

May 16, 1944.

H. A. ROE

2,348,924

AUTOMATIC STOP FOR PHONOGRAPH MECHANISM

Filed Jan. 27, 1942

2 Sheets-Sheet 1

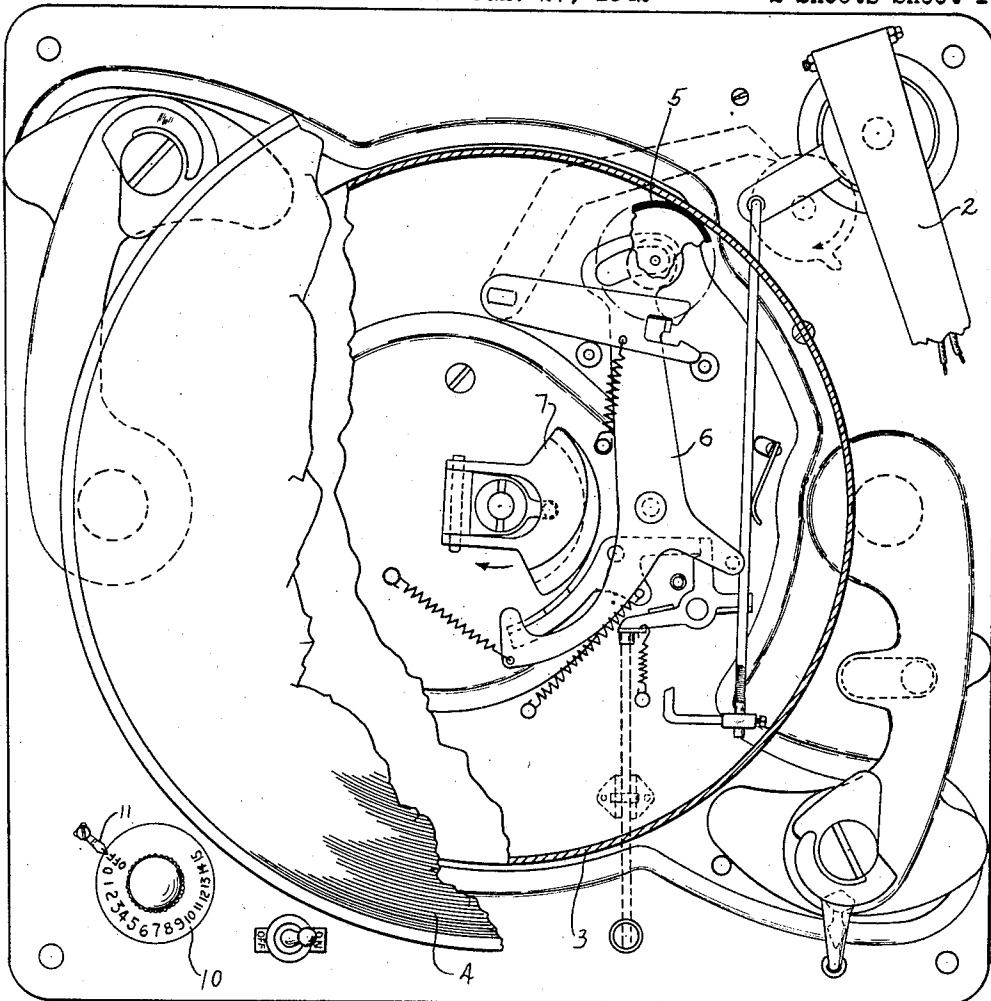


Fig. 1

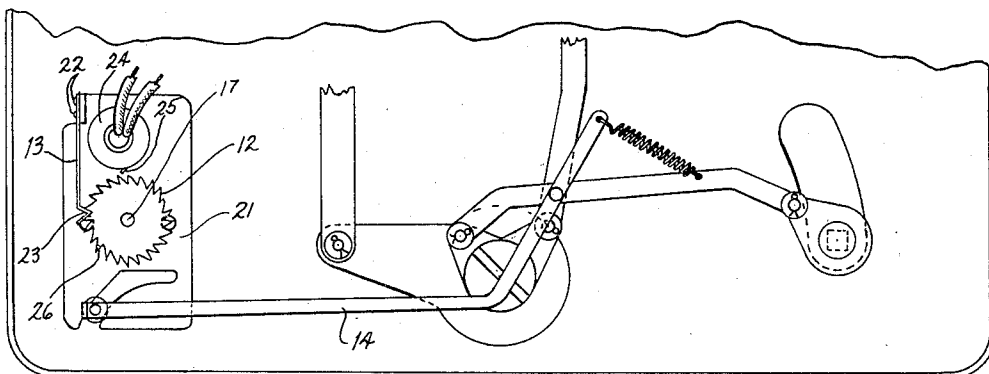


Fig. 3.

