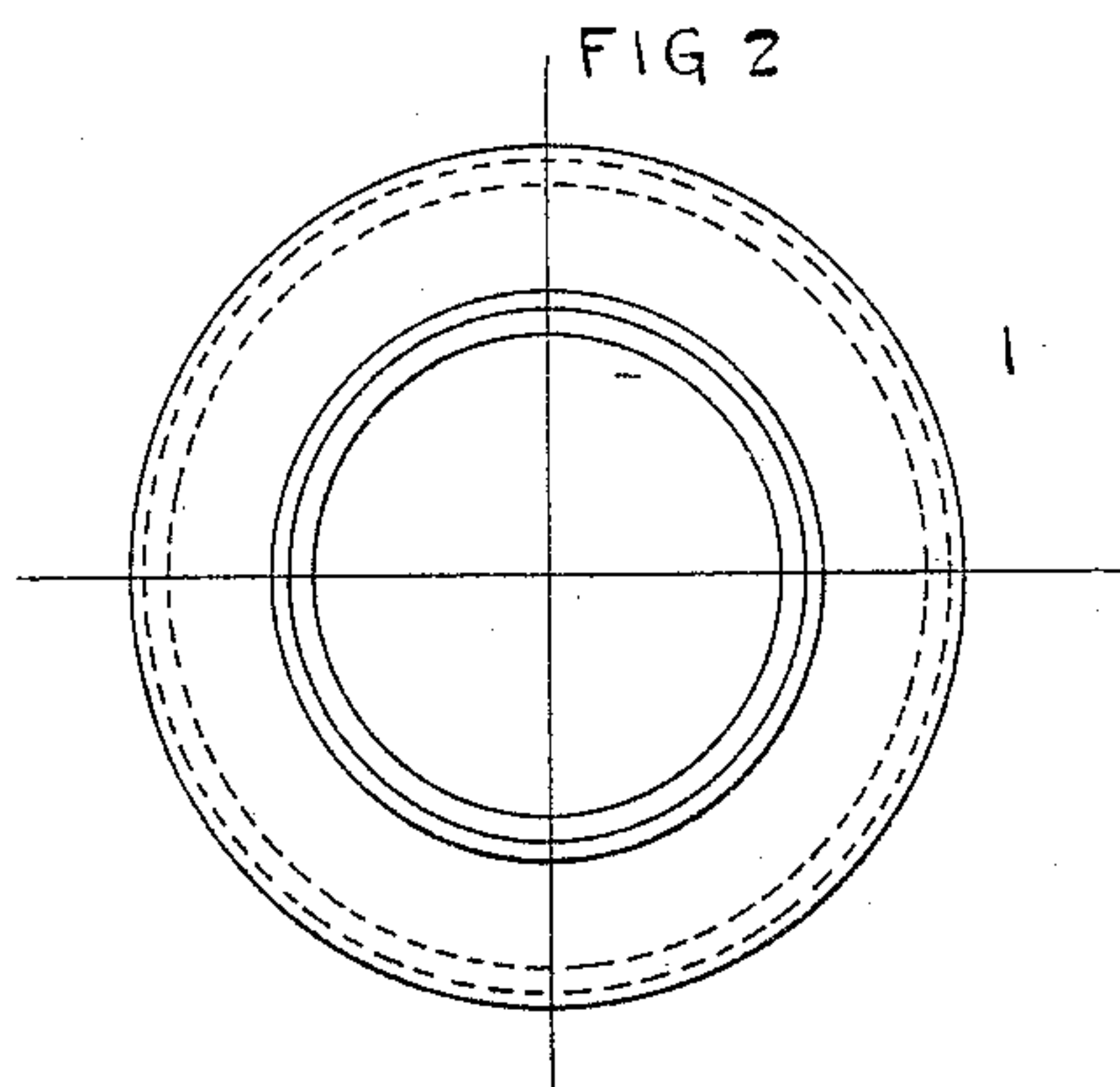
