

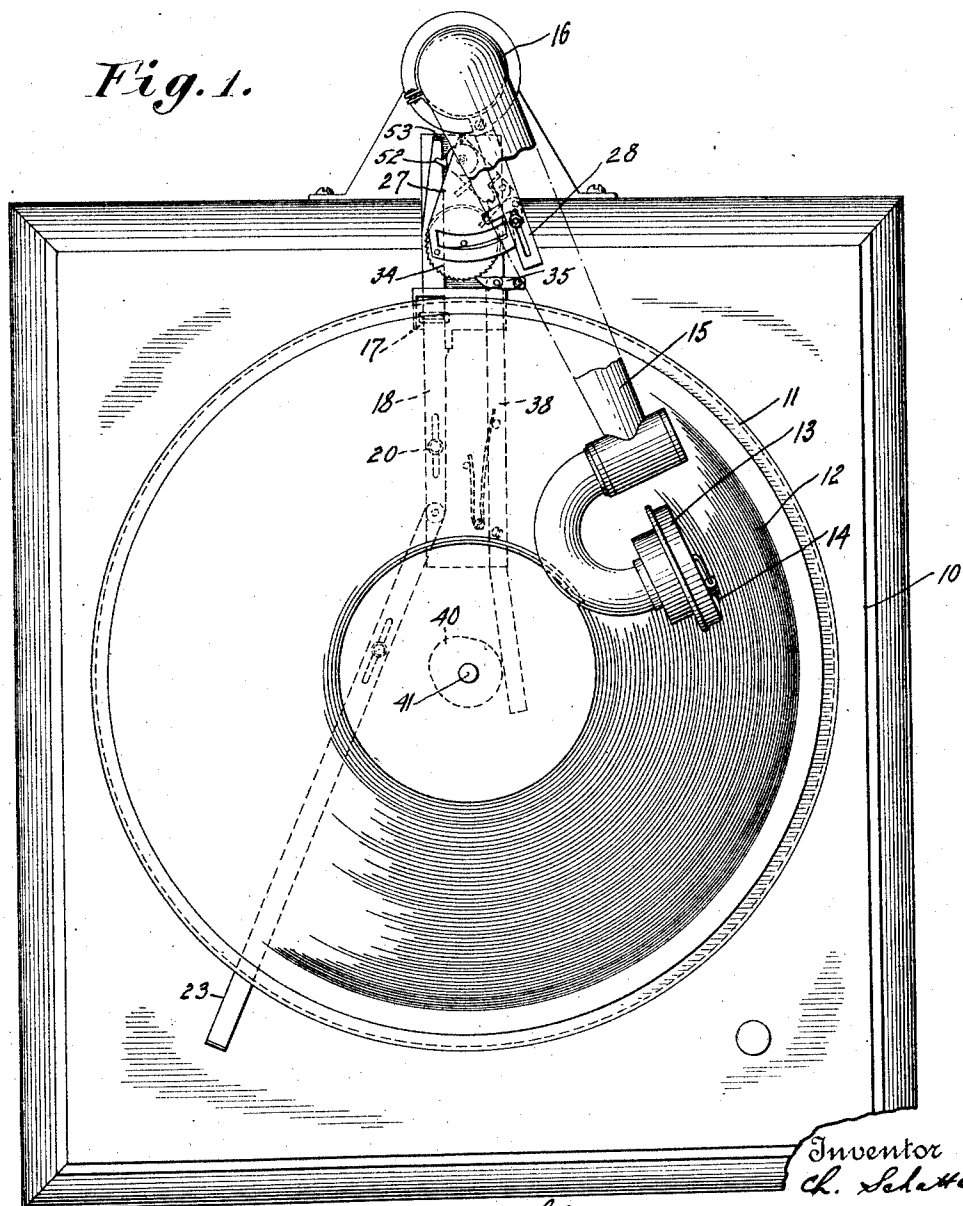
C. SCHATTE.  
PHONOGRAPH STOP MECHANISM.  
APPLICATION FILED SEPT. 13, 1920.

1,415,954.

