C. O. HAYS.

PHONOGRAPH.

APPLICATION FILED SEPT. 1, 1910.

999,645.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

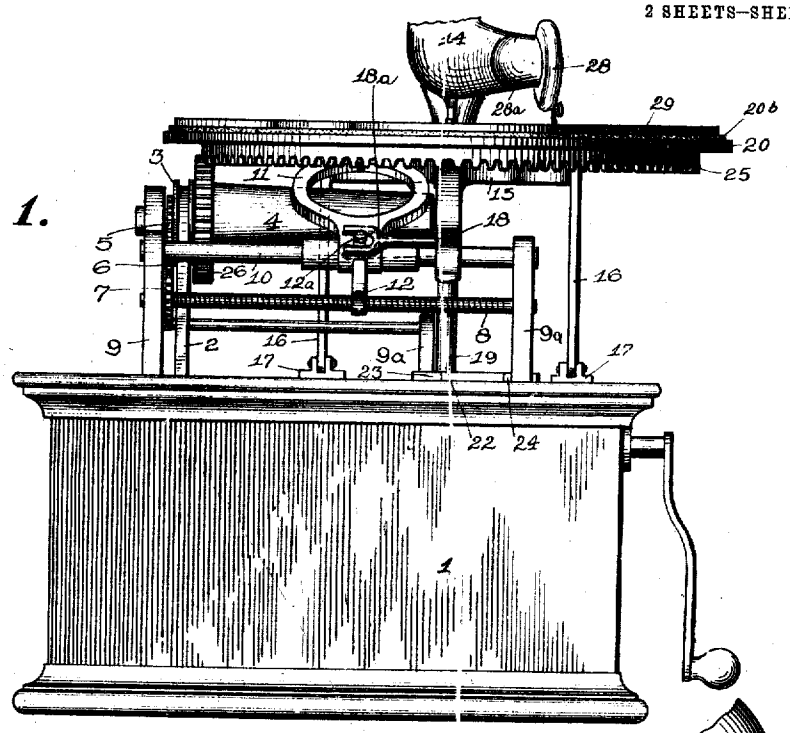
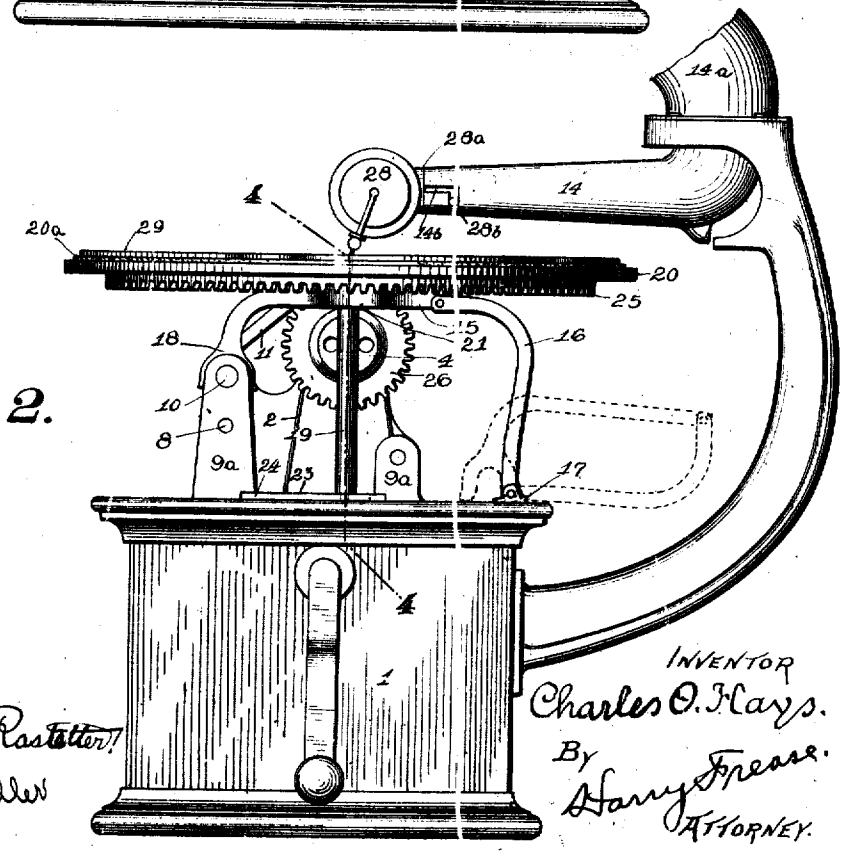


Fig. 2.



