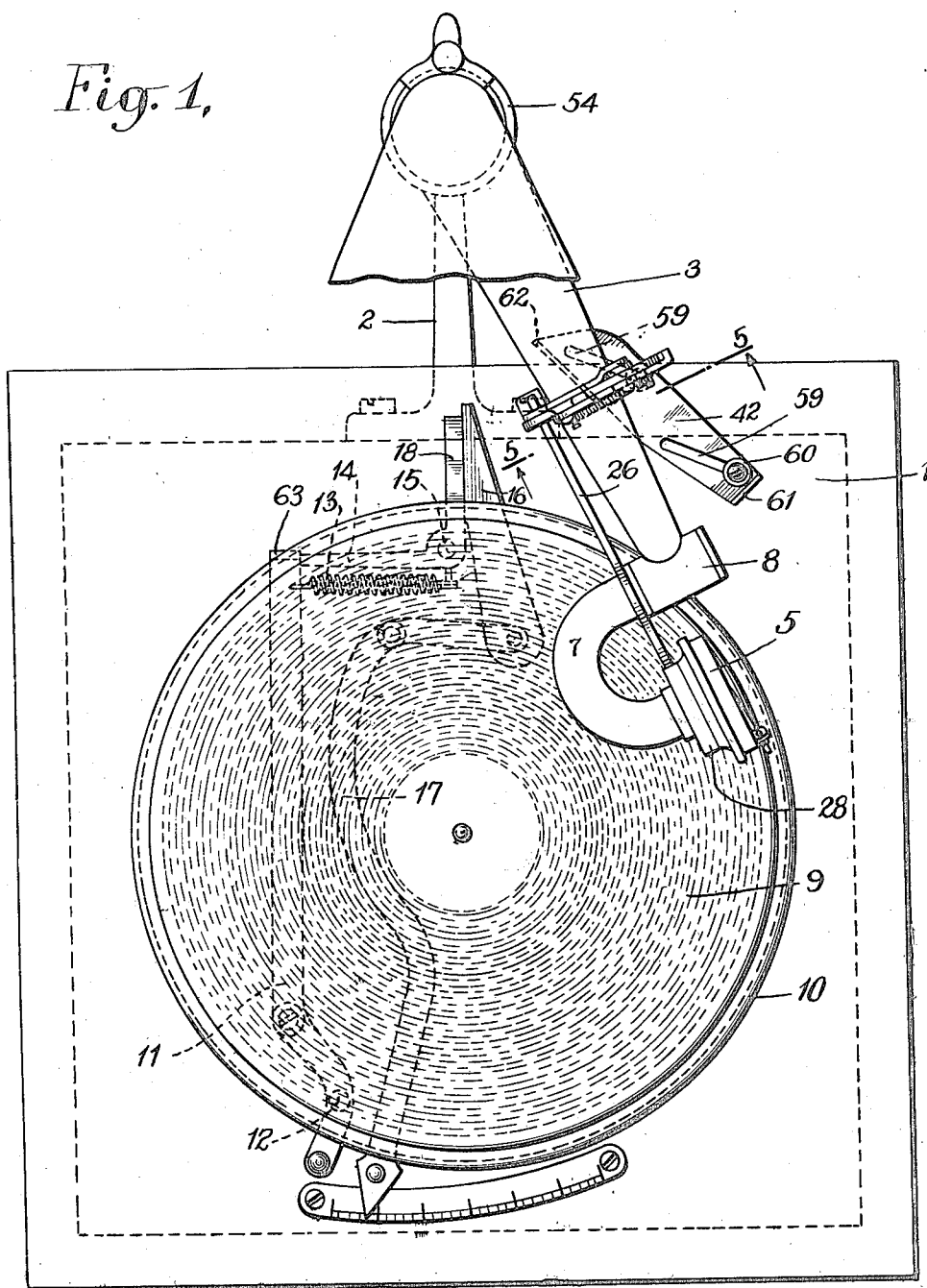


D. M. WINANS.
TALKING MACHINE WITH REPEAT ATTACHMENT.
APPLICATION FILED JULY 17, 1915.

1,165,927.

