No. 878,121. PATENTED FEB. 4, 1908.

W. A. COOK.

FEED MECHANISM FOR PHONOGRAPHS.

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Fig. 1.

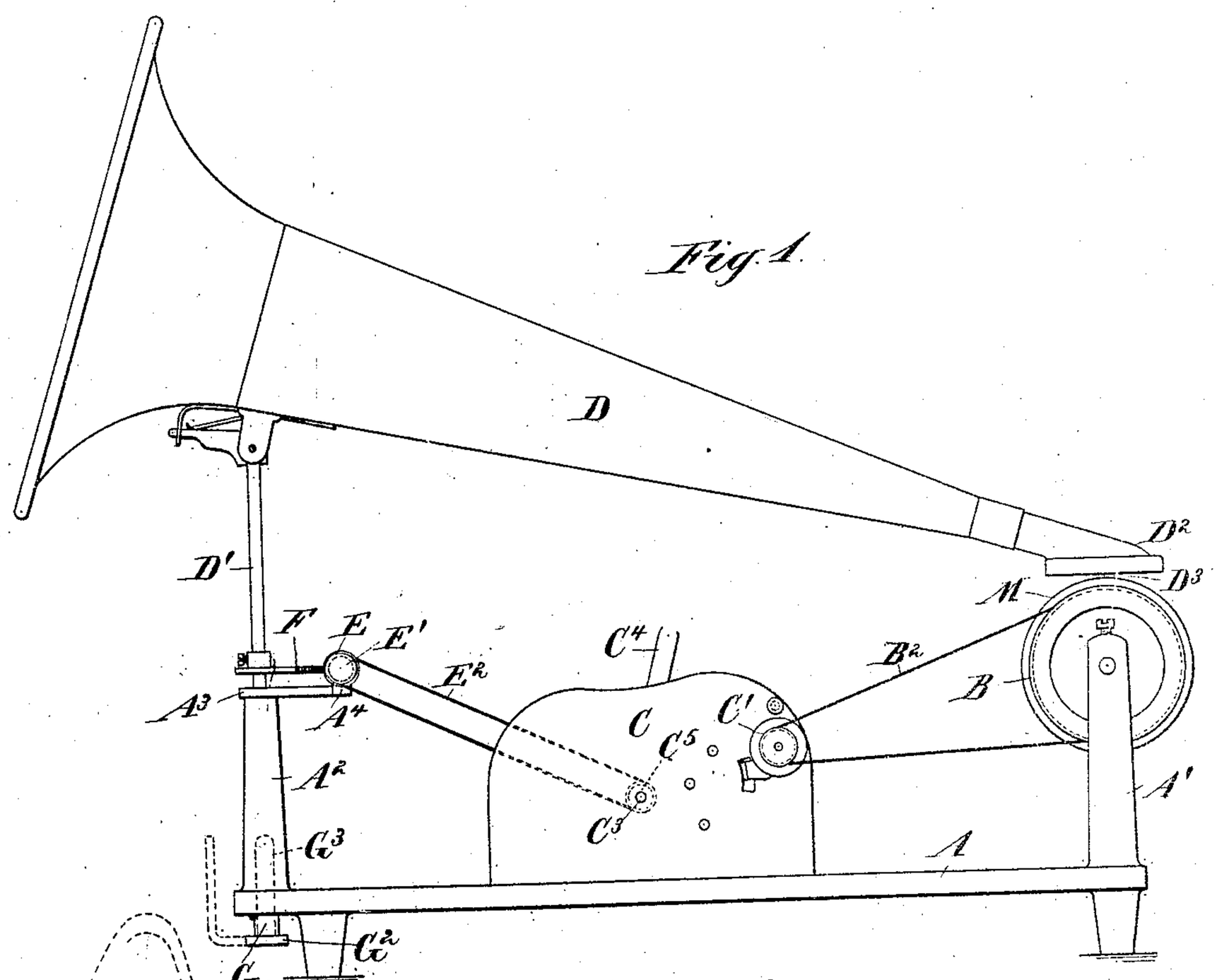


Fig. 2.

