

R. W. WEATHERMAN.
SOUND REPRODUCING INSTRUMENT.
APPLICATION FILED AUG. 19, 1910.

996,816.

Patented July 4, 1911.

3 SHEETS-SHEET 1.

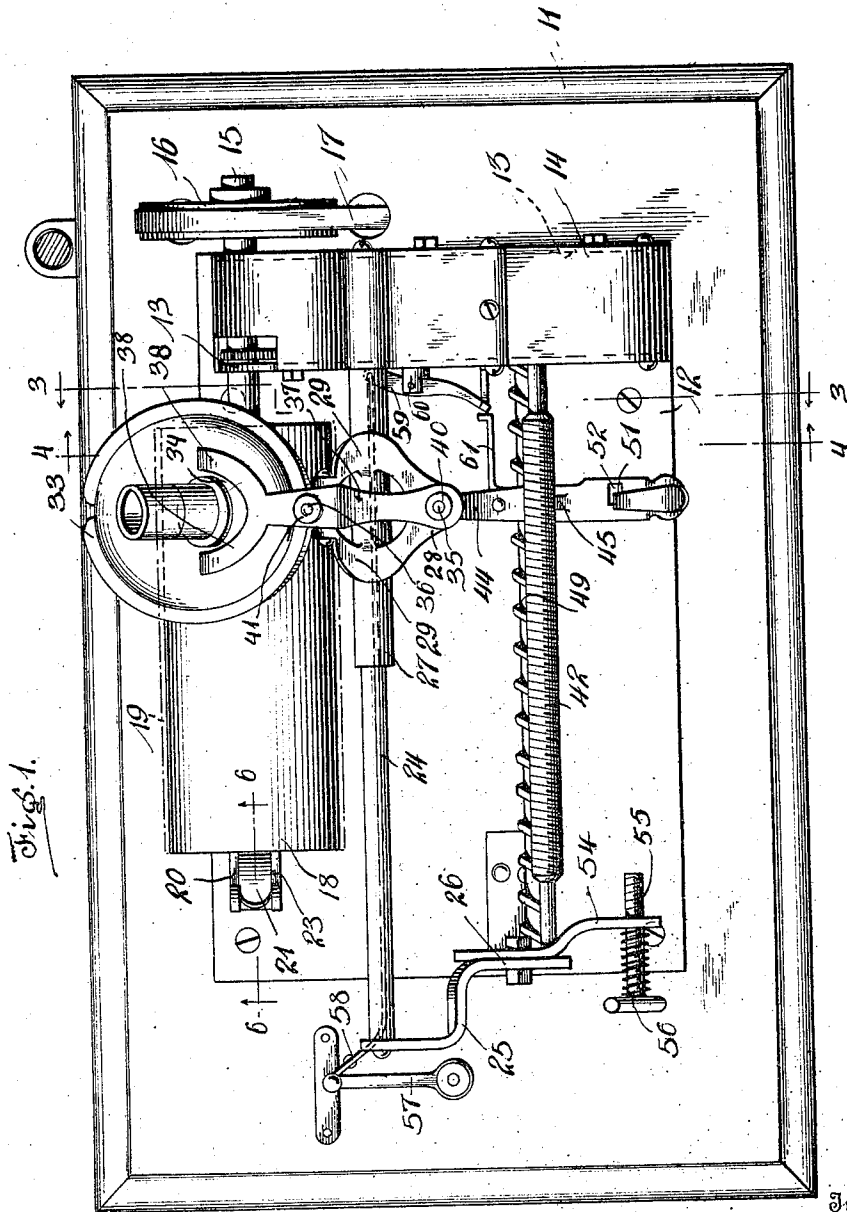


Fig. 1.

