

R. R. FOOTE.  
PHONOGRAPH.

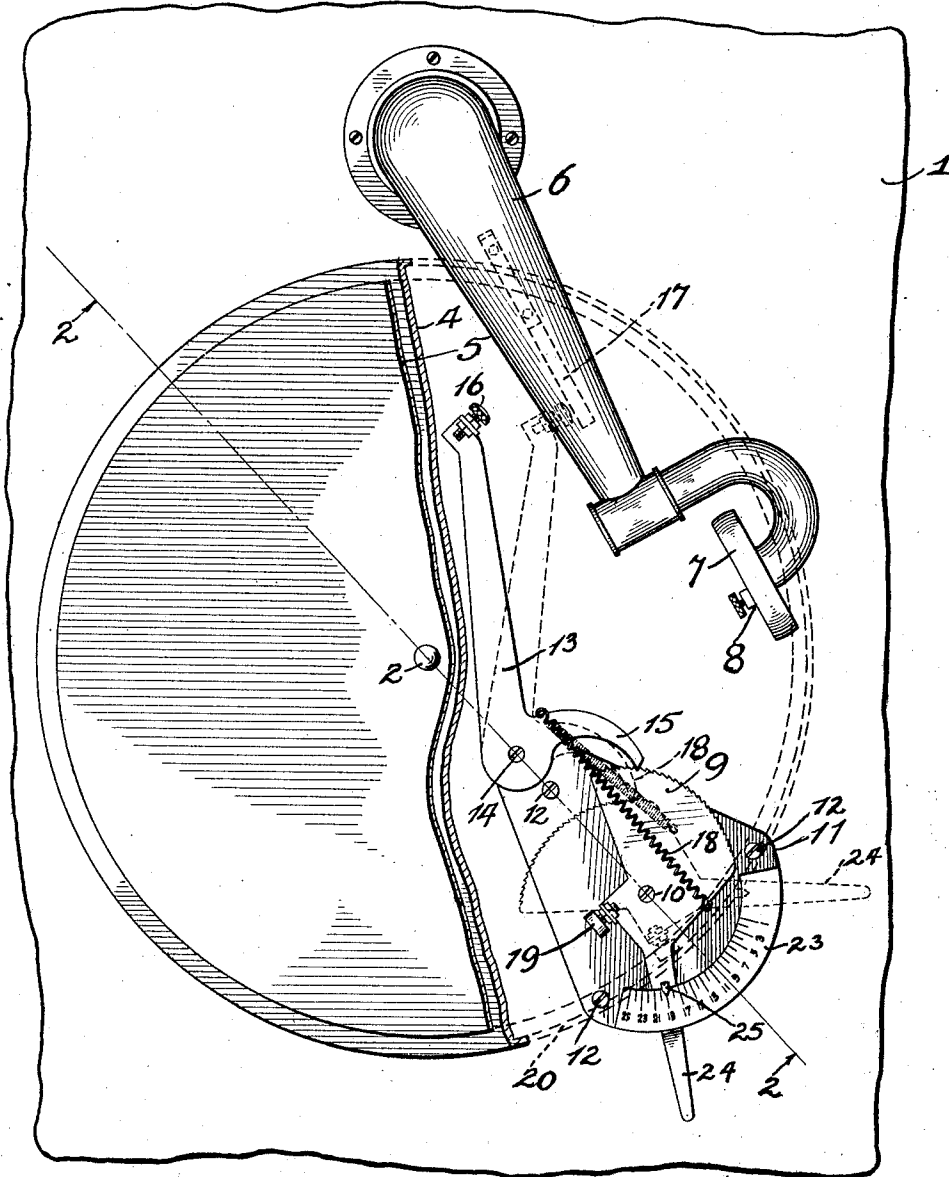
APPLICATION FILED FEB. 16, 1920. RENEWED JAN. 27, 1921.

1,393,769.

Patented Oct. 18, 1921.

2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS—SHEET 2.

Fig. 2.

