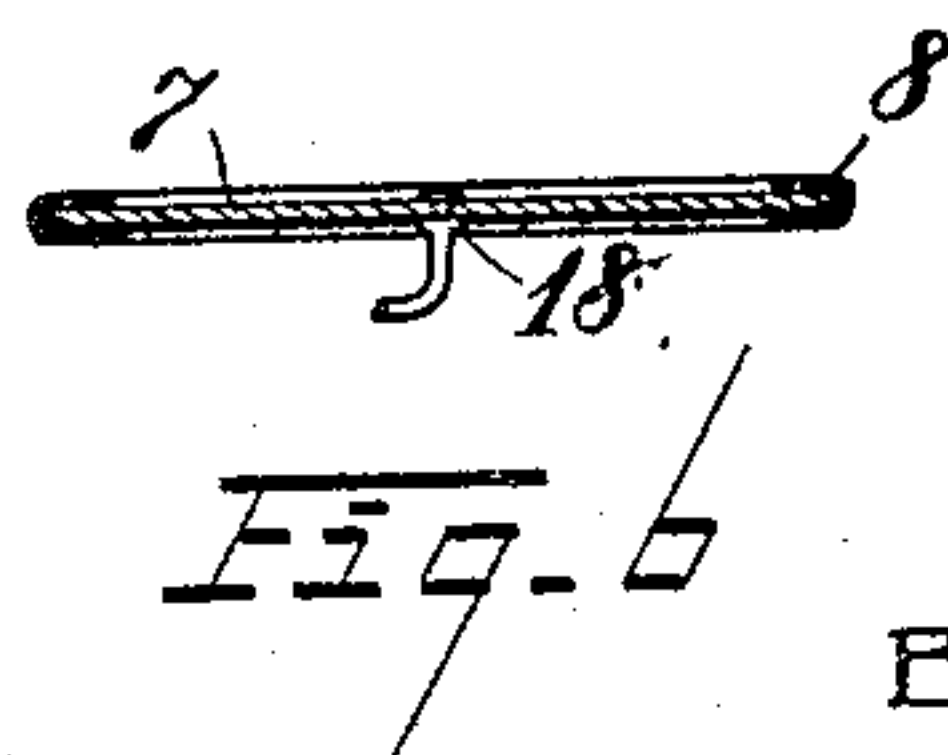
