

C. L. HIBBARD.
PHONOGRAPH.
APPLICATION FILED JULY 31, 1909.

1,023,250.

Patented Apr. 16, 1912.
2 SHEETS—SHEET 1.

Fig. 1

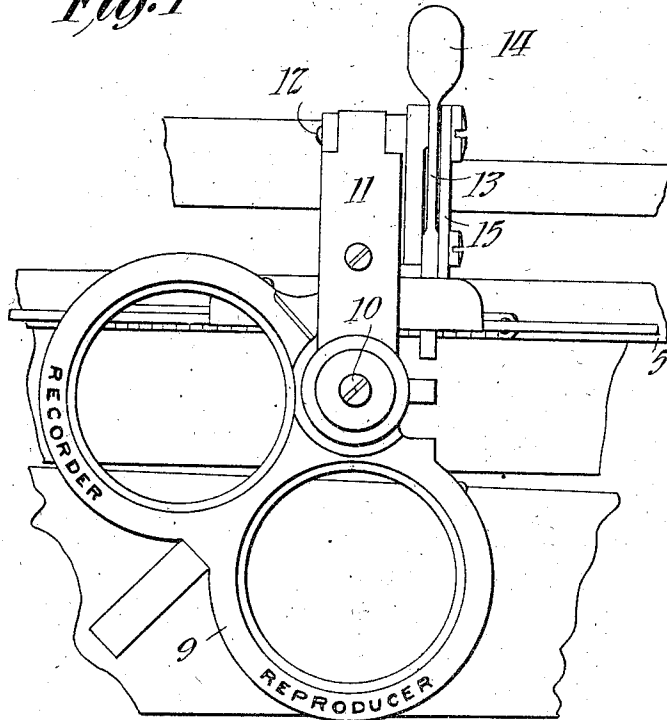
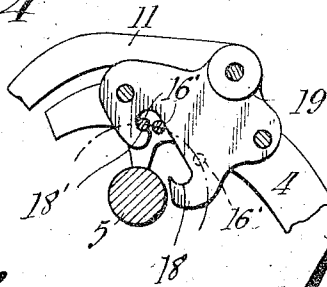


Fig. 4



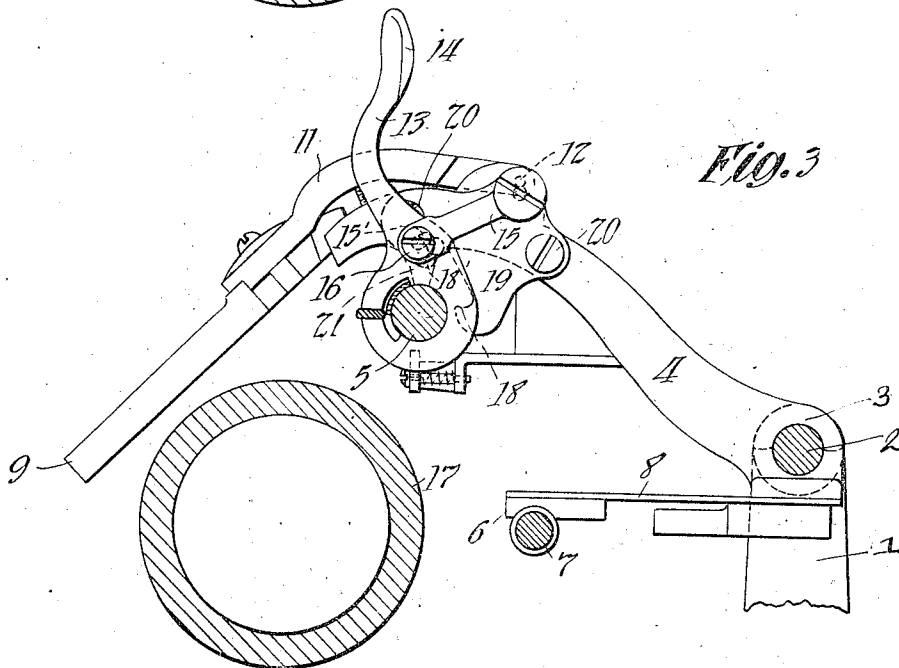
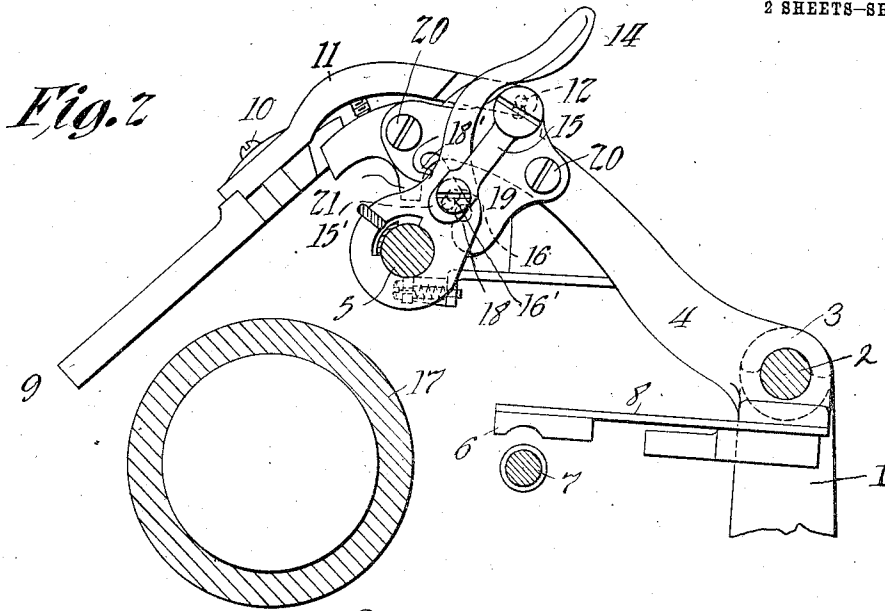
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1,023,250.