WITNESSES.

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2 SHEETS—SHEET 2.

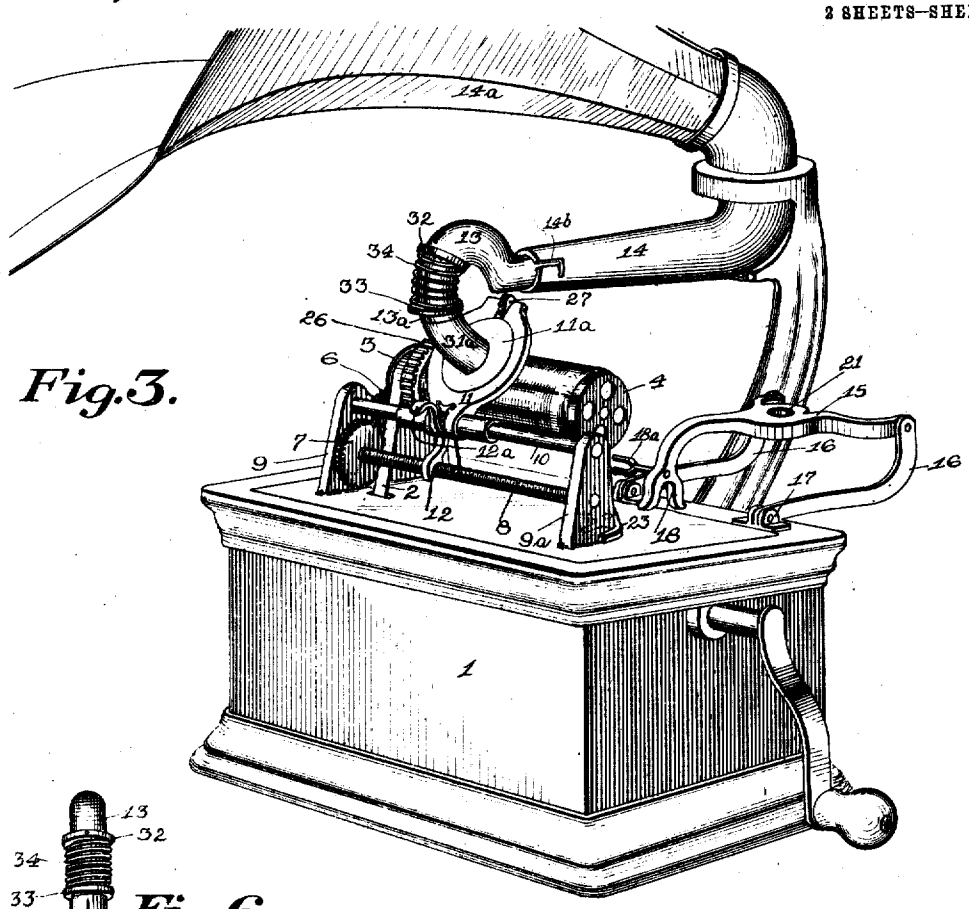

Fig.3.

Fig.6.

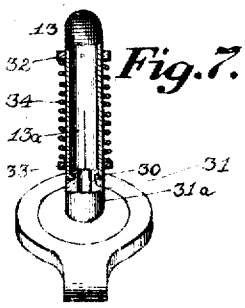

Fig.7.

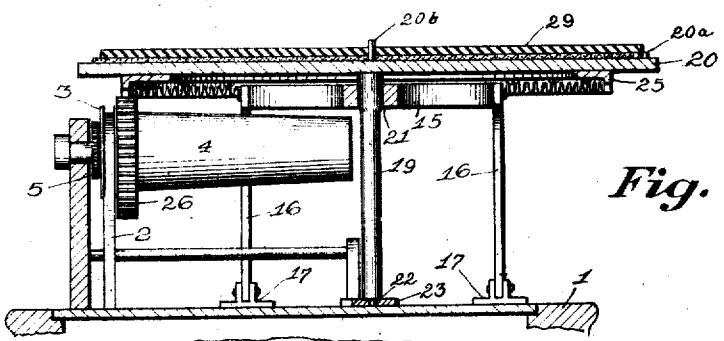

Fig. 4.