Patented May 16, 1922.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor  
C. Schatte

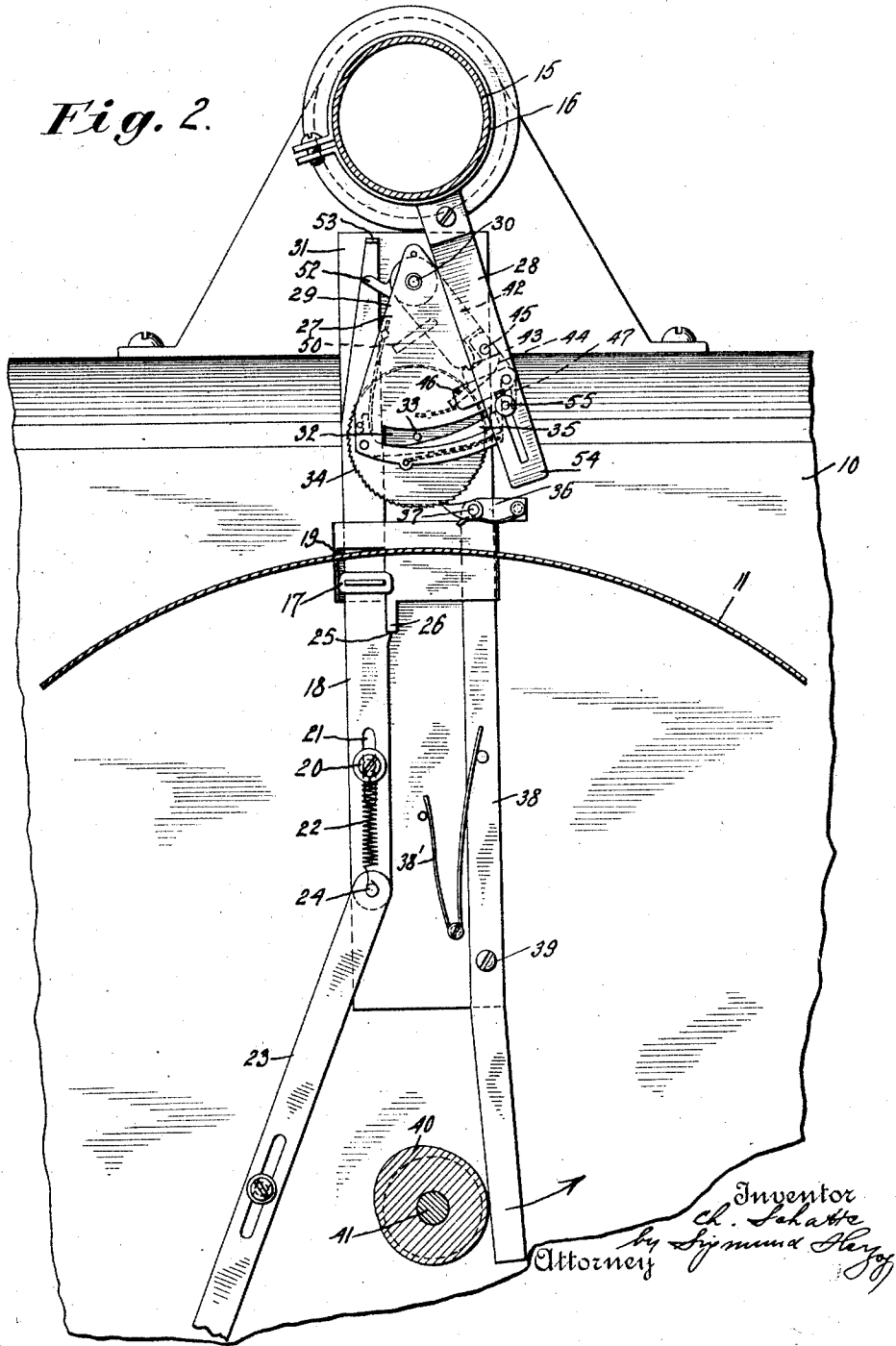
By his Attorney  
Sigmund Herzog

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*Fig. 2.*



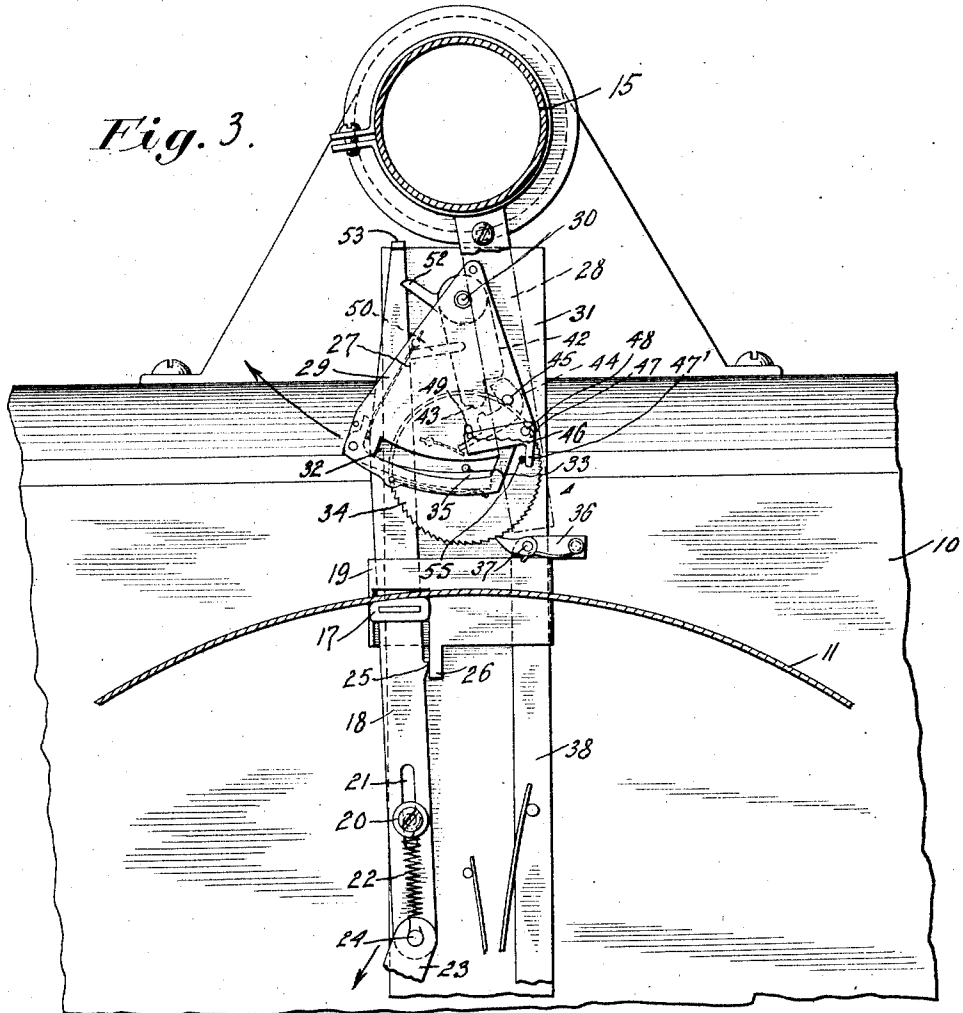
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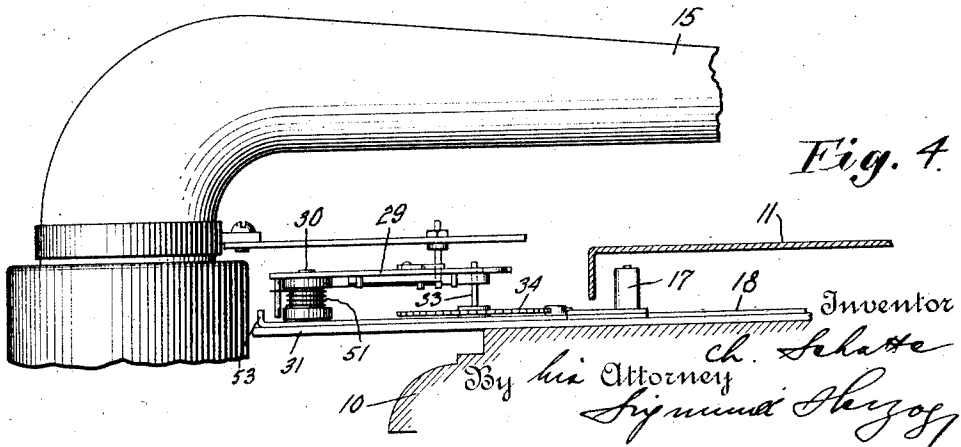
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3 SHEETS—SHEET 3.

*Fig. 3.*



*Fig. 4.*



# UNITED STATES PATENT OFFICE.

CHARLES SCHATTE, OF NEW YORK, N. Y.

## PHONOGRAPH STOP MECHANISM.

1,415,954.

Specification of Letters Patent. Patented May 16, 1922.

Application filed September 13, 1920. Serial No. 409,835.

*To all whom it may concern:*

Be it known that I, CHARLES SCHATTE, a citizen of the United States, and resident of the city of New York, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Phonograph Stop Mechanisms, of which the following is a specification.