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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES L. HIBBARD, OF EAST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THOMAS A. EDISON, INCORPORATED, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PHONOGRAPH.

1,023,250.

Specification of Letters Patent.

Patented Apr. 16, 1912.

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To all whom it may concern:

Be it known that I, CHARLES L. HIBBARD, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have made a certain new and useful Invention in Phonographs, of which the following is a description.

My invention relates to phonographs and more particularly to phonographs of the general type shown in United States Patent No. 772,485, granted October 18, 1904 to Weber and Hibbard.

My invention has for its object the provision of improved means for raising and lowering the arm which carries the reproducer or recorder or both. This arm is lowered to bring the reproducer or recorder stylus into contact with the record and is raised to remove the same therefrom in order that the record may be changed.

By my invention a simple and effective lifting device is provided, which is self-locking in each of its extreme positions, and which is thrown by gravity into either extreme position without the necessity of using springs.

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

Referring to the accompanying drawings disclosing one embodiment of my invention, Figure 1 represents a plan view of a portion of a phonograph equipped with my invention. Fig. 2 is an end elevation of so much of a phonograph as is necessary to disclose my invention, the carrier arm being shown in raised position. Fig. 3 is a similar view of the carrier arm, the same being shown in lowered position, and Fig. 4 is a detail view showing the various positions of the stop and locking pin on the lifting arm corresponding to the movements of the latter.

Referring to the drawings, the standard 1 of the phonograph which rises from a suitable base plate (not shown) carries the back rod 2 on which is mounted the sleeve 3, the carrier arm 4 being integral therewith or secured thereto. Parallel with the back rod 2 is the front guide rod 5 which is adapted to support the forward end of the carrier arm 4. The feed nut 6 engages the feed screw 7 when the carrier arm 4 is in lowered position and is disengaged therefrom when the carrier arm is in raised position, the feed

nut 6 being carried by the usual feed nut spring 8. The spectacle frame 9, which is adapted to carry a recorder and a reproducer, is pivotally mounted on the stud 10, the spectacle frame being thus mounted to so rotate that either the recorder or reproducer may be placed in operative position. The screw or stud 10 is carried by the auxiliary arm 11 which is pivoted on the pin 12 carried by the carrier arm 4. All these parts are of usual construction. It is to be understood, however, that my invention need not be applied to a phonograph employing both a recorder and a reproducer, but that it may be used for lifting the carrier of a phonograph equipped with both or either of these devices.