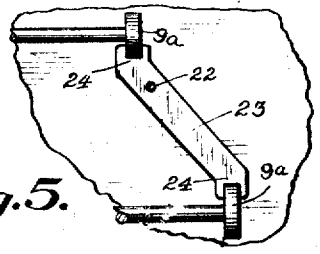

Fig.5.

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UNITED STATES PATENT OFFICE.

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PHONOGRAPH.

999,645. Specification of Letters Patent. Patented Aug. 1, 1911.

Application filed September 1, 1910. Serial No. 580,107.

To all whom it may concern:

Be it known that I, CHARLES O. HAYS, a citizen of the United States, residing at Locust Corner, in the county of Clermont and State of Ohio, have invented certain new and useful Improvements in Phonographs, of which the following is a specification.

The invention relates to attachments for phonographs by means of which both disk and cylinder records can be used on cylinder machines. By the use of these devices both styles of records can be played with equal convenience and very little time is required to make the change when the alternate style is desired.

The playing of disk records is accomplished by the use of a jointed bracket which is adapted to support a disk turn-table, suitable gearing to impart motion from the phonograph driving mechanism to the turn-table and a disk record reproducer which can readily be interchanged with the cylinder record reproducer. But, when cylinder records are to be used, the turn-table is removed and the jointed bracket is folded back out of the way.

A preferred form of the invention is illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a front view of a cylinder phonograph, showing the devices in use with a disk record; Fig. 2, an end view of the same, showing the jointed bracket in its prone position in dotted lines; Fig. 3, a perspective view showing the machine in use with a cylinder record; Fig. 4, a section on line 4—4, Fig. 2; Fig. 5, a top view of a portion of the base of the phonograph; Fig. 6, a view of the goose-neck, showing the split tube, forming part thereof, in the position to withdraw the reproducer; and Fig. 7, a similar view, with parts broken away, showing the goose-neck connected to the reproducer.

Similar numerals refer to similar parts throughout the drawings.

The phonograph shown in the drawings is of common construction. The casing 1 contains the driving mechanism, not shown, which, by means of the belt 2 over the pulley 3, rotates the cylinder-record-mandrel 4. On the same shaft with the pulley 3 is fixed the spur gear 5, which meshes with the idler 6, which in turn rotates the spur gear 7. The spur gear 7 is fixed to the worm 8, which is journaled in the brackets 9 and 9^a. The guide bar 10 is also supported by the brackets 9 and 9^a, and thereon is slidably mounted the reproducer frame 11, to the lower part of which is attached the nut 12, which meshes with the worm 8. Thus, when the worm screw is turned, the reproducer moves parallel to the axis of the mandrel.

When a cylinder record is operated on the mandrel, the reproducer needle (not shown) is vibrated by its contact with the revolving record and sound waves are produced in the reproducer 11^a from whence they are conveyed through the goose-neck 13 and the tone-arm 14 to the horn 14^a. The nut 12 can be thrown open or out of engagement with the worm and the reproducer needle raised from the record, by slightly raising the controlling-lever 12^a, thus simultaneously stopping the endwise movement of the reproducer frame and the playing of the record; all of which is old and forms no part of the invention.

For the purpose of playing disk records a jointed bracket is employed, which includes the bearing frame 15 which is jointed to the bars 16, which are hinged to the casing by the pivoted supports 17. On the front of the bearing frame is formed or connected the bifurcated foot 18, which is adapted to straddle the guide bar 10 and thus hold the jointed bracket in a rigid and elevated position.

If it is desired to play cylinder records, the jointed bracket is folded back out of the way, as shown in Fig. 3; but, if disk records are to be played, it is brought upward and forward into an elevated position, and the foot 18 is engaged on the guide bar 10. Then the reproducer is moved toward the jointed bracket by lifting the lever 12^a, which keeps the reproducer out of action, and said lever is held out of action by placing it over the pin 18^a, which is connected to the foot 18.

Then the shaft 19, to which is axially fixed the turn-table 20, is inserted through the bearing 21 in the bearing frame, and the lower end of the shaft is journaled in the step bearing 22 which is formed in the plate 23. This plate is formed as shown in Fig. 5, and its notched ends 24 embrace the brackets 9^a, which prevent any lateral movement.

