

1,060,955.

2 SHEETS--SHEET 1.

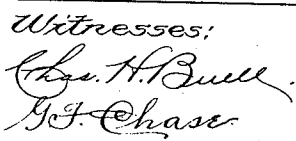


Fig. 1.

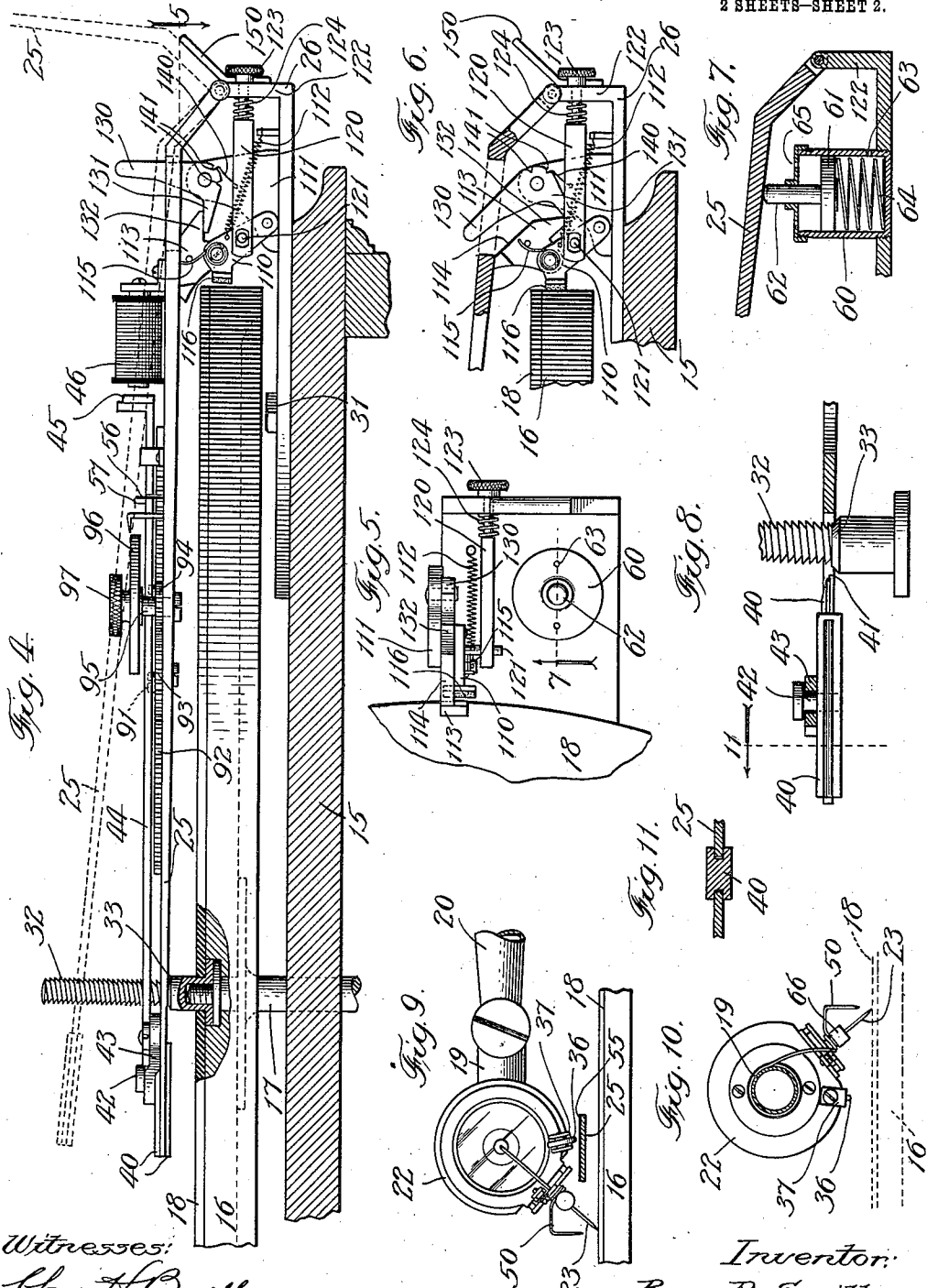
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B. R. SMITH.
SOUND REPRODUCING INSTRUMENT.
APPLICATION FILED JUNE 5, 1911.

