V. H. LAUGHTER.

WIRELESS TELEPHONY.

APPLICATION FILED OCT. 20, 1909.

1,067,179. Patented July 8, 1913.

Fig. 1

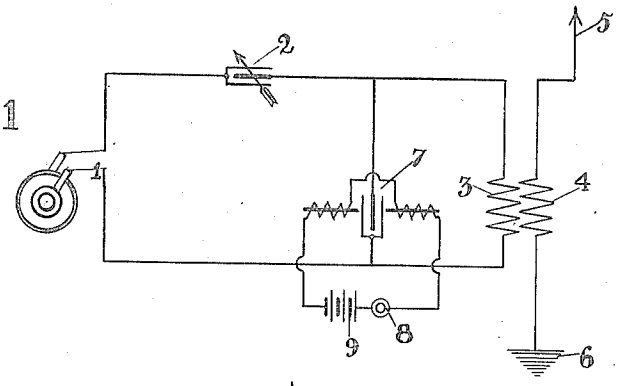


Fig. 2

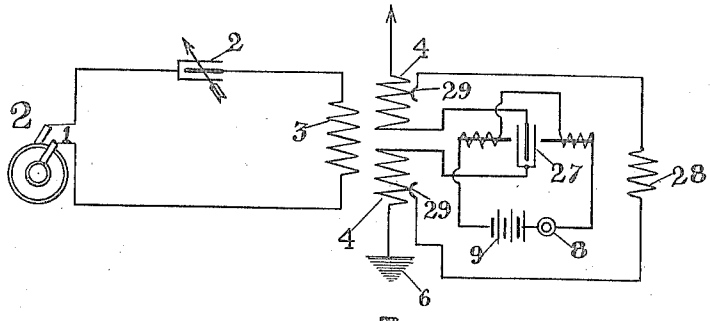


Fig. 3

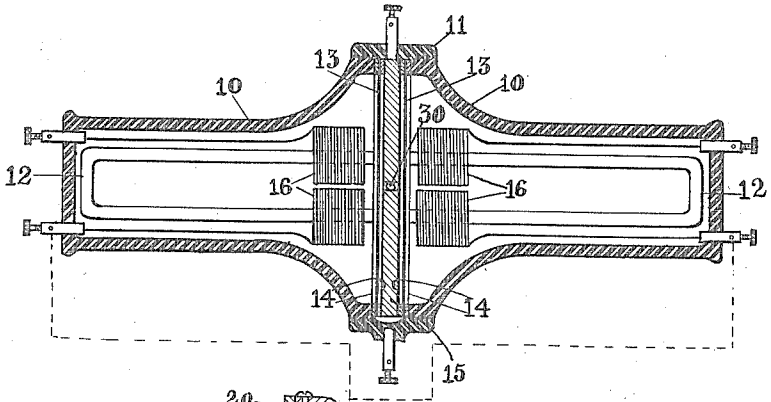
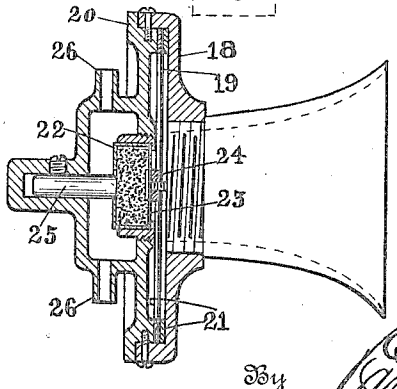


Fig. 4



Witnesses

C. M. Shannon.

A. M. Dorr.

Inventor

VICTOR H. LAUGHTER

By

Attorneys

UNITED STATES PATENT OFFICE.

VICTOR H. LAUGHTER, OF DETROIT, MICHIGAN, ASSIGNOR TO NORTH AMERICAN WIRELESS CORPORATION, A CORPORATION OF MAINE.

WIRELESS TELEPHONY.

1,067,179. Specification of Letters Patent. Patented July 8, 1913.

