

954,931.

J. J. COMER.
RECEIVER FOR SOUND TRANSMITTING INSTRUMENTS.
APPLICATION FILED MAR. 4, 1907.

Patented Apr. 12, 1910.

Fig. 1.

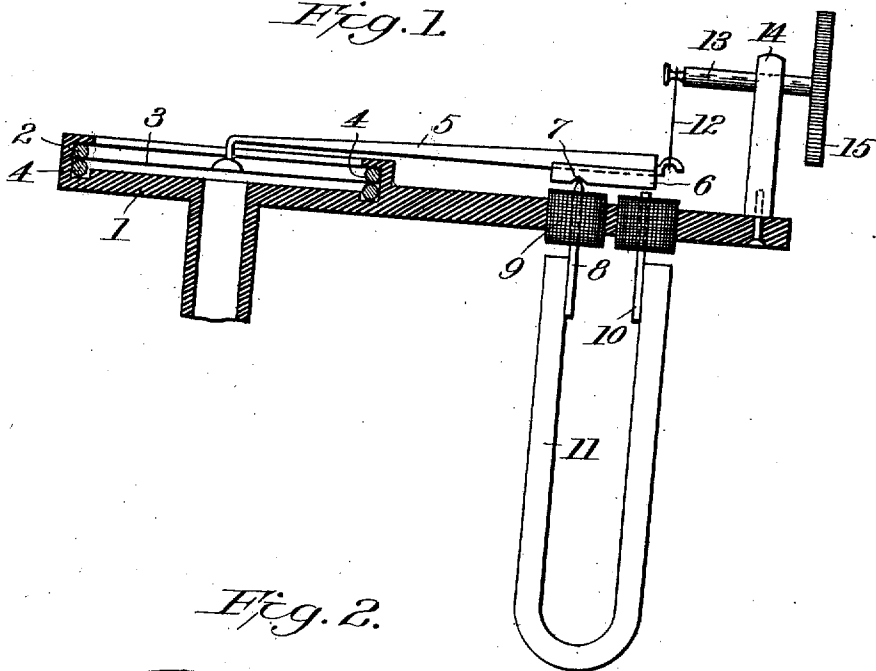
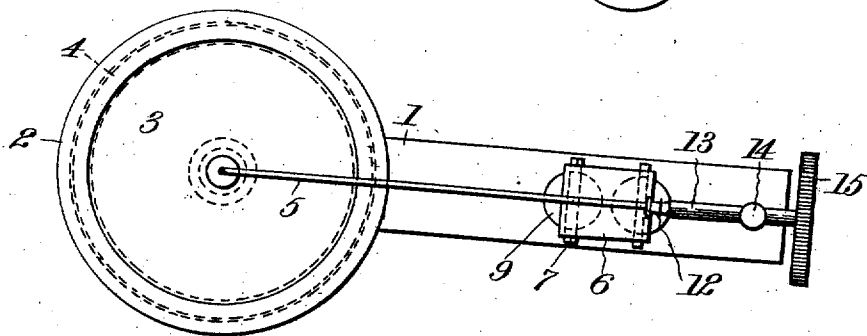


Fig. 2.



Witnesses

C. M. Walker.
George T. Bean.

Inventor

John J. Comer,

By *W. E. Anderson*

Attorney

UNITED STATES PATENT OFFICE.

JOHN J. COMER, OF SANTA MONICA, CALIFORNIA, ASSIGNOR TO GEORGE R. WEBB, OF BALTIMORE, MARYLAND.

RECEIVER FOR SOUND-TRANSMITTING INSTRUMENTS.

954,931.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed March 4, 1907. Serial No. 360,479.

To all whom it may concern:

Be it known that I, JOHN J. COMER, a citizen of the United States, residing at Santa Monica, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Receivers for Sound-Transmitting Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

My invention relates to receivers for sound transmitting instruments, and is designed more particularly for the receiver of an instrument for reproducing or transmitting musical vibrations, although it may be used for other purposes.

It has for its object to produce sounds of greater volume and of purer and truer tone than heretofore, and the invention consists in the features hereinafter described and then sought to be clearly defined by the claims, reference being had to the accompanying drawing which shows one form or embodiment of the invention, and in which—

Figure 1 is a side elevation, partly in section, of the receiver, and Fig. 2 a plan view thereof.