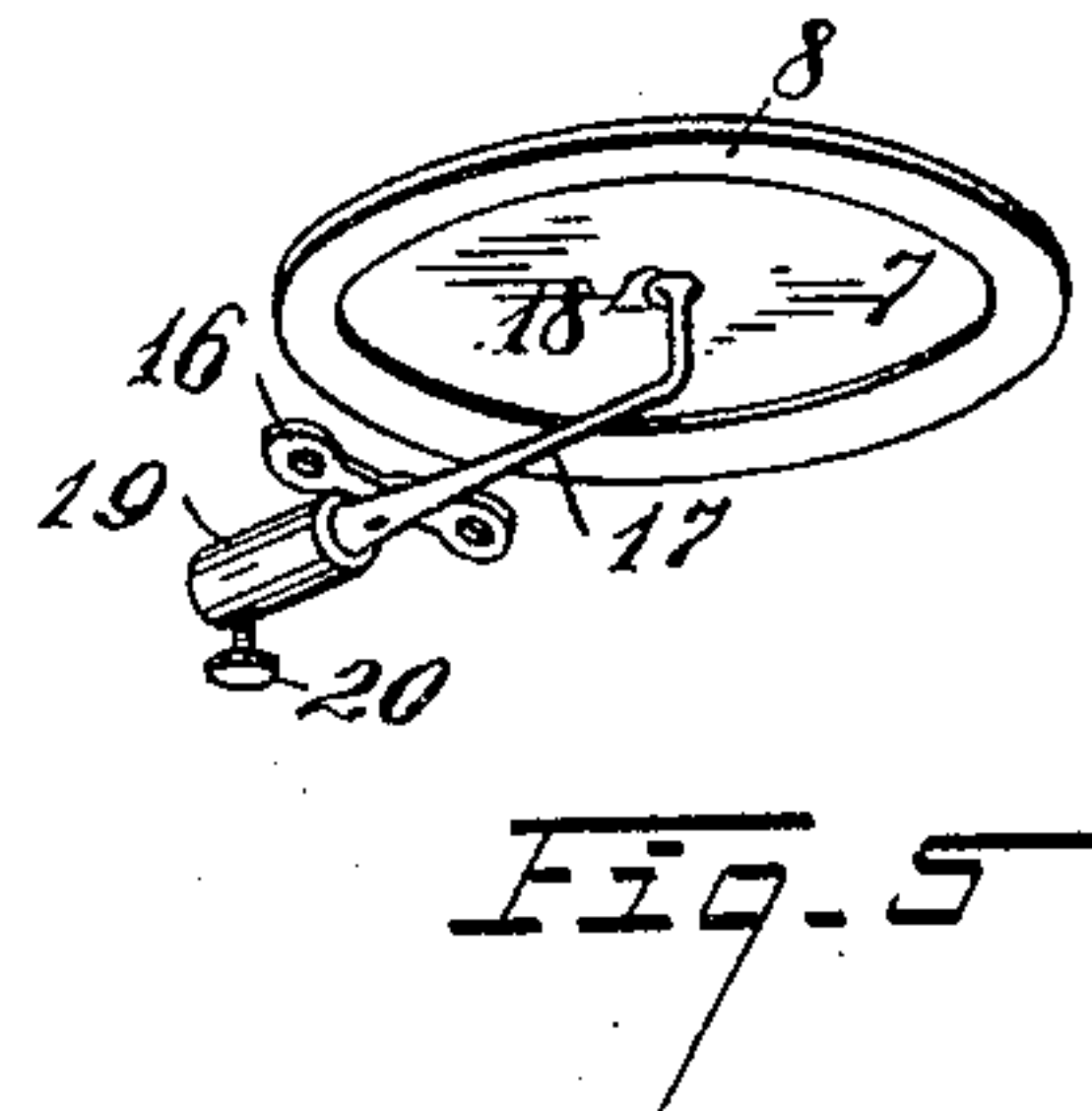
