

(No Model.)

J. H. WHITE.
GRAPHOPHONE.

No. 424,914.

Patented Apr. 1, 1890.

Fig. 1.

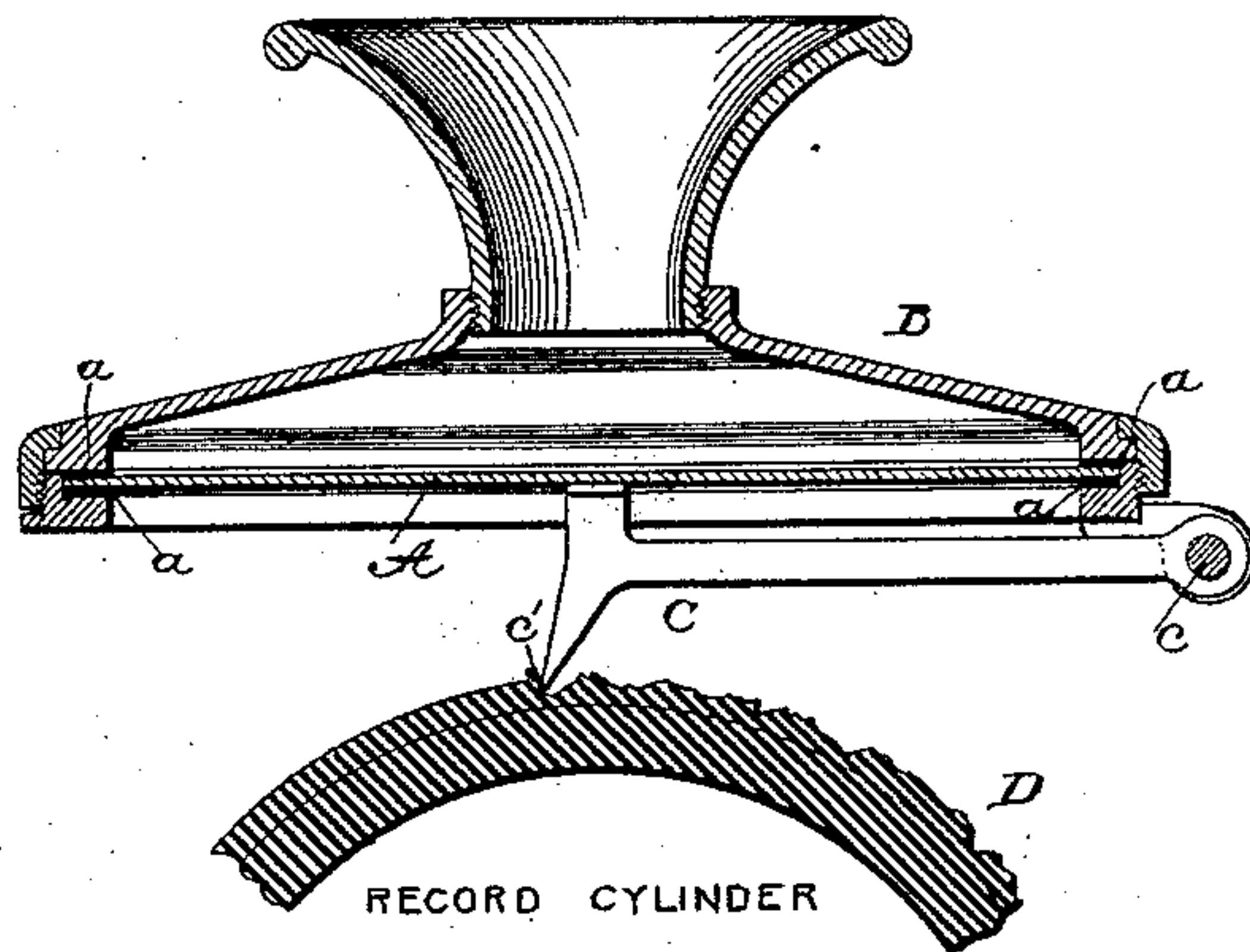


Fig. 2.

