

May 8, 1923.

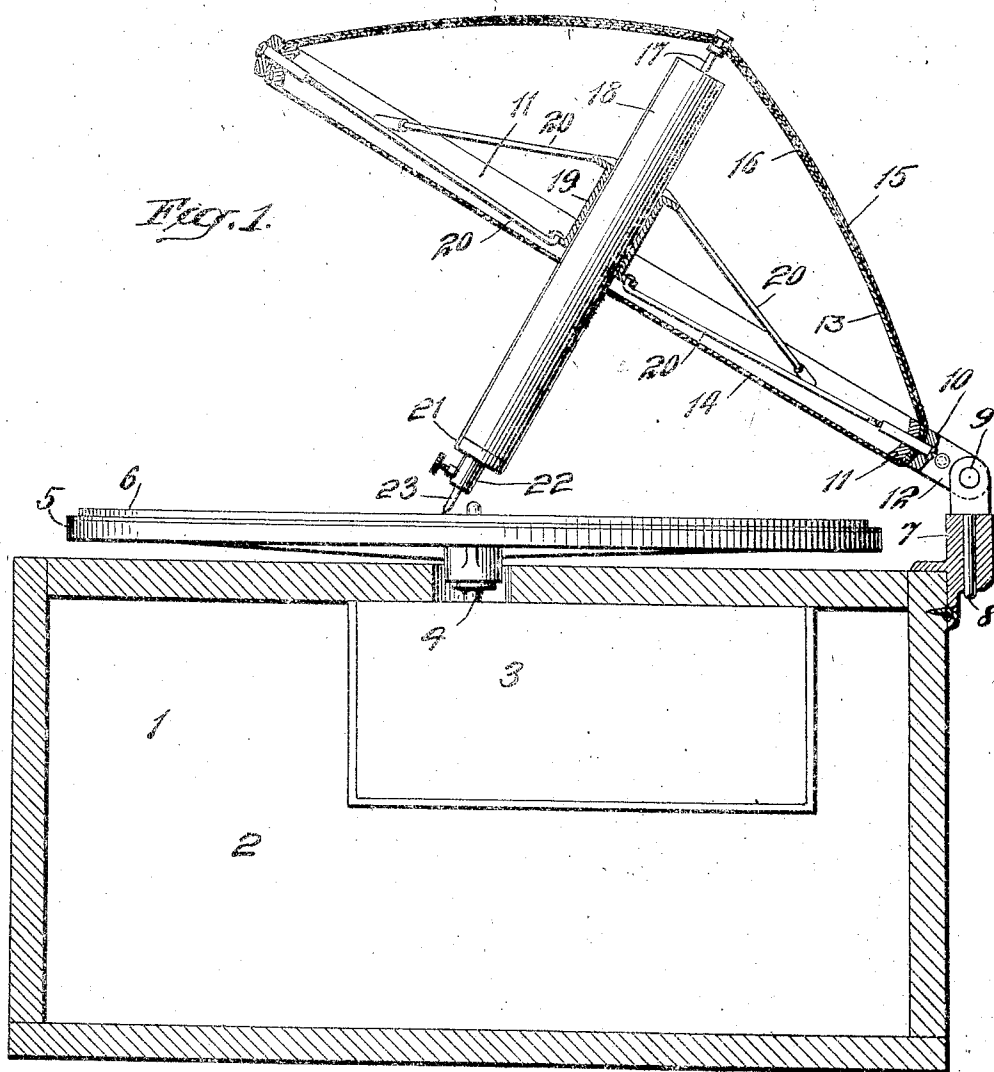
G. B. BURCH

1,454,504

PHONOGRAPH

Filed April 18, 1918

4 Sheets-Sheet 1



Inventor
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By *W. W. Edwards* Attorney

May 8, 1923.

