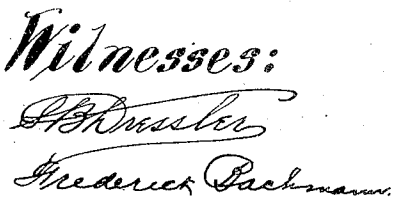


1,097,987.

3 SHEETS—SHEET 1,



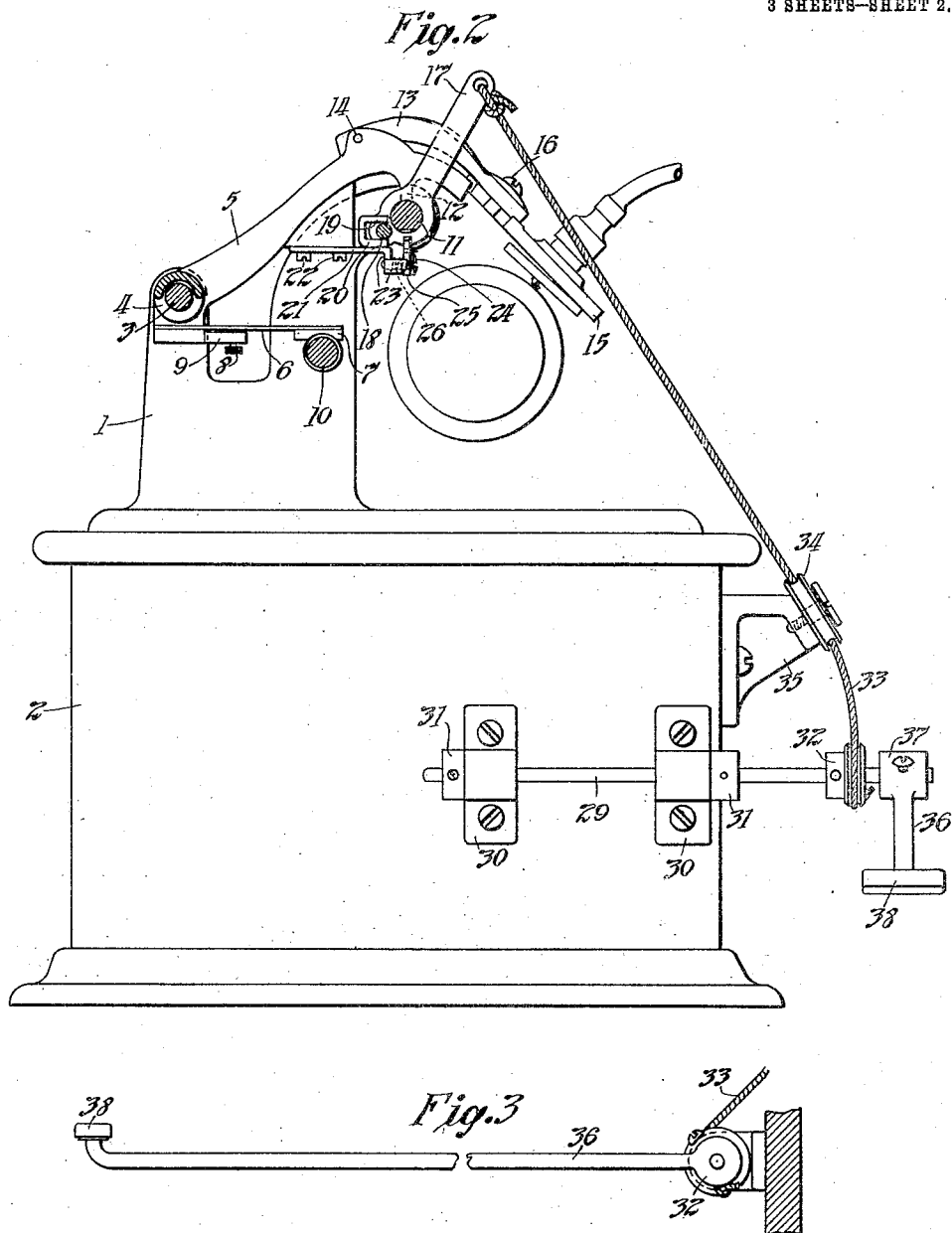
Inventor:  
Charles S. Osborne  
by Frank E. Soper,  
his Atty.

C. S. OSBORNE.  
 PHONOGRAPH.  
 APPLICATION FILED OCT. 6, 1911.

1,097,987.

Patented May 26, 1914.

