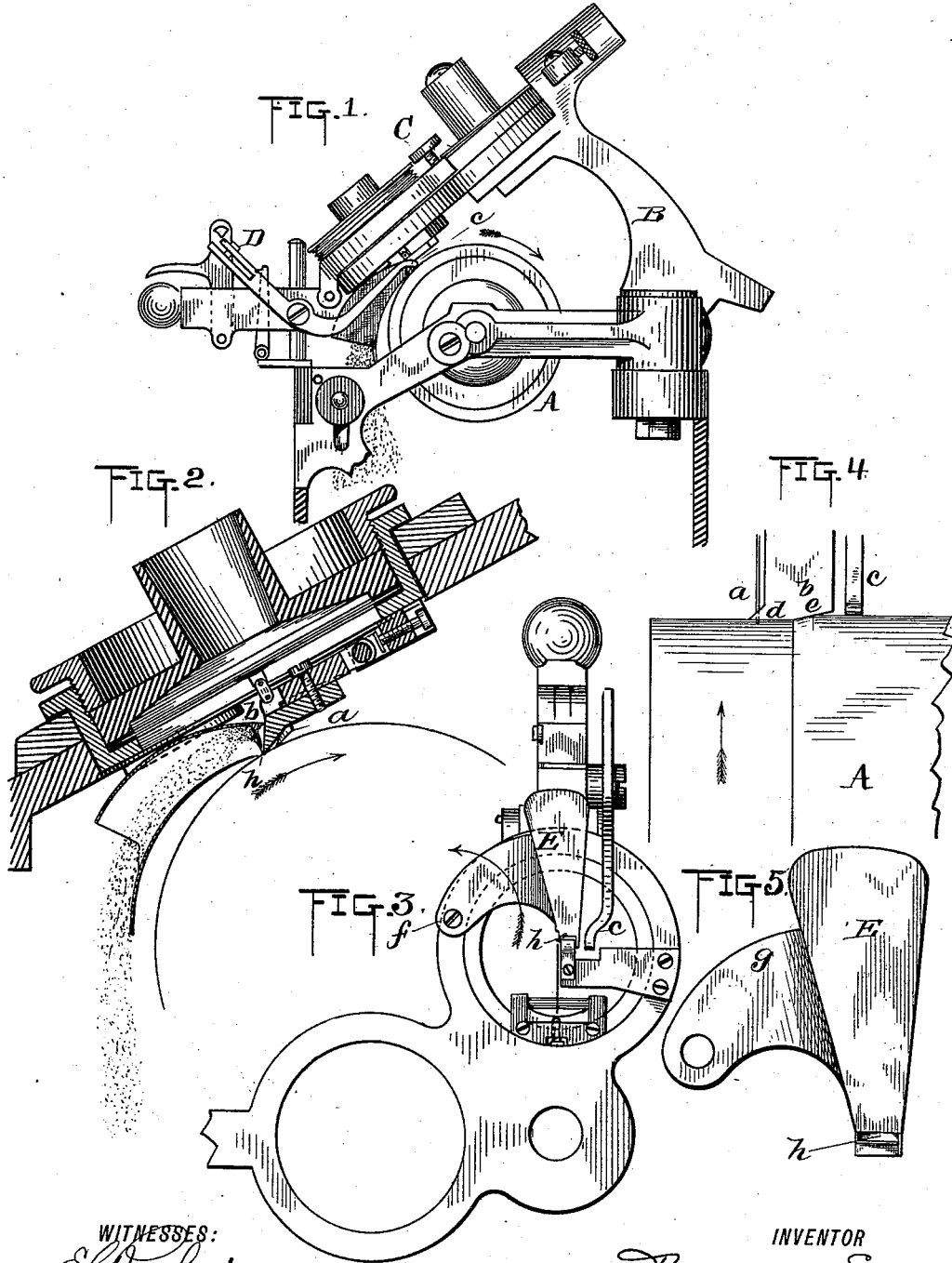


(No Model.)

T. A. EDISON.  
PHONOGRAPH.

No. 414,760.

Patented Nov. 12, 1889.



WITNESSES:  
*C. S. Howland*  
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# UNITED STATES PATENT OFFICE.