Patented Dec. 28, 1915.
3 SHEETS—SHEET 1.

Fig. 1,



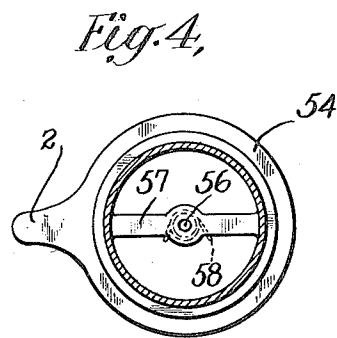
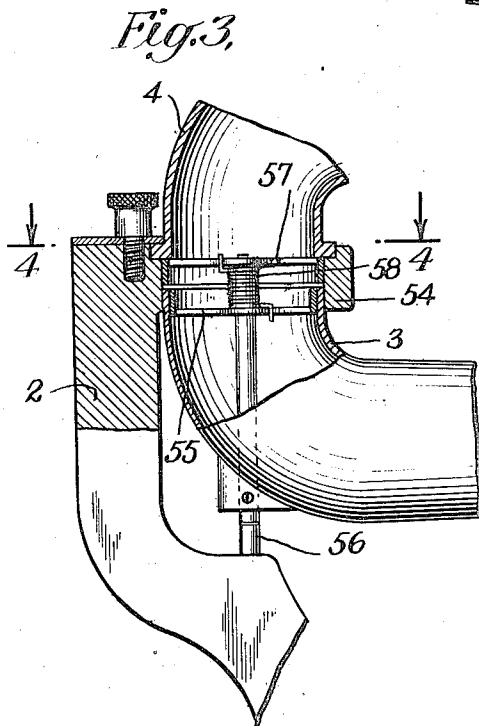
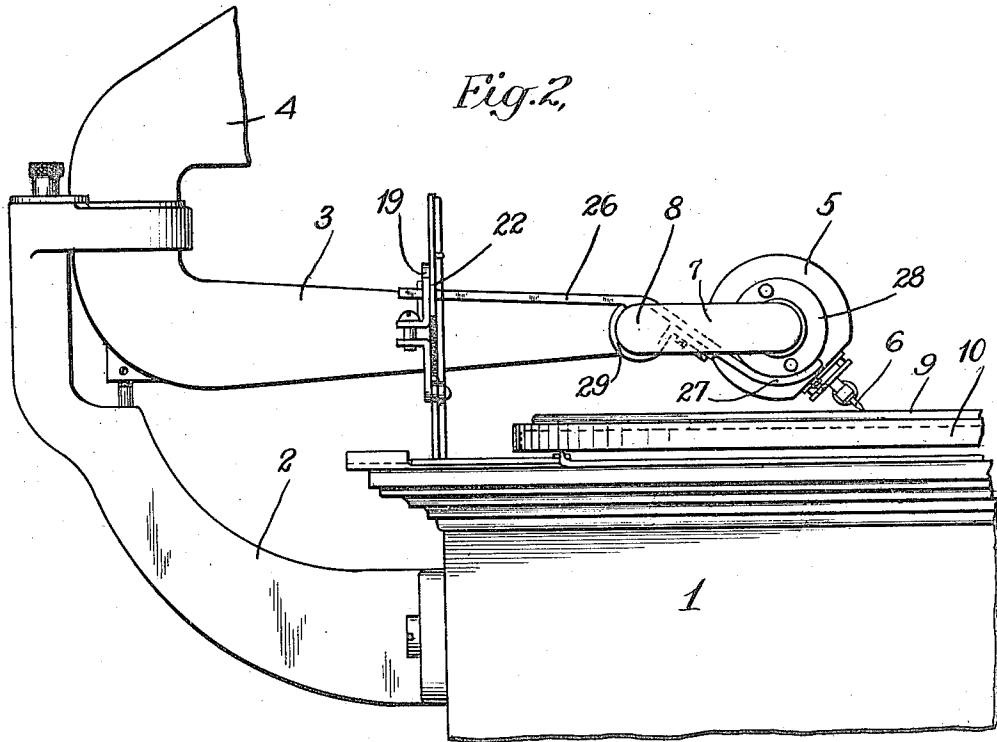
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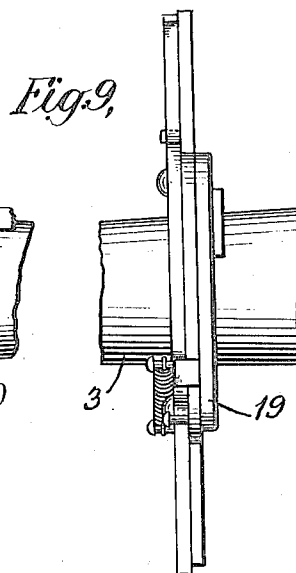
