No. 891,378. PATENTED JUNE 23, 1908.

H. SCHRÖDER.

FEED MECHANISM FOR PHONOGRAPHS.

APPLICATION FILED OCT. 17, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

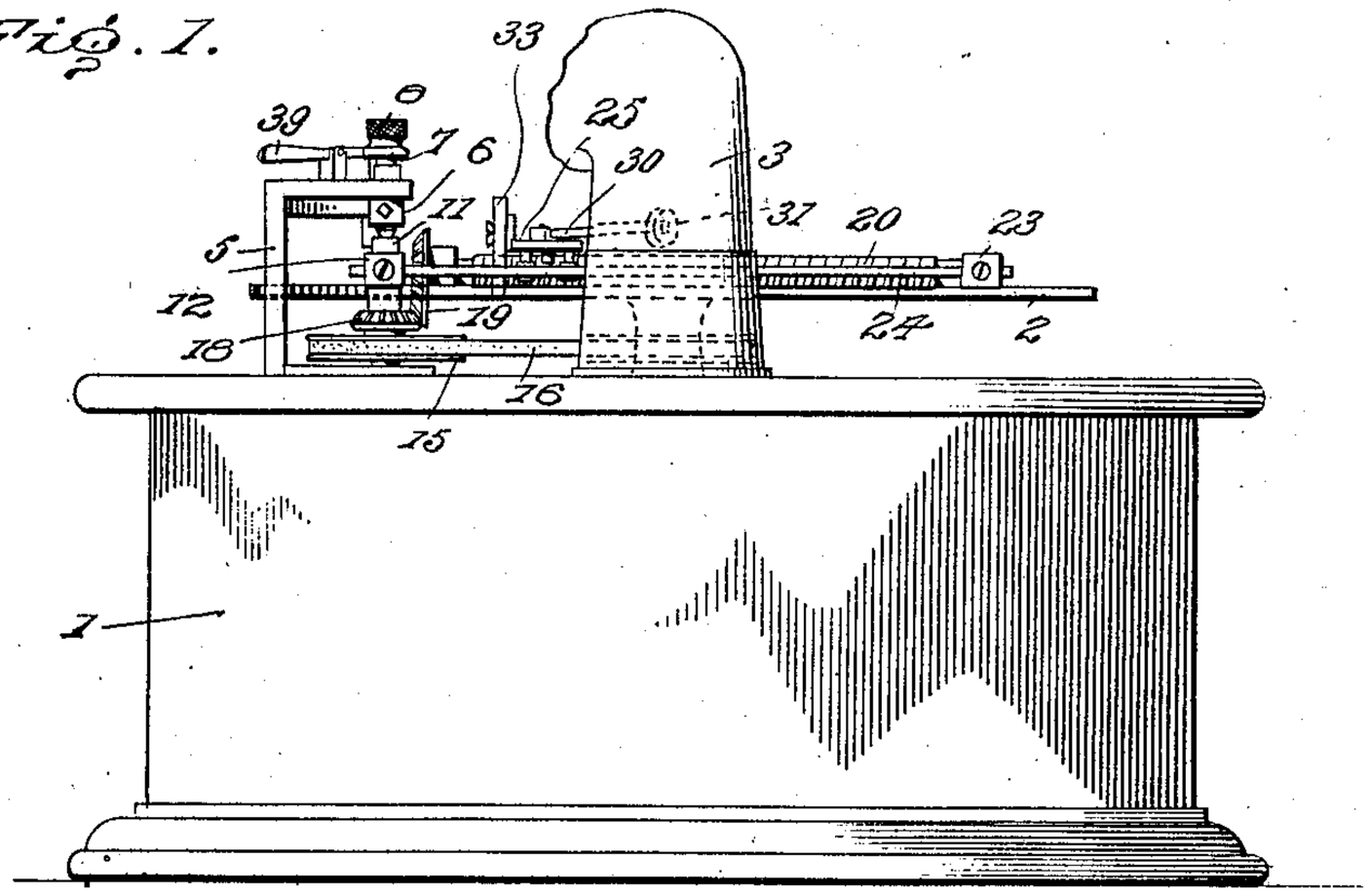


Fig. 3.