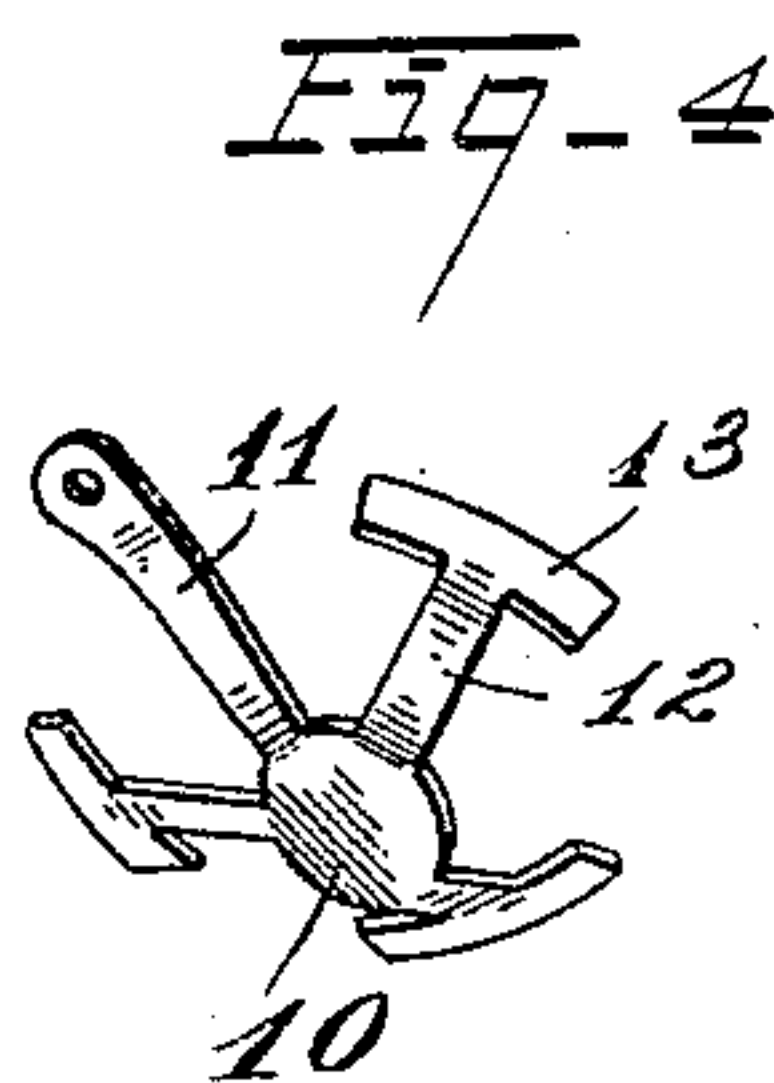
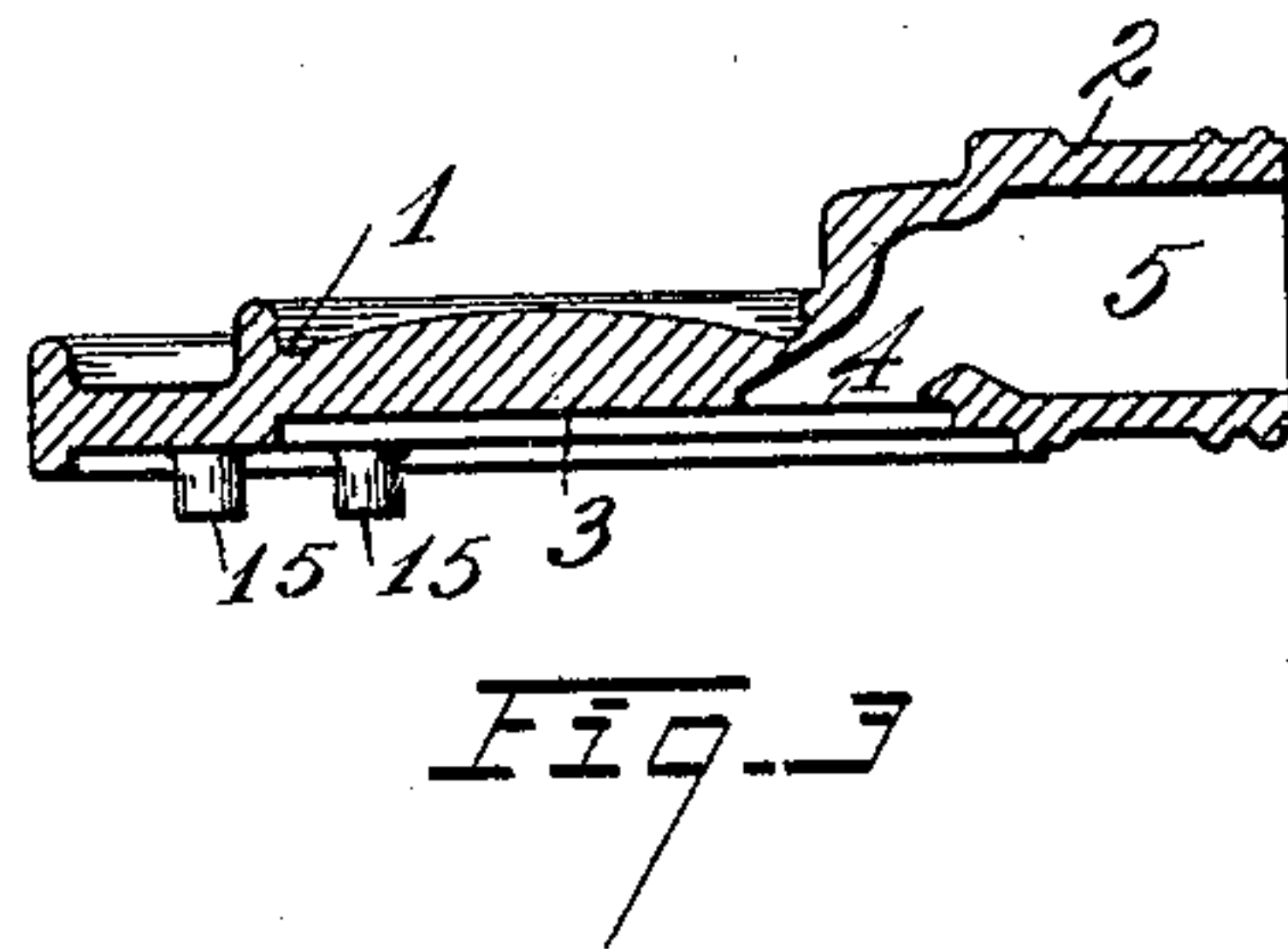