In the drawing, the numeral 1 represents a base carrying a ring 2 within which is a diaphragm 3, preferably of mica, and having rubber or cushioning rings 4 near its periphery on opposite faces thereof.

The numeral 5 designates a thin steel lever having one end suitably attached by wax, or otherwise, to the diaphragm 3, and the other end secured to an armature 6 which at one point rests upon a knife-edge bearing 7 formed on one core 8 of an electromagnet 9 which is supported by its cores 8 and 10 from a permanent magnet 11 which in the form illustrated is a horse-shoe magnet. The rear end of the lever 5 is connected by a yielding non-metallic suspension means 12 to a spindle 13 mounted in this instance in a post 14 which may be split so as to frictionally hold the spindle at any point in its rotation which may be effected by a thumb nut 15. The purpose of this suspension is to normally hold the armature away from one pole piece of the magnet, and to relieve the

diaphragm from strain while in its normal position. By having the armature rest upon one of the pole pieces only one air space between the armature and the pole of the magnet is formed and by the knife-edge bearing on the other pole-piece a better magnetic circuit is obtained, and the vibrations through the lever to the diaphragm are rendered more sensitive so that greater volume, and a purer and truer tone are obtained. The adjustment of the armature with relation to the pole of the magnet to the slightest degree desired is also made possible by the adjustable suspension means employed.

I have illustrated the invention in substantially the form in which it has been used up to the present time but without meaning to restrict the invention to such form.

Having described my invention and set forth its merits, what I claim is:—

1. A receiver comprising a diaphragm and means for amplifying the received vibrations, said means comprising a lever having one end connected with the diaphragm to move it back and forth and supported to relieve the diaphragm of its weight in the normal position of the lever and amplify the received vibrations by amplifying the movement of the diaphragm, electrically actuated means for actuating said lever, and means to relieve the diaphragm of magnetic strain transmitted through said lever when in normal position, substantially as described.

2. A receiver comprising a diaphragm, a lever connected at one end to the diaphragm to move it back and forth and supported upon a knife-edge fulcrum so as to relieve the diaphragm of the weight of the lever in its normal position and amplify the movement of the diaphragm to amplify the received vibrations, an electro-magnet for actuating said lever, and means for relieving the diaphragm of magnetic strain transmitted through the lever when in normal position, substantially as described.

3. A receiver comprising a diaphragm, an electro-magnet, an armature having a bearing on one pole of the magnet and carrying a lever one end of which is connected with said diaphragm to move it both back and forth, substantially as described.

4. A receiver comprising a diaphragm, an electro-magnet, an armature supported upon the magnet to leave a single air space be-

tween the armature and core of the magnet, and a lever carried by the armature and connected with the diaphragm to move it both back and forth, substantially as described.

5 5. A receiver comprising a diaphragm, a magnet, a fulcrumed armature carrying a lever connected with the diaphragm to move it both back and forth, and means for suspending the armature to relieve the diaphragm of the magnetic strain transmitted through the lever when in normal position, substantially as described.

10 6. A receiver comprising a diaphragm, a magnet, a fulcrumed armature carrying a lever connected with the diaphragm to move it both back and forth, and means for adjusting the armature with relation to the magnet, substantially as described.

20 7. A receiver comprising a diaphragm, a magnet, a fulcrumed armature carrying a lever connected with the diaphragm to move it both back and forth, a yielding suspension for the armature, and means for adjusting the armature with relation to the magnet through said yielding suspension, substantially as described.

30 8. In a telephone instrument, a receiving electro-magnet having permanently magnetized cores; an armature in the magnetic field thereof and lying in contact with one

pole thereof, but out of contact with the other pole; an extended portion projecting from said armature out of the magnetic field of said electro-magnet; and a diaphragm parallel to and rigidly connected to said extended portion.

9. In a telephone instrument, the combination with a receiving electro-magnet; of an armature in contact with one polar extremity of said electromagnet, and extending past the other polar extremity thereof, being separated therefrom by a small air gap; and a diaphragm parallel to and rigidly connected with said armature, substantially as described.

10. In a telephone instrument, the combination with an electro-magnet, of an armature in contact with the core of one coil thereof and extending past, but not in contact with, the core of the other coil, said armature having a substantially rigid extended portion beyond the field of the electro-magnet, and a diaphragm parallel to said extended portion and rigidly connected at the center therewith.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN J. COMER.

Witnesses:

JOSEPH A. COMER,
FRED JABEZ COMER.