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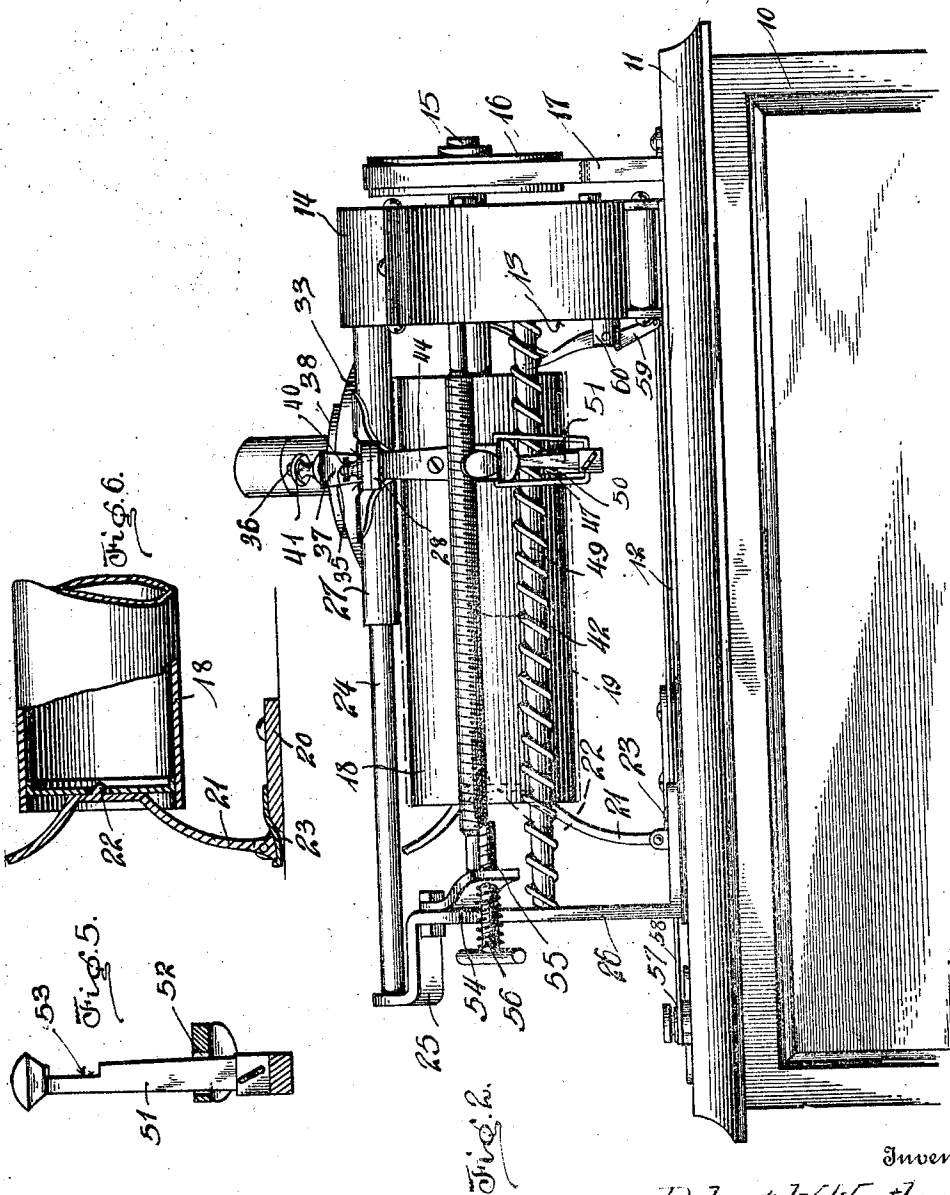
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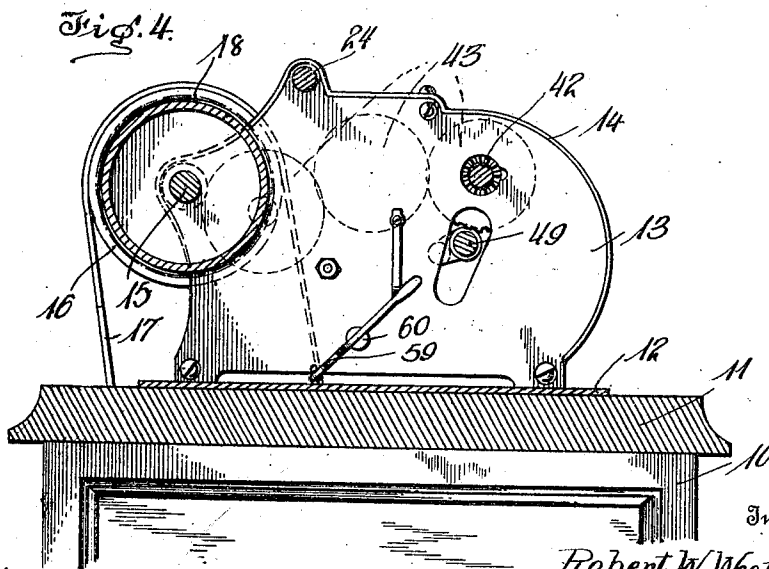
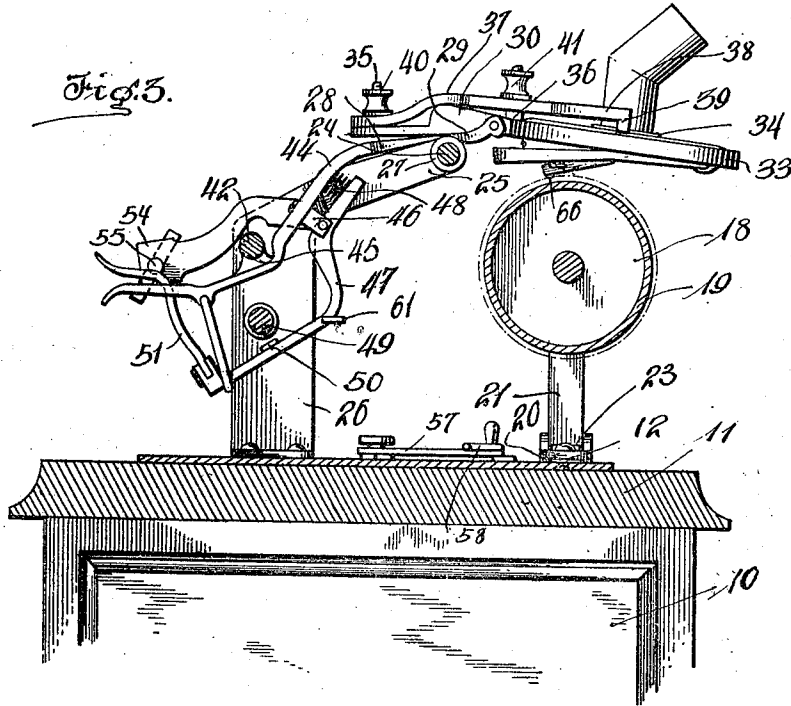
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

