

P. DE BEAUX.
SOUND REPRODUCING BOX FOR DISK TALKING MACHINES.
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916,976.

Patented Apr. 6, 1909.

Fig.1.

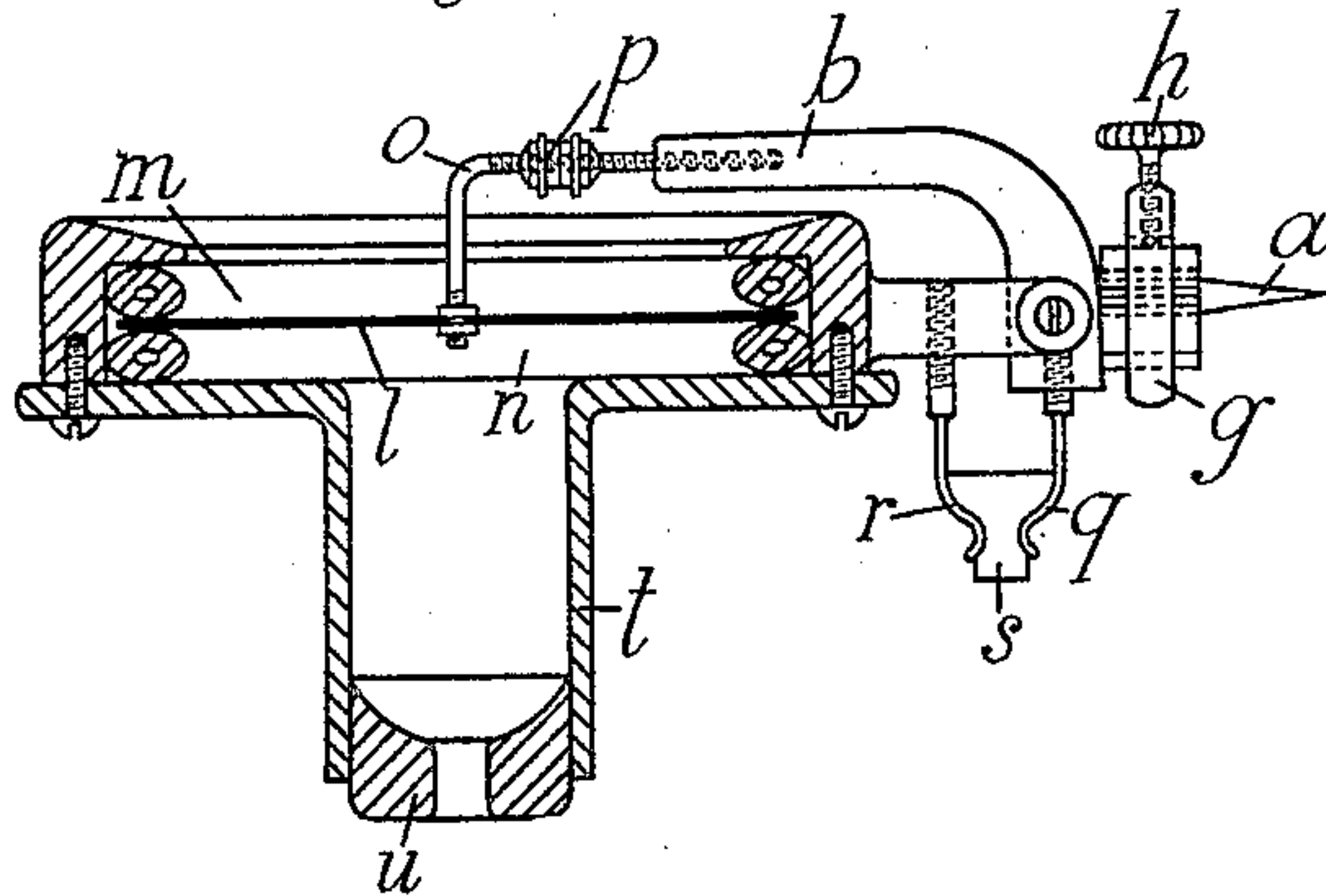


Fig.3.

