

July 3, 1928.

1,675,852

E. S. GEER

RECORD STOP

Filed May 29, 1924

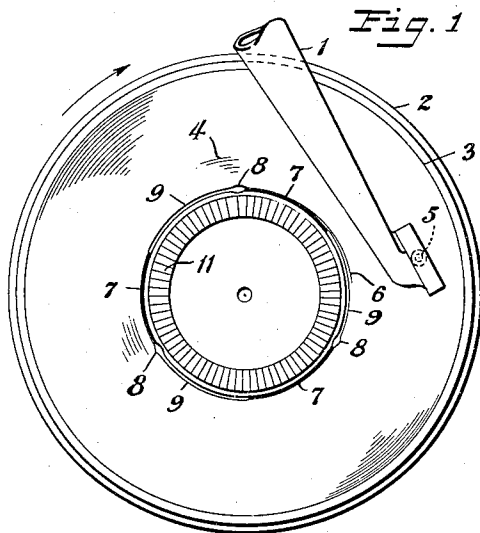


Fig. 5

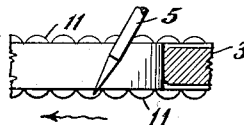


Fig. 6

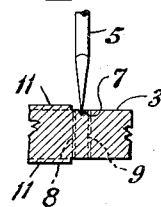


Fig. 4

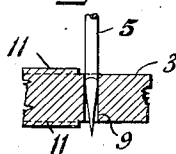


Fig. 2

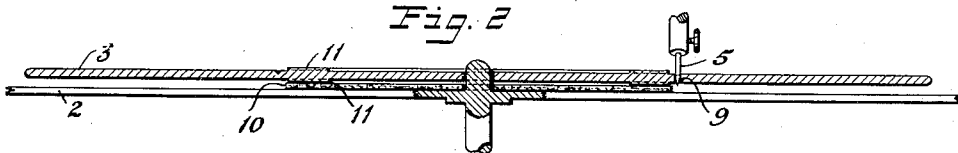


Fig. 3

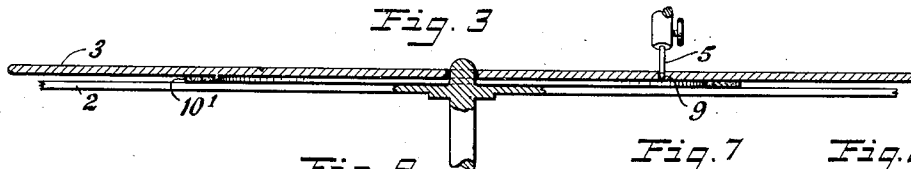


Fig. 9

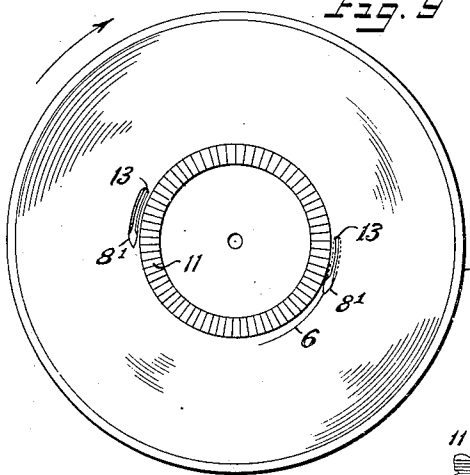


Fig. 10

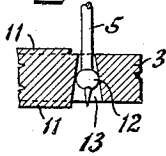


Fig. 7



Fig. 8

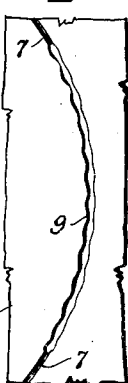
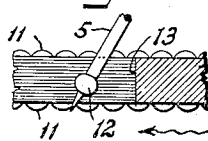


Fig. 11



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RECORD STOP.

Application filed May 29, 1924. Serial No. 716,546.

This invention relates to phonographs, and more particularly to the stoppage of phonographs on the completion of a record.

5 An object of this invention is to provide a new and improved phonograph, which will be automatically stopped when the playing record has been completed.

10 A further object is to provide a new and improved phonograph record which when used on a phonograph will automatically cause the latter to discontinue playing when the end of the record has been reached.

15 The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the constructions hereinafter set forth and the scope of the application of which will be indicated in the claims.

20 Other objects of the invention will in part be obvious and will in part appear hereinafter.

For a fuller understanding of the nature and objects of the invention, reference 25 should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a top plan of a device embodying this invention;

30 Fig. 2 is a vertical section;

Fig. 3 is a section similar to Fig. 2 but of a slightly modified form of construction;

35 Figs. 4, 5 and 6 are fragmentary enlarged views showing various positions of a phonograph needle on a record in accordance with this invention;

Figs. 7 and 8 are details of modified forms of the slot;

40 Figs. 9, 10 and 11 are views similar to Figs. 1, 4 and 5 respectively but of a modified form of construction.

45 The numerals 1 and 2 designate respectively the tone arm and turn table of a phonograph, and the numeral 3 designates a record which may be of the disc type. The disc 3 is provided with the usual sound grooves designated generally by the numeral 4, with which a needle 5 on the tone arm is adapted to co-operate to reproduce the 50 sound.

