

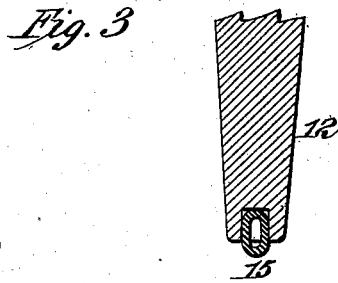
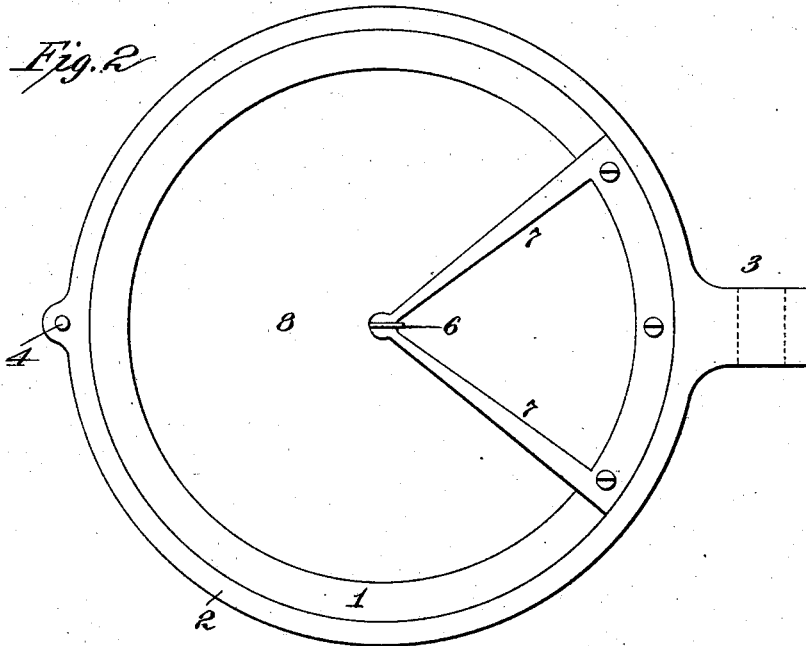
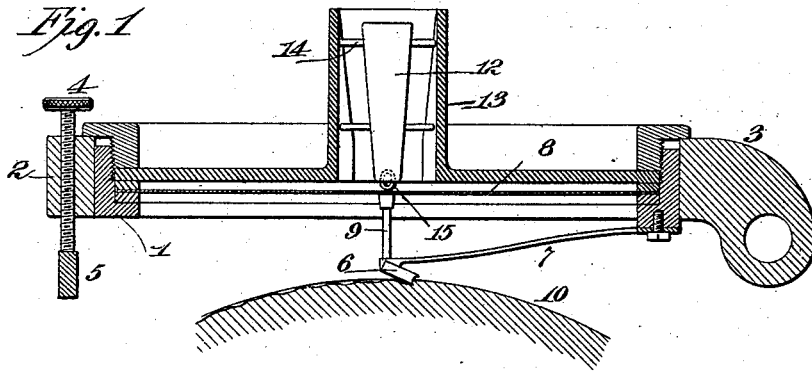
No. 676,225.

Patented June 11, 1901.

T. A. EDISON.  
PHONOGRAPHIC RECORDING APPARATUS.

(Application filed Aug. 18, 1900.)

(No Model.)



Witnesses:  
*Just. Coleman*  
*Archibald G. Pease*

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# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## PHONOGRAPHIC RECORDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 676,225, dated June 11, 1901.

Original application filed March 17, 1899, Serial No. 709,448. Divided and this application filed August 18, 1900. Serial No. 27,238. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Phonographic Recording Apparatus, (Case No. 1,046,) of which the following is a description.

My invention relates to improvements in apparatus for making phonographic records, and the present application is a division of an application for Letters Patent of the United States filed by me on March 17, 1899, Serial No. 709,448. In said application I describe generally such an arrangement of the diaphragm or other element influenced or vibrated by the sound-waves as to normally relieve it of all or substantially all stress, whereby it will be maintained in substantial equilibrium and will be more sensitively receptive and more accurately responsive to sound-vibrations. The present invention relates to a phonographic recorder of this type, and specifically to a phonographic recorder of the kind wherein the usual compensating weight is dispensed with and the cutting or recording tool is caused to engage the record-surface by a direct manual adjustment.

The object of my present invention is to so construct or arrange the diaphragm of manually-adjusted phonographic recorders as to relieve the diaphragm of all or substantially all stress now resulting from the pressure necessary to properly engage the cutting or recording tool with the record-surface to the requisite depth.

In order that the invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a section through a phonographic recording device of the type described, illustrating my present improvements applied thereto; Fig. 2, a bottom view of Fig. 1, and Fig. 3 an enlarged sectional view of the lower portion of the compensating weight.

In all of the above views corresponding parts are represented by the same numerals of reference.

The casing 1 is carried in a ring 2, formed in a pivoted arm 3, having an adjusting-screw 4, which works on the usual longitudinal slide 5. The cutting or engraving tool 6 is carried on the end of spring-arms 7 7 (shown more clearly in Fig. 2) and is connected with the center of the diaphragm 8 by a connection 9, made, preferably, of wood. In use the adjusting-screw 4 is turned until the cutting or engraving tool 6 engages the proper depth or the recording-surface 10. This obviously places the diaphragm 8 under stress, or, in other words, tends to buckle it upwardly, preventing accurate response thereof to the vibrations. With this type of recorder in order that my invention may be carried out a weight is preferably employed to counteract this upward stress of the diaphragm. This counteracting-weight 12 is located, preferably, in the nipple 13, to which the speaking-tube is connected, being guided by the arms 14 and having a recess at its lower end, in which is placed, preferably, a section of rubber tubing 15, (see Fig. 3,) which bears upon the center of the diaphragm 8. The mass of the weight 12 is sufficient to substantially counteract the upward stress exerted upon the diaphragm by the engagement of the cutting or engraving tool with the recording-surface. By employing the elastic buffer 15 between the diaphragm 8 and the weight 12 the effect of the weight will be exerted at all times upon the diaphragm, even though the vibrations are so rapid that the weight cannot respond thereto.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a phonograph-recorder, the combination with the recording-diaphragm, of a counteracting-weight loosely and bodily carried thereby, substantially as set forth.

2. In a phonograph-recorder, the combination with the recording-diaphragm, of a counteracting-weight bodily carried thereby, and an elastic connection between the weight and diaphragm, substantially as set forth.

3. In a phonograph-recorder, the combination with the recording-diaphragm, the recording-tool directly connected thereto, and means

for manually adjusting the diaphragm, of a counteracting-weight carried loosely and bodily by the diaphragm, substantially as set forth.

5 4. In a phonograph-recorder, the combination with the recording-diaphragm, the recording-tool directly connected thereto, and means for manually adjusting the diaphragm, of a counteracting-weight carried bodily by the  
10 diaphragm, and an elastic connection between said weight and diaphragm, substantially as set forth.

15 5. In a phonograph-recorder, the combination with the recording-diaphragm and its inclosing casing, of a counteracting-weight carried bodily by the diaphragm and vertically

movable within said casing, substantially as set forth.

6. In a phonograph-recorder, the combination with the recording-diaphragm and its  
20 inclosing casing, of a counteracting-weight carried bodily by the diaphragm and vertically movable within said casing, and guiding-arms for guiding said weight in said casing, substantially as set forth.

25 This specification signed and witnessed this 10th day of August, 1900.

THOS. A. EDISON.

Witnesses:

J. F. RANDOLPH,  
J. A. BOEHME.