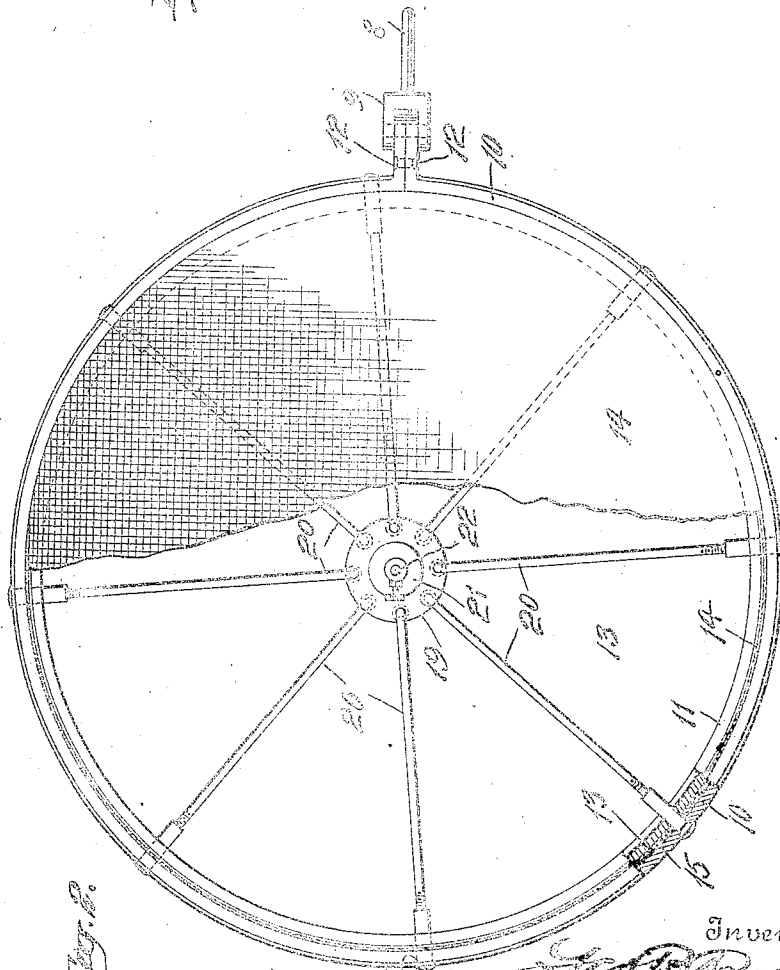
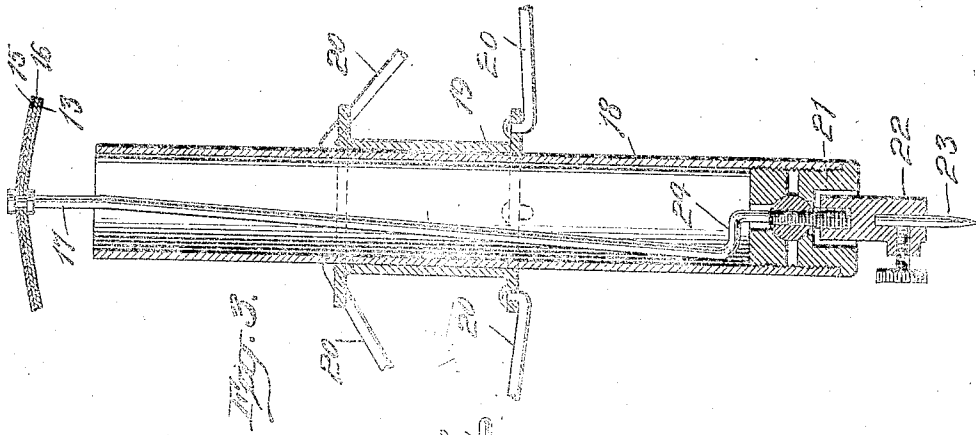
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PHONOGRAPH