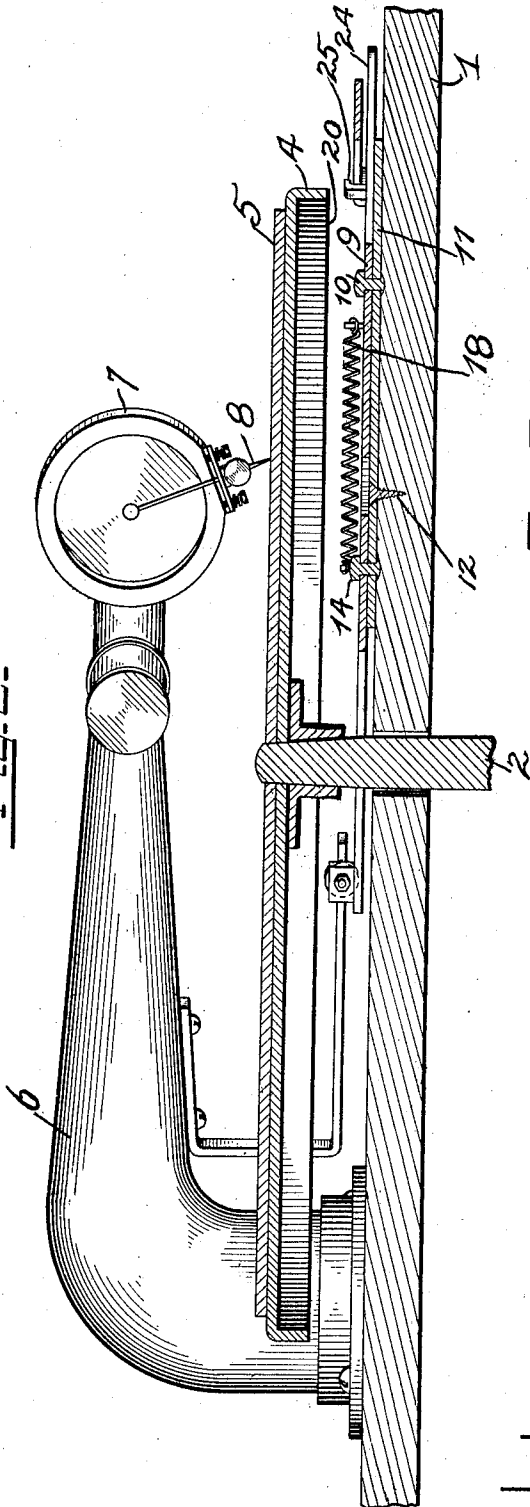
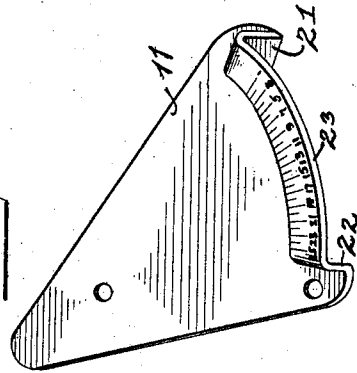


Fig. 3



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# UNITED STATES PATENT OFFICE.

RAYMOND R. FOUTE, OF CHICAGO, ILLINOIS, ASSIGNOR TO LAKESIDE SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## PHONOGRAPH.

1,393,769.

Specification of Letters Patent.

Patented Oct. 18, 1921.

Application filed February 16, 1920, Serial No. 359,177. Renewed January 27, 1921. Serial No. 440,527.

*To all whom it may concern:*

Be it known that I, RAYMOND R. FOUTE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Phonographs, of which the following is a full, clear, concise, and exact description.

My invention relates to those phonographs which employ each a disk record supporting turn table and a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough.

The invention has for its object the provision of improved mechanism for stopping the turn table and set into operation by the tone arm at the conclusion of a record. In practising my invention I employ a pivoted arcuate rack eccentric with respect to its pivot, a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different positions to which disk records of different length will swing the tone arm, and means, preferably a spring, for operating the stopping mechanism and restoring the released rack to normal and permitted operation by the rack when released.