INVENTOR.

HOWARD A. ROE.

BY

Mark III. Seng

HIS ATTORNEY.

May 16, 1944.

H. A. ROE

2,348,924

AUTOMATIC STOP FOR PHONOGRAPH MECHANISM

Filed Jan. 27, 1942

2 Sheets-Sheet 2

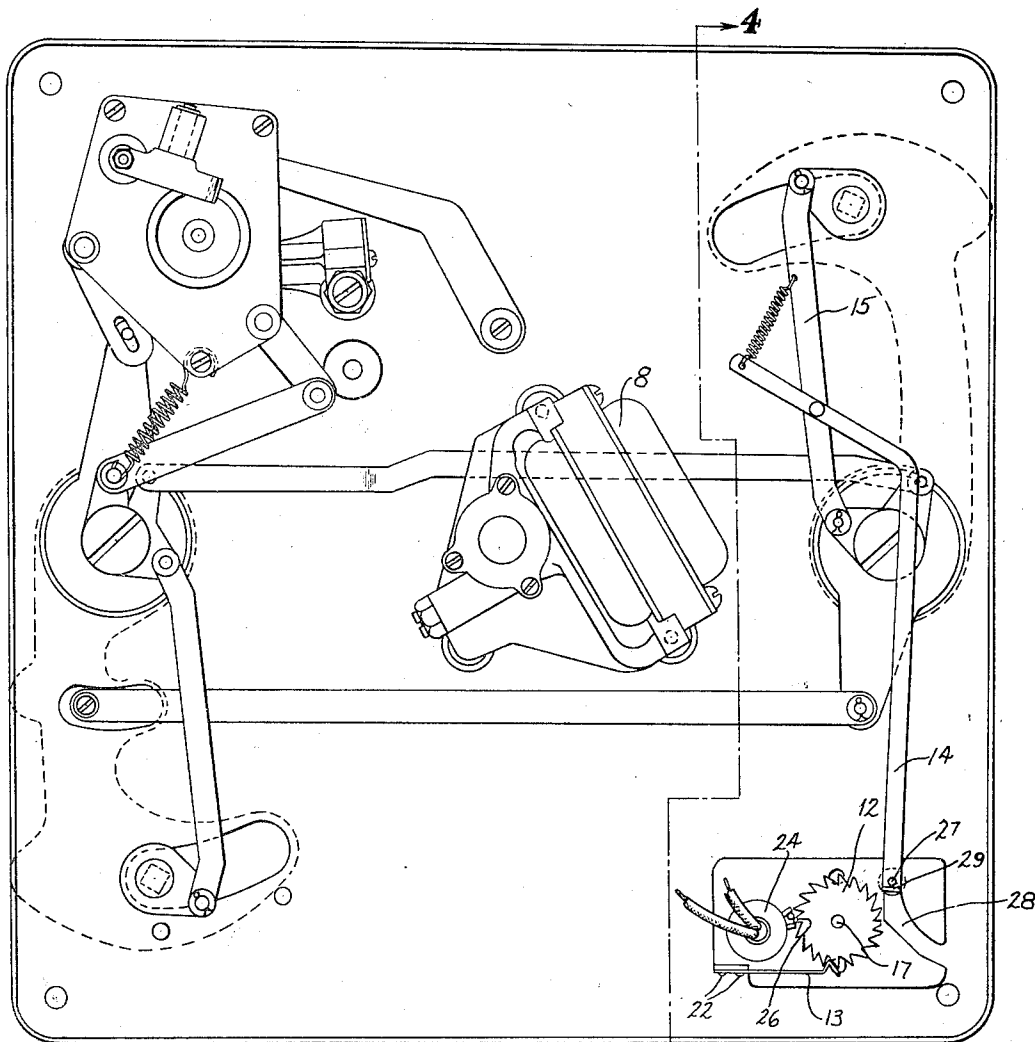


FIG. 2.