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

## PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 414,760, dated November 12, 1889.

Application filed March 30, 1889. Serial No. 305,488. (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 a certain new and useful Improvement in Phonographs, (Case No. 832,) of which the following is a specification.

In my phonograph I employ a cutting or turning-off tool acting on the surface of the cylindrical phonogram-blank for removing a former record and preparing the surface to receive a new record. One difficulty which has occurred in doing this is that of disposing of the chips or shavings which are removed by the cutting-tool and which I find become electrified, so that they fly in all directions, and sometimes clog the various parts of the apparatus.

The main object of my invention is to effectively avoid this difficulty; and to this end my invention consists partly in an improved form or construction for the cutting-tool, whereby it can cut only a very thin chip or shaving from the phonogram-blank, and partly in the arrangement of a chute or passage for receiving the material removed by the cutting-tool and conveying it to a receptacle provided for it.

My invention is illustrated in the accompanying drawings.

Figure 1 is an end view of a portion of the phonograph embodying my invention, showing the cylindrical phonogram-blank, the spectacle-frame which carries the recorder and reproducer, and the adjusting devices; Fig. 2, a vertical section of the recorder; Fig. 3, a bottom plan view of the same; Fig. 4, a view on an enlarged scale showing the position of the turning-off tool, and Fig. 5 a bottom view of the conveying-chute.

A is the cylindrical phonogram-blank, made of suitable material for receiving and reproducing the impressions of the sound-waves.

B is the rocking-arm which holds the spectacle-frame C and which carries the recorder and reproducer.

D is the automatic adjusting device set forth in my application, Serial No. 296,420, filed January 15, 1889, for automatically adjusting

the position of the recording-point relative to the surface of the phonogram-blank.

$a$  is the recording-point, and  $b$  the turning-off tool traveling on the cylinder in advance of the recording-point,  $c$  being the determining-lever of the automatic adjustment. The turning-off tool or knife  $b$  is shaped at its end as shown in Fig. 4, having a straight cutting-edge at  $d$  and a beveled portion  $e$ . The cutting is done, as shown in Fig. 4, only by the straight edge  $d$ , the beveled portion  $e$  resting on the shoulder formed by the uncut portion of the cylinder and preventing the cutting-edge from entering the cylinder too deeply, whereby the knife can cut only a very thin shaving, just deep enough to entirely remove the traces of the previous record.

Secured to the rim of the recorder portion of the spectacle-frame by means of a screw  $f$ , passing through the end of the lug  $g$ , is a conveying-chute E. This consists of a curved box made of suitable metal or other material and carried in such position that its upper end is immediately in front of and in close proximity to the edge of the cutting-tool. The chute has a narrow opening  $h$  at its lower front edge, and above this opening the upper end of the chute overhangs the edge of the cutting-tool, so that the chip or shaving removed from the cylinder by such tool is necessarily projected upwardly through the opening  $h$  and into the chute, and it is conveyed by gravity into any suitable receptacle provided for it. The shaving striking the upper side of the chute is broken up into small particles, which particles are also unelectrified by the contact, so that they pass freely by gravity through the chute and fall into the place assigned for them.

What I claim is—

1. In a phonograph, the combination, with a cutting-knife acting on the phonogram-surface, of a conveying-chute in proximity thereto, substantially as set forth.

2. In a phonograph, the combination, with a cutting-knife acting on the phonogram-surface, of a conveying-chute having an opening opposite the cutting-edge and overhanging such edge, substantially as set forth.

3. In a phonograph, the combination, with

the spectacle-frame, of the recording-point and cutting-tool carried thereby, and a conveying-chute also carried by said frame in proximity to said cutting-tool, substantially  
5 as set forth.

4. In a phonograph, the cutting-tool having a straight cutting-edge and a beveled extension of such edge, substantially as set forth.

5. In a phonograph, the cutting-tool having

a straight cutting-edge and an extension of  
such edge in a different plane, substantially  
as set forth. 10

This specification signed and witnessed  
this 22d day of March, 1889.

THOS. A. EDISON.

Witnesses:

W. PELZER,

RICHD. N. DYER.