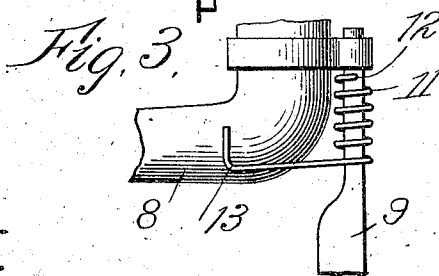
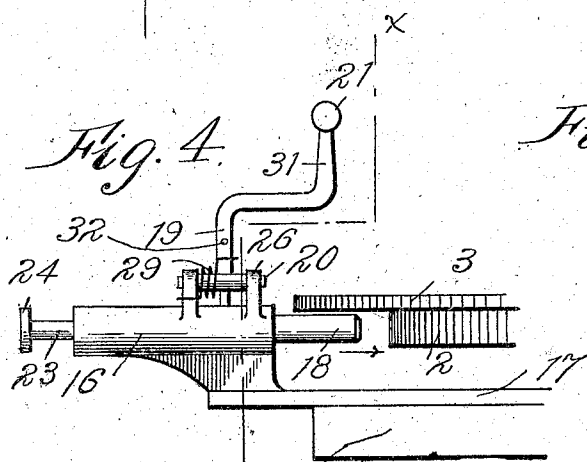
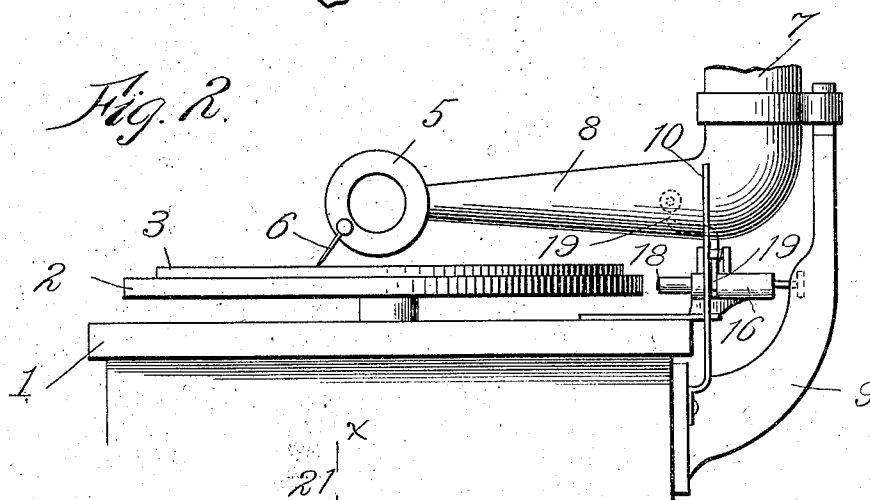
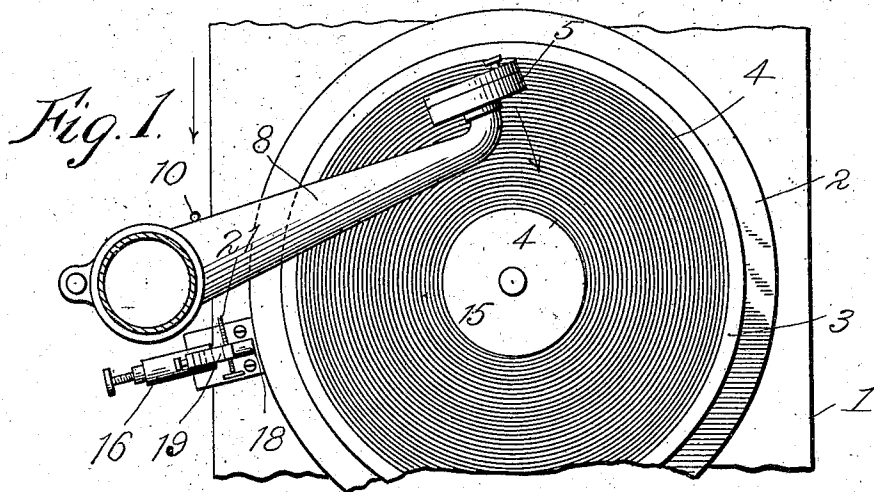


H. F. COOK.
TALKING MACHINE.
APPLICATION FILED APR. 8, 1908.

933,234.