ROBERT W. WEATHERMAN, OF SELMORE, MISSOURI, ASSIGNOR OF ONE-HALF TO
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SOUND-REPRODUCING INSTRUMENT.

996,816

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, ROBERT W. WEATHERMAN, a citizen of the United States, residing at Selmore, in the county of Christian, State of Missouri, have invented certain new and useful Improvements in Sound-Reproducing Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sound reproducing instruments and has special reference to a mechanism used in connection with machines of the cylinder type to replace the stylus of the reproducer at the beginning of the record after the same has been played.

The principal object of the invention is to improve and simplify the general construction of devices of this character.

A second object of the invention is to provide a means of novel character for stopping the machine after the stylus has been moved back to the starting point.

A third object of the invention is to provide a novel form of holder for the reproducer especially adapted to be used with an instrument of this character.

With the above and other objects in view, the invention consists in general of a sound reproducing instrument of the class described, provided with a novel and improved form of mechanism for moving the stylus back to the starting point after a cylinder has been played, said mechanism actuating an improved reproducer arm.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—Figure 1 is a plan view of a phonograph constructed and equipped in accordance with this invention. Fig. 2 is a rear elevation thereof. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1. Fig. 5 is a detail view of a certain throw off device used in connection with this instrument. Fig. 6 is a partial section on the line 6—6 of Fig. 1.

The numeral 10 indicates a portion of the

motor box or casing and this casing contains an electric motor of suitable type, the same not being deemed necessary here to be shown as it forms no specific part of the invention. The casing is provided with the usual top 11 whereeto is attached a base plate 12. Secured to the base plate adjacent one end is a pair of spaced standards 13 the space between the standards being closed in on the top and sides by a cover 14. The space thus inclosed forms the gear box for the device. Journaled in the standards 13 is a shaft 15 on one end of which is a belt wheel 16 over which runs the belt 17, this belt passing downward into the casing 10 and being driven by a suitable pulley on the motor in the usual manner. The other end of the shaft 15 is provided with the usual mandrel 18 whereon may be held the cylindrical record 19. Secured to the base 12 is a bearing block 20 whereeto is pivoted the lower end of an arm 21 provided with a centering projection 22 which engages in an opening in the end of the mandrel to hold the same in proper position while the machine is in operation. This arm 21 is held in either the raised or lowered position by a suitable spring 23.

