No. 643,183. Patented Feb. 13, 1900.

G. BETTINI.

PHONOGRAPH.

(Application filed May 1, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1,

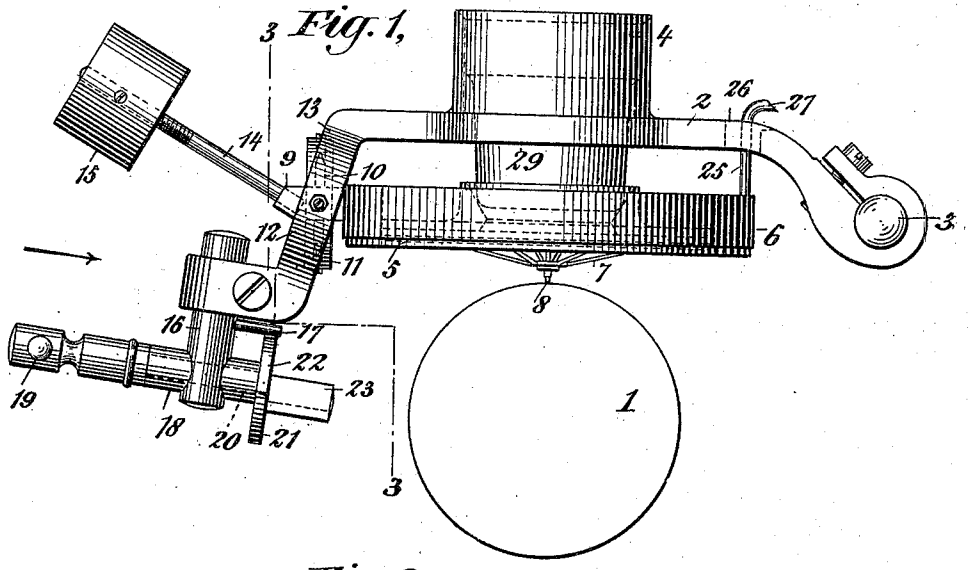


Fig. 2,

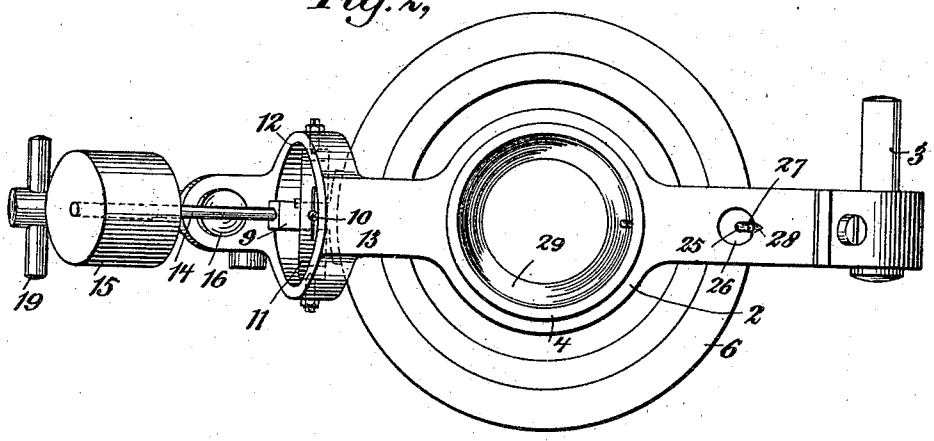
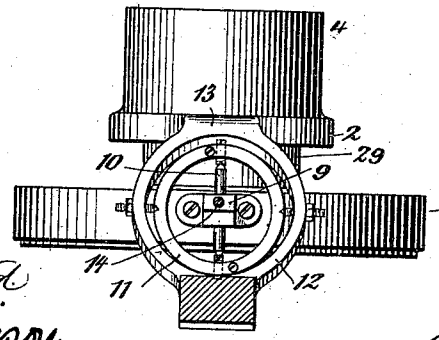


Fig. 3,



WITNESSES:

D. H. Hayward

Ernest Hopkinson

INVENTOR

Gianni Bettini

BY

E N Dickerson

HIS ATTORNEY

No. 643,183. Patented Feb. 13, 1900.

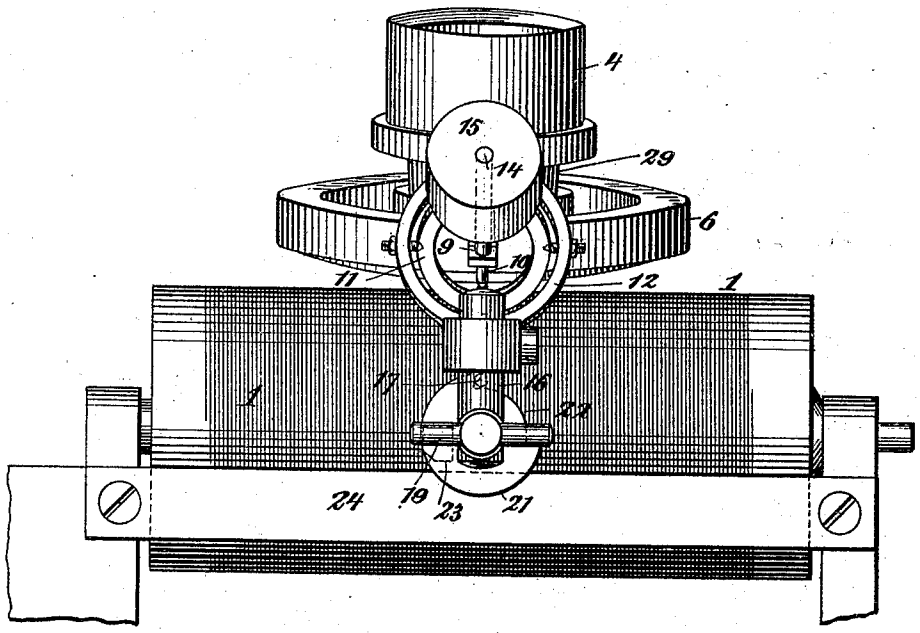
G. BETTINI.