The present invention relates to mechanisms for automatically stopping the motion of phonographs, or analogous mechanical instruments, when the stylus or needle of the instrument reaches the end of the record.

The main object of the invention is to produce a stop mechanism for phonographs and analogous instruments which, without any adjustment of the elements thereof, stops the instrument as soon as the stylus or needle reaches the end of the record, regardless of the length of the latter or of the point on the disk at which the record terminates.

Another object of the invention is to provide a stop mechanism of the character mentioned which may be mounted upon phonographs of any type, without necessitating changes in the construction of the latter.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a phonograph provided with a stop mechanism constructed in accordance with the present invention; Fig. 2 is a fragmentary plan view of a phonograph, showing the stop mechanism on a larger scale; Fig. 3 is a similar view, with the elements in other positions; and Fig. 4 is a side elevation of the device shown in Fig. 1.

In the drawings, the numeral 10 indicates

the usual box or casing of a phonograph, including a rotary table 11, on which the record disk 12 is supported. In the case illustrated in the drawings a disk record is shown, but it will be understood that the stop mechanism could be readily adapted for use with machines having other records. With the record disk co-operates a sound producing device 13, provided with a stylus or needle 14, which is adapted to follow the spiral groove in the exposed surface of the record disk. The sound producing device is carried by a tone-arm 15, pivotally mounted at 16 to swing horizontally over the table 11. The operation of the elements so far described is well known and they may be of the usual or any preferred construction.

With the table 11 co-operates a brake, including a brake-shoe 17, adapted to bear against the rotary table for stopping the same. This brake-shoe is fixed to a bar 18, which is shiftable upon the casing 10 in a fixed guide 19, it being also oscillatable upon a stud 20, that is seated in a longitudinal slot 21 in the said bar. A spring 22, fixed to the said bar and stud, has a tendency to shift the said bar so that the brake-shoe is brought into contact with the table 11. An actuating rod 23 is pivoted at 24 to one end of the bar 18, it extending beyond the table 11, as clearly shown in Fig. 1 of the drawings. The bar 18 is provided with a nose 25, co-operating with a lug 26 on the guide 19. When these last-mentioned elements are in engagement, the brake-shoe 17 is held, against the action of the spring 22, out of contact with the table 11.

The brake releasing mechanism consists of a pivoted bodily stationary element 27 and a moving element 28, the latter being fixed to the tone-arm.

The element 27 comprises a horizontally extending plate member 29, pivoted at 30 to a base plate 31, the latter being attached to the casing 10. The plate member 29 is provided with an arc-shaped slot 32, through which extends the spindle 33 of a ratchet gear 34, which is rotatably mounted upon the base plate. Into the said slot projects a spring-pressed cam-plate 35, co-operating with the spindle 33 in a manner hereinafter to be described. The ratchet gear is acted upon by a spring-pressed pawl 36,

pivoted at 37 to a spring-pressed bar 38, the latter, in turn, being pivoted at 39 to the base plate 31 and co-acting with a cam 40, that is keyed or otherwise fixedly attached to a rotary shaft 41, carrying the table 11. During each revolution of the shaft 41, the cam 40 causes the bar 38 to swing around its pivot 39 in the direction of the arrow shown in Fig. 2 of the drawings, thereby causing the pawl to move the ratchet gear 34 in the corresponding direction the corresponding distance. As long as the spindle 33 is disengaged from the cam-plate 35 (Fig. 2), the plate member 29 and the elements carried thereby remain stationary. When, however, the cam-plate is in engagement with the spindle 33 (Fig. 3), the said plate member and the elements carried thereby are moved around the pivot 30 in the direction of the arrow shown in Fig. 3 of the drawings, step by step. The spindle 33 and cam-plate 35 form a friction clutch.

To the underface of the plate member 29 is pivoted at 30 a lever 42, having a shoulder 43 for engagement with a spring-pressed latch 44, the said latch being pivoted at 45 to the underface of the plate member 29 and in engagement with a pin 46, carried by a bellcrank lever 47, the latter being pivoted at 48 to the upper face of the plate member 29. The pin 46 extends through a slot 49 in the plate member 29. The lever 42 carries an arm 50, that is adapted to act upon the bar 18 when the lever 42, which is under the action of a spring 51 (Fig. 4), is released by the latch 44. The lever 42 is furthermore provided with a nose 52, in the path of a vertical extension 53 upon the bar 18.

