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C. STILLE

1,522,657

MAGNETIC SOUND BOX FOR PHONOGRAPHS AND THE LIKE

Filed June 3, 1922

Fig. 1.

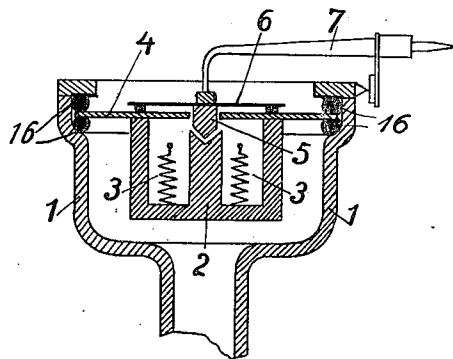


Fig. 2.

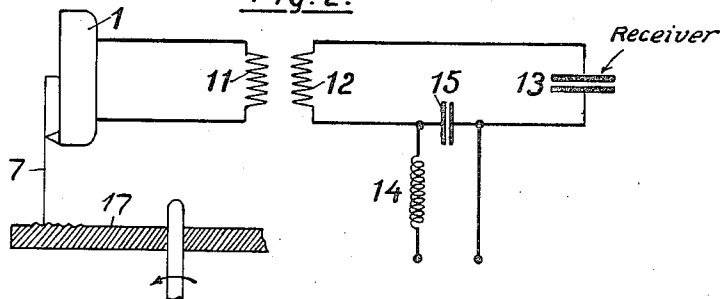
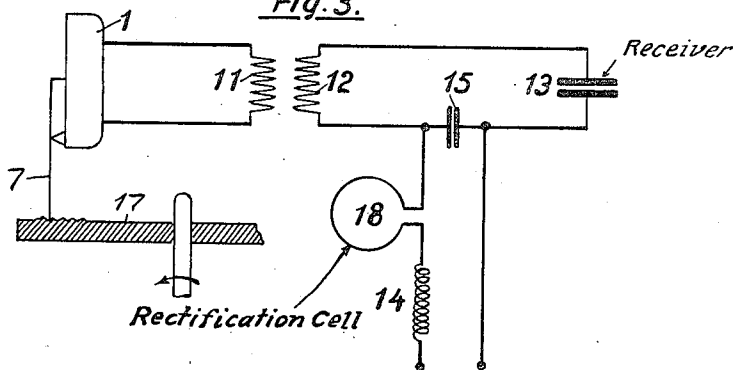


Fig. 3.



Inventor:

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UNITED STATES PATENT OFFICE.

CURT STILLE, OF BERLIN-ZEHLENDORF, GERMANY, ASSIGNOR TO TELEGRAPHIE-GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG SYSTEM STILLE, OF BERLIN, GERMANY.

MAGNETIC SOUND BOX FOR PHONOGRAPHS AND THE LIKE.

Application filed June 3, 1922. Serial No. 565,766.

To all whom it may concern:

Be it known that I, CURT STILLE, a citizen of the German Republic, residing at Berlin-Zehlendorf, Germany, have invented certain Improvements in Magnetic Sound Boxes for Phonographs and the like, of which the following is a specification.

The present invention relates to a sound-box for phonographs and the like and of the kind in which the sound vibrations are transmitted by electro-magnetic means as in a telephone transmitter, and consists in the provision of a disc supported at the mouth of the sound-box and supporting a box magnet as well as a diaphragm which is connected to the stylus bar and which carries an armature, the disc, which, together with the armature completes the magnetic circuit of the magnet, being larger than the latter and the diaphragm.

By this arrangement, the small diaphragm will have a high natural frequency, and the magnet will have a great capacity in converting the diaphragm vibrations into electrical energy, with the result that a greatly amplified and pure sound will be obtained.

In the accompanying drawings,

Fig. 1 represents a sectional view of the improved sound-box, and

Fig. 2, a diagram of the electric circuits for the use with direct currents.

Fig. 3 is a similar diagram of the arrangement for use with alternating current.

Supported between two rubber rings 16 at the mouth of a sound-box casing 1, is a disc 4 made of highly permeable material such as iron or the like, which carries, inside the sound-box, a box magnet 2 of smaller diameter than the disc. The magnet has a central and a circumferential pole and is connected to the disc by means of the latter. On the outside of the disc is mounted a small mica diaphragm 6, which is connected to the stylus bar 7 and which carries at the inside and opposite the bar connection, an armature 5, the latter being held, with sufficient free play, in an aperture in the disc 4 and close to the central pole of the magnet. Together with the armature 5, the disc 4 completes the mag-

netic circuit of the magnet. The magnet has a coil 3 associated therewith. The rubber rings 16 insulate the disc electrically and prevent a transmission of extraneous vibrations.

The stylus bar 7 is placed on the record 17 in the usual manner and transmits the vibrations picked up from the latter to the diaphragm 6. By the vibrations of the diaphragm and of the armature 5, the number of magnetic lines in the field will be subjected to alterations, and equivalent induction currents will be set up in the coil 3. The primary coil 11 of a transformer is included in the electric circuit of the coil 3, and the secondary coil 12 of the transformer is in circuit with the receiver 13 of a condenser telephone. The latter reproduces the original sound without distortion and without extraneous noises.

When direct current is employed in the condenser telephone, an inductance coil 14 and a capacity 15 are arranged in the secondary circuit to produce syntony or tuning.

If an alternating current is used in the condenser telephone, a rectification of the current is effected by means of a rectification cell 18, as shown in Fig. 3.

The box magnet may in addition be provided with a field winding for separate excitation.

I claim:—

1. A magnetic sound-box for phonographs, and the like, comprising a casing, a member made of permeable material and located in said casing, magnetic means having an inner part and a peripheral part and adapted to be supported from said permeable member by the attraction produced by the force of magnetic induction, a resilient diaphragm adjacent said member, an armature made of permeable material and projecting through an opening in said permeable member and having its end located adjacent said inner part, and a movable bar connected to said diaphragm.

2. A magnetic sound-box for phonographs and the like, comprising a casing, a member made of permeable material and located in said casing, magnetic means having an inner part and a peripheral part and adapted to be supported from said perme-

able member by the attraction produced by the force of magnetic induction, a resilient diaphragm adjacent said member, said permeable member being of greater diameter than said diaphragm and said magnetic means, an armature made of permeable material and projecting through an opening in said permeable member and having its end located adjacent said inner part, and a movable bar connected to said diaphragm. 10

DOKTOR CURT STILLE.

Witnesses:

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R. Y. ALLSPACE.