Rotary motion is communicated to the turn-table 20 from the mandrel 4 by suitable gearing, the preferred form of which is illustrated. On the under side of the turn-table is located the crown wheel 25 which engages the spur gear 26, which fits snugly on the large end of the mandrel. It will be seen that when the mandrel rotates, the gears 25 and 26 will impart motion to the turn-table.

Even though the jointed bracket is not held firmly in position, or if it should be slightly out of its proper position, the spur gear 26, on account of its wide face, will make allowance of any such irregularity and will mesh with the teeth of the crown wheel just the same. The size of these gears is preferably made such, that the two styles of records can be played at substantially the same speed, thus making it unnecessary to change the speed adjustment.

By turning the thumb screw 27 the cylinder reproducer 11^a can be removed from its frame, and the goose-neck 13 is then free to be withdrawn from the tone-arm. The disk reproducer 28 is then firmly connected to the tone-arm by inserting its tubular shank 28^a into the tone-arm and engaging the pin 28^b on the shank in the L-shaped slot 14^b in the tone-arm.

There is preferably a pivotal connection between the goose-neck and the cylinder reproducer and it is sometimes desirable to remove only the goose-neck from the machine, and therefore it is made detachable from the reproducer. This connection is shown in Figs. 6 and 7. The split tube 13^a of the goose-neck is provided with an internal annular rib 30 which fits loosely in the annular groove 31 in the tube 31^a of the reproducer. On the goose-neck are located the fixed collar 32, the loose collar 33 and the intervening coiled spring 34, which is normally expanded, and its respective ends are attached to the collars. When the spring is compressed by sliding the loose collar upward the split tube 13^a is free to expand and the reproducer can be detached as shown in Fig. 6. On the turn-table is the usual covering of felt 20^a and the centering pin 20^b, on which can be placed the disk record 29.

When these preparations are made, the machine is ready to be started and it is operated in the usual manner. It is obvious that no skill is required and but little time is consumed in changing from one style record to another. Furthermore, the device can very easily be applied to any machine without requiring it to be sent to the factory. And it is evident that the use of the step bearing is not essential, although the same is preferred because its use renders unnecessary the making of the jointed bracket and its connections strong enough and the bearing therein large enough to hold the axial shaft of the disk table without a step bearing.

I claim:

1. A phonograph including a case with a step-bearing, a cylinder-record mandrel and a reproducer having a controlling lever thereon; a normally-folded bracket having a bearing therein on the case and adapted to be secured in an elevated position; a disk-record table having an axial shaft adapted to be inserted in the bracket-bearing and step-bearing when the bracket is elevated, there being an arm on the bracket adapted to hold the cylinder-reproducer controlling-lever out of action when the bracket is elevated; and gearing connections between the mandrel and the table.

2. A phonograph including a case with a cylinder-record mandrel and a reproducer having a controlling lever thereon; a normally-folded bracket having a bearing therein on the case and adapted to be secured in an elevated position; a disk-record table having an axial shaft adapted to be inserted in the bracket-bearing when the bracket is elevated, there being an arm on the bracket adapted to hold the cylinder-reproducer controlling-lever out of action when the bracket is elevated; and gearing connections between the mandrel and the table.

3. A phonograph including a case with a step-bearing and a cylinder-record mandrel thereon, a normally-folded jointed bracket having a bearing therein hinged to the case and adapted to be secured in an elevated position, a disk-record table having an axial shaft adapted to be inserted in the bracket-bearing and step-bearing when the bracket is elevated, and a gearing connection between the mandrel and the table.

4. A phonograph including a case with a cylinder-record mandrel thereon, a normally-folded jointed bracket having a bearing therein hinged to the case and adapted to be secured in an elevated position, a disk-record table having an axial shaft adapted to be inserted in the bracket-bearing when the bracket is elevated, and a gearing connection between the mandrel and the table.

5. A phonograph including a case with a step-bearing thereon, a normally-folded jointed bracket having a bearing therein hinged to the case and adapted to be secured in an elevated position, and a table having

an axial shaft adapted to be inserted in the bracket-bearing and step-bearing when the bracket is elevated.

6. A phonograph including a case, a normally-folded jointed bracket having a bearing therein hinged to the case and adapted to be secured in an elevated position, and a table having an axial shaft adapted to be inserted in the bracket-bearing when the bracket is elevated.

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