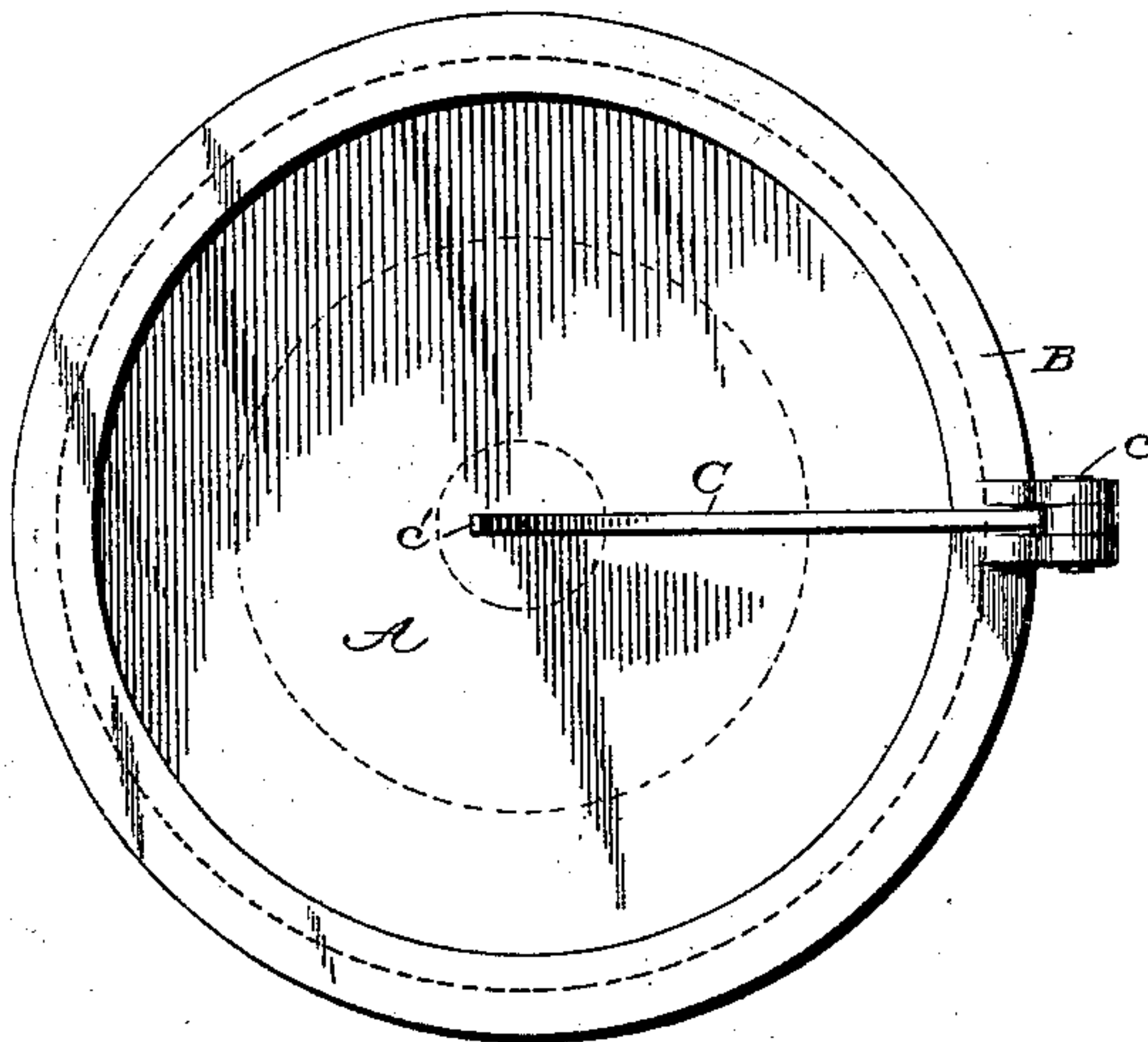