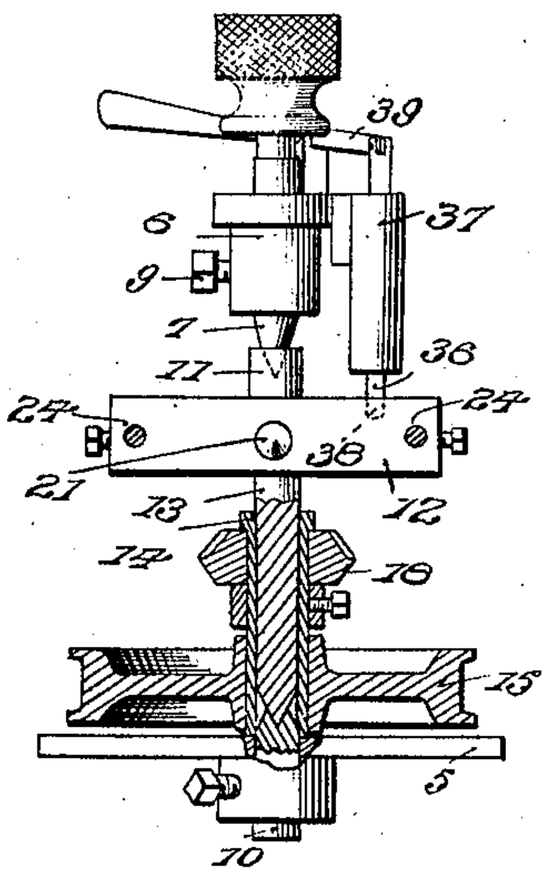
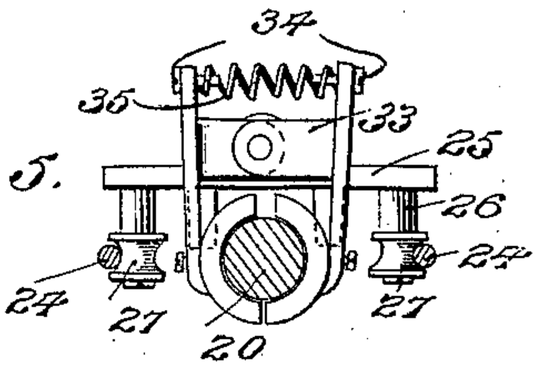


Fig. 5.