The lifting lever 13 is rotatably and slidably mounted upon the forward guide rod 5, this lever being preferably provided with a passageway through the lower end thereof through which the said guide rod 5 passes. The lever 13 is provided with a handle 14 for manipulation of the same. A link 15 is pivotally connected to the lever 13 by means of screw or pin 16, and is pivotally connected to the carrier arm 4 by the pin 12 already referred to, link 15 being mounted for free rotation around both pins 12 and 16. By this construction, a toggle joint is provided, the central point of which is the stud 16 and the two arms are the link 15 and the portion of the lever 13 between the rod 5 and the stud 16 respectively. By forcing the handle 14 to the right, as shown in Figs. 2 and 3, the toggle is straightened out and the carrier arm raised, the stylus being raised out of its engagement with the record 17, while by movement of the handle 14 to the left, the toggle is opened out and the stylus lowered into engagement with the record. The lever 13 is stopped in its extreme movement to the right, as shown in Fig. 2, by the engagement of pin 16', which is carried on the back of lever 13, against the projection 18 of the bracket 19 which is secured to the carrier arm 4 by means of screws 20, 20. The lug 21 is provided upon the lower side of the carrier arm to contact the upper side of guide rod 5 when the carrier arm is in its lowered position, thus stopping the forward movement of the lever 13 and forming a support for the carrier arm when in its lowered position.

The bracket 19 is formed, as shown in Figs. 2, 3 and 4, with a guideway in which the pin 16' travels, the hook 18 forming a stop for the pin at the extreme movement of the lever 13 to the right, as shown in the drawings, and the hook 18' being formed at the extreme left of the guideway. The link 15 is provided preferably with a slot 15' in which the pin 16' has a certain amount of lost motion. The object of the provision of this lost motion is that when the lever 13 is in its extreme left hand position, as shown in Fig. 3, the pin 16' may be carried into locking engagement with the hook 18'. When the lever 13 has been carried so far to the left in lowering the stylus into contact with the record that the stop 21 on arm 4 contacts rod 5; thus limiting the downward movement of arm 4, the pin 16' is in the middle position of the three illustrated in Fig. 4. The slot 15', however, permits the lever 13 to move a slight additional distance to the left, during which pin 16' moves from the position referred to, which is opposite the nose of hook 18', to the extreme left position shown, in which hook 18' is beneath the same. This locks arm 4 against any upward movement which otherwise might ensue on raising the spectacle frame about its pivot 12 in shifting the recorder or reproducer from operative into inoperative position.

It is to be noted that the parts are so arranged that the center of gravity of the lever 13 is to the left of rod 5 upon which the lever is mounted when the carrier arm is in its lowered position, and to the right of the axis of guide rod 5 when the carrier is in its raised position, the lever 13 moving to either extreme position by gravity when the center of gravity of the lever 13 passes over the center line of guide rod 5. It should also be noted that the carrier arm is locked in both positions because of the straightening out of the toggle when the parts are in raised position, and the locking of pin 16' by hook 18' when the parts are in lowered position.

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 the carrier arm and the rod upon which it

is pivotally mounted, of a lift lever for said arm, a rod parallel to said first named rod, upon which said lever is pivotally mounted, and a link pivoted to said arm and lever, said link and lever constituting a toggle joint, substantially as described.

2. In a phonograph, the combination with the carrier arm and the back rod upon which it is pivotally mounted, of a front rod parallel to said back rod, a lever pivotally mounted upon and embracing said front rod, and a link pivotally connected to said arm and lever, said link and lever constituting a toggle joint, substantially as described.

3. In a phonograph, the combination with the pivotally mounted carrier arm, of a toggle for raising and lowering said arm, said toggle comprising a plurality of pivotally connected members, one pivoted to said arm and the other to a fixed part of the machine, substantially as described.

4. In a phonograph, the combination with the pivotally mounted carrier arm, of a toggle for raising and lowering said arm, and stop means for limiting the pivotal movement of said arm, said toggle comprising a plurality of pivotally connecting members, one pivoted to said arm and the other to a fixed part of the machine, substantially as described.

5. In a phonograph, the combination with the carrier arm and the back rod upon which it is pivotally mounted, of a front rod parallel to said back rod, a lever pivotally mounted upon and embracing said front rod, at the lower end of said lever, and a link pivotally connected to said arm and lever above said front rod, said link and lever constituting a toggle joint, said toggle straightening out to lift said arm and opening to lower it, and the pivotal connection of said link to said lever being so placed as to pass across the axis of said front rod in the movement of said toggle from one extreme position to the other, substantially as described.

This specification signed and witnessed this 29 day of July 1909.

CHARLES L. HIBBARD.

Witnesses:

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