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Patented May 6, 1913.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

BEN R. SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR TO SMITH REPEATOSTOP COMPANY,
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SOUND-REPRODUCING INSTRUMENT.

1,060,955.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed June 5, 1911. Serial No. 631,347.

To all whom it may concern:

Be it known that I, BEN R. SMITH, a citizen of the United States, residing at 3922 North Hamilton avenue, Chicago, Illinois, have invented new and useful Improvements in Sound-Reproducing Instruments, of which the following is a specification.

This invention relates to repeating and braking attachments for sound-reproducing instruments, such as gramophones and instruments of like character, and is designed for the purpose of enabling a sound-reproducing record to be placed upon such instrument and played through, whereupon, according to prearrangement of the device, the sound-reproducing means, "or sound-box", will be replaced in position for repeating its travel over such record; or, if the device is otherwise arranged, the apparatus will be stopped at the end of its performance.

Other objects of the invention will appear hereinafter.

The device comprises, in general terms, a shelf-like member which extends over the surface of the sound-reproducing record (hereinafter called the "record-disk"), immediately below the path of travel of the said sound-box, and means operating at the end of a performance of one of such record-disks, for inclining said shelf; whereby said sound-box is caused to slide (or roll, being provided with a wheel for such purpose) over the surface of such shelf and assume the correct position for a repetition of its travel over the record-disk. In such position, according to a prearranged setting of the device, the parts may be arrested, and maintained; or said shelf may again assume its original horizontal position and allow the sound-box to repeat its travel over the record-disk; and the instrument thereby to repeat the performance of the selection engraved upon such disk.

A device embodying the principles of the present invention is illustrated in the accompanying drawings in which:

Figure 1 is a top plan view illustrating the device in combination with a sound-reproducing instrument of well known form and known as a gramophone. Fig. 2 is a similar view in enlarged detail of a portion of the swinging shelf constituting a part of the device. Fig. 3 is a vertical section on the line 3 of Fig. 2. Fig. 4 is a vertical section on the line 4 of Fig. 1. Fig. 5 is a horizontal

section on the line 5 of Fig. 4. Fig. 6 is an enlarged detail view of a portion of Fig. 4, but showing the parts in an altered position. Fig. 7 is a vertical section on the line 7 of Fig. 5. Fig. 8 is a vertical section on the line 8 of Fig. 1. Fig. 9 is a vertical section on the line 9 of Fig. 1. Fig. 10 is a vertical section on the line 10 of Fig. 1. Fig. 11 is a vertical section on the line 11 of Fig. 8.

As shown in said drawings, the gramophone comprises a box or housing 12, ordinarily made of wood, including a top, or cover portion 15, in which box or housing is arranged the driving mechanism for rotating the sound-reproducing disk, or record-disk. Above the cover 15 is arranged a horizontal, circular, rotating table 16 which is fixed to a vertical shaft or spindle 17 passing through said cover. Upon such rotating table is placed the record-disk 18, which latter is thereupon rotated, in the operation of the device, by its frictional engagement with said rotating table. A long, hollow, horizontal arm 20, hinged upon a bracket member 21 attached to the side of the gramophone housing, carries at its free end a hinged and curved hollow arm 19 supporting the sound-reproducing device, or sound-box 22; the latter carrying a needle, or stylus 23 which engages a spiral groove in the surface of said record-disk 18. These parts are shown in the form which they assume in a well known form of gramophone apparatus, and, except as hereinafter specified, their particular construction constitutes no part of the present invention.

Above the table 16, and normally lying parallel therewith, is arranged a flat, shelf-like member 25, which takes somewhat the form, as seen in top plan view, of a letter V; being arranged with its closed end over the center of the table 16, and its opposite ends extending beyond the circumference of the same. The latter are hinged to the ends of a horseshoe-shaped member or bracket 26, secured to the said cover portion 15 of the gramophone box, and likewise extending beyond the circumference of said rotating table and upturned at its ends in order to meet the ends of said shelf 25. The said shelf 25, and the bracket member 26, are conveniently made of sheet metal, and their related ends take the form of hinge leaves, the parts being connected by means of removable pins, or "loose butts", 30, 30. The

bracket 26 is conveniently secured to the cover 15 by means of screws 31, passing through slots (indicated by the dotted lines) in said bracket, whereby, after temporarily
 5 detaching the table 16 from its spindle, the bracket may be accurately located upon the cover 15 for the shelf 25 to assume its correct position with respect to such spindle.