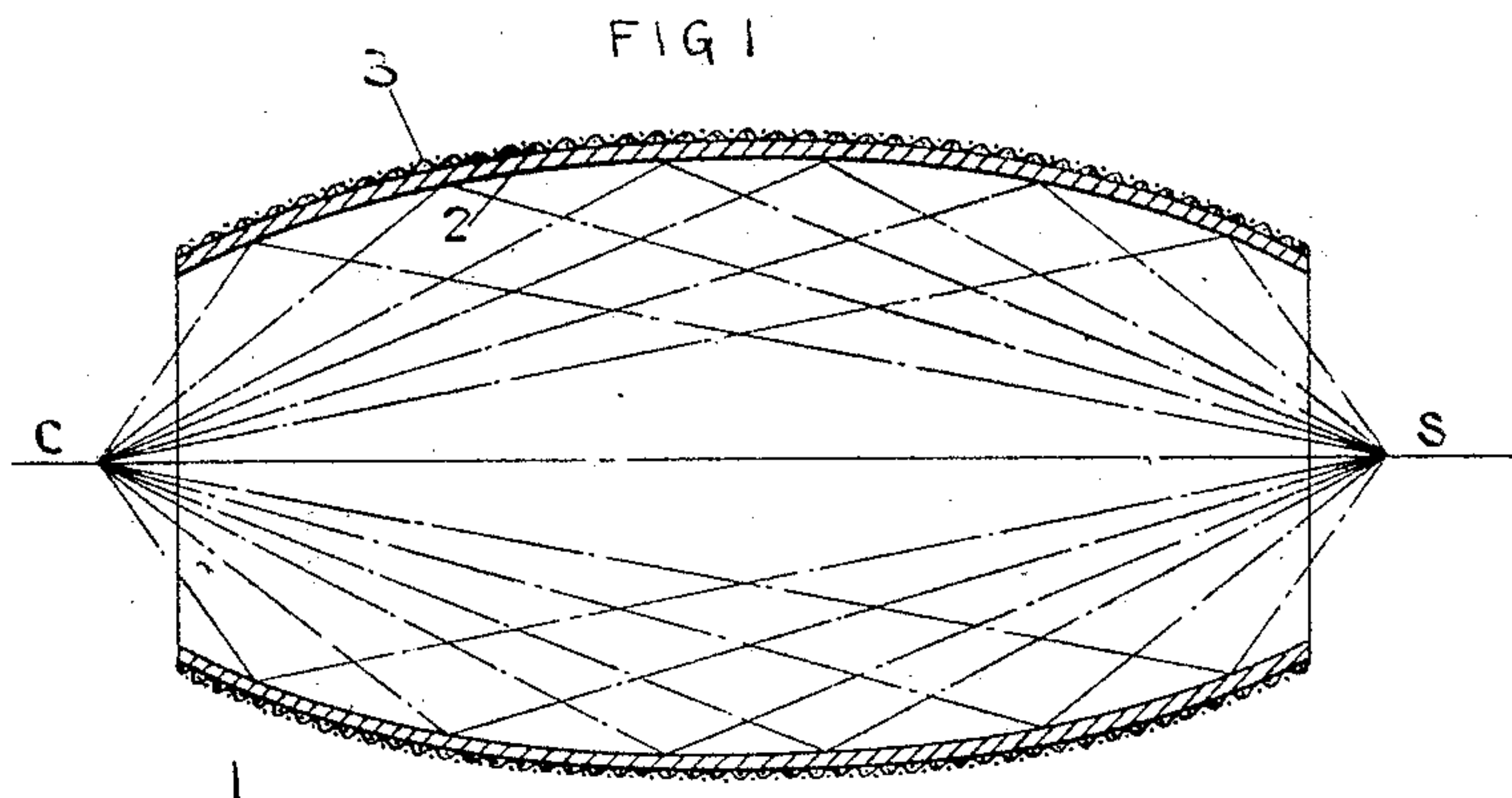