Filed April 18, 1918

4 Sheets-Sheet 2



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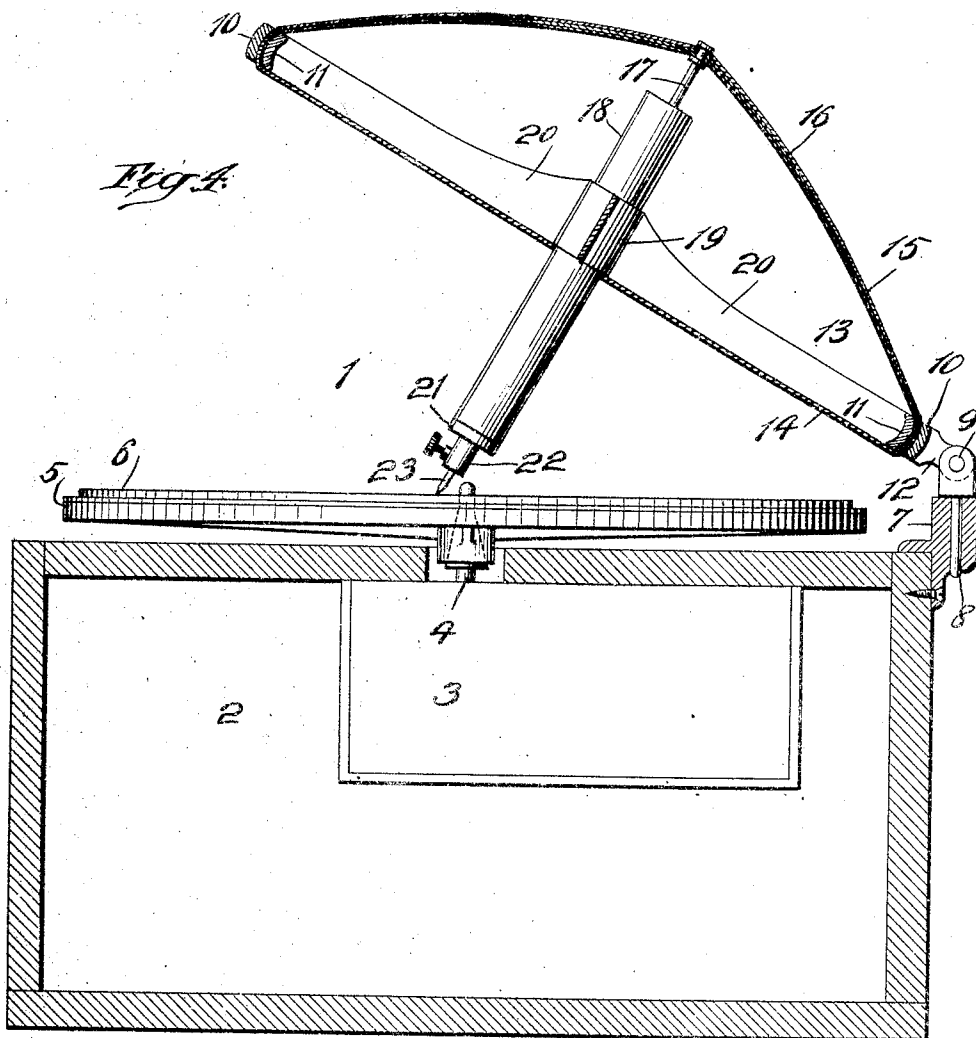
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PHONOGRAPH

Filed April 18, 1918

4 Sheets-Sheet 3



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May 8, 1923.

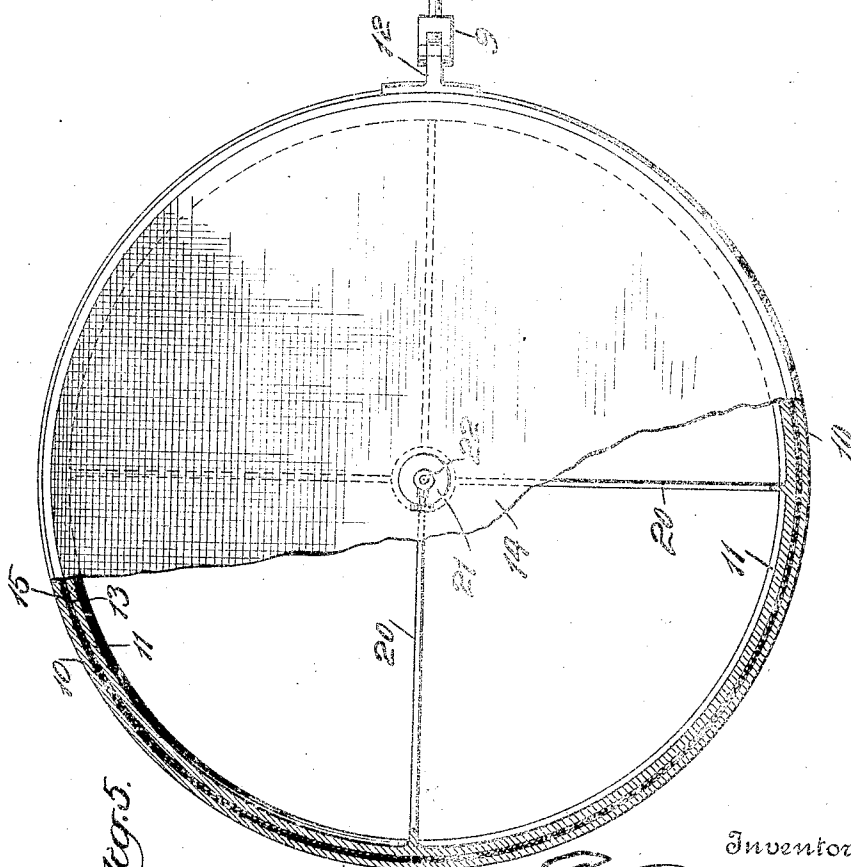
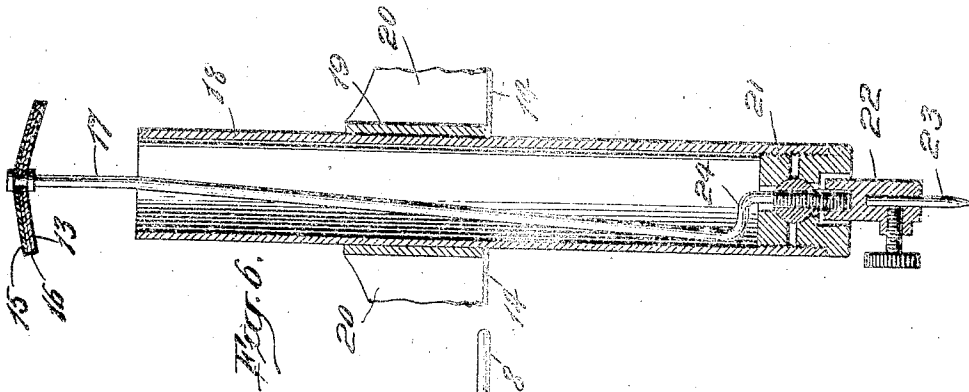
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1,454,504