To the upper end of the shaft 17 is fixed
 10 an externally threaded stud or screw 32, as here shown designed to replace the shorter unthreaded stud ordinarily placed in the center of the rotating table of the type of gramophone here illustrated, said screw being made hollow at its lower end and inter-
 15 nally threaded for engagement with the reduced and correspondingly threaded upper end of the shaft 17. It is desirable that the screw 32, instead of having threads of ordinary form, be made with threads having
 20 somewhat the form, in cross-section, of upwardly-facing saw-teeth, as shown, in order to secure more effective engagement therewith of another part of the device, herein-
 25 after described.

The screw 32 extends through an opening in the shelf 25, and is somewhat enlarged in diameter at its lower end to provide a shoulder 33 upon which the inner end of said
 30 shelf rests. In the normal operation of the gramophone apparatus the shelf 25 occupies a horizontal position as shown in the full lines in Fig. 4, and the sound-box 22, in its travel over the record-disk, remains a small
 35 distance above said shelf, and free from engagement therewith. When said sound-box has reached the end of its travel over the record-disk, parts carried by said shelf are designed to engage with the screw 32, and,
 40 by the rotation of the latter, to raise said shelf into its inclined position, as shown by the dotted lines in Fig. 4; whereupon the latter engages with a small wheel 36, mounted in a forked bracket member 37 attached
 45 to said sound-box, and said sound-box is lifted from the record-disk, and travels down the inclined surface of the shelf to its initial position at the circumference of the disk. According to a prearranged setting of the
 50 device, the parts may either remain in this position, with the shelf 25 raised, the sound-box out of engagement with the record-disk, and the rotating table free to revolve until its driving spring has unwound; or the
 55 braking device comprising a part of the present invention may engage with said rotating table and arrest its rotation; or the shelf 25 may be again lowered, the sound-box replaced in engagement with the record-disk,
 60 and the apparatus allowed to repeat its performance.

The means whereby the shelf 25 is brought into engagement with the screw 32 in order that the rotation of the latter may raise the
 65 inner end of said shelf comprises a small

block 40 (Figs. 1, 4, 8 and 11) which is recessed along its sides (Fig. 11) to engage with and slide in a radial slot in said shelf whereby said block may be slid toward, or
 70 from the screw 32; said block having its inner end formed in the shape of a thin, concavely curved edge, or thread 41, (Fig. 8) adapted to engage with the threads of said screw when the parts are brought to-
 75 gether. A vertical pin or stud 42 affixed to said block engages with a slotted lever 43, pivoted upon the surface of said shelf and attached to and controlled by a long arm 44 for swinging said lever about its point of
 80 attachment to the shelf 25 and bringing said block 40 into, or out of engagement with the screw 32. Said arm 44 is attached to the armature 45 of a pair of electro-magnets 46, and means are provided for energizing the
 85 latter as follows: A thin piece of wire or contact point 50, is secured to the sound-box and adapted for contact with an adjustable contact point 52 extending laterally from the shelf 25; these parts being suitably con-
 90 nected to a source of electrical energy, as will be explained hereinafter, whereby upon the completion of the travel of the sound-box toward the center of the record-disk these contact points are brought together, the electro-magnets energized, the block 40,
 95 through the medium of the long arm 44 and the short lever 43, brought into engagement with the threads of the screw 32, and the shelf 25 thereby raised. This raises the sound-box 22 from the surface of the record-
 100 disk, and after a certain degree of inclination has been reached, the sound-box commences to travel backward upon the inclined surface of said shelf and toward its outer end. It is evident that almost immediately
 105 upon the commencement by said sound-box of such journey, the contact points 50 and 52 will be separated, but upon the raising of the sound-box as above stated, contact is also made and the electrical circuit is completed
 110 through the wheel 36 and the shelf 25, whereby the magnets remain energized and the shelf continues to rise until said sound-box has traveled substantially to the limit of its outward travel; whereupon the wheel 36
 115 passes upon an insulated portion 55 (Fig. 2) of the shelf, and the circuit is broken. A light spring 56, engaging with a pin 57 upon the arm 44, then acts to move the same away from the magnets whereby the block 40 is
 120 released from its engagement with the rotating screw 32, and, if it is desired to repeat the record, the shelf 25 is allowed to descend to its original position. Such descent is partially arrested by means of an air cylinder 60
 125 placed below the shelf and provided with a piston 61, a piston rod 62 upon which the shelf 25 may rest, and a small hole 63 to allow the air to escape slowly upon the downward movement of said piston, whereby
 130