In the preferred embodiment of the invention the brake mechanism includes the depending rim of the turn table as one element, the complemental brake element being carried upon the rack. The single restoring movement imparted to the rack by the spring is then also directly effective in operating the brake.

I will explain my invention more fully by reference to the accompanying drawings showing the preferred embodiment thereof and in which Figure 1 is a plan view, with parts broken away, to reveal the structure of my invention, an adjusted position of the rack and dog being indicated by full lines,

the restored position of these parts being indicated by dotted lines; Fig. 2 is a sectional view on line 2—2 of Fig. 1 but with the rack in its restored position; and Fig. 3 is a perspective view of an index plate to aid in the adjustment of the parts.

Like parts are indicated by similar characters of reference throughout the different figures.

The board 1 of the phonograph cabinet constitutes the mounting for a motor (not shown) that depends from the bottom side of the board, as is well known by those skilled in the art. An upright shaft or spindle 2 extends through the mounting board and is turned by the motor at a set speed maintained substantially constant by any usual or suitable governor. This record supporting turn table 4 is carried upon the spindle 2 and rotates therewith. This turn table supports a disk record 5 having recording grooves therein which commence at the periphery of the disk and terminate at the inner portion of the record. The tone arm 6 is mounted at one end upon one side of the turn table axis to swing over the turn table 4. This tone arm supports a transmitting sound box 7 which carries a stylus 8 that is engageable with the grooves in the record 5 whereby the tone arm is swung toward the center of the record as such record is being reproduced while the sound transmitter is propagating sound through the tone arm.

An arcuate rack 9 is pivoted at 10 upon a scale plate 11 which latter is secured to the mounting board 1 by screws 12. A dog 13 is pivoted upon said scale plate at 14. The toothed rim of the arcuate rack is of increasing radius in the direction of the restoring movement of the rack as will appear. The dog 13 has an arm 15 which is engageable with the toothed arcuate rack and carries at its other end an adjustable abutment screw 16 designed to be engaged by the arm 17 mounted upon the lower side of the tone arm and having a branch which projects beneath the turn table to reach the abutment 16 which, with the dog 13, the arcuate rack 9, and the scale plate 11, are mounted upon the mounting board 1 beneath the turn table. The dog 13 is held in adjusted position by the rack 9 a distance from the tone arm 6 to correspond with the length

of the record being produced, records of a given make or size usually commencing at about the same distance from the peripheries of the disks but terminating at different distances from the centers of the disks. The rack is enabled to hold the dog in selected position because of the eccentricity of its curvature, the abutment 16 upon the dog being moved farther from the starting position of the tone arm as the rack 9 is moved in a clockwise direction. A spring 18 serves to hold the dog and rack in selected engagement, the dog preventing the rack from turning upon its pivot and the rack preventing the dog from turning upon its pivot. When the arm 17 upon the tone arm engages the abutment 16 at the conclusion of a record the dog 13 will be turned upon its pivot in a counter-clockwise direction and in opposition to the force of the spring 18 whereby the dog will be disengaged from the rack and the rack will be given a restoring, counter-clockwise, movement which is permitted owing to the direction in which the radius of the rack increases, this radial increase being in the direction of restoring movement of the rack. When the tone arm is manually restored to a record starting position the spring 18 will function to move the dog 13 in a restoring, clockwise, direction, a movement which is then permitted by the tone arm. The spring, in addition to performing the functions stated, also serves to apply the brake to the turn table. In the embodiment of the invention illustrated the brake mechanism includes an adjustable brake member or brake abutment 19 which is carried upon the rack 9 to turn therewith. This brake member 19 has a complement which is the depending rim 20 of the turn table. When the dog 13 is released from the arm 9 the spring will turn the rack to bring the brake element 19 into engagement with the brake element or rim 20 to stop the turn table. The spring, after having applied the brake, will complete the restoring movement of the rack 9, carrying the turn table with it through a short arc in a direction opposite to the normal turning movement of the turn table. The limit of the restoring movement is defined by the shoulder 21 upon the scale plate 11, this and another shoulder 22 being joined by the arcuate scale bar 23. The rack 9 is provided with a handle 24 by which the rack may be manually adjusted in position, this handle being the part of the rack bar that is engaged by the shoulder 21 to limit the restoring movement of the rack bar.

