

No. 772,938.

PATENTED OCT. 25, 1904.

D. HIGHAM.  
PHONOGRAPH REPRODUCER APPARATUS.

APPLICATION FILED FEB. 18, 1904.

NO MODEL.

Fig. 1.

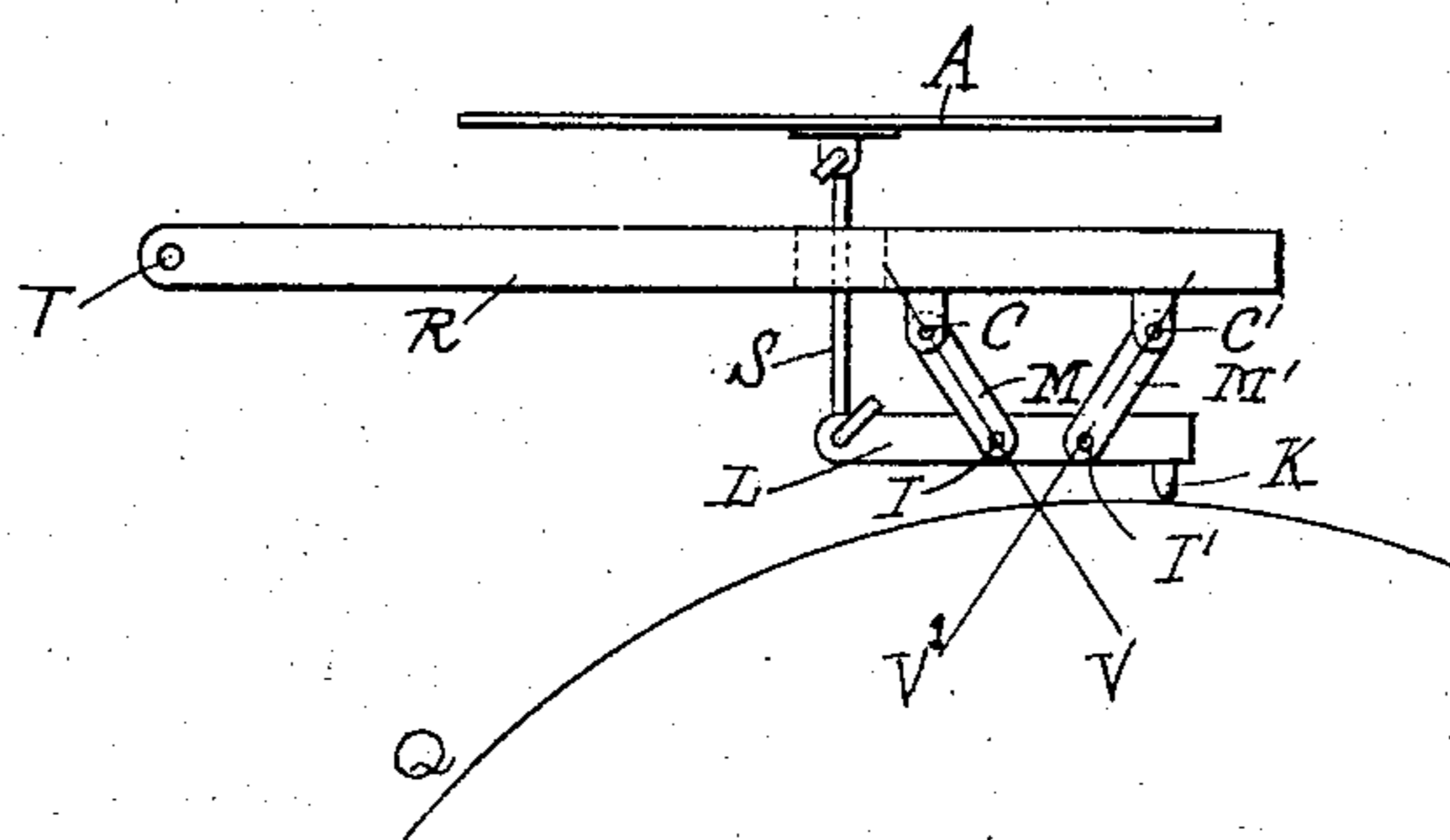
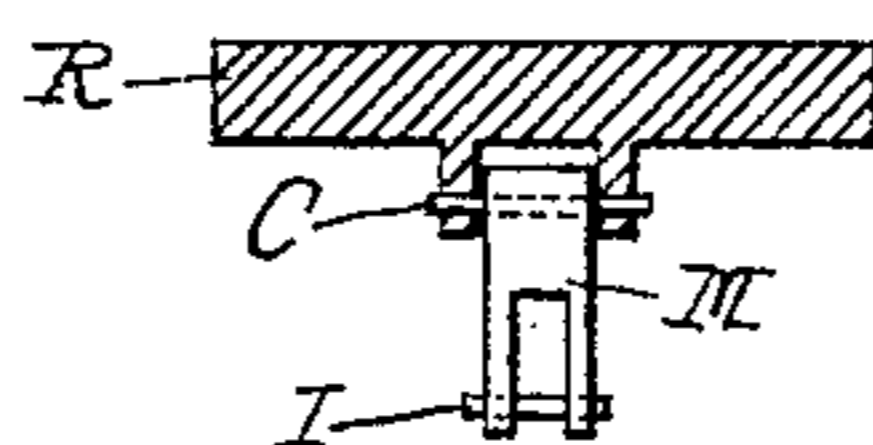