PHONOGRAPH

Filed April 18, 1918

4 Sheets-Sheet 4



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Patented May 8, 1923.

1,454,594

UNITED STATES PATENT OFFICE.

GEORGE B. BURCH, OF NEW YORK, N. Y., ASSIGNOR TO LESLIE STEVENS, OF CHICAGO, ILL., NEW JERSEY.

PHONOGRAPH.

Application filed April 12, 1918. Serial No. 259,227.

To all whom it may concern:

Be it known that I, GEORGE B. BURCH, a citizen of the United States, and a resident of the city and State of New York, county of Kings, have invented a new and useful Improvement in Phonographs, of which the following is a specification.

The object of my invention is to provide a device of this class which will be simple and durable in construction and accurate and reliable in operation under all conditions of service. This object is accomplished by my invention, two embodiments of which are hereinafter more particularly set forth.

For a more particular description of my invention, reference is to be had to the accompanying drawings, forming a part hereof, in which,

Figure 1 is a sectional view of the preferred embodiment of my invention.

Figure 2 is an inverted plan view, partially in section of a diaphragm and connected parts.

Figure 3 is a sectional view of the needle holder and connected parts.

Figure 4 is a sectional view of a modification.

Figures 5 and 6 are sectional views corresponding to Figures 2 and 3.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My improved phonograph 1 is provided with a casing 2 in which is mounted a motor 3 from which rises the usual vertical spindle 4 which carries the turn table 5 in the conventional manner. This table 5 supports a record 6. At one side of the table 5 rises a bracket 7 which contains a pivot 8 that is surmounted by a hinge 9 that is secured to the concentric, concave convex rings 10 and 11 through ears 12, or one ear if desired. These rings carry between them a diaphragm 13, a lower fabric 14 and a covering fabric 15, as shown.

The diaphragm 13 has a thickened center 16 which is fixed to a needle bar 17 that runs through a tube 18 that rests in a hub 19 with spokes 20 which run to the rim which is composed of the rings 10 and 11. In the preferred embodiment of my invention the hub and spokes are made similar to a bicycle wheel hub and spokes and the spokes extend through the rim and hold the parts together but this may be varied, as desired. For instance, in Figures 4, 5 and 6 the inside rim 10, the hub 19 and spokes 20 are made integral.

In any event the upper cloth 15 is stretched over the convex surface of the dished diaphragm 13 and not only protects and conceals the same, but also acts as a damper to muffle excessive vibrations and thereby improve the tone of the instrument.

The tube 18 contains the bent needle bar 17 which, beyond its bend, is supported by a ball and socket joint 21, a needle holder 22 and a needle 23 that is adapted to bear on a record 6. The needle bar 17 has a laterally extending portion 24 which should be placed crosswise of the record groove if the groove is a lateral cut groove, or one having irregular sides, or if the record has a groove of irregular depth, this part 24 is placed at right angles to this position, or in line with the record groove. In any event, the instrument may be used with any kind of a record and the vibrations of the needle 23 will be transmitted by the needle bar 17 to the diaphragm 13 with the result that the sounds recorded in the record 6 are faithfully reproduced by the instrument.

The lower cloth 14 is not essential but is desirable as it protects the instrument and conceals unsightly parts. The cloth parts 14 and 15 may be made of any suitable material, as silk, and the diaphragm 13 is preferably made of paper.

While I have shown and described two embodiments of my invention it is obvious that it is not restricted thereto but is broad enough to cover all structures that come within the scope of the annexed claim.

What I claim is:

In a device of the class described, the combination with a diaphragm, of a supporting ring having a transversely convex peripheral face and a second ring having its inner face transversely concave, the edge portion of the diaphragm being clamped between the convex face of the inner rim and the concave face of the outer rim.

GEORGE B. BURCH.