Fixed to one of the standards 13 and extending out in parallel relation to the shaft 15 is a rod 24. The outer end of this rod 24 is secured to an arm 25 which projects from a standard 26 firmly fixed to the base 12. Slidable on the rod 24 is a sleeve 27 comprising a pair of spaced sections which are connected together by a yoke 28 extending backward from the adjacent ends of the sections. Extending forward from the ends of the yoke arms is a pair of spaced arms 29 between which is pivoted the reproducer arm 30 carrying on its forward end a ring 33 wherein is held a reproducer 34. Fixed to the bight of the yoke 28 is a screw 35 which passes through the rear end of the reproducer arm. At the rear of the ring 33 there is provided a second screw 36 which is firmly fixed to the ring. Held upon the screws 35 and 36 is a locking bar 37 having a forked end 38, the arms of the fork being provided with downwardly turned extremities 39 which bear against the top of the reproducer. The screw 35 carries a thumb nut 40 which serves to adjust the position of the reproducer with reference to the yoke

and also to hold the rear end of the arm 37. On the screw 36 is a thumb nut 41 which serves to hold the front end of the arm 37 in such manner that the projections 39 bear 5 firmly on the reproducer when the latter is in position. Extending from what may be termed the inner standard 13 to the standard 26 is a feed screw 42 of the ordinary type employed in machines of this character and 10 this feed screw is geared to the shaft 15 by a train of gears 43. Extending rearwardly beneath the shaft 42 is an arm 44 which is preferably integral with and projects downward and rearward from the yoke 28. On 15 the upper side of this arm 44 there is provided a segmental nut 45 which is adapted to engage the screw 42 when the rear end of the arm is raised. The weight of the reproducer and parts forward of the rod 24 20 is such that the normal tendency of the rear end of the arm 44 is to lift and hold the nut in position on the screw.

At 46 is a forked lug between the arms of which is pivoted a lever 47. Between the 25 forward extremity of this lever and the arm 44 is a coil spring 48. This arm 47 extends beneath a screw 49 of extremely coarse pitch which is geared to the last gear of the train 43 so that the two shafts 42 and 49 revolve 30 in opposite directions. On the upper side of the arm 47 is a lug 50 which is arranged to be engaged by the coarse thread of the screw 49. In order to hold the lug out of engagement with said screw during the 35 progress of the segmental nut 45 along the screw 42 the arm 47 has pivoted thereto a latch 51, the upper end of which projects through an opening 52 formed in the rear end of the arm 44 and this latch is provided 40 with a notch 53 which is adapted to engage the edge of the opening 52 so that the rear ends of the arms 44 and 47 may be held apart against the action of the spring 48.

Projecting rearwardly from the standard 45 26 is an arm 54 wherethrough extends a thumb screw 55 the extremity of which lies in the path of the upper end of the latch 51. This thumb screw has surrounding its stem between its head and the arm 54 a 50 spring 56 which acts as a lock spring to prevent accidental movement of said screw. Now, in the operation of this portion of the device when the machine is started the reproducer will travel toward the left of Fig. 55 2 until the latch strikes the screw 55. When the latch thus strikes said screw the notch will be released from its engagement with the arm 44 and the spring 48 will force the arm 47 upward at its rear end until the lug 60 50 contacts with the screw 49. The arrangement of the parts is such that the spring 48 is of sufficient strength to continue this movement by forcing the rear end of the arm 44 downward and thus releasing 65 the nut 45 from the screw 42. This will

cause the stylus of the reproducer to rise from the record and the screw 49 will move said reproducer rapidly toward the right.

In order to stop the machine when the reproducer has been returned to the starting 70 point there is provided a switch 57 which controls the current to the motor. This switch is connected by a link 58 with a lever 59 pivoted to a lug 60 mounted on the inner standard 13. The other end of this lever 75 lies in the path of an arm 61 which projects from the arm 47, the lever end lying in said path when said arm 47 is raised to engage the screw 49. The arrangement is such that as the reproducer is moved back to the starting 80 point by the screw 49 the engagement of the arm 61 and lever 59 will open the switch 57 and thus throw the current off the motor so that the latter can stop. When it is desired to restart the instrument the arm 47 is 85 depressed by means of the latch 51 and the latter engaged with the arm 44 as previously described. This will leave the end of the lever 59 free to be moved in such position that the switch will be closed and the motor 90 started.