The scale bar 23 has scale marks thereon which correspond with the marks placed upon records of differing lengths to guide the user in adjusting the dog 13 to correspond with the particular length of the record being played. The handle 24 carries an index 25 moving over this scale.

The spring 18 is desirably so adjusted and disposed that the force thereof will be substantially uniform throughout the relative positions of the parts connected thereby.

The load impressed upon the stylus to set the brake into operation is very light wherefore the device of my invention is a particular improvement upon those brakes whose operation is controlled by record grooves.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which disk records of different length will swing the tone arm; means for stopping the turn table; and means for operating the stopping means and restoring the released rack.

2. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which disk records of different length will swing the tone arm;

brake mechanism for stopping the turn table; and a spring for operating the brake mechanism and restoring the released rack.

3. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which disk records of different length will swing the tone arm; brake mechanism for stopping the turn table; and a spring connecting the dog and rack to hold them in the relative positions to which they are adjusted and against the force of which the tone arm releases the engagement between the dog and rack at the conclusion of a record, said spring operating to restore the released dog and rack to normal position and to apply the brake.

4. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different length will swing the tone arm; brake mechanism for stopping the turn table and including a turn table engaging member operable by the rack upon its restoring movement; and means for restoring the released rack.

5. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carry-

ing at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different length will swing the tone arm; brake mechanism for stopping the turn table and including a turn table engaging member operable by the rack upon its restoring movement; and a spring for restoring the released rack.

6. A phonograph including a disk record supporting turn table; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different length will swing the tone arm; brake mechanism for stopping the turn table and including a turn table engaging member operable by the rack upon its restoring movement; and a spring connecting the dog and rack to hold them in the relative positions to which they are adjusted and against the force of which the tone arm releases the engagement between the dog and rack at the conclusion of a record, said spring operating to restore the released dog and rack to normal position and to apply the brake.

7. A phonograph including a disk record supporting turn table having a depending rim; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound

therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different length will swing the tone arm; brake mechanism for stopping the turn table and including a turn table rim engaging member carried upon the rack to be applied thereby to the turn table rim upon the restoring movement of the rack; and means for restoring the released rack.

8. A phonograph including a disk record supporting turn table having a depending rim; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different lengths will swing the tone arm; brake mechanism for stopping the turn

table and including a turn table rim engaging member carried upon the rack to be applied thereby to the turn table rim upon the restoring movement of the rack; and a spring for restoring the released rack.

9. A phonograph including a disk record supporting turn table having a depending rim; a tone arm mounted at one end upon one side of the turn table axis to swing over the turn table and carrying at its other end a transmitter that is provided with a stylus which is engageable with record grooves to swing the tone arm and propagate sound therethrough; a pivoted arcuate rack eccentric with respect to its pivot; a pivoted dog engageable with the rack to hold the rack in adjusted position and to be held in adjusted position by the rack, the dog being adjustable to be given a releasing movement from the rack by the tone arm at the conclusion of a record, the curvature of the rack being of increasing radius in the direction of its restoring movement to enable it to escape the dog when released as well as to hold the dog in different angular adjustments to correspond with the different positions to which the disk records of different length will swing the tone arm; brake mechanism for stopping the turn table and including a turn table rim engaging member carried upon the rack to be applied thereby to the turn table rim upon the restoring movement of the rack; and a spring connecting the dog and rack to hold them in the relative positions to which they are adjusted and against the force of which the tone arm releases the engagement between the dog and rack at the conclusion of a record, said spring operating to restore the released dog and rack to normal positions and to apply the brake.

In witness whereof, I hereunto subscribe my name this 13th day of February, A. D. 1920.

RAYMOND R. FOUTE.