The brake releasing element 28 comprises an arm 54, that is fixed to the tone-arm 15 and carries a vertically extending pin 55. This pin clears, in its movement, the bellcrank lever 47, but is brought to bear against the plate member 29.

The operation of this device is as follows: In Fig. 3 of the drawings the elements of the mechanism are shown in the positions which they occupy after the stylus on the sound-box of the instrument has reached the end of the record. In these positions the brake shoe 17 is in contact with the table 11, stopping the rotation thereof. In order to place now a new record upon the table, first the tone-arm must be swung so that the stylus is moved beyond the periphery of the table of the machine. After the new record has been placed on the machine, the brake-shoe is disengaged from the said table and the element 27 of the brake releasing mechanism set to operative position. For this purpose the actuating rod 23 is moved in the direction of the arrow shown adjacent the same in Fig. 3 of the drawings. By

this movement the nose 25 of the bar 18 is engaged with the lug 26 on the stop 19. Simultaneously the vertical extension 53 causes the lever 42 on the plate member 29 to engage the latch 44, swinging the said plate member and the elements carried thereby around the pivot 30 into the positions shown in Fig. 2 of the drawings. In these positions, the spindle 33 of the ratchet gear 34 is disengaged from the cam-plate 35. The brake-shoe being now disengaged from the table, the latter rotates, and the record is ready to receive the stylus 14. During each rotation of the table, the cam 40 causes a movement of the pawl 36 and a corresponding movement of the ratchet gear. A spring 38', acting against the bar 38, moves the pawl on its idle stroke. Inasmuch as the spindle 33 is free from the cam-plate 35, the plate member 29 and the elements thereon remain in their original positions. When now, in the movement of the tone-arm 15, the pin 55 bears against the plate member 29, the latter is caused to move in the direction of the arrow shown in Fig. 3 of the drawings around its pivot 30, whereby, in due course, the spindle 33 engages the spring-pressed cam-plate 35. The result of this engagement is that, by friction, the plate member 29 and the elements thereon are, step by step, caused to move in the direction of the arrow shown in Fig. 3 of the drawings. When the stylus, in traversing the record in the operation of the instrument, reaches the point at the end of the record, the needle 55 on the arm 54 is brought to a stop, while the plate member 29 and its elements move further in the direction of the arrow shown in Fig. 3 of the drawings. As the plate member 29 moves in the direction indicated, the arm 47' of the bellcrank lever 47 is engaged with the pin 55, the result being that, in the movement of the plate member 29, the said bellcrank lever is swung around the pivot 48, whereby the pin 46 thereon swings the latch 44 around its pivot 45, thus releasing the spring-pressed lever 42. When this lever is released, it swings from the position shown in Fig. 2 into the position shown in Fig. 3 of the drawings, whereby its arm 50 shifts the bar 18 around its pivot pin 20, disengaging the nose 25 from the lug 26. As soon as this disengagement has taken place, the spring 22 moves the bar 18 longitudinally, thereby applying the brake-shoe 17 to the table 11, stopping the rotation of the latter. The instrument is then ready for the next operation.

From the foregoing it appears that only a single setting of the stop mechanism is necessary and the machine can be started then in the usual way. It also appears that no adjustment whatever is necessary, the mechanism being capable of operating in

connection with flat record disks of any desired diameter, the stopping of the table 11 being effected when the stylus reaches the end of the record.

5 What I claim is:—

1. The combination with a phonograph including a rotating table and a swinging tone-arm traversing said table, of a stop mechanism comprising a spring-actuated 10 brake, means for holding said brake in its inoperative position, a stop pin carried by said tone-arm, a brake releasing mechanism mounted in the path of said pin, and means for rendering said releasing mechanism operative when engaged by said pin as the latter comes to a full stop at the end of the record, said tone-arm moving a predetermined distance across said rotating table before said pin is brought into operative relation to said brake releasing mechanism.

2. The combination with a phonograph including a rotating table and a swinging tone-arm traversing said table, of a stop mechanism including a spring-actuated 25 brake, means for holding said brake in its inoperative position, a stop pin carried by said tone-arm, a brake releasing mechanism pivoted to a stationary part of the phonograph in the path of said pin, means for causing an intermittent movement of said 30 brake releasing mechanism, said last mentioned means being rendered operative by the movement of said tone-arm, and means for rendering said releasing mechanism operative when engaged by said pin as the latter comes to a full stop at the end of the record.