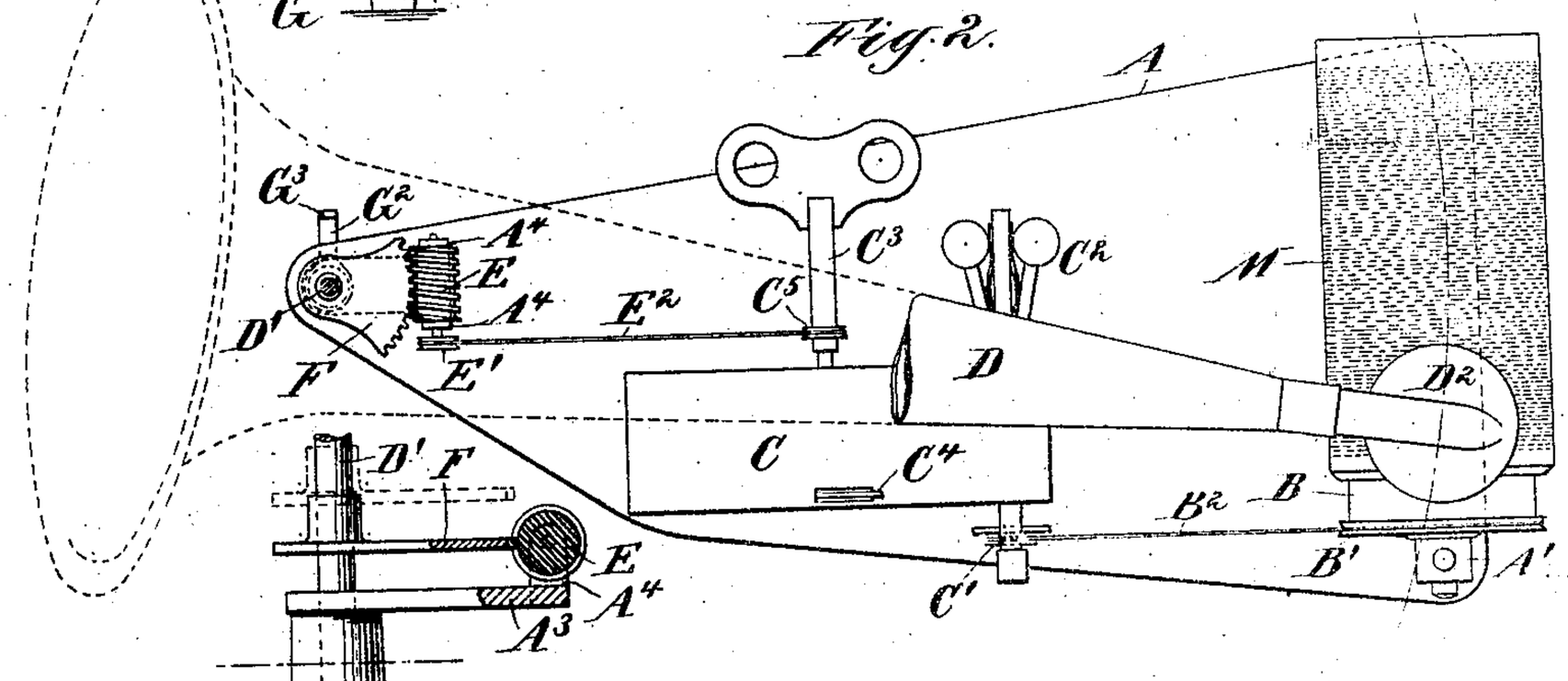
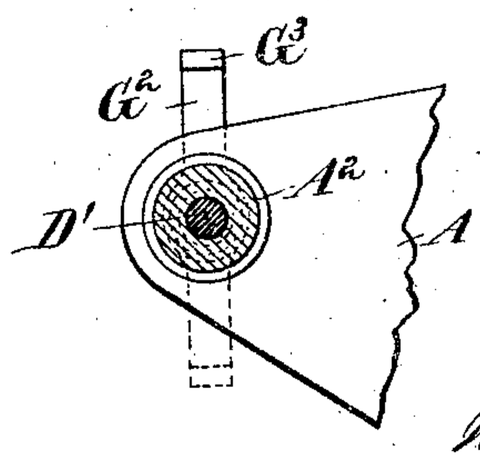