3 SHEETS—SHEET 2.



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

CHARLES S. OSBORNE, OF WEST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NEW JERSEY PATENT COMPANY, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## PHONOGRAPH.

1,097,987.

Specification of Letters Patent.

Patented May 26, 1914

Application filed October 6, 1911. Serial No. 653,114.

*To all whom it may concern:*

Be it known that I, CHARLES S. OSBORNE, a citizen of the United States, and a resident of West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Phonographs, of which the following is a description.

My invention relates to phonographs, particularly those adapted for commercial purposes although obviously its use is not limited to machines of this type.

In transcribing a commercial record, the transcriber frequently finds it necessary to repeat a portion of the record. It has accordingly been customary to provide commercial phonographs with mechanism whereby the carrier arm supporting the reproducer may be stepped in a rearward direction along the record as shown, for example, in U. S. Patent No. 847,631, granted on March 19, 1907 to E. L. Aiken. With devices of this character, however, as heretofore known and constructed, it has been impossible to place the controlling member for the repeating mechanism in a convenient position for actuation by the transcriber while operating the typewriting machine.

The principal object of the present invention is to obviate this difficulty by providing means whereby the carrier arm may be readily raised and stepped in a rearward direction from a point in proximity to the keyboard of the typewriter or from any other desired point.

My invention also comprises certain other details of construction which will be hereinafter more fully set forth.

Referring to the accompanying drawing in which like parts are designated by the same reference numerals—Figure 1 is a plan view illustrating a phonograph located in proximity to the keyboard of the typewriter and embodying one form of my invention; Fig. 2 is an end elevation partly in section on the line 2—2 of Fig. 1; Figs. 3 and 4 are elevations illustrating details of construction; Fig. 5 is an end elevation of a modification; Fig. 6 is a plan view of a detail of construction employed in the modification shown in Fig. 5; and Fig. 7 is an elevation partly in section of another modification.

The phonograph shown comprises a body 1 mounted on a suitable cabinet 2. The body 1 is provided with a back rod 3 which extends transversely thereof and upon which the sleeve 4 which is connected to the carrier arm 5 is pivotally mounted, said sleeve carrying the usual feed nut spring 6 and feed nut 7.

The numeral 8 designates a screw mounted in a lug 9 which is secured to the sleeve 4 below the spring 6. The said screw engages the lower face of the spring 6 and serves to adjust the position of the feed nut 7 with reference to the feed screw 10 which extends parallel to the rod 3 and operates in the usual manner to impart feeding movement to the sleeve 4 and arm 5. Parallel with the rod 3 is front guide rod 11 which in the forms of my invention shown in Figs. 1 to 6 is adapted to support the forward end of the carrier arm 5, this arm being provided with a depending projection 12 which rests upon the rod 11 when the feed nut is in engagement with the feed screw 10, as shown in Fig. 2. An auxiliary arm 13 is pivoted upon a pin 14 carried by the arm 5. The arm 13 carries a spectacle frame 15 which is pivoted on the screw 16 carried by the said arm, said spectacle frame being adapted to turn on its pivot so as to bring either the recorder or reproducer mounted therein into operative position, as desired.

In the forms of my invention shown in Figs. 1 to 4, the means for elevating the carrier arm comprise a lift lever 17 pivoted to the guide rod 11 adjacent one end thereof as shown in Fig. 2 and supporting in its lower portion one end of a bar 18, which extends parallel to the guide rod 11 and is pivotally supported from the opposite end of the latter by a link similar to the lower portion of the lever 17. This bar engages slidably within a horizontal opening or slot 19 in a guide member 20 secured to a support 21 which is connected, as by screws 22, to the lower portion of the carrier arm 5. It is evident that whatever the position of the carrier arm along the record, the depression of the upper end of the lever 17 causes an elevation of the bar 18 and a corresponding elevation or lifting of the carrier arm 5.

The mechanism for spacing the carrier arm rearwardly is constructed as follows: The support 21 is provided with a down-

wardly extending lug 23 in which a screw 24 is mounted. Pivoted upon said screw is a pawl 25 which is normally held in the position shown in Fig. 4 by a coil spring 26, connected at one end to the said screw or lug, and at the other end to said pawl. The lower surface of the rod 11 is provided with teeth forming a rack 27, the said teeth being adapted to be engaged by the pawl 25 when it is desired to step the arm 5 a short distance in a rearward direction. This rearward stepping is accomplished by the movement of the lever 17, which first effects the elevation of the arm 5 by the coöperation of the bar 18 and the member 20 so as to disengage the feed nut from the feed screw, a further movement bringing the end of the pawl 25 into engagement with one of the teeth of the rack 27. A still further movement of the lever 17 causes the pawl to move the arm 5 rearwardly, since the free end or point of the pawl is held by the rack, causing the pivot 24 to move in an arc about the point of the pawl as the center. If desired, the lever may be operated a second time or any number of times in order to increase the amount of the record repeated.