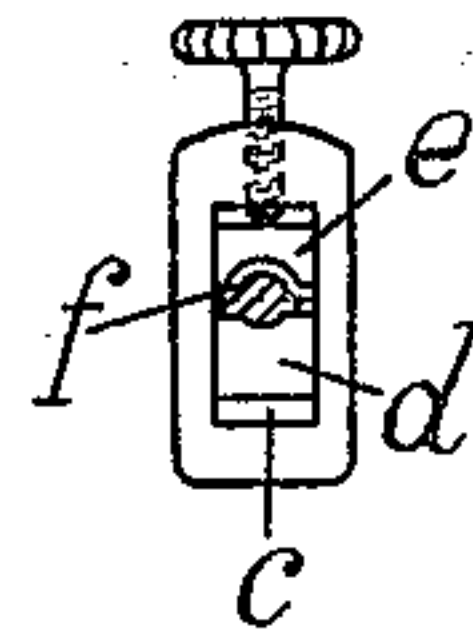


Fig.2.

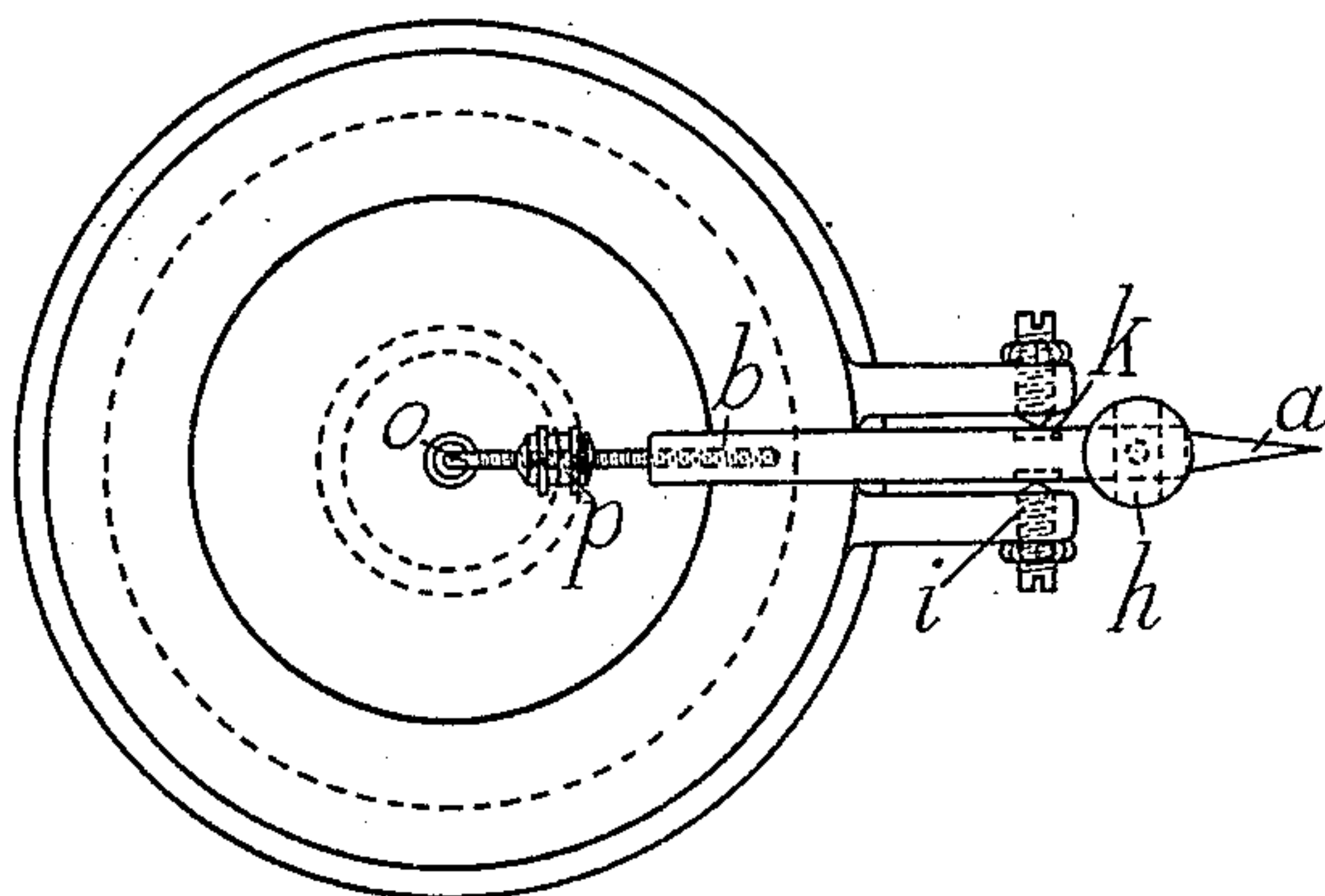


Fig.4.

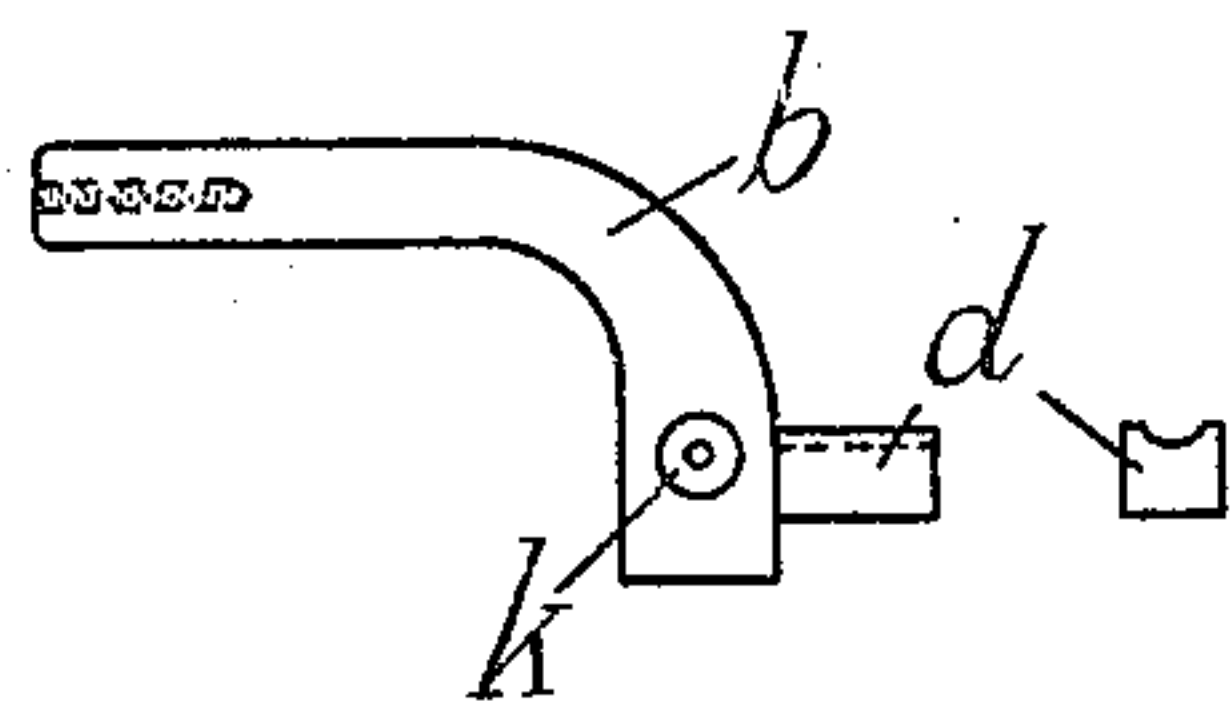