the free fall of the shelf 25 is restrained. A coil spring 64 within the cylinder acts to again raise the piston when the shelf 25 is again raised to its inclined position, suitable holes 65, in the upper cylinder head, allowing the air to escape from above the piston. The contact point 50 is made thin and flexible in order that it may bend slightly, after meeting the contact point 52, and allow the needle 23 to travel a small distance farther along its spiral groove before the rising shelf can lift it from the record-disk. Preferably it may be made in the form of a coil spring, being wound one or more times about the needle-supporting portion 66 (Fig. 10) of the sound box.

In order to arrest the outward movement of the sound-box 22 upon the shelf 25, a fixed and a movable stop, 70 and 71 respectively, are provided. The former is provided upon its inner face with a flat leaf spring 72 which acts as follows: Upon the descent of the sound-box 22 along the inclined surface of the shelf the ends of the wheel-carrying fork 37 strike said spring and deflect the latter, but it is designed that the spring shall not have sufficient force to raise the weight of said sound-box and move it back along the inclined surface of the shelf, but shall allow said sound-box to rest in its extreme outermost position until the shelf is again lowered. Thereupon the needle 23 again comes into contact with the surface of the record, which likewise acts to restrain said sound-box from being pushed inwardly by the spring 72; but upon the continued rotation of the record-disk, and the continued pressure of the spring, the sound-box is moved, relatively to the record-disk, in a spiral direction upon the surface of the latter until the needle 23 reaches the first sound-reproducing groove upon the record-disk; whereupon it is further guided inwardly in the usual manner.

The stop 70 is designed to arrest the outward travel of the sound-box 22 at the extreme outer edge of the rotating table whenever a record-disk of the largest diameter is used upon the latter; but if a smaller disk is used, the movable stop 71 is placed in position to arrest such travel at a correspondingly shorter radial distance. For such purpose the stop 71 is similarly provided with a spring 73, and is provided at one end with a cylindrically enlarged portion in the form of a hub 75 through which passes a vertical shaft, or pin 76, extending through and engaging in an opening through the shelf. A flange or collar 78, upon the lower end of said pin, and a spring 79, act to maintain frictional engagement between the hub portion 75 and the surface of the shelf, and a short pin 80 extending downward from said stop into a circumferential slot 81 confines the movement of said stop to an

angle of substantially 90° ; whereby it may be swung into its operative position as shown in full lines in Fig. 2, or into the position indicated by the dotted lines and out of the line of travel of said sound-box. 70

In order that the distance of travel of the sound-reproducing needle 23 inward over the surface of the record-disk may be varied according to the area covered by the indented portion of said record-disk; which varies with productions of different lengths since the latter are ordinarily engraved upon the disk from the outer edge of the same inward; means are provided for moving the contact point 52 in a radial direction over the rotating table. For this purpose the said contact point projects laterally from a long slotted strip of metal 90, which latter is slidably mounted upon the surface of the shelf 25 by means of screws 91, 91 extending through its slot and into the said shelf. One of its edges is provided with rack teeth 92, which engage, through the medium of an idler pinion 93, with a small pinion 94 upon a vertical shaft 95 journaled in said shelf. The upper part of said shaft is enlarged into the form of a dial plate 96 and a knurled handle 97 similar to the dial and the handle of a safe, whereby, through the rotation of said hand wheel, the rack may be operated to move the contact point 52 radially over the surface of the record-disk. 75 80 85 90 95