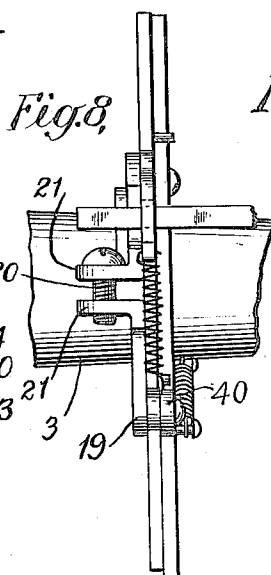
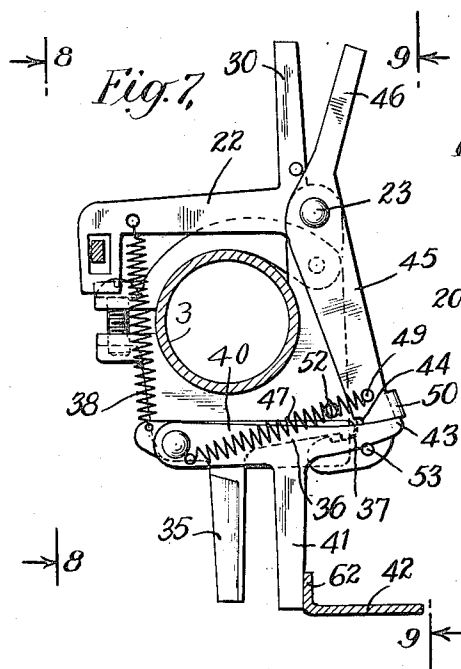
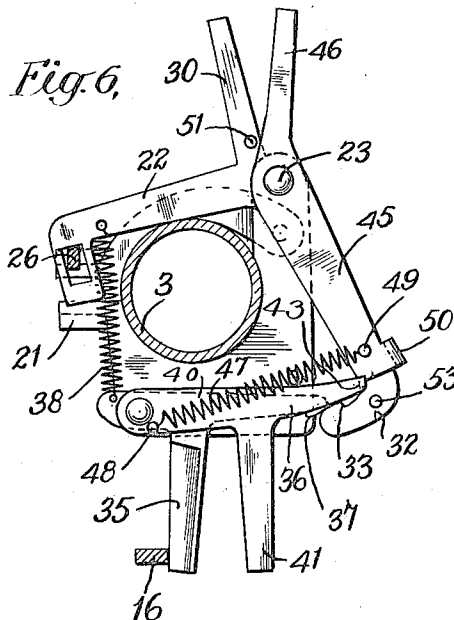
Patented Dec. 28, 1915.
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE WITH REPEAT ATTACHMENT.