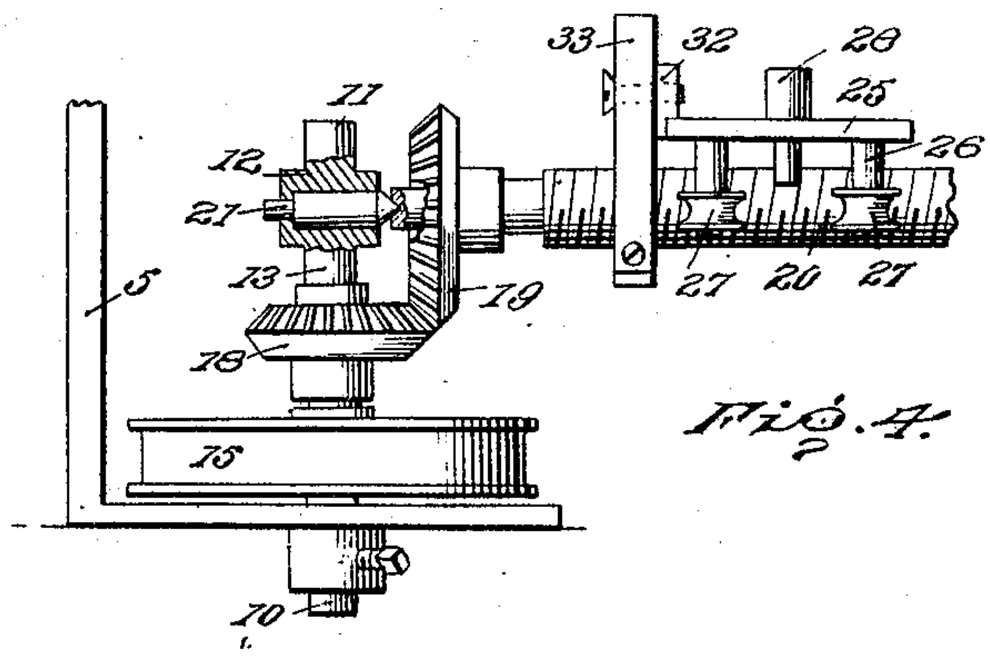


Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