The operation of the different parts of the device having been described it is merely necessary to say that the cylinder is placed upon the mandrel in the ordinary way and 95 the reproducer allowed to rest upon the cylinder by moving the latch to such position that the nut 45 engages with the screw 42. The switch is then closed and the machine started. Upon arriving at the end of its 100 travel the latch will be disengaged, the reproducer returned to the starting point and the machine stopped.

There has thus been provided a simple and efficient device of the kind described and 105 for the purpose specified.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the kind described, a guide rod, a sleeve mounted on said guide 110 rod, a feed screw, means to actuate said feed screw, an arm projecting from said sleeve transverse of said feed screw, a segmental nut carried by said arm and adapted to engage said feed screw, a second arm pivoted 115 to the first mentioned arm, a lug adjacent one end of said second arm, a return screw geared to said feed screw and adapted to engage said lug, releasable latch means to hold the lug carrying end of the second arm 120 away from the first arm, means to release said latch when the sleeve has moved to a predetermined point on the rod, and means constantly urging the lug carrying end of the second arm toward the first arm. 125

2. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending 130

beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and thereby depress the first arm, a releasable latch to hold said second arm away from said return screw, and means to release said latch when the sleeve has moved to a predetermined point on said rod.

3. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and thereby depress the first arm, a latch pivoted to the second arm and having a notch engaging the first arm to hold said second arm from actuation by said spring, and means to release said latch when said sleeve has moved to a predetermined point on said rod.

4. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and thereby depress the first arm, a latch pivoted to the second arm and having a notch engaging the first arm to hold said second arm from actuation by said spring, a pair of spaced standards supporting said screws, and a thumb screw carried by one of said standards and lying in the path of said latch when the latter is engaged with the first arm.

5. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, means to actuate said feed screw, an arm projecting from said sleeve transverse of said feed screw, a segmental nut carried by said arm and adapted to en-

gage said feed screw, a second arm pivoted to the first mentioned arm, a lug adjacent one end of said second arm, a return screw geared to said feed screw and adapted to engage said lug, releasable latch means to hold the lug carrying end of the second arm away from the first arm, means to release said latch when the sleeve has moved to a predetermined point on the rod, and means constantly urging the lug carrying end of the second arm toward the first arm; in combination with a switch actuating mechanism lying in the path of the lug carrying arm when the latter is engaged with the return screw.

6. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and thereby depress the first arm, a releasable latch to hold said second arm away from said return screw, and means to release said latch when the sleeve has moved to a predetermined point on said rod; in combination with a switch actuating mechanism lying in the path of the lug carrying arm when the latter is engaged with the return screw.

7. In a device of the kind described, a guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and thereby depress the first arm, a latch pivoted to the second arm and having a notch engaging the first arm to hold said second arm from actuation by said spring, and means to release said latch when said sleeve has moved to a predetermined point on said rod; in combination with a switch actuating mechanism lying in the path of the lug carrying arm when the latter is engaged with the return screw.

8. In a device of the kind described, a

guide rod, a sleeve mounted on said guide rod, a feed screw, a return screw, means to actuate said feed and return screws, an arm projecting from said sleeve and extending
5 beneath said feed screw, a segmental nut on the upper side of said arm adapted for engagement with the feed screw when the arm is raised, a second arm pivoted intermediate its ends beneath the first arm, said second
10 arm having one end projecting beneath the return screw, a lug on said second arm engageable with the return screw, a spring between said arms adapted to force said second arm against said return screw and
15 thereby depress the first arm, a latch pivoted to the second arm and having a notch

engaging the first arm to hold said second arm from actuation by said spring, a pair of spaced standards supporting said screws, and a thumb screw carried by one of said
20 standards and lying in the path of said latch when the latter is engaged with the first arm, in combination with a switch actuating mechanism lying in the path of the lug carrying arm when the latter is engaged with
25 the return screw.

In testimony whereof, I affix my signature, in presence of two witnesses.

ROBERT W. WEATHERMAN.

Witnesses:

FLOYD HARTLEY,

T. J. HANKS.