In Figs. 1 to 4 inclusive, I have shown a means for extending the control of the lifting and spacing mechanism to a point at the side of the keyboard 28 of a typewriter, the phonograph being placed in the rear of the typewriter with one of the ends thereof facing the operator. In this form of my invention, I provide a rock shaft 29 mounted in suitable brackets 30 secured to the phonograph cabinet, this shaft being held against endwise movement in the brackets 30 by a plurality of collars or stops 31 secured thereto and engaging the sides of the brackets. A pulley 32 is secured to the shaft 29 and motion is transmitted from this pulley to the lever 17 by a cord 33 secured at one end to the periphery of said pulley and at the other end to the outer end of said lever. Suitable means such as an idle pulley 34 mounted in a support 35 which is secured to the cabinet 30 is provided to guide or direct the cord 33 from the pulley 32 to the lever 17. The shaft 29 is actuated in any suitable way, as by a lever or arm 36 secured, as by a screw 37, to the said rock shaft and provided with a finger piece 38 located in proximity to the keyboard of the typewriter. In this form of my invention, the arm or lever 36 extends along one side of the typewriter. With the device just described, it is evident that the back spacing attachment of the phonograph may be conveniently controlled by the transcriber during the operation of the typewriter.

In the form of my invention shown in Figs. 5 and 6 the lift lever 17 supporting the bar 18, instead of extending upwardly as in the form of my invention in Figs. 1

to 4 projects downwardly into the path of the record 39 when the carriage is in its lowered position so as to render it impossible to remove the said record from the support 40 or to place a new record thereon without elevating the carrier arm. This lever is adapted to be moved about its pivot by a member 41 pivoted on the outer end of the rod 11 and retained thereon by a cap 41' or other suitable means. The member 41 extends downwardly as shown at 42 and then inwardly as shown at 43, the inwardly directed portion 43 being provided at its end with a forklike portion 43' within which is received the lever 17'. An arm 44 extends horizontally and rearwardly from the downwardly extending portion 42, the said arm resting upon a rod 45 adapted to slide vertically through the top wall of the cabinet and the base plate of the phonograph body. This rod is preferably supported upon a spring or compression member 46 resting on the top of the said base plate of the said phonograph body, the upper end thereof engaging a collar 47 secured to the rod 45. The spring 46 acts as a cushion for the carrier arm and parts connected thereto during the downward movement of the said arm. The lower end of the rod 45 rests upon an arm 48 located within the phonograph cabinet and secured, as by screw 49, to a rock shaft 50 extending through the side wall of the said cabinet, the outer end of this shaft carrying an arm 51 which is secured thereto, as by a screw 52. A lever 53 of suitable length is pivoted to the phonograph cabinet, as shown at 54; and one end of the said lever is connected, as by link 55, to the outer end of the arm 51. With the mechanism just described, the phonograph may be placed in the rear of the typewriter, the lever 53 extending alongside of the typewriter with the finger piece 56 in close proximity to the keyboard of the latter; so that by depressing the said finger piece, the rock shaft 50 may be oscillated by the lever 53, arm 51, and link 55 to cause the elevation of the arm 48 and rod 45 and thereby shift the member 41 on its pivot so as to cause the member 17' to lift the bar 18 and the carrier arm 5. The said arm is simultaneously shifted rearwardly by the pawl 25 and rack 27, as hereinbefore described.

In the form of my invention shown in Fig. 7, I employ pneumatic means for controlling the mechanism for lifting the carrier arm and spacing the same rearwardly, the controlling mechanism, in this form of my invention, being connected to a carrier arm lifting mechanism invented by Charles L. Hibbard and disclosed in Patent No. 1,023,250, Apl. 16, 1912, of the said Hibbard, entitled "Phonographs". This lifting mechanism comprises a lift lever 57 rotatably and slidably mounted upon the for-

