No. 650,188. Patented May 22, 1900.

J. OERTLY.

PHONOGRAPH.

(Application filed Nov. 13, 1899.)

(No Model.)

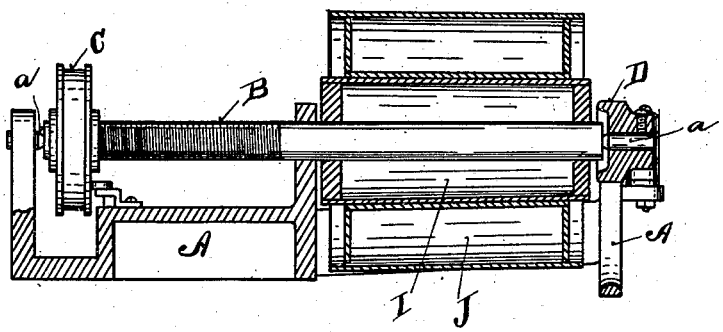


Fig. 1.

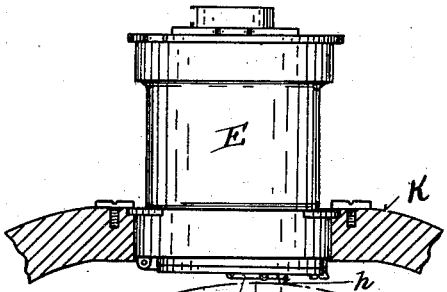


Fig. 2.

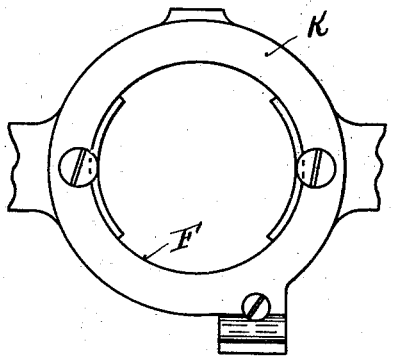
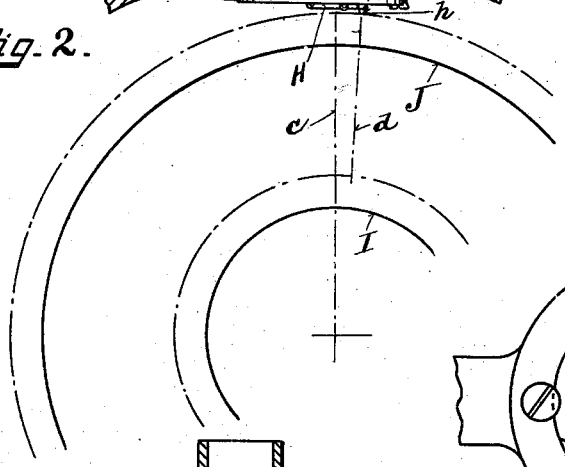


Fig. 4.



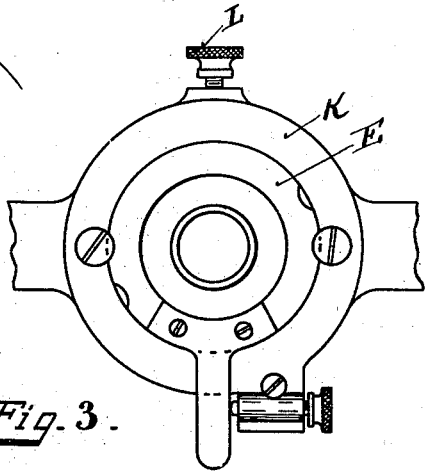


Fig. 3.

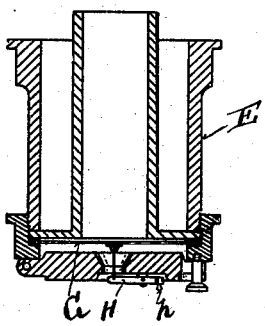


Fig. 5.

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UNITED STATES PATENT OFFICE.

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PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 650,188, dated May 22, 1900.

Application filed November 13, 1899. Serial No. 736,777. (No model.)

To all whom it may concern:

Be it known that I, JOHN OERTLY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Phonographs, of which the following is a specification.

One object of my invention is first to provide an improved diaphragm-holder which may be adjusted to any desired size of record-cylinder of the ordinary form of phonographs.

A second object of my invention is to provide means for combining mandrels of different sizes, so that the same machine may employ either the small or larger sized cylinders or records, the machine being readily convertible from the large to the small size, or vice versa, at the pleasure of the operator.

The other features of my invention will be more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central section of the frame, showing the two-sized mandrels in position. Fig. 2 is an elevation of the diaphragm-holder and section of diaphragm-holder arm, with a diagram illustration of the records. Fig. 3 is a top plan view of the diaphragm-holder and its holder-arm. Fig. 4 is a top plan view of the diaphragm-holder arm. Fig. 5 is a central section of the diaphragm-holder.

In the accompanying drawings the frame of the ordinary phonograph is employed and only so much therein shown as is necessary to show the improvements herein added.

A represents the frame of such machine; B, the mandrel or main shaft, provided with the ordinary driving-pulley C. It is supported on the centers *a* in the usual manner.

D represents the swinging center arm, which is operated to expose the end of the mandrels for the purpose of interchanging mandrels and putting on and taking off records. These parts are of ordinary construction.

E represents my improved diaphragm-holder, which is seated in the seat formed by the annulus F of the supporting-arm K. This diaphragm-holder is preferably made of a tubular or barrel formation, with the diaphragm G attached near the bottom end of said tube, as shown in Fig. 5; but the location of said diaphragm G in the cylinder is not very important. It may be raised or lowered, as desired.

H represents the recording or reproducing arm, carrying the stylus-point *h*. These parts are of ordinary construction.

In the accompanying drawings, I represents the smaller ordinary mandrel, which is slightly tapering longitudinally. On the periphery of this cylinder is shown mounted a large mandrel J. The inner periphery of this large mandrel is in frictional engagement with the outer periphery of the smaller mandrel, which frictional engagement is sufficient to hold the outer mandrel firmly in position to receive a record or a record-tube, as the case may be. Other means may be employed for holding the two mandrels together; but for all ordinary purposes the frictional contact is sufficient.

In the operation of a phonograph, either for making a record or in reproducing sounds of a previous record, it is essential that the stylus should be a little at one side of the center, so as to obtain a sensitive result. In Fig. 2 the dotted lines *c* represent the vertical line through the axis of both mandrels. Dotted lines *d* represent the path of a stylus-point. In order to secure the proper position for this stylus in its engagement of different-sized mandrels, the diaphragm-holder E must be journaled in the annulus of its holder-arm at an inclination to the vertical line *c*. This inclination is such that the stylus-point after the diaphragm-holder is adjusted will be on the line *d* and at one side of the vertical line *c*. Thus I am enabled to employ any-sized mandrel and secure the proper and positive adjustment of the stylus-point to its mandrel.

L represents a set-screw tapping through the annulus of the holder, the point of which engages with the periphery of the diaphragm-tube and secures it in the proper position.

Having described my invention, I claim—

1. In a phonograph, a supporting-arm hav-

ing a seat, an elongated diaphragm-holder, and means for securing said diaphragm-holder in said seat in different positions substantially as described.

2. In a phonograph, a supporting-arm having a seat formed thereon, an elongated diaphragm-holder, and means for securing said diaphragm-holder in different positions in said seat at an angle to the vertical line, substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN OERTLY.

Witnesses:
OLIVER B. KAISER,
STEPHEN E. CONE.