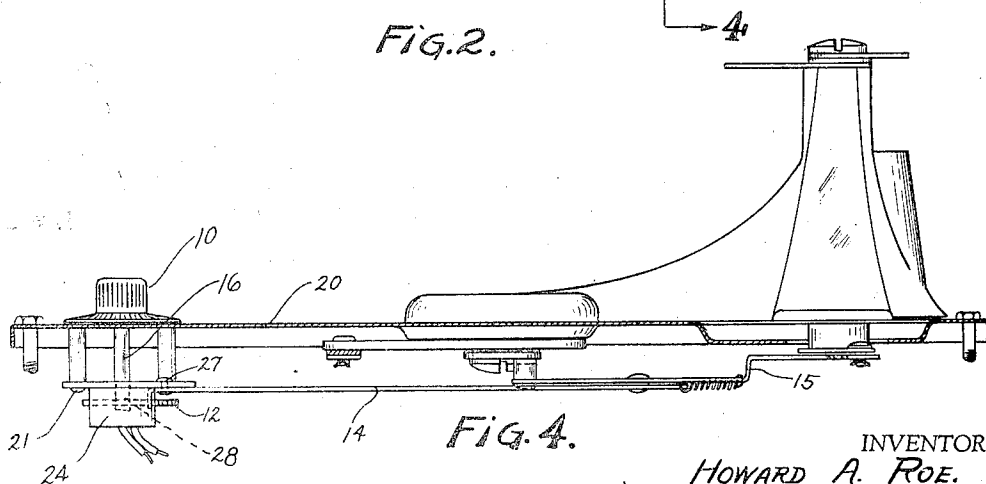


FIG. 4.

INVENTOR.

HOWARD A. ROE.

BY

Frank M. Seng

HIS ATTORNEY.

UNITED STATES PATENT OFFICE

2,348,924

AUTOMATIC STOP FOR PHONOGRAPH MECHANISMS

Howard A. Roe, Elyria, Ohio, assignor to The General Industries Company, Elyria, Ohio, a corporation of Ohio

Application January 27, 1942, Serial No. 428,389

3 Claims. (Cl. 192—120)

My invention relates to phonograph mechanisms and relates more particularly to an automatic stop for phonograph mechanisms of the record changer type.

It is an object of my invention to provide an automatic stop for a phonograph record changer which will permit the playing of a definite number of records of a group and then stop the machine, the machine being preset so that such automatic stop may function at the proper predetermined moment.

Another object of my invention is to provide an automatic stop for phonograph record changers which will be economical in manufacture, efficient in use, and composed of but few parts.

Another object of my invention is to provide an automatic stop for phonograph machines of the type known as the "record changer" type, wherein a plurality of records are placed in succession and are successively dropped upon the playing surface in a predetermined order.

Another object of my invention is to provide an improved automatic stop for record changers of the type referred to which may be preset when the records of the stack are arranged so that the machine may automatically stop when the required number of records are played.

Another object of my invention is to provide means for presetting an automatic stop for a phonograph mechanism of the type referred to whereby said phonograph mechanism may become inoperative for further playing purposes until the machine is again started at the end of a predetermined interval.

Another object of my invention is to enumerate the number of records which have been played at the end of each record changing operation whereby the presetting means may record the number of records played so that the automatic stop may function at its preset moment.

Other objects of my invention and the invention itself will become more apparent from a perusal of the accompanying drawings and the following description thereof, in which drawings:

Fig. 1 is a top plan view, partially in elevation, of a phonograph mechanism of the type with which the automatic stop of my invention is to be associated;

Fig. 2 is a bottom plan view, partially in elevation, showing the improved automatic stop of my invention associated with the record changer of Fig. 1;

Fig. 3 is a fragmentary view of the portion of Fig. 2 showing the automatic stop in another op-

erative position from that illustrated in Fig. 2; and

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2.