The dial is suitably graduated and numbered so that when its correct position has once been determined for any particular record, a corresponding number may be marked upon the latter, and thereafter, by the operation of said dial, the contact point 52 may again be placed in its correct position with respect to the width of engraving upon the record-disk. 10 105

Referring now to the electrical circuits by means of which the magnets 46 are energized and the above described operation of the parts is effected, 100 indicates a source of electrical energy such as a dry cell or battery of ordinary form, which may be conveniently placed in the gramophone housing as shown. From said battery a wire 101 leads to the electromagnets 46, and thence, by means of a wire 102, the current is "grounded" upon the shelf 25. The opposite pole of the battery is connected through a wire 103 to one of the bolts 104 attaching the arm-supporting bracket 21 to the side of the gramophone housing. All of said wires are here shown as diagrammatical only. Inasmuch as the gramophone housing is ordinarily constructed of wood, the re-producing needle 23 rests upon a record-disk made of insulating material, and the sound-box 22 is entirely out of contact with the shelf 25 when the latter is in its horizontal position, the electrical circuit 110 115 120 125 130

will remain open until the contacts 50 and 52 are brought together as above described. It is evident, however, that if the gramophone housing should be constructed of a conducting material, the bracket 21 may be insulated therefrom, or the circuits otherwise arranged without departing from the spirit of the present invention. To prevent the circuit from being completed through the sound-box 22 and one of the springs 72 or 73, after the sound-box has passed upon the insulated portion 55 of the shelf 25, the spring 72 is insulated from the stop 70 by a strip of insulation 106; and for the same purpose, the movable stop 71 as here shown is made of insulating material.

In order that the operation of the gramophone may be arrested if desired at the end of the performance of a certain selection, and without allowing a repetition of the same, means are provided as follows for supporting the shelf 25 in its inclined position after it has been raised to such position in the manner above described; and thereafter either allowing the table 16 to continue its rotation until the driving spring has been entirely unwound, or braking the same, and thereby arresting its rotation. For this purpose there is arranged beneath one of the hinged ends of the shelf 25 a toggle device comprising a short upright lever 110, hinged at its lower end to a vertical flange 111 rising from the plate 26, and free to move in a vertical plane toward and from the adjacent cylindric surface of the rotating table 16, being yieldingly drawn away from such table by a coil spring 112 attached to its upper end. To the upper part of said lever 110 is pivoted the lower portion of a somewhat T-shaped member 113. The latter is flattened at its upper portion 114 (Figs. 4 and 6) and a light coil spring 115 wound about its point of attachment to the lever 110 tends to move said member 114 outward, or away from the circumference of the rotating table. When these parts are released from their engagement with the locking device hereinafter described, such outward movement of the member 114 is prevented, when the shelf 25 is down or in its horizontal position, by the engagement of said flat surface 114 with the under surface of the shelf (Fig. 4); but when the latter is raised, the spring 115 acts to move said member backward, as shown in Fig. 6, and thereafter upon the descent of such shelf after its release from engagement with the screw 32 it will fall upon the upraised inner arm of said T-shaped member 113, and its weight will act to force the inclined lever 110 toward the rotating table. The latter is provided at its upper part with a suitable brake-shoe 116, which thereupon engages the cylindric surface of the rotating table and arrests the motion of the

same. In such position of the parts, the shelf will be permanently supported in its inclined position as shown in Fig. 6, and the re-producing needle will remain out of contact with the record disk. The spring 115 is relatively weaker than the spring 112, in order that when the member 113 is restrained from backward movement, either by its engagement with the shelf 25 above it, or by the locking device hereinafter described, the reaction of said spring 115 will not press the inclined lever 110 against the rotating table.

When it is desired that the rotating table shall not be arrested and that the driving spring shall be allowed to unwind, means are provided for restraining the inward motion of the pivoted lever 110 in order that it may support the shelf 25, through the medium of the member 113, without forcing said lever into engagement with the rotating table. These comprise a slotted bolt 120 adapted to engage with a pin 121 upon said lever 110 and extending through an opening in the upturned portion 122 of the outer end of the bracket 26. Such outer end of the bolt is threaded and provided with a thumb screw 123, whereby said bolt may be drawn outward, against the influence of a spring 124, and its slotted end engaged with the pin 121 to prevent the brake-shoe 116 from being forced into engagement with the rotating table.