In accordance with this invention, means are provided upon the record for co-operating to bring the record to a stop when the playing thereof has been completed.

55 Since the tone arm itself moves over the record as it is played, a practical manner of

accomplishing this result is to cause the said means to co-operate with an element on the tone arm to cause the stoppage. Thus the record itself may be so designed or 60 equipped as to grip the needle to cause such increased resistance or such locking action necessary to bring the record to rest. Thereafter the turn table itself, if it has not already stopped, will be brought to rest by the 65 friction between itself and the record.

The last turn of the sound groove 6 leads into a groove 7 (see Fig. 1) which may, if desired, be deeper than the sound groove in order to restrain the needle more securely 70 from jumping to the side. This groove 7 leads directly to the means for stopping the record.

As illustrated, an opening 8 is provided in the record into which the groove 7 leads 75 and this opening terminates in the narrower slot 9, and the opening 8 and slot 9 are so arranged that when the point of the needle 5 has passed beyond the end of the groove 7, it will fall into the opening 8 and im- 80 mediately, as the record is rotated, pass into the slot 9. This slot will be of such size and shape as firmly to grip the needle to bring the record to rest.

In practice, it is preferred to provide a 85 plurality of orifices 8 and 9 equally spaced around the record so that, if for any reason the needle should traverse the first slot without checking the movement of the record, it may thereupon fall into the second slot 90 and be there gripped.

The operation of this form will thus be evident. The needle traverses the sound groove until the record portion thereof is 95 completed. It thereupon passes as shown at 6 into the groove 7 as illustrated in Fig. 6. When the needle passes the front edge of the opening 8, it immediately falls and encounters the edges of the slot 9. It may, in fact, if the slot is so designed, strike the front 100 edges so as to become immediately wedged in the slot with sufficient force to stop the record. Otherwise, it will move through the slot imposing a drag upon the record by reason of the friction between the needle and 105 the slot, until the record is brought to rest.

In certain instances, it may be desirable to embody special friction material at the edges of the slot to assist in bringing the record to a stop, but satisfactory results have 110 been obtained with the forms of slots illustrated.

In Figs. 7 and 8, there is illustrated modified constructions of the slot which may be used to bring the record to rest. In the form of Fig. 7, the slot is made sinuous, whereby it presents varying angles to the needle. In the form illustrated in Fig. 8, the width of the slot is varied at intervals to provide a wedging action on the needle.

As the record and turn table rotate, they possess considerable momentum and thus in order to bring the record quietly and quickly to rest and through it to stop the mechanism of the phonograph, it is in many instances desirable that the friction between the record and the turn table be so adjusted that the needle may first bring the record to a stop allowing it to slide upon the turn table, and the turn table thus subsequently be brought to rest by the drag thus imposed upon it.

For these reasons and also in order that the friction between the record and the turn table may be subsequently independent of whether the record has been slightly warped or not, it has been found desirable to allow the record to rest upon a smaller surface at a predetermined distance from the center, whereby a definite amount of frictional drag may be assured.

In the form illustrated in Fig. 2, this may be accomplished by placing a disc of felt beneath the central portion of the record. Where this is done in view of the fact that at the slot the needle may in many instances pass completely through the record, it is desirable that this felt disc shall be of diameter smaller than the diameter of the circle on which the slot 9 is placed. Should such a circle prove too small to afford sufficient friction to bring the turn table to rest, the surface of the disc may be especially roughened as shown at 11 to increase and localize the friction, and this roughened surface is preferably raised above the main playing surface of the disc as shown, in order to provide space beneath the disc at the point where the needle may extend completely through the opening 8.

In the form of the device illustrated in Fig. 3, an annulus 10' of felt is provided, whose inner diameter is sufficiently great to give the necessary friction to stop the turn table without especially roughening the surface.

In the form illustrated in Figs. 9, 10 and 11, the slot is tapered, increasing in width from the top toward the bottom and the

needle may be provided with an obstruction, as for example a ball 12, near its point, of such diameter that it may pass easily through the opening 8' and beneath the narrow top of the slot until the end 13 of the slot is reached, whereupon by reason of the fact that the ball is of larger diameter than the narrow side of the slot, the record will be locked against further movement.

This latter form of construction will bring the record abruptly to a stop. It is therefore desirable that the friction between the record and the turn table be such as to permit the turn table to be brought slowly to rest. For this reason, this form of the invention is illustrated with the roughened surface 11 as described for the prior form.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. A device of the character described, comprising a phonograph record adapted to be used with a tone arm carrying a needle, said record having a slot therein associated with the end of the sound groove of sufficient depth and width to engage the parallel sides of the needle to lock the record in place.

2. A device of the character described, comprising, in combination, a phonograph record adapted to be used with a tone arm carrying a needle, said record having a slot therein associated with the end of the sound groove of sufficient depth and width to engage the parallel sides of the needle to lock the record in place, and frictional means as a portion of the record support adapted gradually to bring the motor to rest when the movement of the record is arrested.

In testimony whereof I affix my signature.

EDMUND S. GEER.