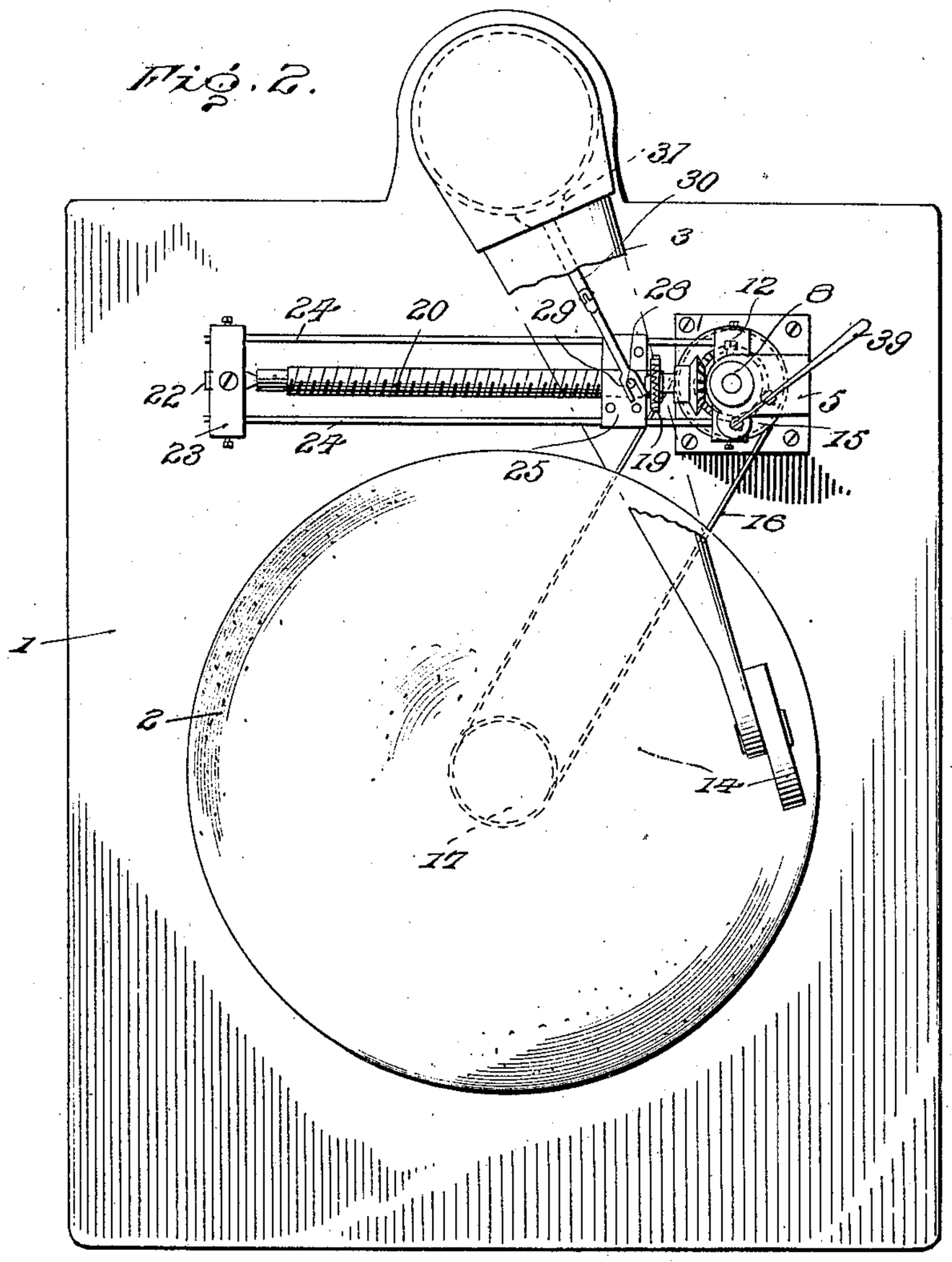
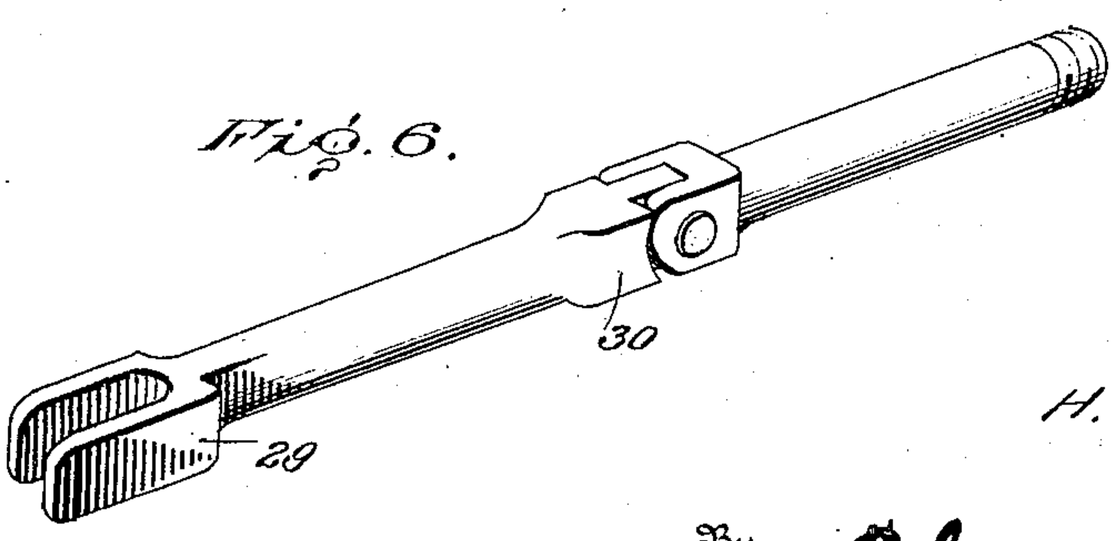