1,165,927.

Specification of Letters Patent.

Patented Dec. 28, 1915.

Application filed July 17, 1915. Serial No. 40,352.

To all whom it may concern:

Be it known that I, DANIEL M. WINANS, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Talking-Machines with Repeat Attachments, of which the following is a specification.

My invention relates to talking machines having mechanism enabling the same to automatically repeat a record, when desired. That is, if the "repeat" mechanism or attachment is set, in my invention, the record being rotated and the reproducing stylus or needle positioned to reproduce the same, the selection will be played; at the termination of the selection the stylus will be lifted from contact with the record and returned immediately to its starting position, whereupon the stylus is again dropped into engagement with the record and the selection repeated. At the termination of the second rendition of the record the machine is automatically stopped. By my invention, these movements are effected by means of a number of levers carried by the tone arm. When the first rendition of the record is completed, in accordance with the preferred form of my invention, a lever carried with the tone arm contacts lightly with the usual latch of an automatic stop mechanism, this latch or trigger being adapted, when subsequently operated to release the brake and permit the same to be spring-operated to stop the machine in the well-known manner. In my device, however, the trigger referred to is not operated by the first contact therewith of the lever referred to. Instead, the first light contact of the lever with the trigger results in unlatching another lever and causing the reproducing stylus to be lifted from the record surface. The forward movement of the tone arm simultaneously stops, before the brake release trigger has been operated, and the tone arm is immediately returned, by suitable mechanism, to its starting point, the stylus being held out of contact with the record. A second lever carried by the tone arm now encounters an adjustable stop device, as a result of which other lever means are tripped, replacing the stylus in the record groove at the beginning of the record. The stylus now travels a second time over the record and at the end of this second rendition, the first

lever referred to again contacts the trigger of the automatic stop device, this time operating the same and stopping the machine.

The object of my invention is to provide a simple and effective mechanism for operating in the manner described, or for causing a record automatically to be repeated, by the coaction of devices movable with the reproducer, with suitable stop devices on the machine.

Other objects of my invention reside in the details of construction and combinations of parts hereinafter more fully described and claimed in the appended claims.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming part of this application and illustrating one embodiment of my invention.

In the drawings, Figure 1 represents a top plan view of a talking machine having my preferred repeat attachment, Fig. 2 is a side elevation of the same, Fig. 3 is an enlarged vertical section through the upper end of the tone arm, Fig. 4 is a horizontal section on line 4—4 of Fig. 3, Fig. 5 is a section taken on line 5—5 of Fig. 1, the reproducer being about to complete its first rendition of the record, Figs. 6 and 7 are similar views showing the tripping of the levers at the end of the first rendition and at the beginning of the second rendition of the record respectively, and Figs. 8 and 9 are side elevations of the mechanism shown in Fig. 7 viewed in the direction of the arrows 8 and 9 respectively.

For purposes of illustration, I have shown a talking machine having the casing 1, from which extends the bracket 2, supporting the tone arm 3, from which is carried the amplifying horn 4. The reproducer 5, provided with the stylus or needle 6, is supported by the goose-neck 7, pivotally mounted at 8 on the end of the tone arm. The stylus 6 operates upon the disk record 9, carried by the turntable 10, the stylus being fed or progressed inwardly of the record by its engagement with the record groove.

I have illustrated my improved repeat attachment as cooperating with the form of automatic stop device described in my Patent No. 1,084,993, dated January 20, 1914, although any of the well-known automatic stop devices may be used in which a part movable with the tone arm contacts a latch

device or trigger to operate, or permit the operation of the brake. In the construction illustrated in the drawings, the lever 11, pivotally supported underneath the turntable, carries a pad 12, adapted to press against a flange on the turntable to stop the rotation thereof, when lever 11 is actuated by spring 13. Lever 11 is held in inoperative position by a trigger 14, pivoted at 15. A wedge-shaped member 16 is carried by lever 17 and is positioned at one side of the arm 18 of trigger 14 by the adjustment of lever 17 into a desired position, the effect of this adjustment being to interpose a greater or less thickness of member 16 in the path of the trip device carried by the tone arm and thus cause the selection to be stopped at an earlier or a later point.

A supporting plate 19 is secured to the tone arm 3 in any suitable manner, as by fitting the same about the tone arm, and passing a screw 20 through a pair of lugs 21 on the adjacent ends of the plate. A lever 22 is pivoted to plate 19 at 23, the forward end of this lever being extended downwardly, as shown at 24, and provided with a slot 25. A lever 26 is pivotally mounted on the goose-neck 7, adjacent to the pivotal bearing 8 thereof, lever 26 having a forward upwardly curved portion 27 adapted to engage the cylindrical surface 28, at the rear of the sound box or reproducer 5, to lift the reproducing needle from the record. The tail of lever 26 extends through the slot 25 in the downwardly extending portion 24 of lever 22, by which lever 26 is operated to lift the reproducer at the end of the first rendition of a record which is to be repeated.