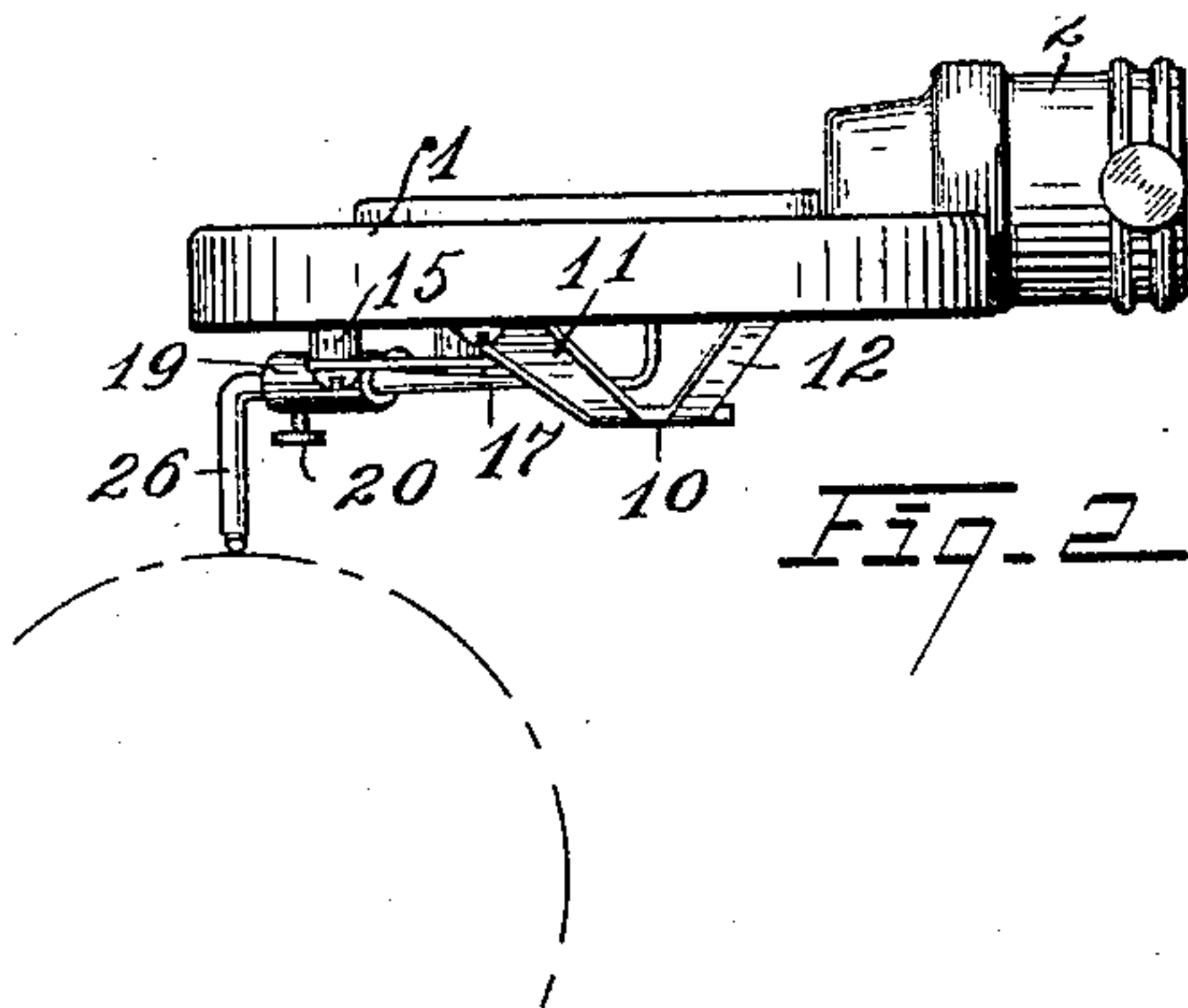