ward guide rod 11, as by being provided with a passageway in the lower end thereof through which the guide rod passes. A link 58 is pivotally connected to the lever 57, as by means of a pin or screw 59, and is pivotally connected to the carrier arm 5 by the pin 14 already referred to, the link 58 being mounted for free rotation around both pins 59 and 14. By this construction, a toggle joint is provided, the center point of which is the stud 59, the two arms being the link 58 and the portion of the lever 57 between the rod 11 and the stud 59 respectively. By forcing the lever 57 to the left as shown in Fig. 7, the toggle is straightened out and the carrier arm raised, the stylus being raised out of its engagement with the rod surface, while by movement of the lever 57 to the right, the toggle is opened out and the stylus lowered into engagement with the record. The lever 57 is stopped in its extreme movements by the engagement of pin 57', which is carried on the back of lever 57, against the ends of the recess 60' in the plate 60<sup>2</sup> which is secured to the carrier arm. In order to control the movement of the lever 57, I provide a cylinder 60 having a neck 61 whereby the same may be connected, as by a flexible rubber tube 61', to a suitable controlling member such as a bulb, not shown, of the type commonly used in connection with the shutter mechanism of photographic cameras. A piston 62 fits slidably within the cylinder 60, this piston being secured upon the lower end of the rod 63 which is connected at its upper end, as by a pivot pin 64, to an arm 65 pivotally mounted on the guide rod 11 and connected to the lever 57, as by the pin 66. The pin 64 is preferably movable to a slight extent within a short slot 67 extending longitudinally in the arm 65. With this construction, the piston moves a short distance independently of the arm 65. When the pin reaches the end of its travel the impact thereof against the end of the slot 67 causes a rapid movement of the arm 65 and the parts connected therewith. The cylinder 60 is mounted upon a pivot 68 so as to be capable of adjusting itself to the lateral movement of the piston rod and piston. When air is forced into the cylinder 60 by any suitable means, the piston 62 is first given an upward movement to move the lever 57 to the left as shown in Fig. 7, the momentum of the traveling moving parts being sufficient to carry the piston rod 63 beyond the dead center between the pivot 68 and rod 11; so that, when the air is permitted to escape from the said piston, the weight of the carrier arm will cause the parts to assume the position shown in dotted lines in said figure. With this construction, a tube of any suitable length may be employed and the bulb or other controlling member may be placed in

any convenient position for operation thereof.

While I have described a particular mechanism for the sake of clearness, it is obvious that my invention is not limited to the particular details of construction shown and described, but that various modifications and equivalents may be employed within my invention and within the scope of the appended claims.

Having now described my invention what I claim and desire to protect by Letters Patent is as follows:

1. In a phonograph, the combination with a pivotally mounted carrier arm, of a guide rod for supporting the free end of said arm, a pivotally mounted bar extending parallel to the said rod and adapted to lift said carrier arm, means for moving said bar to lift said arm and means coacting with said guide rod when the carrier arm is lifted to impart a lateral movement to said carrier arm, substantially as described.

2. In a phonograph, the combination with a pivotally mounted carrier arm, and means for progressively moving the same when in a lowered position, of a guide rod for supporting the free end of said arm, a slotted member connected with said arm, a bar coacting with said member and extending through the slot therein parallel to said rod, the said bar being pivoted to said rod, and a lever for lifting said bar, substantially as described.

3. In a phonograph, the combination with a record support, and a pivotally mounted carrier arm, of means for moving said arm to inoperative position, means rigidly connected to said moving means and movable therewith for preventing the placing of a record on the support when the carrier arm is in operative position, and means for moving the second named means and thereby the carrier arm out of operative position, substantially as described.

4. In a phonograph, the combination with a record support, a pivotally mounted carrier arm and a guide rod for supporting the free end of said arm, of means mounted for pivotal movement about the guide rod for moving said arm to inoperative position, means rigidly connected to said moving means and movable therewith for preventing the placing of a record on the support when the carrier arm is in operative position, and means for moving the second named means and thereby the carrier arm out of operative position, substantially as described.

5. In a phonograph, the combination with a pivotally mounted carrier arm, of means for lifting said arm comprising a lift lever, a slide, means for connecting said lever and slide, a rock shaft, means connected to said shaft for shifting said slide, and means for

rotating said rock shaft, substantially as described.

6. In a phonograph, the combination of a record support and a pivotally mounted carrier arm, of means for lifting said carrier arm comprising a member for preventing the placing of a record on the support when the carriage is in a lowered position, a slide, means for connecting said member and slide,

a rock shaft, means connected thereto for shifting said slide, and means for rotating said rock shaft, substantially as described.

This specification signed and witnessed this 3rd day of October, 1911.

CHARLES S. OSBORNE.

Witnesses:

FREDERICK BACHMANN,  
ANNA R. KLEHM.