Lever 26 may be loosely pivoted upon goose-neck 7 in any suitable way, as by providing lever 26 with a strap 29 extending around the goose-neck and secured to lever 26. In the position of the mechanism shown in Fig. 5, in which none of the levers have been tripped, lever 26 is out of contact with the edges of slot 25, the reproducer being supported by the engagement of the stylus with the record, lever 26 thus not interfering with the movements of the reproducer. When the first rendition of the record is completed, however, lever 22 is drawn downwardly into the position shown in Fig. 6, as will be explained, depressing the tail of lever 26 and thereby lifting the reproducer stylus from the record.

Lever 22 is provided with a handle portion 30 extending upwardly above its pivot 23, and a portion 31 extending downwardly below pivot 23, the forwardly extending portion terminating in the downturned end 24, and the downwardly extending arm 31, constituting a bell-crank. Arm 31 of the lever is provided with a forwardly extending foot portion 32 having a latching projection 33 extending a slight distance from

its upper surface. A pair of latching levers are pivoted at 34 to the supporting plate 19. The under or rear lever is provided with a downwardly extending trip arm 35 adapted to contact the adjustable stop member of the automatic stop device, when the stylus reaches or approaches the end of the record. This lever has a portion 36 extending to the right, referring to Figs. 5, 6 and 7, from pivot 34, this arm 36 having a nose 37 adapted to engage with the latching projection 33 of lever 22, as shown in Fig. 5, to hold the upper arm of lever 22 in its raised position out of contact with lever 26. A spiral spring 38 extends between the forward end of the upper arm 22 and the left hand end of lever 36, as shown at 39.

The outer or front one of the two levers referred to as pivoted at 34 has an arm 40 extending to the right from pivot 34 and a downwardly extending trip arm 41. Trip arm 41 is adapted to contact the stop 42, as will be explained, when the stylus has returned inoperatively across the record to the outer edge thereof. Lever 40 has a nose 43 adapted to engage within a notch 44 at the lower end of a lever 45, which is pivoted at 23 in front of lever 22. Lever 45 has a handle portion 46 adjacent to the handle portion 30 of lever 22. A spiral spring 47 is connected at one end to a pin 48 on lever 40, adjacent to the pivot 34 thereof, and at the other end to a pin 49 on lever 45 adjacent the lower end thereof. Spring 47 is stronger than spring 38 already described. Lever 45 has a rearwardly extending projection 50 at its lower end, adapted to contact the right hand edge of arm 31 of lever 22 when the parts are in the position shown in Fig. 6.

The handle 30 of lever 22 is provided with a stop pin 51, adapted to contact the left hand edge of handle 46 of lever 45, as shown in Fig. 5, and thereby prevent undue upward movement of lever 22. A pin 52 on plate 19 limits upward movement of both levers 36 and 40. A pin 53 on the foot portion 32 of lever 22 limits downward movement of lever 40, as shown at Fig. 7.

The tone arm 3, as shown in Figs. 2, 3 and 4, is provided with means for returning the same across the record to the outer edge thereof, when the stylus is lifted from the record groove. The tone arm is pivotally mounted in the forwardly extending annular portion 54 of bracket 2, the tone arm having a spider 55 through which the pivot rod 56 extends, the upper end of this rod being mounted in the cross piece 57 secured within the annular portion 54 of bracket 2, in the usual manner. A spiral spring 58 is mounted about pivot rod 56 between spider 55 of the tone arm and cross piece 57 of the bracket, its ends being secured to these two members in such a manner as to tend to

move the tone arm toward the outer edge of the record and turntable.