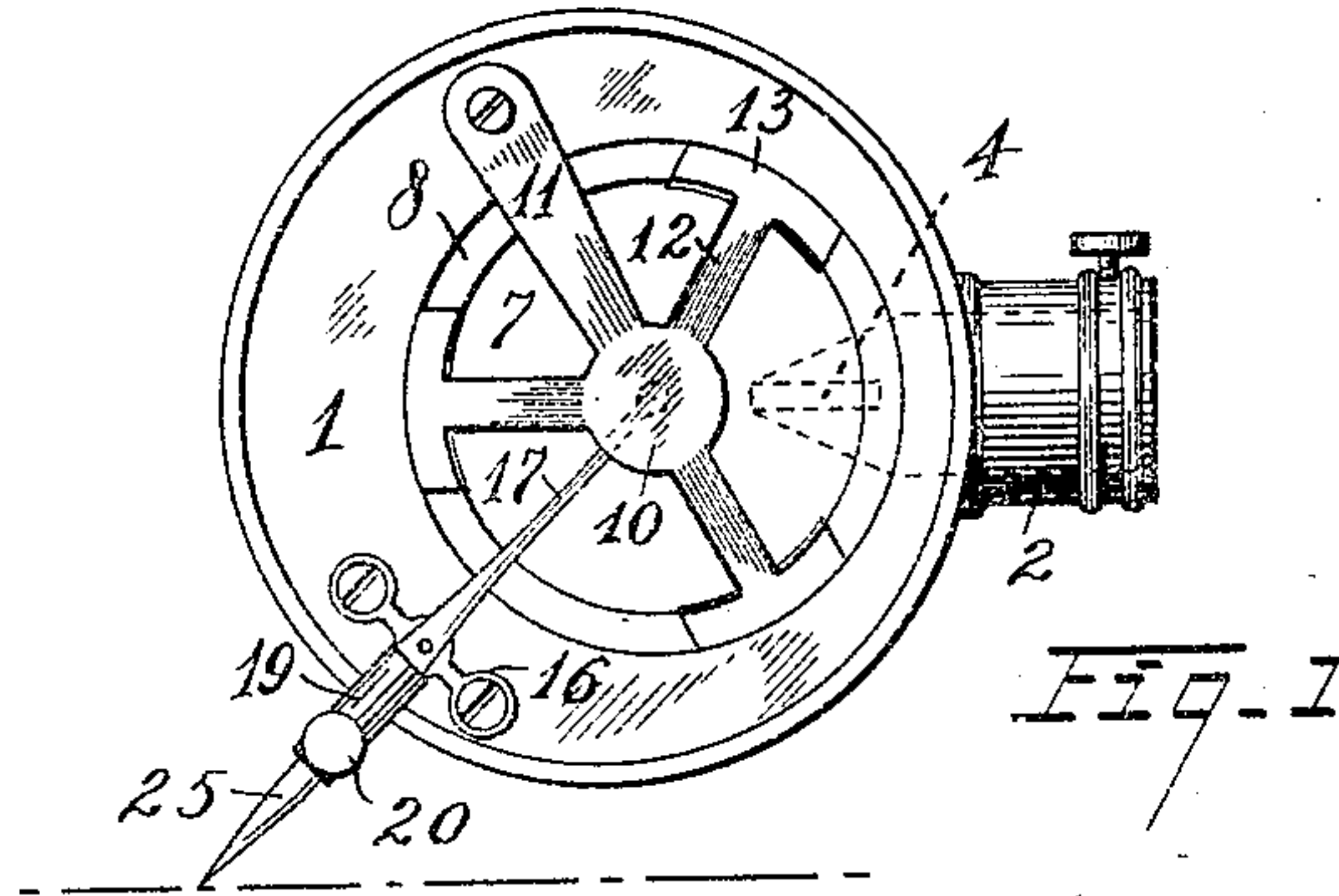