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR PHONOGRAPHS.

No. 878,121. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed June 3, 1907. Serial No. 376,913.

To all whom it may concern:

Be it known that I, WILLIAM A. COOK, a citizen of the United States, residing in the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Feed Mechanism for Phonographs, of which the following is a specification.

The invention relates to means for moving the reproducer in unison with the spiral groove on the record so that the reproducer-point shall be maintained in proper relation thereto.

In some forms of machines for reproducing sounds the reproducer-point or sapphire is guided only by its engagement in the shallow groove in the record, and slight vibrations of the instrument, especially unless it be carefully leveled, cause the sapphire to leave its place in the groove and thus impair the rendition of the record. In other machines expensive and complex mechanism is employed to avoid this difficulty.

The object of the present invention is to provide simple, inexpensive feeding means for insuring the engagement of the sapphire or point with the record-groove, and for easily and quickly releasing such feed mechanism for a re-traverse, by the reproducer, of the same or another record.

The invention consists in certain novel features and details of construction by which the above objects are attained, to be hereinafter described.

The accompanying drawings form a part of this specification and show the invention as applied to a simple form of phonograph.

Figure 1 is a side elevation of such an instrument equipped with my improvement. Fig. 2 is a corresponding plan view, partly in horizontal section. Fig. 3 is a vertical section, partly in elevation, showing a portion of the feed mechanism and releasing means on a larger scale. Fig. 4 is a corresponding horizontal section and plan view.

Similar letters of reference indicate the same parts in all the figures.

In the form of sound-reproducing machine illustrated, A is the base of the instrument, A^1 a post thereon at one end of which is mounted the record-mandrel B provided with a pulley B^1 by which it is rotated through a belt B^2 from the pulley C^1 on a projecting shaft from a spring motor, only partially shown, inclosed in the casing C and having a speed-governor C^2, winding-shaft C^3 and controlling lever C^4. The motor and its equipments may be of any ordinary or approved type. At the other end of the base is a horn-pipe post A^2 receiving a standard or pintle D^1 at the upper end of which is attached the horn D carrying the reproducer D^2 on which is the sapphire D^3 adapted to track in the spiral groove on a cylindrical record M carried on the mandrel B. On the upper end of the horn-post is a bracket A^3 having lugs A^4 in which is journaled a worm E having a pulley E^1 by which the worm is rotated through the medium of a belt E^2 running on a pulley C^5 on the winding-shaft C^3 of the motor. The worm meshes with a segmental worm-wheel F on the pintle D^1 to which the horn is secured and causes the latter to swing slowly.

The pintle D^1 is received and guided in a closely fitting hole drilled vertically in the horn-post, and its conical lower end is supported on a step formed by the plane upper end of a screw G of quick pitch entering the horn-post from below and having a laterally extending lever G^2 on which is an upturned arm G^3 by which the screw G may be partially rotated in the horn-post and, by reason of its quick pitch, caused to rise therein and lift the pintle D^1 and its attachment sufficiently to release the worm-wheel F from the worm E. Thus conditioned the horn is free and may be swung unobstructedly in either direction.

