

No. 676,270.

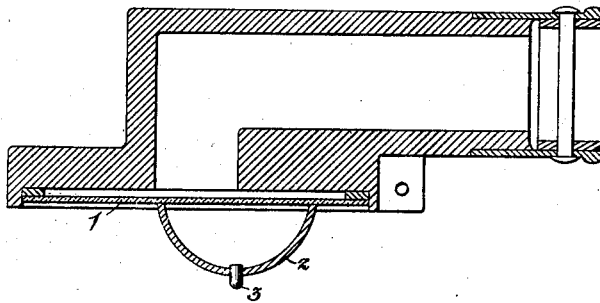
Patented June 11, 1901.

I. W. NORCROSS, JR.

PHONOGRAPH OR GRAPHOPHONE REPRODUCER.

(Application filed Nov. 26, 1900.)

(No Model.)



Witnesses
Herman C. Metcalf.
Frank L. Graham.

Inventor
Isaac W. Norcross Jr.
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UNITED STATES PATENT OFFICE.

ISAAC W. NORCROSS, JR., OF NEW YORK, N. Y., ASSIGNOR TO THE HAWTHORNE AND SHEBLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

PHONOGRAPH OR GRAPHOPHONE REPRODUCER.

SPECIFICATION forming part of Letters Patent No. 676,270, dated June 11, 1901.

Application filed November 26, 1900. Serial No. 37,787. (No model.)

To all whom it may concern:

Be it known that I, ISAAC W. NORCROSS, Jr., a citizen of the United States, and a resident of New York city, New York, have invented certain Improvements in Phonograph or Graphophone Reproducers, of which the following is a specification.

The object of my invention is to provide the reproducer of a phonograph or graphophone instrument with an attachment whereby the reproductions are improved both in volume and distinctness of tone.

The accompanying drawing shows a longitudinal section, on an exaggerated scale, of a graphophone-reproducer made in accordance with my invention.

So far as the general construction of the reproducer is concerned it may be similar to those now in use, my invention consisting of an attachment to the diaphragm 1 of the reproducer whereby the vibrations of said diaphragm under the action of the record are so affected as to materially improve the result. This attachment consists of a hollow boss 2, applied to the lower face of the diaphragm 1 and carrying a reproducer-point 3 similar to that which is ordinarily attached directly to the reproducer-diaphragm. The hollow boss 2 may be of cup-like or inverted-conical form and may be composed of any material found to be available for the purpose, aluminium being preferred. Owing to the extended area of contact of the hollow boss 2 with the diaphragm 1 the vibrations of the latter are so much improved as compared with those of a diaphragm having the reproducer-point applied directly to the same that better reproductions are obtained both as regards volume

and distinctness of tone, the curved form of the boss 2 rendering it so stiff that there is no springing of the same, the undulations of the record being transmitted to the diaphragm without any loss in extent of vibration of the diaphragm due to the interposed transmitter.

I am aware that it has been proposed to provide a sound-recorder with a conical diaphragm having around the enlarged end of the cone a projecting flange, whereby said cone is secured to the holder; but my invention is distinct from this in having the ordinary flat diaphragm, the purpose of my invention being to transmit to such flat diaphragm more effectively than usual the vibrations due to the passage of the undulating record beneath the reproducer-point.

The hollow boss will be located on the diaphragm in such position as will give the best result. As shown in the drawing, it is located somewhat off center longitudinally, this position having been found in practice to be a good one.

Having thus described my invention, I claim and desire to secure by Letters Patent—

A phonograph or graphophone reproducer having a flat diaphragm with a hollow boss attached to its outer face and carrying the reproducer-point, substantially as specified.

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

ISAAC W. NORCROSS, JR. [L. s.]

Witnesses:

JAS. J. DALY,
FRANK WEBBER.