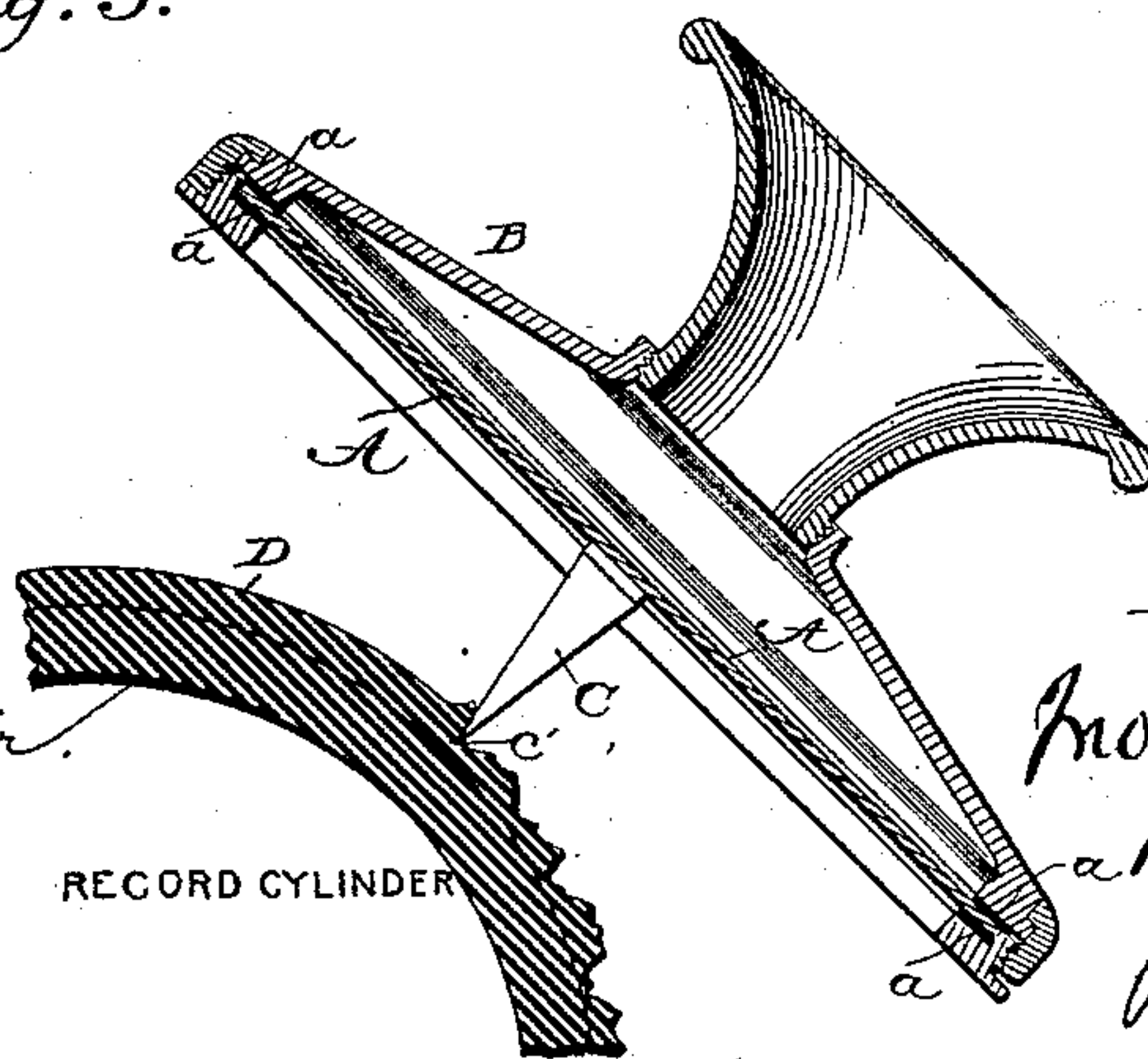