No. 856,038.

PATENTED JUNE 4, 1907.

L. DEVINEAU.
PHONOGRAPH REPRODUCER.
APPLICATION FILED JUNE 18, 1906.



WITNESSES:
Foreman & West.
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ATTYS.

UNITED STATES PATENT OFFICE.

LOUIS DEVINEAU, OF CLEVELAND, OHIO.

PHONOGRAPH-REPRODUCER.

No. 856,038.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed June 18, 1906. Serial No. 322,242.

To all whom it may concern:

Be it known that I, LOUIS DEVINEAU, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Phonograph-Reproducers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

One of the objects of this invention is to provide a very simple and cheap reproducer for phonographs, so arranged that the diaphragm may be easily put in place and is effectively held, but may be removed whenever desired.

Another object is to so construct the reproducer that it may be used either with the disk records or cylinder records, as desired merely by changing the needle.

The particular characteristics of the invention are hereinafter more fully described, and summarized in the claims.

In the drawing Figure 1 is a side elevation of my reproducer, in the position as used with a disk record. Fig. 2 is an edge view of the reproducer, the position being that used with a cylinder record. Fig. 3 is a section through the sound box. Fig. 4 is a perspective of the spider which holds the disk in place. Fig. 5 is a perspective of the disk with its vibrating member. Fig. 6 is a cross section through the disk, showing its connection with the vibrating member.

As shown in the drawing, 1 represents a casing which is preferably a casting partly round and having extended from it a neck 2. In the face of the casting is a circular recess 3 which is connected by the slot 4 with the bore 5 of the neck. The recess 3 is located eccentrically in the face of the casting as shown.

7 represents the diaphragm which may be of metal or other material as desired. Around the periphery of this diaphragm is placed a rubber band 8 the elasticity of which causes it to embrace the two sides of the diaphragm, as shown in Figs. 5 and 6. This diaphragm with its rubber band fits within the recess 3 and is held therein by the clamping member in the form of the sheet metal spider 10, as shown. This spider has an arm 11 extended beyond the diaphragm and this arm of the spider is secured to the casing by a screw. The spider has three other arms 12 extending outward from the central head and diagonally toward the diaphragm. These arms

carry arc-shaped heads 13 which are adapted to rest on the rubber ring 8 and hold the diaphragm in place, the arms being under tension. This method of holding the diaphragm allows it to vibrate easily; at the same time it is easily removable for cleaning or to replace the rubber ring.

Formed on the face of the casting 1 are a pair of lugs 15 to which is fastened by screws the cross arm 16 on the rod 17 which carries the reproducer needle. At its inner end, this rod is bent at right angles and secured to the center of the diaphragm, as shown at 18. Near the outer end the rod carries a sleeve 19 in which the reproducer needle is mounted the same being clamped by the set screw 20.