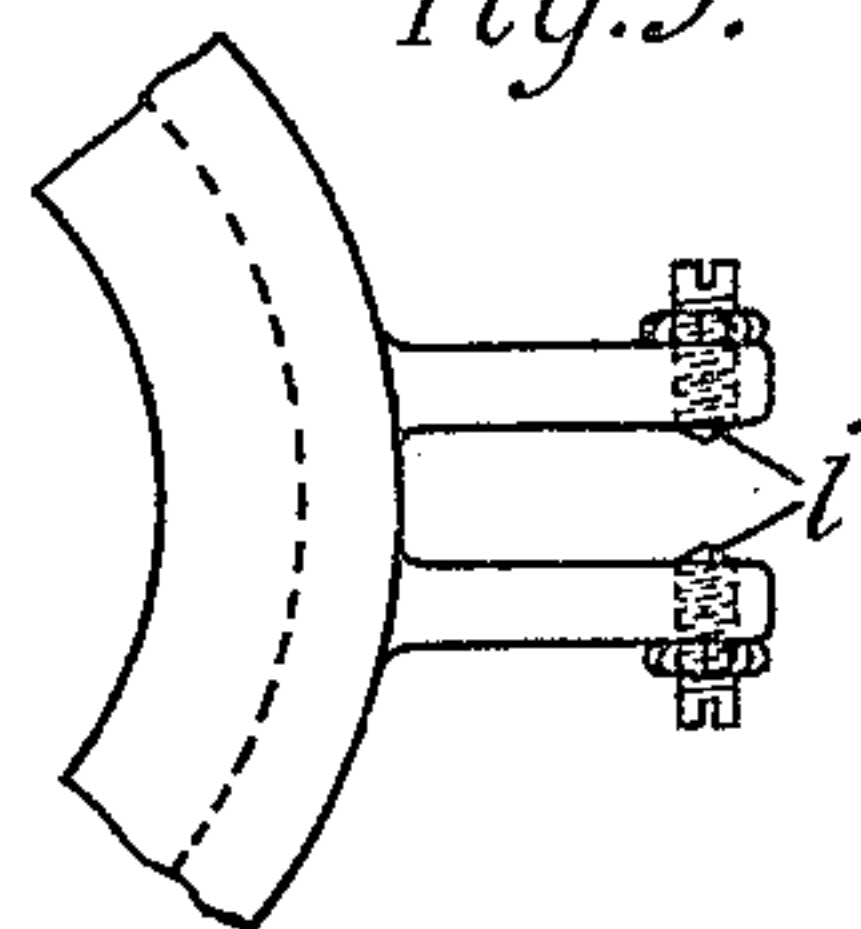