3. The combination with a phonograph including a table and a swinging tone-arm traversing said table, of a spring-actuated 40 brake, means for holding said brake in its inoperative position, a stop pin carried by said tone-arm, a brake releasing mechanism pivotally mounted in the path of said pin, means for intermittently moving said brake releasing mechanism in the operation of said table and tone-arm, and means for rendering said releasing mechanism operative when engaged by said pin as the latter 50 stops at the end of the record.

4. The combination with a phonograph including a rotating table and a swinging tone-arm traversing said table, of a spring-actuated brake, means for holding said 55 brake in its inoperative position, a stop pin carried by said tone-arm, a brake releasing mechanism comprising a plate member pivotally mounted in the path of said pin, a lever pivoted to said plate member, a latch for holding said lever in its operative position, means on said plate member for setting said latch to releasing position, and means for intermittently moving said plate member and the elements carried thereby in the 65 operation of said table and tone-arm, said

latch being disengaged from said lever when the releasing means of said latch is engaged by said pin as the latter stops at the end of the record.

5. A phonograph according to claim 4, 70 comprising co-acting means connected with said brake and said lever for setting said plate member and the elements thereon to initial positions when said brake is disengaged from said table.

6. In a phonograph according to claim 4, 75 said means for intermittently moving said plate member comprising a ratchet gear having a spindle, a swinging pawl co-operating with said gear, a cam on said table for actuating said pawl, and a spring-pressed cam-plate carried by said plate member, said spring-pressed cam-plate being moved against said spindle by said stop-pin, whereby said plate member is caused to swing step 85 by step around its pivot.

7. In a phonograph according to claim 4, 80 said means for intermittently moving said plate member including a ratchet gear, a swinging pawl co-operating with said gear, a cam on said table for actuating said pawl, and a friction clutch on said gear and plate member, said friction clutch being rendered operative by the action of said stop-pin on 95 said plate member.

8. The combination with a phonograph including a rotating member and a traveling member propelled thereby, of a stop mechanism including a spring-actuated brake, 100 means for holding said brake in its inoperative position out of contact with said rotating member, a stop pin carried by said traveling member, a brake releasing mechanism pivoted to a stationary part of the phonograph in the path of said pin, means 105 for causing an intermittent movement of said brake releasing mechanism, said last mentioned means being rendered operative by the movement of said traveling member, and means for rendering said releasing 110 mechanism operative when engaged by said pin as the latter comes to a full stop at the end of the record.

9. The combination with a phonograph including a rotating member and a traveling 115 member propelled thereby, of a spring-actuated brake, means for holding said brake in its inoperative position out of contact with said rotating member, a stop pin carried by said traveling member, a brake releasing mechanism comprising a plate 120 member pivotally mounted in the path of said pin, a lever pivoted to said plate member, a latch for holding said lever in its operative position, means on said plate member for setting said latch to releasing position, and means for intermittently moving said plate member and the elements carried 125 thereby in the operation of said rotating and traveling members, said latch being disen- 130

gaged from said lever when the releasing means of said latch is engaged by said pin as the latter stops at the end of the record.

5 10. A phonograph according to claim 9, comprising co-acting means connected with said brake and said lever for setting said plate member and the elements thereon to initial positions when said brake is disengaged from said rotating member.

10 11. In a phonograph according to claim 9, said means for intermittently moving said plate member comprising a ratchet gear having a spindle, a swinging pawl co-operating with said gear, a cam on said table  
15 for actuating said pawl, and a spring-pressed cam-plate carried by said plate member, said spring-pressed cam-plate being moved against said spindle by said stop pin, whereby said plate member is caused to  
20 swing step by step around its pivot.

12. In a phonograph according to claim 9, said means for intermittently moving said plate member including a ratchet gear, a swinging pawl co-operating with said gear,

a cam on said rotating member for actuat- 25  
ing said pawl, and a friction clutch on said gear and plate member, said friction clutch being rendered operative by the action of said stop pin on said plate member.

13. The combination with a phonograph 30  
including a rotating member and a traveling member propelled thereby, of a stop mechanism comprising a spring-actuated brake, means for holding said brake in its inoperative position out of contact with said 35  
rotating member, and a mechanism in the path of said traveling member for releasing said brake to stop the rotation of said rotating member when said traveling member ceases to move, the initial position of 40  
said brake releasing mechanism being independent of the initial position of said traveling member on the record mounted on said rotating member.

Signed at New York, in the county of 45  
New York and State of New York, this 3rd day of Sept., A. D. 1920.

CHARLES SCHATTE.