PHONOGRAPH.

(Application filed May 1, 1897.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 4,



WITNESSES:

D. K. Raymond

Ernest Hopkinson

INVENTOR

Gianni Bettini

BY

E N Dickerson

his ATTORNEY

UNITED STATES PATENT OFFICE.

GIANNI BETTINI, OF NEW YORK, N. Y.

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 643,183, dated February 13, 1900.

Application filed May 1, 1897. Serial No. 634,672. (No model.)

To all whom it may concern:

Be it known that I, GIANNI BETTINI, of the city, county, and State of New York, have invented new and useful Improvements in Phonographs, of which the following is a specification.

The present invention relates to phonographs and contemplates new and improved means for raising and lowering the parts supporting the diaphragm and stylus into and out of operating position.

In the drawings I have illustrated a construction embodying my invention, in which—

Figure 1 is an elevation view. Fig. 2 is a plan view. Fig. 3 is a sectional view along line 3 3 of Fig. 1, and Fig. 4 is an elevation view looking in the direction of the arrow of Fig. 1 and showing the parts associated with the record-cylinder.

In the several views of the drawings like symbols of reference refer to like parts.

Referring to the drawings in detail, 1 represents the record-cylinder.

2 designates the frame upon which is supported the diaphragm-carrying parts. This frame is supported by a rod 3, properly attached to and operated by the phonograph mechanism, so as to be moved lengthwise of the record-cylinder at a rate proportionate to the rate of rotation of said cylinder. Formed integral with the frame 2 is an upstanding tubular mouthpiece 4, adapted to receive a sound-conduit.

The diaphragm 5 is carried in an annular frame 6, said diaphragm being provided with a spider 7, carrying a stylus-point 8 in contact with the record-surface 1. The frame 6 is supported upon the frame 2 so as to have a universal motion relatively thereto and to the record-surface. Projecting from the annular frame 6 is a stud 9, secured to a vertical pin 10, journaled in a ring 11, which ring is in turn journaled by horizontal journal-points to an outer ring 12, formed on a depending arm 13 on the frame 2, these parts constituting a gimbal connection between the annular frame 6, carrying the diaphragm, and the frame 2. The threaded rod 14 is secured to the stud 9, on the end of which is screwed a counterweight 15, by means of which the frame 6 and the diaphragm carried thereby are delicately counterbalanced in order that the stylus may bear a proper relationship to the record-surface. Secured to the arm 13 is a stud 16, having a pin 17 projecting toward the record-surface in the path of an oscillating disk provided with stops, said pin limiting the movement of the disk in opposite directions. Through the lower end of the stud 16 passes a sleeve 18.

19 designates a finger-piece, formed integral with or secured to which is a shaft 20, which carries on the opposite end a disk 21, having a cut-out portion 22 extending approximately through a quarter of its circumference. Into this cut-out portion projects the pin 17, before described. On the disk 21 is a lug 23, which normally has a position out of contact with the rest 24; but when turned by the finger-piece it comes in contact with said rest, thus lifting the frame 2 and the annular frame 6, carrying the diaphragm, and raising the stylus out of contact with the record-surface.

25 designates a guide-stem which is secured to the frame 6 at a point diametrically opposite the pivotal point thereof and passes up through an opening 26 in the frame 2. This guide-stem 25 is provided with a portion 27 at right angles thereto, said portion 27 being V-shaped on its under side and adapted to fit a correspondingly-shaped cut-out portion or groove 28 in the wall of the opening 26, the apex of the groove or cut-out portion being on an imaginary line passing through the center of the diaphragm and the center of its pivotal point in the gimbal. When the frame 6 is raised so as to elevate the diaphragm out of contacting position with the record-surface, the V-shaped portion of the stem 25 comes to rest in the groove 28, thus insuring the stylus having a central position, so that it will naturally fall in the record-groove when the frame 6 is again lowered to its operating position.

29 designates a throat-piece whose function is to direct the sound-waves from the sound-conduit to and from the diaphragm.

What I claim as new is—

1. The combination of a frame, a diaphragm supported thereon so as to permit of automatic vertical and lateral motion of said diaphragm, a disk provided with stops, a pin against which said stops abut, a lug eccen-

trically carried on said disk and contacting with a fixed portion of the frame and means for moving said lug to raise and lower said frame, substantially as specified.

2. The combination of a frame, a diaphragm supported thereon so as to permit of automatic vertical and lateral motion of said diaphragm, a disk provided with stops, a pin against which said stops abut, a lug eccentrically carried on said disk, means for moving said lug to raise and lower said frame, and means for guiding the diaphragm in its movement into and out of operating position, substantially as specified.

3. The combination of a frame, a diaphragm supported thereon so as to permit of vertical and lateral motion, a support for said diaphragm and a guide-stem projecting through an opening in said frame, a V-shaped portion of said stem, and a correspondingly-shaped portion formed in the wall of the opening through which said stem projects and in which the V-shaped portion of the stem is adapted to be seated, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

G. BETTINI.

Witnesses:
ERNEST HOPKINSON,
S. ROBERTS.