To remove the diaphragm it is only necessary to take out the screw which holds the arm 11 and the two screws which hold the cross bar 16.

When my sound box is used with a disk record it is placed with the vibration bar 17 at an angle at approximately 45 degrees and the reproducing needle 25 is a direct continuation of the bar. It is to be understood that the angle varies with circumstances. If it is desired to cause a louder reproduction the angle of the disk is increased; on the other hand where a low but smooth reproduction is most desired the angle is decreased. When my reproducer is used with a cylinder phonograph, the sound box occupies a substantially horizontal position, and the needle 26 is substantially at right angles with the vibration bar, as shown in Fig. 2.

The space on the inner side of the diaphragm within the rubber ring provides an air chamber which allows the whole diaphragm to act on the air producing more satisfactory sound waves than where only the central portion of the diaphragm is effective. The exit opening 4 is in the form of a narrow radial slot leading from this air chamber into the tubular bore 5. I have found that such slot assists in giving clearer reproductions.

I claim:—

1. In a phonographic reproducer, the combination of a casing, a diaphragm, a retaining member secured to the casing and having spring arms holding the diaphragm in position, and a vibration member cooperating with said diaphragm.

2. The combination of the casing having a recess, providing a seat for the diaphragm; a diaphragm occupying said recess, a spring retaining member secured to said casing and

having arms bearing against the diaphragm opposite said seat to hold the diaphragm in its recess.

3. The combination of the casing having a recess, a diaphragm occupying the said recess, a member secured to said casing and having spring arms bearing against the diaphragm near its periphery to hold it in its recess, and a vibration bar mounted on the casing and cooperating with the diaphragm.

4. The combination of a casing having a recess, a diaphragm, a rubber band around the same, the diaphragm and band seating in the recess, and a clamping member secured to the casing and having spring arms bearing on the rubber on the outer face of the diaphragm near its periphery to hold it in its place.

5. The combination of a casing, a diaphragm, a retaining spider secured to the casing and having spring arms bearing against the diaphragm to hold it in place, and a vibration member cooperating with said diaphragm.

6. The combination of a casing, a diaphragm, a sheet metal spider having spring arms with arc-shaped heads adapted to bear against the diaphragm, and a longer arm, and means for removably securing such long arm to the casing.

7. The combination of a casing having a recess, a diaphragm, a rubber ring surrounding the periphery of the diaphragm and extending onto opposite sides of the diaphragm, said diaphragm and ring occupying said recess, and the spider secured to the casing and having arms bearing against the rubber on the outer side of the diaphragm.

8. The combination of the casing, a diaphragm, an elastic ring surrounding the periphery of the diaphragm and extending onto opposite sides of the diaphragm, a spider

secured to the casing and having arms bearing against the rubber on the outer side of the diaphragm, and a vibration bar supported by the casing and secured at the inner end of the diaphragm and carrying at its outer end a sleeve, and a reproducing needle occupying such sleeve.

9. The combination of a casing, a diaphragm, a vibration bar, mounted on the casing and secured to the diaphragm, and a spider mounted on the casing for holding the diaphragm, said spider comprising a central head and arms leading outward therefrom diagonally toward the diaphragm and adapted to bear against the outer side of the diaphragm, and a longer arm extending from said head onto the casing and furnishing means whereby the spider is held to the casing.

10. The combination of a casing, a diaphragm, an elastic band surrounding the edge of the diaphragm and extending onto each side thereof near the periphery, a clamping member having spring arms bearing against said band on the outer face of the diaphragm, and a vibration member cooperating with the diaphragm.

11. In a phonographic reproducer, the combination of a casing, a diaphragm, a retaining member secured to the casing and having spring arms bearing against the diaphragm, a vibration bar mounted on the casing and cooperating with the diaphragm and having a sleeve at its free end, and means for clamping in said sleeve either a straight or bent needle.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.
LOUIS DEVINEAU.

Witnesses:

ALBERT H. BATES,
BRENNAN B. WEST.