In using the machine the screw G is turned as above described to free the horn and permit the sapphire to be located at the beginning of the record-groove, the screw is then reversed and the worm-wheel lowered into mesh with the worm. The motor is then started and through the pulley C^5, belt E^2, and pulley E^1 imparts a slow rotating movement to the worm, and through the segmental worm-wheel, slowly swings the horn and its reproducer in the direction and at a rate to follow the spiral groove on the record. At the termination of the groove the horn is lifted as before and returned to the starting position.

By carefully proportioning the diameters of the pulleys C^5, E^1, pitch of the worm E, and radius of the segment F, relatively to the record-rotating pulleys B^1 C^1, the slow travel of the reproducer is made to coincide with the

advance of the record-groove and the sapphire maintained in the latter under all conditions.

The pulley C^5 is described as mounted on the winding-shaft of the motor but it will be understood that it may be located on any conveniently disposed shaft thereof, and that motion may be communicated to the worm by other means than the belt and pulleys shown, depending upon the character and location of the motor relatively to the other parts of the instrument.

Other forms of disengaging mechanism may be substituted for the screw G, and the worm and segment varied as required in adapting the invention for service with other forms of sound-reproducing machines.

I claim:—

1. In a machine of the character set forth, a reproducer adapted to serve with a record, a pintle on which said reproducer is mounted, a worm-wheel on said pintle, a worm meshing with said worm-wheel, and means for rotating said worm.

2. In a machine of the character set forth, a reproducer adapted to serve with a record, a pintle on which said reproducer is mounted, a worm-wheel on said pintle, a worm meshing with said worm-wheel, means for rotating said worm, and means for freeing said pintle from engagement with said worm.

3. In a machine of the character set forth, a reproducer adapted to serve with a record, a pintle on which said reproducer is mounted, a worm-wheel on said pintle, a worm meshing with said worm-wheel, means for rotating said worm, and means for moving said worm-wheel and worm out of mesh with each other.

4. In a machine of the character set forth, a reproducer adapted to serve with a record, a pintle on which said reproducer is mounted, a worm-wheel on said pintle, a worm meshing with said worm-wheel, means for rotating said worm, and means for moving said pintle axially to engage said worm-wheel and worm.

5. In a machine of the character set forth, a reproducer adapted to serve with a record, a pintle on which said reproducer is mounted, a post in which said pintle is received, a worm-wheel on said pintle, a worm meshing with said worm-wheel, means for rotating said worm, a screw in said post set axially to said pintle and serving as a step therefor, and means for turning said screw to lower or raise said pintle and thereby engage or disengage said worm-wheel and worm.

6. In a machine of the character set forth, a motor, a record-carrying means rotated by said motor, a post, a pintle received therein, a horn mounted on said pintle, a reproducer carried by said horn, a worm-wheel on said pintle, a worm in mesh with said worm-wheel, and connections from said motor to said worm for rotating the latter.

7. In a machine of the character set forth, a motor, a record-carrying means rotated by said motor, a post, a pintle received therein, a horn mounted on said pintle, a reproducer carried by said horn, a worm-wheel on said pintle, a worm in mesh with said worm-wheel, connections from said motor to said worm for rotating the latter, and means for lowering and raising said pintle to engage and disengage said worm-wheel and worm.

8. In a machine of the character set forth, a motor, a record-carrying means rotated by said motor, a post, a pintle received therein, a bracket fixed on said post, a horn mounted on said pintle, a reproducer carried by said horn, a worm-wheel on said pintle, a worm rotatably mounted in said bracket and adapted to mesh with said worm-wheel, a pulley on said worm, a pulley on a shaft of said motor, a belt running on said pulleys and serving to rotate said worm, a screw in said post set axially to said pintle and serving as a step therefor, and means for turning said screw to lower or raise said pintle and thereby engage or disengage said worm-wheel and worm.

In testimony that I claim the invention above set forth I affix my signature, in presence of two witnesses.

WILLIAM A. COOK.

Witnesses:
CHARLES R. SEARLE,
R. P. SCHULZE.