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN H. WHITE, OF WASHINGTON, DISTRICT OF COLUMBIA.

GRAPHOPHONE.

SPECIFICATION forming part of Letters Patent No. 424,914, dated April 1, 1890.

Application filed June 29, 1889. Serial No. 315,995. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WHITE, of Washington, in the District of Columbia, have invented certain Improvements in Graphophones, of which the following is a specification.

This invention has reference to that class of instruments for recording and reproducing sounds in which the recording and reproducing styles or cutters are used in connection with vibratory diaphragms; and the invention consists in an instrument having a diaphragm constructed of aluminium as distinguished from other materials.

In carrying my invention into effect the recording-style, the devices for supporting and carrying the same, and the record cylinder or surface may all be constructed and arranged in any manner now known or in any equivalent manner. Good results may be obtained when the aluminium diaphragm is used in a construction such as shown in my application for Letters Patent, Serial No. 314,813, filed June 19, 1889, or as a substitute for the iron or glass diaphragms used in the instruments commercially known as "phonographs" or "graphophones."

For the purposes of illustration I have represented in the accompanying drawings an aluminium diaphragm in its preferred connection.

In the drawings, Figure 1 is a cross-section through the essential parts of the machine. Fig. 2 is a bottom plan view of the diaphragm and its immediate connections. Fig. 3 is a cross-section showing the diaphragm and style arranged in a different manner.

Referring to the drawings in Figs. 1 and 2, A represents the diaphragm, consisting, simply, of a sheet of aluminium, preferably of circular form, confined at its periphery between rubber rings *a*, sustained in an encircling frame B, suitably fashioned to form a chamber and mouth-piece above the diaphragm. C is the recording-style, hinged at *c* to the frame or other suitable support suitably connected to the center of the diaphragm, and provided with a forwardly and downwardly projecting cutting or recording point *c'*. D is a record-cylinder, having a wax-like surface, as usual, or other suitable surface in which the point of the style may produce the

sound-record after the manner commonly practiced in the graphophone or phonograph.

In Fig. 3 I have represented the recording-style C as being rigidly attached to the center of the diaphragm, so as to be supported wholly thereby.

In practice I find that a diaphragm of aluminium is far superior to those heretofore employed as regards its action and the results produced. It is found that an aluminium diaphragm will record the sounds more faithfully or with greater precision than diaphragms of steel, iron, or glass, and that a reproducing-diaphragm of aluminium will give a more faithful reproduction of the recorded sounds, as the diaphragms of aluminium are found to respond more readily and faithfully than those of other materials to the influence of the sound-waves. The sound recorded through the medium of an aluminium diaphragm will be softer, clearer, and more natural than those recorded and reproduced by diaphragms heretofore in use. The improved results appear to be due to some unknown or unobserved quality or characteristic of the material, which is for the first time made available when the aluminium is applied under the peculiar conditions encountered in an instrument of this type. The aluminium is also superior to iron or steel, in that it is lighter, and therefore responds more readily and quickly and has less inertia and momentum, and also in that it is free from liability to oxidation.

Having thus described my invention, what I claim is—

1. In a graphophone or like instrument, the recorder or reproducer having, in combination with a recording or reproducing point, a diaphragm of aluminium.

2. In a graphophone or like instrument, a recorder or reproducer having, in combination with the recording or reproducing style, an aluminium diaphragm peripherally sustained.

In testimony whereof I hereunto set my hand, this 29th day of June, 1889, in the presence of two attesting witnesses.

JNO. H. WHITE.

Witnesses:

PHIL T. DODGE,
WM. R. KENNEDY.