July 10, 1928. 1,676,668

H. J. ROUND

TELEPHONE TRANSMITTER

Filed March 3, 1925

Fig. 1

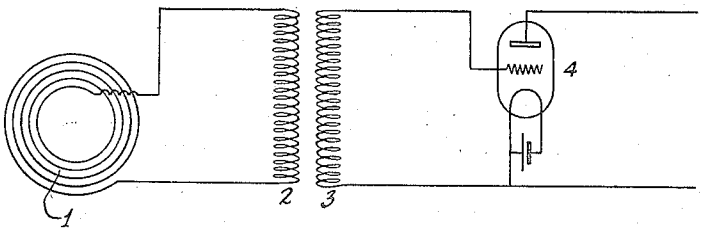


Fig. 2

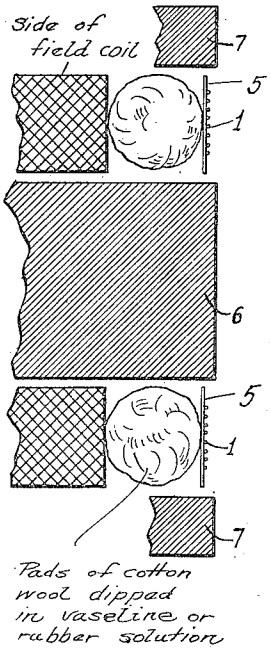
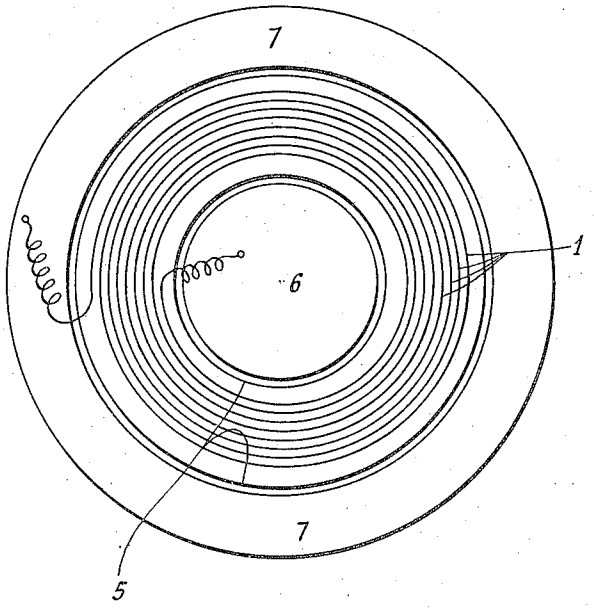


Fig. 3



INVENTOR
H. J. ROUND
BY Ira J. Adams
ATTORNEY

Patented July 10, 1928. 1,676,668

UNITED STATES PATENT OFFICE.

HENRY JOSEPH ROUND, OF LONDON, ENGLAND, ASSIGNOR TO RADIO CORPORATION OF AMERICA, A CORPORATION OF DELAWARE.

TELEPHONE TRANSMITTER.

Application filed March 3, 1925, Serial No. 12,912, and in Great Britain March 3, 1924.

This invention relates to telephone transmitters of the magneto-phone type in which the movements of a coil suspended in a magnetic field and moved by the incidence of sound waves upon it produce differences of potential which are stepped up by a transformer and applied to the grid of a thermionic valve by which they are amplified.

According to this invention the coil is constructed in the form of a spiral and is mounted upon an annular support formed of thin paper or other suitable material, the weight of the wire being equal or substantially equal to the weight of the support and of the adhesive by which the wire is secured to the support.

The resistance of the coil is chosen so that the damping resistance usually inserted in shunt across the secondary of the transformer may be omitted.

Preferably I employ tissue paper and aluminium wire. With this paper the spacing of the wire, which is about No. 40, S. W. G., should not exceed 2 mm.; otherwise the stiffness of the paper will not be sufficient to transmit the high notes to the wire. If a wire finer than No. 40 S. W. G. be used, the turns may be closer to one another. If a coarser wire be employed the quality of the reproduced sounds will be impaired unless the paper be heavier and stiffer. Such an arrangement will not be so sensitive.

It is usual to give to the secondary of a speech transformer a natural resonance of about 1000 cycles per second and by shunting the secondary with a resistance of about 250,000 ohms fairly uniform response for the range from 100 to 5000 cycles can be obtained. But with any particular transformer the exact value of the shunt resistance to obtain the required response curve may be determined experimentally.

By making the resistance of the telephone coil connected to the primary coil equivalent by virtue of the ratio of transformation to the above determined resistance no additional resistance in shunt to the secondary will be required so that the maximum voltage may be obtained whilst the resonance curve remains flat.

The invention is illustrated in the accompanying drawing, of which Figure 1 is a diagram showing the coil 1 of the telephone connected to the primary 2 of a step-up transformer whose secondary 3 is connected to the grid of a thermionic valve 4.

Figures 2 and 3 are respectively a section and a front elevation of the telephone.

Referring to Figures 2 and 3, 1 is the telephone coil, 5 an annular paper support, and 6 and 7 are the poles of a magneto-phone magnet or electromagnet.

Having described my invention what I claim is:

1. In a telephone apparatus of the magneto-phone type, an electro-magnet having an annular air gap, a flat aperiodic annular diaphragm supported therein, and a flat spiral coil secured to said diaphragm.

2. In a telephone apparatus of the magneto-phone type, an electromagnet having a magnetic field, an annular diaphragm suspended within the magnetic field of said electromagnet, a flat spiral coil and means for securing said coil to said diaphragm so that the weight of said diaphragm and said securing means is approximately equal to the weight of said coil.

3. In a telephone apparatus of the magneto-phone type an electromagnet having a magnetic field, a flat annular paper diaphragm suspended within the magnetic field of said electromagnet, a flat spiral aluminum wire coil the spacing of said wire not exceeding 2 mm. and means for securing said coil to said diaphragm.

HENRY JOSEPH ROUND.