Fig.5.



Witnesses:
Southard T. Clark
Thaddeus F. Fricke

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per *W. H. Hopper*
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UNITED STATES PATENT OFFICE.

PAUL DE BEAUX, OF LEIPZIG, GERMANY.

SOUND-REPRODUCING BOX FOR DISK TALKING-MACHINES.

No. 916,976.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed June 12, 1907. Serial No. 378,583.

To all whom it may concern:

Be it known that I, PAUL DE BEAUX, watchmaker, a subject of the King of Saxony, and residing at No. 8 Markgrafenstrasse, Leipzig, in the Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in Sound-Reproducing Boxes for Disk Talking-Machines, of which the following is a specification.

The object of this invention is to do away with the secondary sounds to be found even in talking-machines of very perfect make. These sounds are due to the parts neighboring to the sound-plate, *i. e.* to the vibrations of these parts and my invention therefore consists in improvements in the construction, shape, and material of the said parts.

In the accompanying drawing, Figure 1 is a vertical section through my improved sound-reproducing box, Fig. 2 is a plan of the same, Fig. 3 shows the means for fastening the stylus *a* to the lever *b*, Fig. 4 is a separate view of the lever *b* and some neighboring parts, and Fig. 5 is a plan of the bearing for said lever.

The stylus *a* is carried by an arm which is composed of two portions *b* and *o*. The portion *b* consists of aluminium and has a projection *d* adapted to receive the stylus *a*; the latter is secured in position by means of an oblong ring *g* having a hand-screw *h* intermediate piece *e* located between this screw and the stylus, and another intermediate piece *c* located between the projection *d* and the ring *g* and consisting of brass. The parts *d* and *e* have each a groove for the reception of the stylus, but the groove of the part *e* is covered with a comparatively thick layer of tin. Owing to the coefficients of vibration of these different materials being also different, the transmission of the secondary sounds from the stylus to the sound-reproducing plate is weakened or impeded so very thoroughly that the ear is unable to detect any such sound. The portion *b* of the stylus-carrying arm is supported by and between steel screws *i i* the pointed ends of which take into very fine cavities provided in small steel plates *k k* attached to said portion. The diaphragm *l* consists also of aluminium and is held between rings *m n* of india-rubber, felt, or the like. The diaphragm is connected with the portion *o* of the stylus-carrying arm consisting of a bent wire of hardened steel. One part of this wire is screw-threaded and fur-

nished with an adjustable nut *p* for the purpose of making the wire connection "*o*" more or less rigid in accordance with the position of such nut thus preventing the wire *o* to vibrate in its entirety and in full force and to produce disturbing metallic sounds and noises.

To damp, weaken, or suppress the noxious effect of, the pushes, shocks, or jerks transmitted from the stylus, the portion *b* has a spring *q* holding, together with a similar spring *r* fixed to the bearing of said portion, a piece *s* of india-rubber, felt, cork, or the like. This means is at the same time of very favorable effect for the pureness of the sounds reproduced. The vibrations of the diaphragm are furthermore not in the least disturbed by ever so great a speed of reception or reproduction, because aluminium is chosen as material for this diaphragm and this material has just the proper degree of elasticity. Finally the sounds produced or reproduced are first compelled to pass into and through a tube-like chamber *t* forming an extension of the casing of the sound-box. This chamber has a mouth-piece *u* consisting of wood, ebonite, or another material of low vibratory capacity, so that also by this means the sound-box is prevented from producing sounds of its own. Therefore, all those parts cannot be allowed to produce sound of their own, *i. e.* disturbing sounds, and they are prevented from so doing by the choice of different materials having also different shapes, these materials being moreover such as are unable to produce sounds of a disturbing strength; finally, the secondary sounds still arising are effectively damped by the damping materials provided particularly for this purpose.

Having now described my invention, what I desire to secure, by a patent of the United States, is:

1. In a sound reproducing box for disk-talking machines, a box casing, a diaphragm and its bearing parts in combination with a stylus-carrying arm connected with the diaphragm and composed of several portions of different materials and having different coefficients of vibration, of a stylus held in place upon said arm by an adjustable side-piece having a layer of tin and forced upon said stylus by a hand-screw for the purpose set forth.

2. In a sound reproducing box for disk-talking machines, a box casing, a diaphragm

and its bearing parts in combination with a stylus-carrying arm composed of a steel-wire portion connected with the diaphragm and an aluminium-portion which are secured together, of a stylus held in place upon said aluminium-portion by an adjustable side-piece having a layer of tin and forced upon said stylus by a hand-screw for the purpose set forth.

10 3. In a sound reproducing box for disk-talking machines, a box casing, a diaphragm and its bearing parts in combination with a stylus-carrying arm composed of a steel-wire portion connected with the diaphragm and

15 an aluminium-portion which are secured together, of a stylus held in place upon said aluminium-portion by an adjustable side-piece having a layer of tin and forced upon said stylus by a hand-screw; an oblong ring

receiving the hand-screw and said adjustable side-piece and mounted upon a projection of said arm; an intermediate piece of brass inserted between said projection and said ring, for the purpose set forth. 20

4. In a sound reproducing box for disk-talking machines, a box casing, a diaphragm and its bearing parts, in combination with a stylus-carrying arm composed of a screw-threaded wire portion (*o*) and of a more solid part (*b*) secured together, of an adjustable 25 nut (*p*) placed upon said wire-portion for the purpose set forth. 30

In witness whereof I have hereunto set my hand in presence of two witnesses.

PAUL DE BEAUX.

Witnesses:

SOUTHARD P. WARNER,
RUDOLPH FRICKE.