The locking means, above referred to, for throwing the shelf-supporting and braking devices, or the parts 110 and 113, out of operation, comprise a bell-crank lever 130, having a short horizontal arm 131, and likewise pivoted to the flange 111. Said short arm 131 is adapted to engage with the under surface 132 of the outer arm of the T-shaped member 113, as shown in Fig. 4, whereby said member 113 is prevented from turning under the influence of the spring 116, and will remain in the position shown when the restraining weight of the shelf 25 is removed from its upper surface 114. Said member is released from its engagement with the arm 131 by moving the lever 130 into its inclined position and thereby depressing its short arm, as shown in Fig. 6; and a spring detent 140, adapted to engage with either of two radial notches 141, 141, in the hub portion of said bell-crank lever, acts to yieldingly maintain said lever in one or the other of its positions, as shown.

A stop or rest 150 limits the angle of movement of the shelf 25 to a little more than 90° and provides a rest for the same when it is raised past its vertical position as indicated by the dotted lines in Fig. 4; whereby said shelf may be rested against said stop for the purpose of removing and replacing record disks upon the rotating table.

The operation of the device is as follows: The shelf 25 is first raised and a record-disk placed in position upon the table 16, after which the shelf is again lowered to its horizontal position, the sound-box placed in correct position at the outer circumference of the record-disk in the ordinary manner, and the movable contact point 52 adjusted with respect to the width of engraving upon the record-disk; and if it is desired that the selection shall be played through and shall then be repeated, the locking lever 130 is placed in its vertical position and the instrument placed in operation. Whereupon the sound-box will travel toward the center of the record-disk until the contacts 50 and 52 come together, the shelf will rise, the sound-box will travel backward upon its surface, and the shelf will again descend and start the sound-box upon a repetition of its forward travel, as above described. If it is desired that the selection shall not be repeated, and that the rotating table shall be stopped at the end of the performance, the locking lever 130 is operated to release the shelf-supporting and braking lever 110; whereupon the shelf 25, after rising as above stated, will descend upon the upturned arm of the member 113 and brake the rotating table as above described. If it is desired that the performance of the instrument shall be arrested, but that the table shall be allowed to rotate until its driving spring has unwound, the thumb screw 123 is turned to draw the bolt 120 outward, whereby the braking lever 110 is restrained from engaging with the rotating table.

From the foregoing it will be seen that the device is more especially adapted for use in connection with the type of gramophone having a horizontal record disk above which is arranged a swinging horizontal hollow arm with a sound-box hinged to its inner end and, in the operation of the instrument, resting with substantially its entire weight upon the record disk. Such an instrument is known in the market as a "Victor" gramophone and such term herein used will be understood as describing an instrument of substantially the form and construction here illustrated. The improved device hereinbefore described may be readily attached to a Victor gramophone with practically no alteration of the latter whatever, it being necessary merely to unscrew a small stud ordinarily fitted upon the threaded upper end of the spindle 17 and substitute the screw 32, secure the base plate 26 to the wooden top of the gramophone housing, place the battery therein and make a few simple wiring connections. The device may be as readily detached from the gramophone instrument, if desired, by withdrawing the hinge bolts 30, 30 and disconnecting the wire leading from the battery to the electromag-

nets 46; and the bracket member 26 may also be detached by withdrawing the screws which secure it to the cover 15 of the gramophone housing; and the screw 32 detached from the spindle 17 and replaced by the stud which ordinarily takes its place, leaving no parts exposed to view, and no marks upon the instrument to detract from its appearance.

I am aware of the fact that sound-reproducing instruments have heretofore been constructed in such a manner that they may be made to automatically repeat a selection after having played it through one or more times, but do not believe that a device has ever before been constructed which may be attached to a gramophone of the general type hereinbefore described with substantially no alteration of the latter; and which is adapted for ready disengagement from the instrument with substantially no attaching parts left affixed thereto to detract from the appearance of the instrument; and which moreover may be entirely detached from the instrument without leaving any traces whatever which are exposed to view.