The stop 42, which as stated, is adapted to be contacted by trip arm 41 of lever 40 is adjustably secured to the top of casing 1, as shown in Fig. 1. Stop member 42 may suitably comprise a strip of metal having diagonal slots 59, 59 therethrough, through which screws 60, secured in the casing, extend, these screws being tightened in any desired position of member 42. Member 42 may be provided with an upturned end 61 to constitute a handle and an upturned flange 62 on the inner edge of the member adjacent to one end. This flange 62 constitutes the stop which is contacted by trip arm 41. The position of flange 62 is varied to permit the use of records of different sizes, such as ten inch and twelve inch disks, by positioning member 42 so that screws 60 are mounted in one end or the other of diagonal slots 59, or in an intermediate position.

The operation of the device may now briefly be explained.

When it is desired to play the same record twice, handles 30 and 46 are pressed together, with the result that lever 36 is latched by projection 33 of arm 31 and lever 45 is latched by the engagement of nose 43 with notch 44, the parts now being in the position shown in Fig. 5. Previous to this, the reproducer has been positioned over the inner edge of the record with the stylus in contact with the last groove of the record and the adjustable member 16 of the automatic stop device positioned to contact the forward edge of trip arm 35, the same as would be done if it were desired merely to adjust the automatic stop device for the record, without regard to the repeating mechanism. The reproducer is then moved over to the outer edge of the record, with the stylus in line with the outside groove of the record and stop member 42 positioned so that its flange 62 will contact trip lever 41. The machine is then started, and the stylus being positioned in the record groove, will travel across the record, the feed of the reproducer relative to the record being caused by the engagement of the stylus with the record groove. When the rendition of the record is completed, trip arm 35 contacts stop member 16, as shown in Fig. 6. Member 16 is not, however, moved sufficiently by this contact to release brake lever 11, since the first light contact of arm 35 with member 16 raises lever 36 sufficiently to disengage its nose 37 from latching projection 33, whereupon spring 38 immediately swings lever 22 downward, as shown in Fig. 6, whereby the tail of lever 26 is depressed and the reproducer 5 lifted so that the stylus is clear of the record. Thereupon, the tone arm is immediately swung in the reverse

direction, the stylus passing over the record surface without contacting the same, until trip arm 41 contacts the stop flange 62, as shown in Fig. 7. This results in depressing lever 40, so that its nose 43 drops from notch 44 and spring 47 draws lever 45 to the left into the position shown in Fig. 7. Spring 47 is stronger than spring 38, as stated, and lug 50 on lever 45 being in contact with arm 31 of lever 22, this movement of lever 45 carries lever 31 with it, the upper arm of the bell-crank being raised against the force of its weaker spring 38. This removes the pressure of lever 22 from the tail end of lever 26 and allows the stylus to again drop into the outer groove of the record. The record is now played for the second time, at the end of which trip arm 35 again contacts adjustable stop member 16. The various levers now being tripped, however, there is nothing to cause the stylus to be lifted from the record, and the continued contact of arm 35 with member 16 swings member 16 and arm 18 of the trigger 14 therewith, so that trigger 14 moves out of contact with lug 63 on brake lever 11, permitting the brake to be applied and the machine stopped.

It is obvious that when it is not desired to repeat a record, the parts of the repeat mechanism are simply left unlatched, as shown in Fig. 7, whereupon arm 35 contacting stop member 16 will stop the machine at the end of each rendition. If it is desired to repeat a record more than twice, without stopping the machine, the repeat mechanism may be relatched, without interrupting the record, by merely pressing handles 30 and 46 together.

In the broader aspects of my invention, stop member 16 may be considered simply as an abutment without reference to an automatic stop device. Also, while I have illustrated my invention in connection with a well-known form of talking machine, in which the reproducer is carried at the end of the pivoted tone arm and fed across the revolving disk record, it is obvious that my invention is not limited to this type of machine.

The preferred form of my device as illustrated is extremely simple, may be manufactured at small cost and is certain in its operation.

