

(No Model.)

T. A. EDISON.  
PHONOGRAPH.

No. 488,189.

Patented Dec. 20, 1892.

Fig. 1.

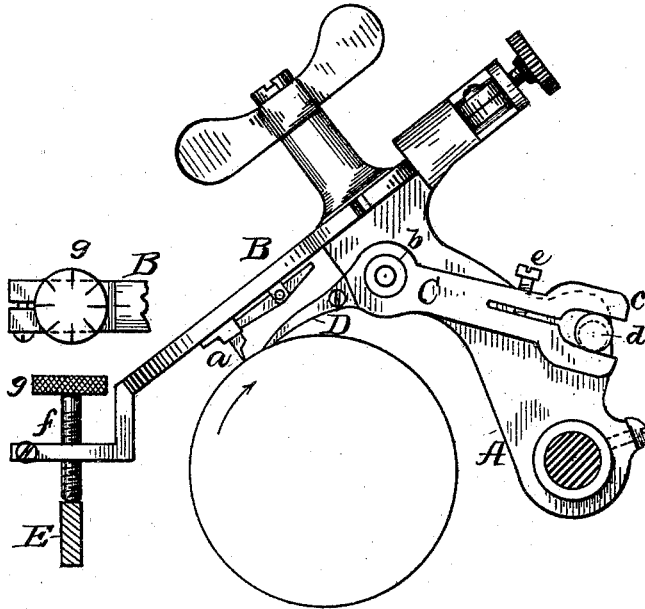


Fig. 3.

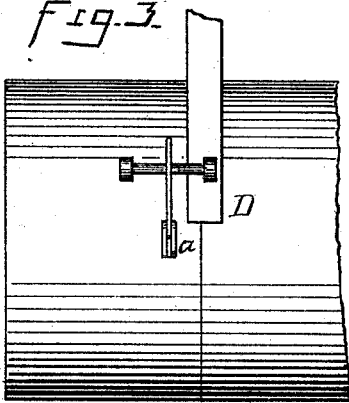
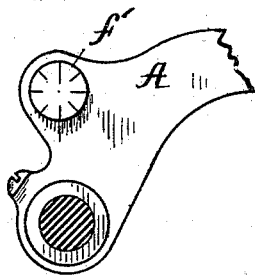


Fig. 2.



Witnesses  
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Inventor  
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By his Attorneys

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY, ASSIGNOR TO  
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## PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 488,189, dated December 20, 1892.

Application filed May 29, 1888. Serial No. 275,441. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonographs, (Case No. 776,) of which the following is a specification.

My phonograph is provided with a cutting tool for turning off the surface of the wax phonogram blank so that the blank may be used over again after it has once been filled with a record. This tool I have heretofore mounted on the rocking holding arm, which carries the recorder and reproducer, but near the pivot of such arm, so that the tool acted upon the opposite side of the phonogram blank from the recorder and reproducer. This made it necessary for me to adjust the recorder out of action while the cutting tool was in use for turning off the surface of the phonogram blank; hence it became necessary to wait while this was being done before the phonograph could be used for recording. I have found, however, that by mounting the cutting tool so as to act upon the surface of the phonogram blank near to the point of the recorder the old record can be turned off and a new record made at the same time; the recording point being adjusted slightly deeper than the tool so as to record the whole amplitude of the loudest vibrations. When the recording point and cutting tool are placed at a distance from each other as heretofore, their radial distances from the center on which they turn being widely different, when they are adjusted simultaneously they do not move to the same extent, and consequently the depth to which they enter the surface is widely different; but I now place the points in such proximity that they have substantially the same radial distance from the center or pivot of the rocking holding arm, and this enables them to be moved to the same extent and therefore to be adjusted simultaneously and permitted to operate simultaneously upon the phonogram blank.

My present invention relates to providing the phonograph with a cutting tool which will be adapted for action simultaneously with the use of the recorder.

In the accompanying drawings forming

part hereof,—Figure 1 is a side view of the holding arm and attached parts showing the cutting tool and recorder in simultaneous action;—Fig. 2 is a view, from the opposite side, of the holding arm, showing graduated head for adjusting the depth of the cutting tool; and Fig. 3, a plan view of the phonogram blank showing the relative positions of the cutting tool and the recording point.

A, is the rocking holding arm carrying on its upper end the swinging frame B, on which is placed the recorder, whose cutting or recording point is shown at *a*. To the side of the rocking holding arm A near to its upper end is pivoted a lever C at the point *b*, which lever carries a cutting knife D projecting forward close to the recording point *a*. This cutting knife is removably attached to the lever so that it can be replaced when required by a new knife. The lever C projects in rear of its pivot and has a spring fork *c* at its rear end drawn together upon a cam *d* by a screw *e*. This cam *d* is mounted on a turning stem; the head *f'* of which is provided with scale marks or graduations as shown, so that the extent to which the cam is turned may be accurately determined. The frame B is provided with a set screw *f* which bears upon the guide rest E. The head *g* of the screw *f* is provided with scale marks or graduations as shown so that the point of adjustment of the screw can be accurately determined. The bearing of the screw *f* on the guide rest E determines the limit of forward movement of the rocking holding arm, and the frame B attached to it, and by adjusting the screw *f* the recording point *a*, as well as the cutting knife D, are moved toward or away from the surface of the phonogram blank and substantially to the same extent by reason of their close proximity.

In using the instrument, after a blank has once been filled with a record, the cam *d* will be adjusted so as to bring the point of the knife D into the proper relation to the recording point *a*; the screw *f* will then be adjusted so as to let the recording point *a* and the knife D the proper distance into the wax surface of the phonogram blank. The knife D is of course considerably wider than the recording point *a*, so that a smooth track will

be cut by the knife D in advance of the recording point, the knife being set in advance of the recording point in the direction of the longitudinal movement of said point, as is illustrated in Fig. 3. The machine being started, the knife D will turn off the record already on the blank, while the recording point *a* will record the sounds which are produced in the speaking tube connected with the recorder, and thus a new record can be made without the delay of first turning the old record off.

What I claim as my invention is:

1. In a phonograph, the combination of a recorder and a cutting tool mounted upon the phonograph, with their points in close proximity and having common adjusting means for adjusting their position together and practically to the same extent with relation to the surface of the phonogram blank, substantially as set forth.

2. In a phonograph, the combination of a recorder and a cutting tool having their points in close proximity and having a common means for adjusting them together and practically to the same extent with relation to the surface of the phonogram blank, and adjusting means for varying the relative position of the recording point and the cutting tool, substantially as set forth.

3. In a phonograph, the combination with the rocking holding arm, of a recorder mounted thereon and a cutting tool carried by such rocking holding arm and having its point in such close proximity to the recording point, as to be at substantially the same radial distance from the pivot of said arm, substantially as set forth.

4. In a phonograph, the combination with the rocking holding arm, of a recorder and cutting tool carried thereby and having their points in such close proximity, as to have substantially the same radial distance from the pivot of said arm the guide rest and the adjusting screw riding on such guide rest, substantially as set forth.

5. In a phonograph, the combination with the rocking holding arm, of a lever pivoted thereon carrying a cutting tool at its forward end and having a forked shank embracing a cam, by the turning of which the position of the cutting tool is adjusted, substantially as set forth.

This specification signed and witnessed this 26th day of May, 1888.

THOS. A. EDISON.

Witnesses:

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