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR PHONOGRAPHS.

No. 891,378. Specification of Letters Patent. Patented June 23, 1908.

Application filed October 17, 1907. Serial No. 397,922.

To all whom it may concern:

Be it known that I, HERMANN SCHRÖDER, subject of the Emperor of Germany, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Feed Mechanisms for Phonographs, of which the following is a specification.

This invention comprehends certain new and useful improvements in disk record phonographs, and the invention has for its object an improved construction of mechanism for imparting a horizontal movement to the taper arm so as to positively feed the needle or stylus transversely in the spiral groove of the rotating record disk.

The invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and then point out the novel features in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a rear view of a phonograph equipped with the improvements of my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a sectional view, the section being taken across the guide rods of the supporting frame for the feed shaft, parts of the actuating mechanism being shown in section; Fig. 4 is a detail longitudinal section of a portion of the actuating mechanism; Fig. 5 is a detail transverse section across the feed shaft, showing the feed carriage in elevation; and, Fig. 6 is a detail perspective view of the actuating arm.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the casing or cabinet of a phonograph, 2 the turn-table designed to carry the record disk, and 3 the taper arm carrying the sound box 4 and mounted to swing horizontally in the usual manner.

A bracket 5 is secured by screws or the like to the top of the cabinet 1 to one side of and at the rear of the turn-table 2, said bracket embodying an upper horizontally disposed arm formed with a depending boss 6. In the boss 6 is a spindle 7 preferably provided with a milled head 8 and designed to be held at different adjustments in the boss by a set screw 9. A similar spindle 10 is mounted in the lower plate of the bracket in alinement with the spindle 7. The spindle 7 fits within a socket in the upper end of a trunnion 11 that is secured to and that projects upwardly from a cross bar 12. A downwardly extending trunnion 13 is also secured to the cross bar 12 and is journaled at its lower end on the upper end of the spindle 10 so that the cross bar is held to turn about a vertical axis. A sleeve 14 surrounds the trunnion 13 above the bottom plate of the bracket 5, and a pulley 15 is secured to said sleeve so as to turn therewith on the spindle. A belt 16 connects the pulley 15 with a similar pulley 17 secured on and movable with the axis of the turn-table 2.

A bevel pinion 18 is secured to the sleeve 14 above the pulley 15 and meshes with a corresponding pinion 19 on one end of the horizontally extending threaded shaft 20. This shaft is journaled at one end on a spindle 21 projecting outwardly from the middle of the cross bar 12, and is journaled at its other end to a corresponding spindle 22 secured to the cross arm 23. The two cross arms 23 and 12 are connected together at their ends by the rods 24, as clearly illustrated in the drawings, whereby to form a supporting frame.

25 designates a carriage which is formed with depending studs 26 on which rollers 27 are mounted, said rollers being movable and engaging the rods 24 so as to accurately guide the carriage in its movement along the supporting frame. The carriage 25 is formed with an upwardly projecting post 28. The forked end 29 of a preferably jointed arm 30 loosely straddles the post 28, and the other end of said arm is detachably secured in any manner in a socket 31 formed in a boss on the taper arm 3, so that the taper arm will swing with the arm 30 as the carriage is moved.

In order to effect the proper movement of the carriage within the supporting frame, the said carriage is formed with an ear 32 carrying the stud or pivot for a clamping screw that embodies two members 33. These two members are adapted to embrace the screw thread of the shaft 20 are pivotally mounted on the stud of the ear 32, and the upper ends of said members 33 are formed with inwardly

projecting pins 34 encircled by the ends of a helical expansion spring 35. Either one or both of the clamping members 33 may be formed to engage the thread of the shaft 20.

In describing the operation of my improved feed mechanism for the taper arm of phonographs, it is to be understood that the parts are so proportioned as to effect the proper horizontal movement of the taper arm relative to the rotary movement of the turn-table and its record disk. As the turn-table rotates, its pulley 17 will effect the rotation of the shaft 20 and the latter will feed the carriage along the frame and, through the instrumentality of the swinging arm 30, will effect the horizontal movement of the taper arms 3. This will manifestly swing the sound box and needle transversely to effect the positive feeding of the needle in the spiral groove of the record. As the arm 30 is jointed, its free forked end 29 may be raised whenever desired to remove it from engagement with the post 28 of the carriage 25. Preferably there is no positive connection between the arm 30 and the post, but the fork 29 merely straddles the post.