Patented Sept. 7, 1909

2 SHEETS—SHEET 1.

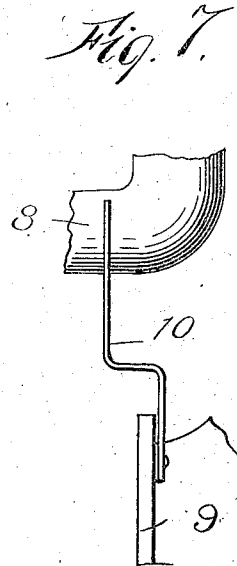
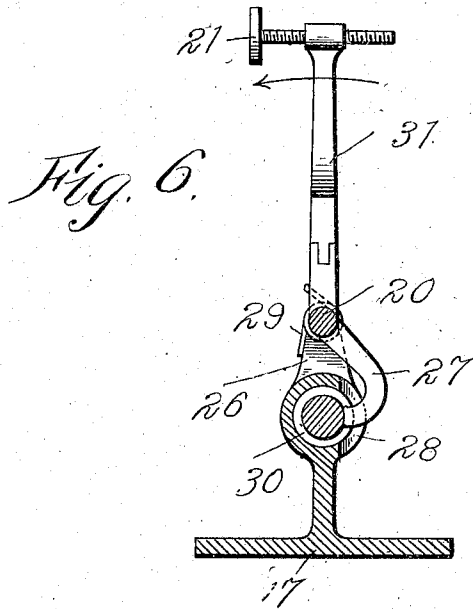
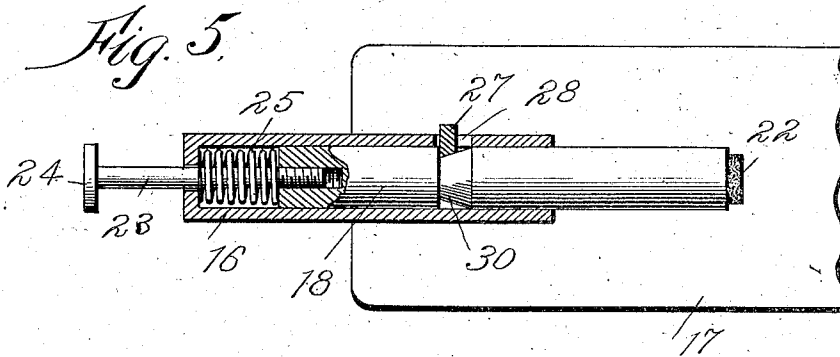


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933,234.

Patented Sept. 7, 1909.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HENRY F. COOK, OF SAG HARBOR, NEW YORK.

TALKING-MACHINE.

933,234.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed April 8, 1908. Serial No. 425,924.

To all whom it may concern:

Be it known that I, HENRY F. COOK, a citizen of the United States, residing at Sag Harbor, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Talking-Machines, of which the following is a full and clear specification, illustrated by the accompanying drawings.

My invention relates to a means by which the movement of the stylus in spiral grooved records is stopped immediately after the stylus has left the record groove in order to avoid disagreeable sounds produced by the stylus scratching on the record carrying body beyond the record groove.

In particular it relates to means which are controlled in their stopping operation by the member or arm which carries the sound box.

I have also illustrated and described means by which the sound box with its arm may be quickly moved farther in the direction in which it has been moved over the record to operate the stopping means.

I have illustrated my invention in the accompanying drawings of which—

Figure 1 is a plan view of a part of a flat record talking machine. Fig. 2 is a side elevation thereof seen in the direction of the arrow in Fig. 1. Fig. 3 is a modification of the means for yieldingly moving the sound box over the record. Fig. 4 is a side view of the stopping device acting upon the record table after the stylus has passed over the record, shown in enlarged scale. Fig. 5 is a horizontal sectional view thereof, in still larger scale. Fig. 6 is a vertical section thereof on line X X in Fig. 4. Fig. 7 is a modification of spring 10 shown in Fig. 2.