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TRANSMITTER FOR SOUND RECORDING AND REPRODUCING MACHINES.
APPLICATION FILED MAR. 18, 1909.

965,326.

Patented July 26, 1910.



ATTEST
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TRANSMITTER FOR SOUND RECORDING AND REPRODUCING MACHINES.

965,326.

Specification of Letters Patent.

Patented July 26, 1910.

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To all whom it may concern:

Be it known that I, SYDNEY I. PRESCOTT, a citizen of the United States, residing at Camden, county of Camden, in the State of New Jersey, have invented a new and useful Transmitter for Sound Recording and Reproducing Machines, of which the following is a specification.

This invention relates to a transmitter for sound recording and reproducing machines.

Heretofore, hollow sound conductors have been used which varied widely in form. Certain types of these conductors were tubular and of even diameter. In certain other types the diameter of the tube varied. In the latter type, one end of the conductor was larger than the other, so that sound, in passing therethrough from the smaller end toward the larger, would be amplified. In both types the sound-wave in passing through the tube is deformed, the deformation depending upon the material of which the tube is constructed, its shape, and upon the fact that the sound-waves are deflected from the walls of the conductor and forced to meet on the axial line of the same, thereby producing crashes of sound. Furthermore, sound conductors heretofore used, the wall of which was formed of vibratory material, produced a secondary set of sound-waves in the air surrounding the conductor. These secondary sound-waves were never the same as the sound-waves passing through the conductor, for the reason that the frequency of vibration of the conductor wall was not the same as the frequency of the air vibration within the conductor, and that in consequence the frequency of the secondary sound-waves was the resultant of the combined forces and unlike either. The presence of secondary sound-waves is objectionable for they detract from the purity of the initial sound.

Where it is necessary to conduct a sound-wave from one point to another, it is desirable that the wave at the delivery point be not deformed. Furthermore, in certain instances where sound recording and reproducing machines are used, it is highly desirable to concentrate the sound at a predetermined point without deformation of the wave.

It is one of the objects of this invention, therefore, to provide a hollow conductor for sound recording and reproducing ma-

chines, the purpose of which is to concentrate the sound-waves passing therethrough at a predetermined point.

A further object is to provide means for producing concentration at a predetermined point of sound-waves passing through a conductor in their initial purity.

A further object is to provide a sound conductor backed by sound-absorbing material so that no secondary sound-waves are produced in the air surrounding the conductor.

Still another object is to provide means for conducting sound-waves from one point to another without producing sound crashes which detract from the purity of the sound.

With these and other objects not specifically mentioned, in view, the invention consists in certain constructions which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the drawings which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is a longitudinal section of a device constructed in accordance with the invention, and Fig. 2 is a cross sectional view of the device illustrated in Fig. 1.

In carrying the invention into effect, there is provided a hollow conductor, the wall of which is shaped to cause concentration of sound-waves passing therethrough at a predetermined point beyond the limits of the conductor, and this conductor may vary widely in shape or form, the shape or form depending upon the relative position of the source of sound, and the predetermined point at which it is to be concentrated. In the best constructions, and as shown, this conductor, marked 1, is circular in cross section, and of varying diameter. The conductor 1 is paraboloidal in shape, its walls being formed to cause concentration of the sound-waves at a predetermined point on the axial line of the conductor.

In the device illustrated, S indicates the source of sound and the broken lines within the conductor indicate a number of sound-wave increments and their course therethrough, the point of concentration being marked C. It is obvious that the conditions may be reversed and sound transmitted from C to and concentrated at S. It is obvious also that the sound-waves in passing through

the conductor will not cross its axial line and that, therefore, there will be no sound crashes produced which detract from the initial purity of the sound. The inner wall
5 of the conductor, marked 2, is, in the best constructions, formed of a hard deflecting material. Any suitable material such as metal or glass may be used for this purpose.

When it is desired to prevent the propaga-
10 tion of secondary sound-waves from the outside of the conductor, the wall of the same is, in the best constructions, backed by sound-absorbing material 3 which may vary widely in character. Velvet or plush has been
15 found suitable for this purpose. By the use of material of this nature the secondary sound-waves which are produced by the hard deflecting walls of the conductor, are absorbed within the body of the backing,
20 and no secondary sound-waves are propagated in the air.

When the source of sound and point of concentration occupy the relative positions indicated in the device illustrated, the con-
25 ductor will progressively increase in diameter toward the center, as is clearly shown in the drawing.

Changes and variations may be made in the device by which the invention is carried
30 into effect. The invention is not, therefore,

to be restricted to the precise details of construction illustrated and described.

What is claimed is:

1. A hollow conductor for sound recording and reproducing machines, the wall of which
35 is formed of a hard deflecting material backed by sound absorbing material and shaped to cause concentration of sound waves passing therethrough at a predetermined point, substantially as described. 40

2. A hollow paraboloidal conductor for sound recording and reproducing machines, the wall of which is formed of a hard deflecting material backed by a sound absorb-
45 ing material and shaped to cause concentration of sound waves passing therethrough at a predetermined point beyond the limits of the conductor, substantially as described.

3. A hollow conductor for sound recording and reproducing machines the outer wall
50 of which is formed of a sound absorbing material, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

SYDNEY I. PRESCOTT.

Witnesses:

FRANK B. MIDDLETON, Jr.,
ETHEL M. WHITEHEAD.