Referring now to the drawings, in all of which like parts are designated by like reference characters, at 1 I show a phonograph record changing mechanism of the type illustrated in a co-pending application for Letters Patent filed March 27, 1940, bearing Serial No. 326,195, which comprises generally a tone arm 2, a turntable 3 upon which a record 4 is placed and upon which the tone arm or reproducing arm 2 is adapted to travel, said turntable adapted to be driven by a rim drive element 5 through a lever 6 and cam element 7 by means of a motor 8 carried by said machine.

The automatic stop of my invention comprises, as is best illustrated in Figs. 2, 3 and 4, a numbered dial 10, a switch 11, a ratchet wheel 12, an indent spring 13, a ratcheting lever 14 and means 15 forming a part of the moving mechanism functioning during the interval between the playing of one record and the start of another. The dial 10 and ratchet wheel 12 are carried by a bearing 16 having a short length of shaft 17 mounted thereon, said shaft being projected through the base plate 20 for said turntable and secured to a mounting plate 21, the dial being carried by the upper end of said shaft and the ratchet wheel being carried by the lower end of said shaft, the dial 10, which is in the form of a knob and the shaft and ratchet wheel turning as a unit.

It is to be noted that the numerals on the dial are equally spaced with the teeth in the ratchet wheel whereby each tooth corresponds to a certain number on the dial. The indent spring 13 which is mounted upon the mounting plate 21 by means of pins or rivets or the like 22, as shown in Fig. 3, is provided with a V-shaped free end 23 which is adapted to contact the ratchet wheel and to fit in between adjacent teeth whereby the wheel may be held in position between stops, said V-shaped end of the indent spring 13 being adapted to be moved in either direction by reason of the movement of the ratchet wheel 12.

Adjacent to the ratchet wheel 12 is a toggle switch 24, the operating lever of which terminates in a fork 25 protruding from the edge. This fork lever is positioned just under the ratchet wheel and overlaps the teeth. Normally the ratchet wheel would not touch the forked lever but as one tooth 26 of the wheel 12 is offset

a sufficient distance to come in line with the lever the switch will be turned "on" and "off" when this particular tooth engages the fork as the wheel is rotated in one direction or another.

The ratchet wheel 12 is operated by the lever 14 having a lip turned up on the end, as viewed in Fig. 2, and down turned if viewed in Fig. 4, as at 29, to engage the teeth on the wheel. This lever 14 carries a stud 27 with a flat head which travels in a slot 28 in the mounting plate 21. This slot is so shaped that the stud follows the slot when the lever 14 is oscillated and the lip 29 of the lever is thus directed against a tooth of the ratchet wheel 12 in one direction and allowed to ratchet over the tooth in the opposite direction. The tooth on the ratchet wheel which is in line with the ratcheting lever when the dial is set at "off" position is, as has been shown, cut away to the extent that the lever 14 will not contact the tooth whereby any damage is eliminated should the lever be operated by any error when the dial and switch are in "off" position.

In operation, when the machine is idle and the dial is set on "off" position, a stack of records is placed on the machine and the dial turned to a number corresponding to the number of records desired played. However, when the dial is turned to "0" the switch is turned "on" and the machine therefore starts, and further rotation indicates the number of records being played.

After the first record has been played, the record changing operation takes place. This operation, in the particular embodiment illustrated herein, oscillates the ratcheting lever 14 which engages the ratchet teeth turning the ratchet wheel 12 and dial back one division. This is repeated as many times as the dial may be set for and after the last cycle, the switch is engaged by the fork 25. The dial, it can readily be understood, at all times indicates the number of records which are yet to be played at any time during the playing period. In the event that the dial is set for a predetermined number of records and the operator desires to change the number of records to be played, the dial and ratchet unit may be readjusted and set to the corrected number without interruption of the playing cycle and the switch will be turned off after the lapse of the newly predetermined interval.

Having thus described my invention in a particular embodiment, I am aware that the same may be modified within the range of mechanical skill, and may take widely varying forms within the purview of my invention.