In Figs. 1 and 2, 1 is the top plate of the box containing the mechanism for operating the record table 2 in any suitable manner well known in this art, 3 represents the record plate containing the spiral grooved record 4, 5 is the sound box gliding, by means of the stylus 6, over the disk 3 in the spiral grooved record 4 in the well known manner. The sound box 5 may be connected in any usual method to the horn 7, only part of which is shown in Fig. 2, as for example through arm 8 which is shown in the drawings as forming a part of the horn, which however, may be used only as a supporting member for the sound box, as is well known in this type of machine, the horn being con-

nected to the sound box by suitable tubing independently of the supporting member 8. I shall, therefore, hereinafter refer to the member supporting the sound box with the horn as arm or supporting arm. As shown in Figs. 1 and 2 arm 8 is pivoted in a bracket 9 fastened to the side of box 1 so that the sound box and stylus in their travel over the record will travel in a circle around the pivot of bracket 9. The direction of travel from the periphery of record disk 3 toward the center is indicated by the arrow in Fig. 1.

I have shown as an example means for moving the sound box over the record in the above mentioned direction and beyond the limits of the record which operate independently of the motion which the spiral groove tends to impart to the stylus and sound box in the same direction while the record disk is revolving. To bracket 9, Fig. 2, is fastened a spring 10 in the form of a rod, one end of which is fixed to bracket 9, while the other end bears against the side of arm 8 as shown in Figs. 1 and 2. The position of this rod is adjusted so that it is bent out of its normal position by arm 8 when the sound box is at or near the periphery of the record as shown in Fig. 1. Rod 10 will thus tend to move the sound box in the direction toward the center of the disk as shown in this figure. This tension may be so adjusted that it will be just strong enough to keep the stylus in the middle of the record groove without imparting an undue thrust against either side of the groove, and its yielding may be increased by offsetting it as shown in Fig. 7.

Instead of using a straight rod as shown in Fig. 2 a spiral spring may be used in the manner as shown for instance in Fig. 3. In the modification shown in this figure the spiral spring 11 disposed on pivotal bracket 9 is held at its end 12 by this bracket, while its other end 13 bears against arm 8 thereby tending to move the latter in the same manner as rod 10 described before.

In order to stop the machine as soon as the needle of the sound box has passed the record various devices have been designed for stopping the record plate or drum which devices, however, are more or less complicated. The novel stopping device I have shown in the accompanying drawings in Figs. 4-6 has the advantage of being simple and easily attachable to any talking machine without changing or otherwise disturbing its mechanism. The stopping device comprises a barrel 16

(Fig. 4) which is suitably fastened to box 1 by means of bracket 17. Disposed within said barrel is a plunger 18 which protrudes a suitable distance beyond barrel 16 and is provided at its protruding end with a head of suitable frictional material 22, as for instance soft rubber or the like. Into the other end of plunger 18, which is disposed within barrel 16 is screwed or otherwise suitably fastened rod 23 which protrudes loosely through the closed rear end of barrel 16, and carries a head 24 at this protruding end. Between the rear end or bottom of barrel 16 and the plunger 18 is disposed a spring 25 tending to force plunger 18 out of the barrel. On top of barrel 16 are provided two brackets 26 (Fig. 4), between which is oscillatingly pivoted a lever 19 by means of pivot 20. The lower end 27 of lever 19 protrudes through an opening 28 provided in barrel 16 and furthermore is adapted to be engaged, when forced through said opening by means of spring 29, by a notch or a groove 30 provided in plunger 18. The upper end of lever 19 has an extension arm 31, the end of which is formed into a nut in which stop screw 21 is disposed. If plunger 18 is retracted into barrel 16, as shown in Fig. 5, by pulling it back into the barrel by means of head 24, spring 29 will force the end 27 of lever 19 into groove 30 and thus lock plunger 18 in this position. Thus it will be seen that if lever end 27 is released from groove 30, for instance by throwing the upper extension arm 31 of lever 19 to the left (see arrow in Fig. 6), spring 25 will force plunger 18 out of barrel 16 so far as the length of pin 23 will allow. This whole stopping device is placed on and fastened to box 1 so that extension arm 31 will protrude into the path of sound box carrying arm 8 which moves in the manner described above over the record. The stopping device is further disposed so on box 1 that arm 8 will strike screw 21 of the stopping device soon after the sound box has left the record.