In the normal or operative position of the parts, the supporting frame consisting of the cross bars or arms 12 or 23 and the guide rods 24 extends across a portion of the record disk, and it is for this reason that the said frame is mounted to swing horizontally on the spindles 7 and 10, so that the frame may be moved backwardly out of the way and thereby permit one disk to be removed and another substituted therefor. In order to hold the supporting frame in proper operative position, I provide a spring pressed latch pin 36 mounted in a sleeve 37 secured to and depending from the upper end of the bracket 5. The lower end of this pin is adapted to fit in a socket 38 formed in the upper surface of the cross bar 12 near one end of the latter. The upper end of the latch pin 36 is connected to a finger lever 39 fulcrumed intermediate of its ends on the bracket 5 as clearly illustrated in the drawings, so that by pressing down upon the free end of this lever, the latch pin may be retracted and the supporting frame permitted to move.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a very simple, durable and efficient construction of mechanism that may be easily applied to a phonograph of the type for which the invention is intended, to positively feed the taper arm transversely as the disk rotates. In order to move the carriage backwardly to its initial or starting position, it is only necessary for one to pinch together the two upper ends of the clamping members 33 so as to release said members from the threaded shaft 20 whereupon the carriage may be slipped back and the operation repeated, the arm 30 obviously carrying the taper arm 3 back again so that the stylus will be brought to its proper position for the commencement of a selection.

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

1. The combination with a phonograph embodying a rotary disk record support or turn-table, a support therefor, and a horizontally movable taper arm, of a bracket secured to said support, a horizontally movable frame supported at one end in said bracket, a revoluble shaft journaled in said frame, means for holding said frame in a position extending across the turn-table, a carriage movable in said frame, a connection between said carriage and the taper arm, means for effecting the movement of the carriage along the frame upon the rotation of the shaft and a driving connection between the turn-table and the shaft.

2. The combination in a phonograph with a disk supporting turn-table and a taper arm, and a support for the turn-table, of a bracket secured to said support, a frame held at one end in said bracket with its other end free and mounted to swing about a vertical axis, means for holding said frame stationary in a position extending across the turn-table, a threaded shaft journaled in said frame, a driving connection between the turn-table and said shaft, a carriage movable along the frame, pivoted clamping members connected to said carriage and engaging the thread of said shaft, said clamping members being arranged for manual disengagement from the shaft so that the carriage may be slipped along the frame, the said carriage being provided with an upwardly projecting post and a forked arm connected to the taper arm, the fork of said arm straddling said post.

3. In a phonograph, the combination with a turn-table and its support and a taper arm, of a bracket secured to said support, a frame supported in said bracket and adapted to extend across the turn-table, a shaft journaled in said frame, a driving connection between the turn-table and the shaft, a carriage movable along the frame and provided with an upwardly projecting post, means for moving the carriage along the frame upon the rotation of the shaft, and a jointed arm connected to the taper arm and loosely connected to the said post.

4. In a phonograph, the combination with a turn-table and its support, and a taper arm, of a bracket secured to said support, upper and lower spindles secured in said bracket and vertically disposed, a cross arm formed with upper and lower trunnions journaled on said spindles, a sleeve loosely encircling the lower spindle, a pulley secured to said sleeve and having a driving connection with the turn-table, a bevel pinion also secured to said sleeve, a screw threaded shaft journaled at one end on the cross bar, a bevel pinion

secured on said shaft and meshing with the other pinion, another cross bar in which the other end of the shaft is journaled, guide rods connected to the respective cross bars and forming a frame therewith, a carriage provided with rollers mounted to run on said guide rods, a clamping screw carried by said carriage and meshing with the thread of said shaft, and an operative connection between said carriage and the taper arm.

5. In a phonograph, the combination with a turn-table and its support and a taper arm, of a bracket secured to said support, feed mechanism carried by said bracket and including a supporting frame comprising end bars and a carriage adapted to be moved along the frame and having an operative connection with the taper arm, said frame being mounted to swing in a horizontal plane on said bracket, one of said end bars being formed with a socket, a sleeve secured to the bracket, a spring pressed latch pin mounted in said sleeve and adapted to enter said socket whereby to hold the frame rigid, and a finger lever fulcrumed on the bracket and connected to said latch pin, as and for the purpose set forth.

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

HERMANN SCHRÖDER. [L. S.]

Witnesses:
FREDERICK S. STITT,
W. N. WOODSON.