I claim:

1. In an automatic phonograph mechanism of the type wherein different records of a stack may be periodically individually placed upon a phonograph turntable by virtue of a record changing mechanism associated therewith, switch means adapted to be associated with said record changing mechanism for turning motor current on and off whereby said turntable is rotatably moved or stopped, a toggle lever comprising a part of said switch means, a shaft carrying a manually operable dial at one end thereof and a ratchet wheel at the other end thereof, said wheel comprising a plurality of ratchet teeth and at least one of said teeth being offset, said shaft being projected through a mounting plate for said phonograph turntable and being positioned adjacent to said switch, an indent spring having the free end thereof disposed to contact said ratchet wheel and to engage said wheel between adjacent teeth thereof, said indent spring being adapted to be

moved in either direction by reason of the movement of the ratchet wheel, a ratchet lever operatively associated with the record changing mechanism and adapted to ratchet said ratchet wheel, the toggle lever engaging said offset tooth of said ratchet wheel at a predetermined point in the rotation of said ratchet wheel, the initial setting of the dial positioning its associated ratchet wheel in such manner that when a predetermined number of records have been played the switch turns the current off.

2. In an automatic phonograph mechanism of the type wherein different records of a stack may be periodically individually placed upon a phonograph turntable by virtue of a record changing mechanism associated therewith, switch means adapted to be associated with said record changing mechanism for turning motor current on and off whereby said turntable is rotatably moved or stopped, a toggle lever comprising a part of said switch means, a shaft carrying a manually operated dial at one end thereof and a ratchet wheel at the other end, said dial bearing indicia thereon to indicate the number of records in the stack, said dial being set after the switch is turned on to indicate the number of records of the stack desired played by moving the dial to the number corresponding to the indicia indicating the last record of the stack which is to be played, said dial, said ratchet wheel and said shaft being operable as a unit, the indicia on the dial being equally spaced with the teeth in the ratchet wheel, an indent spring contacting the ratchet wheel and locking the wheel in position after a ratchet lever operatively associated with the record changing mechanism and adapted to ratchet said ratchet wheel moves said ratchet wheel shaft and dial unit a definite spaced movement each interval between the end of one record and the playing of the next, said indent spring being adapted to be moved further by the movement of the ratchet wheel effected by manual operation of the dial to a different indicating position, the toggle lever engaging said offset tooth of said ratchet wheel when the required number of records for which said dial was set or reset have been played whereby the switch is automatically operated to disconnect the motor current.

3. In an automatic phonograph mechanism of the type wherein different records of a stack may be periodically individually placed upon a phonograph turntable by virtue of a record changing mechanism associated therewith, switch means adapted to be associated with said record changing mechanism for turning motor current on and off whereby said turntable is rotatably moved or stopped, a toggle lever comprising a part of said switch means, a shaft carrying a manually operated dial at one end thereof and a ratchet wheel at the other end, said dial bearing indicia thereon to indicate the number of records in the stack, said dial being set after the switch is turned on to indicate the number of records of the stack desired played by moving the dial to the number corresponding to the indicia indicating the last record of the stack which is to be played, said dial, said ratchet wheel and said shaft being operable as a unit, the indicia on the dial being equally spaced with the teeth in the ratchet wheel, an indent spring, a mounting plate for said ratchet and switch means, said shaft being projected there-through and said switch being carried thereby, secured to said mounting plate and contacting

the ratchet wheel and locking the said wheel to position after a ratchet lever operatively associated with the record changing mechanism and carrying stud means adapted to travel in a slot disposed in said mounting plate upon actuation of said lever by the record changing mechanism whereby an offset lip carried by the lever is directed against a tooth of said ratchet wheel to ratchet said ratchet wheel a definite spaced movement each interval between the end of one record and the playing of the next, said indent

spring being adapted to be moved further by the movement of the ratchet wheel effected by manual operation of the dial to a different indicating position, the toggle lever engaging an offset tooth of said ratchet wheel when the required number of records for which said dial was set or reset have been played whereby the switch is automatically operated to disconnect the motor current.

HOWARD A. ROE.

ATTORNEY.

By *Howard A. Roe*, Attorney at Law, New York, N.Y., for the Applicant.

Witness my hand and seal this 10th day of May, 1944.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.

In testimony whereof, I have hereunto set my hand and seal this 10th day of May, 1944.

Howard A. Roe, Attorney at Law, New York, N.Y., for the Applicant.

I, *Howard A. Roe*, do hereby certify that the foregoing is a true and correct copy of the specification as the same appears in the files of the United States Patent Office.