It will now be seen that there being no guide groove and very little resistance on the smooth, generally polished, surface 15 of record plate 3, the spiral formed by the stylus on this surface under the tension of spring 10 acting upon arm 8 will be of much greater pitch than that of the record groove; in other words the arm will tend to move quicker toward the center at the same revolution speed of the disk than it was moving when the stylus was guided by the record groove. Upon engagement of screw 21 by arm 8 lever 31 will be carried along with the arm by the action of spring 10 and thereby release plunger 18 which was heretofore held in retracted position by the end 27 of lever 19. Spring 25 will throw the plunger 18 out of barrel 16 and, the whole stopping device being disposed close enough

to record table 2, head 22 of plunger 18 will bear against table 2 and thus stop the operation of the machine.

It frequently occurs that it is desirable to use record disks on the talking machine of larger diameter than the record table. In order that an unusually large record may not interfere with the structure of my stopping device, I have shaped bracket 17, by which the stopping device is carried, offset so that the main body of the stopping device may be far enough away from the center of the record disk so as to clear the largest record disk which may be possibly used on this kind of machine. Plunger 18 is, therefore, of sufficient length so as to successfully cooperate with record plate 2 clear of the record disk. In order to have screw 21 engaged by arm 8 as near the center of the disk as possible, I have offset arm 31 somewhat so as to counteract the offsetting of bracket 17.

In case it is not desired to have the table stop automatically by the inward movement of arm 8, I have pivoted extension arm 31 of lever 19 at 32, so that it may be thrown out of the path of arm 8 by hand at any time, and the stopping device can then be operated by hand at any time desired or by other suitable stopping device common to this kind of machine.

While I have shown in the drawings and referred in the specification to a brake as an example of a stopping member, I do not wish to limit myself to this particular kind, since the spirit of my invention involves a stopping member independent of the record table operating mechanism, suitably cooperating with the table, which member is released to operate by a trip finger, cooperating with any suitable element, following the movement of the sound box over the record, such as for example the arm 10 referred to in the specification. Moreover, while I have shown my invention applied to a flat record talking machine it is evident that the idea of yieldingly moving the stylus and its supporting means in a record groove independent of the motion imparted to the stylus by the record groove itself during the operation of the machine but cooperating therewith, may be also applied to a cylindrical record talking machine with grooved records without departing from the spirit of my invention.

I claim:

1. In a sound reproducing machine, the combination with a record disk having a spiral record groove, means for operating said disk, a sound box adapted to follow the line of said groove and to run substantially radially to said disk, means connected to said sound box adapted to move with said box and means for moving said box; of a stop member disposed near the periphery of said disk

having a tube, a plunger disposed therein having a notch, a compression spring within said tube tending to force said plunger out of said tube and against said disk, a trip finger suitably pivoted on said tube, a spring on said finger tending to hold its lower end against said plunger to engage in the notch of said plunger, hand operated means on said plunger for pushing same into said tube to cause engagement of said notch and said finger and to compress the spring in said tube, the upper end of said trip finger disposed in the path of said sound box connected means, said means adapted to trip said finger when said sound box has passed said record groove to release the plunger and stop said disk.

2. In a sound reproducing machine, the combination with a record disk having a spiral record groove, means for operating said disk, a sound box adapted to follow the line of said groove and to run substantially radially to said disk, an arm connected to said sound box adapted to move with said box, means for moving said box; of a stop member disposed near the periphery of said disk having a tube, a plunger disposed therein having a notch, a compression spring within said tube tending to force said plunger out of said tube and against said disk, a trip finger suitably pivoted on said tube, a spring on said finger tending to hold its lower end against said plunger to engage in the notch of said plunger, hand operated means on the plunger for pushing same into said tube to cause engagement of the notch and the finger and to compress the spring in said tube, the upper end of said trip finger disposed in the path of said arm, said arm adapted to trip said finger when the sound box has passed said record groove to release said plunger and stop said disk, and means for removing said trip finger from the path of said arm to render said automatic tripping device inoperative.