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## PHONOGRAPH REPRODUCER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 772,938, dated October 25, 1904.

Application filed February 18, 1904. Serial No. 194,221. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL HIGHAM, a citizen of the United States of America, residing in Winthrop, in the county of Suffolk, State of Massachusetts, have invented Improvements in Phonograph Reproducer Apparatus, of which the following is a specification.

This invention relates to phonograph-reproducers as distinguished from gramophone-reproducers.

The object of the invention is to provide a construction in which sound-wave vibrations can be correctly reproduced at the diaphragm, and this is accomplished by the provision of means whereby the point of fulcrum of the stylus-lever can be made to act at or near the surface of the recorded tablet.

In the accompanying drawings, Figure 1 diagrammatically illustrates the invention, and Fig. 2 shows a portion in another view and partly in section.

L is a lever-arm carrying a stylus K, and R a retarding-weight hinged at T, while A is a diaphragm, and S a link passing through a hole (indicated by dotted lines) in the retarding-weight R to connect the lever-arm L to the diaphragm A, all of which are elements well known in phonograph-reproducers.

The parts constituting this invention are shown as consisting of two links M and M', connected to the lever-arm L by pivots I and I', respectively, and to the retarding-weight R by pivots C and C'. The line of the surface of a recorded tablet is indicated at Q, while lines V and V' drawn through the respective pivotal centers of the links M and M' are shown to indicate the line of links M and M' and the angle of the links M and M' with reference to each other. In Fig. 2 the link M and pivots C and I are shown in another view, with a cross-section of the retarding-weight R.

The operation of this construction is similar to that of other well-known phonograph-reproducers, except that the lever-arm L is made to rock upon pivots I and I', and in consequence to swing links M and M' upon pivots C and C' with every vibrating movement corresponding to sound-waves imparted to the lever-arm L through stylus K by the recorded tablet. Thereby a resultant fulcrum

for the lever-arm L (the word "fulcrum" meaning the point about which the lever-arm rocks) is produced at a point where the lines V and V' extended cross each other. From this it will be seen and understood that in the operation of this invention the lever-arm L is made to rock about a point of fulcrum at or near the surface of the recorded tablet, as indicated in Fig. 1, where the line Q and lines V and V' are shown as crossing each other.

The point at which the extended lines V and V' of links M and M' should cross each other has been found to vary slightly with recorded tablets made by different makers. With some tablets the best results are obtained when the point of fulcrum is slightly below the surface of the tablet, while with others slightly above.

It will be apparent that modifications of the precise arrangement shown may be made without departing from the scope of this invention.

I claim as my invention—

1. In a phonograph-reproducer, a lever-arm carrying a stylus, a retarding-weight, and a diaphragm having mechanical connection to said lever-arm, in combination with two links, pivoted to said retarding-weight at two points, and said links being pivoted to said lever-arm at two points, with the links at such angle to each other that the extended lines of said links cross each other at or near the surface of the tablet, substantially as set forth.

2. In a phonograph-reproducer, a diaphragm, a lever-arm carrying a stylus at one end and having mechanical connection to the diaphragm at the other end, in combination with links M and M', pivots C and C' upon which the links are free to swing, pivots I, I' connecting said links to said lever-arm, the links being at such angle to each other that the extended lines of said links cross each other at or near the surface of the tablet, substantially as set forth.

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

DANIEL HIGHAM.

Witnesses:

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