I claim as my invention:

1. The combination with a sound-reproducing instrument of the gramophone type, of a repeating device adapted for attachment to such instrument without substantial alteration of the latter and comprising a horizontal shelf and means for inclining it, and a braking device actuated by the weight of said shelf.

2. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a repeating attachment comprising a shelf arranged below the path of travel of said sound-box, a screw engaging with said record-rotating means and rotated thereby, a member carried by said shelf for engaging with said screw, and means controlled by the travel of said sound-box over the sound-reproducing record for bringing said member and said screw into engagement and inclining said shelf.

3. The combination with a sound-reproducing instrument including a sound-reproducing record, of a repeating and braking attachment therefor, comprising a shelf arranged over the surface of the sound-reproducing record, means for inclining said shelf, and a braking device arranged beneath said shelf and actuated by the weight of the latter to arrest the operation of the sound-reproducing instrument.

4. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a repeating attachment comprising a shelf arranged below the path of travel of said sound box, a part fixed to

such record-rotating means and rotated thereby, another part carried by said shelf for engaging with said first part, means controlled by the travel of said sound box over the sound-reproducing record for bringing said parts into engagement and inclining said shelf, and means for supporting said shelf in its inclined position.

5. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a shelf arranged below the path of travel of said sound box, a part fixed to the center of said record rotating means and rotated thereby, another part carried by said shelf for engaging with said first part, means controlled by the travel of said sound box over the sound-reproducing record for bringing said parts into engagement and inclining said shelf to permit said sound box to travel backward upon it, and adjustable means for arresting the backward travel of said sound box and operating upon the restoration of said shelf to its horizontal position to impel said sound box in the direction of its forward travel over said sound-reproducing record.

6. The combination with a sound-reproducing instrument including a rotating sound-reproducing record, means for supporting and rotating the same, and a sound-box traveling over and engaging with its surface, of a vertical screw engaging with and rotated by said means, a normally horizontal shelf extending over the surface of said sound-reproducing record, a sliding block carried by said shelf and adapted to engage with said screw, means engaging with said block to move the same toward said screw, an electro-magnet likewise carried by said shelf and adapted to operate said last mentioned means, and contact points carried by said sound-box and said shelf for completing the circuit through said electro-magnet, one of such contact points being adjustable for varying the place of contact between them with reference to the position of said sound-box over the sound-reproducing record.

7. The combination with a sound-reproducing instrument including a rotating sound-reproducing record, means for supporting and rotating the same, and a sound-box traveling over and engaging with its surface, of a normally horizontal shelf arranged over the surface of said sound-reproducing record, means for raising the same into an inclined position, a braking means operating to support said shelf in such inclined position and actuated by the weight thereof to arrest the operation of said instrument, and means for restraining such

braking means from engagement with the instrument.

8. The combination with a sound-reproducing instrument including a traveling sound-box, of a detachable repeating and braking device therefor, an electro-magnet for operating such device, contact points for closing the circuit through said electro-magnet, one of such contact points being carried by the sound-box, and means for varying the place of contact between said contact points with reference to the surface of said sound-reproducing record.

9. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a shelf arranged below the path of travel of said sound box, a screw engaging with said record-rotating means and rotated thereby, a member carried by said shelf for engagement with said screw, and electromagnetic means controlled by the travel of said sound box over the sound-reproducing record for bringing said member and said screw into engagement and inclining said shelf.

10. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a shelf arranged below the path of travel of said sound box, a part fixed to said record-rotating means and rotated thereby, another part carried by said shelf for engagement with said first part, electromagnetic means controlled by the travel of said sound box over the sound-reproducing record for bringing said parts into engagement and inclining said shelf, and contact points through which the circuit is closed, one of such contact points being carried by the sound box and one of such contact points being adjustable with respect to the path of travel of said sound box.

11. The combination with a sound-reproducing instrument including a sound box, a sound-reproducing record and means for rotating the same, of a shelf arranged below the path of travel of said sound box, a part fixed to the said record rotating means and rotated thereby, another part carried by said shelf for engagement with said first part, and means controlled by the travel of said sound box over the sound-reproducing record for bringing such parts together and inclining said shelf.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses this first day of June, 1911.

BEN R. SMITH.

Witnesses:

FRANK LOWENTHAL,
BEN. C. FULLER.