Having described my invention, what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. In a talking machine, having a pivoted tone arm, reproducer, stylus, rotatable record carrier, and brake means therefor, the combination of a trigger for latching the brake in inoperative position, means carried by the tone arm adapted to contact said trigger at the end of a record, means for lifting said stylus from the record when said means contacts said trigger, and without operating

said trigger, means for returning said tone arm across the record with the stylus out of contact therewith, and means for causing the stylus to again engage the record at the beginning thereof, substantially as set forth.

2. In a talking machine, having a rotatable record-carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of an automatic stop device, including a stop member, means movable with the reproducer adapted to contact said stop member at the end of a record, a member latched in inoperative position by said means, and unlatched by the light engagement thereof with said stop device, devices for lifting the stylus from the record when said member is unlatched, spring means for returning the reproducer to its starting position, when the stylus has been lifted, and means for causing the stylus to again engage the record at the beginning thereof, said first means being adapted to operate said stop member when pressed against the same thereafter, said member being unlatched, substantially as set forth.

3. In a talking machine, having a rotatable record carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of an automatic stop device, including a stop member, means movable with the reproducer adapted to contact said stop member at the end of a record, without operating said stop device, means for lifting the stylus from the record thereupon, means for returning the reproducer to its starting position, an abutment, and means movable with the reproducer adapted to contact said abutment and thereupon to cause the stylus to again engage the record at the beginning thereof, substantially as set forth.

4. In a talking machine, having a rotatable record carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of an automatic stop device, including a stop member, means movable with the reproducer adapted to contact said stop member at the end of a record, a member latched in inoperative position by said means, and unlatched by the engagement thereof with said stop device, and devices for lifting the stylus from the record when said member is unlatched, said means being adapted to operate said stop device when pressed against the same with sufficient force, substantially as set forth.

5. In a talking machine, having a rotatable record carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of a stop, a trip device movable with the reproducer adapted

to contact said stop at the end of the record, a lever latched by said trip device and released by the contact of the latter with said stop, and means operated by said lever to lift the stylus from the record when said lever is released, substantially as set forth.

6. In a talking machine, having a rotatable record carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of stops positioned to be contacted when the stylus has approximately completed its forward and return movements across the record, trip devices movable with the reproducer adapted respectively to contact said stops at the ends of said forward and return movements, a pair of lever means latched by said trip devices, respectively, and adapted to be released by the contact thereof with said stops, a lever adapted to lift the reproducer when operated, means for causing said first lever means, when released, to operate said lever, and means for causing said second lever means, when released, to return said first lever means to inoperative position, substantially as set forth.

7. In a talking machine, the combination of a pivoted tone arm, a reproducer and stylus carried thereby, adapted to coact with a rotatable record, a spring tending to swing the tone arm outwardly across the record, reproducer-lifting means, carried by the tone arm, means for latching the same in inoperative position, comprising a detent, and a stop positioned to be contacted by said detent to unlatch said latching means, when said stylus reaches the end of the record, substantially as set forth.

8. In a talking machine, the combination of a pivoted tone arm, a reproducer and stylus carried thereby, adapted to coact with a rotatable record, a spring tending to swing the tone arm outwardly across the record, a lever, mounted on the tone arm, adapted to raise the stylus from the record, a lever adapted to depress an end of said first lever to raise the stylus, a spring for operating said second lever, and means for latching said second lever in inoperative position comprising a detent having a trip arm, said levers and latching means being carried by the tone arm, substantially as set forth.

9. In a talking machine, having a rotatable record carrier and a reproducer and stylus movable relatively thereto to play a record when the stylus is in engagement with the record, the combination of stops positioned to be contacted when the stylus reaches the end of its forward and return movements, respectively, across the record, and devices mounted to move with the reproducer, comprising reproducer-lifting means, a bell-crank for operating the same,

a lever and spring for moving said bell-crank to inoperative position, a weaker spring for operating said bell-crank, and means for latching said bell-crank, and said lever, in inoperative positions, adapted to be released by contact with said stops, respectively, substantially as set forth.

This specification signed and witnessed this 14th day of July, 1915.

DANIEL M. WINANS.

Witnesses:

D. W. GREGG,
M. G. HALEY.