3. In a sound reproducing machine, the combination with a record disk having a spiral record groove, means for operating said disk, a sound box adapted to follow the line of said groove and to run substantially radially to said disk, an arm connected to said sound box adapted to move with said box, and means for moving said box; of a stop member disposed near the periphery of said disk having a tube, a plunger disposed therein having a notch, a compression spring within said tube tending to force said plunger out of said tube and against said disk, a trip finger suitably pivoted on said tube, a spring on said finger tending to hold its lower end against said plunger to engage in the notch of said plunger, hand operated means on the plunger for pushing same into said tube to cause engagement of the notch and the finger and to compress the

spring in said tube, the upper end of said trip finger disposed in the path of said arm, said arm adapted to trip said finger when the sound box has passed said record groove to release said plunger and stop said disk, the upper end of said finger having a joint adapted to be moved transversely to the pivotal movement of said finger to remove the upper end of said tripping finger from the path of said arm to render the automatic tripping device inoperative.

4. In a sound reproducing machine, the combination with a record carrying member, a sound box adapted to glide substantially horizontally over said record carrying member, means for moving said box, a sound box connected member moving with said box, a stop member disposed adjacent to said record carrying member and adapted to cooperate with it, having a trip finger protruding substantially vertically into the path of said box connected member, adapted to trip said stop member when engaged by said sound box member, and means on said trip finger permitting the adjusting of the time of engagement of said finger with said sound box member relatively to the position of said sound box on said record carrying member.

5. In a sound reproducing machine, the combination with a record carrying member, a sound box adapted to glide substantially horizontally over said record carrying member, means for moving said box, a sound box connected member moving with said sound box, a stop member disposed adjacent to said record carrying member and adapted to cooperate with it, having a trip finger protruding substantially vertical into the path of said box connected member, adapted to trip said stop member when engaged by said box member, said trip finger having a joint suitably disposed to cause the removal of the engaging portion of said finger from the path of said box member.

6. In a sound reproducing machine, the combination of a record disk, a supporting table adapted to support said disk, said disk having a greater diameter than said table, a sound box adapted to glide over said record disk, an arm connected to said sound box adapted to move with said box, and a stopping device adapted to be operated by the movement of said arm and disposed near the periphery of said table to clear said disk having a plunger of suitable length to protrude underneath said disk and to cooperate with said table at its periphery to stop the machine.

7. In a sound reproducing machine the combination of a rotating table or disk having a record groove, a stylus adapted to travel in said groove, a pivoted arm connected to said stylus, means for propelling the stylus and arm beyond the limit of the record groove, a plunger barrel fixed in po-

sition radially to the periphery of the table, a spring actuated plunger brake or stop member supported in said barrel radially to the periphery of the table and a substantially vertical spring actuated trigger disposed oscillatorily in a vertical plane engaging a portion of said stop member when the same is retracted, and projecting into the path of the pivoted arm, substantially as and for the purpose set forth.

8. A talking machine brake mechanism comprising a longitudinally movable brake plunger, means for normally projecting the same into operative position, a shoulder on said plunger, a latch engaging said plunger to hold the same retracted and an upright arm connected with said latch and operative to release the same and a reproducer arm movable to engage said upright arm to re-

lease said latch to permit the operative movement of said brake plunger.

9. A talking machine brake mechanism comprising a sliding bolt, a spring surrounding said bolt to project the same, a shoulder provided upon said bolt, a spring pressed latch operative to engage said shoulder to hold said bolt retracted, an upright arm pivotally connected to said latch to release the same, and a reproducer arm in whose path of movement said pivoted arm extends, said reproducer arm being operative upon said upright arm to cause the release of said bolt by said latch.

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