Application filed October 20, 1909. Serial No. 523,626.

To all whom it may concern:

Be it known that I, VICTOR H. LAUGHTER, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Wireless Telephony, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to wireless telephony and more particularly to a transmitting apparatus therefor whereby increased efficiency of service is obtained together with simplicity of construction in the apparatus itself.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a diagrammatic illustration of an arrangement of a wireless telephony system that embodies features of the invention; Fig. 2 is a similar view showing a modification in the arrangement; Fig. 3 is a view in longitudinal section of a transmitter condenser; and Fig. 4 is a view in section of a transmitter.

Referring to the drawings, any means at 1 for obtaining an oscillatory current of high frequency is connected with a condenser 2 of variable capacity and the primary 3 of a transformer whose secondary 4 with an antenna 5 and ground 6 constitutes the aerial circuit.

A condenser transmitter 7 is in shunt around the primary 3, and the condenser 2 is adjusted to have a slightly greater capacity than that of the condenser 7. A telephone transmitter 8 with battery 9 is connected with the condenser 7 in such manner that the vibrations set up in the telephone by the voice vary the capacity of the condenser transmitter and in consequence the oscillations on the primary 3 of the transformer are varied and thus the antenna circuit is influenced. The condenser transmitter may be of any type adapted to carry the currents used and in preferred form consists of two oppositely disposed containing casings 10 of insulating material secured by an annular member 11. Each case has a magnet 12 with a diaphragm 13 adjacent the poles thereof held between insulating gaskets 14 parallel to a brass plate 15 placed between the inner ends of the casings. Each magnet has windings 16, which are in series with the battery 9 or the like, and the telephone transmitter 8. The two diaphragms 13 are connected as alternate plates of a condenser, the brass plate constituting an intermediate plate, with air spaces as the dielectric, and this condenser is in shunt around the primary 3, as before described. On speaking into the telephone transmitter 8, the diaphragms 13 are vibrated and consequently the dielectric, between the diaphragms and plate is correspondingly changed. This varies the capacity of the condenser transmitter, and influences the oscillations in the primary, as above noted. By placing two or more of these condenser transmitters in circuit, any capacity desired may be obtained. When used in this manner, it is desirable to have the windings 16 capable of carrying a current of considerable amperage. This would overheat a telephone transmitter of standard construction. Accordingly, the form of transmitter indicated in Fig. 4 is preferably used. A front plate 18 with standard mouthpiece clamps a diaphragm 19 on a back 20 between insulating rings 21. A pocket or cup 22 is filled in the usual manner with granular carbon, that is retained by a mica sheet 23 holding a contact piece 24 of the diaphragm in place in the usual manner. The cup is secured in place by a stem 25 adjustably held in a socket of the back. The latter is hollow and has nipples 26 by which it may be connected with a convenient source of supply of water or other cooling liquid by flexible tubing. By this arrangement, overheating with disintegrating of the carbon granules is prevented.

To prevent air cushioning the diaphragms 13 of the condenser transmitter, an air vent 30 extends through the member 11 and plate 15, and opens into the spaces on each side of the plate.

A modification of the arrangement of the circuit is indicated in Fig. 2. Herein a condenser transmitter 27 preferably of the construction described, has its plates in series with end portions of the secondary coil 4 of the transformer in the antenna circuit. A resistance coil 28 is in shunt across the end coils of the transformer and has sliding contacts 29 by which the shunt circuit to the condenser transmitter 27 may be adjusted to get the best effects. The voice or sound waves in the transmitter thereby influence

the oscillations of the aerial circuit as in the other arrangement.

Obviously, changes in details of construction may be made without departing from the spirit of the invention, and I do not limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

1. Space telephony apparatus comprising an energizing circuit, a secondary antenna circuit responsive to the energizing circuit, a condenser of variable capacity in the energizing circuit, a telephone transmitter circuit including a condenser having a fixed plate and vibratable plates connected in parallel and in spaced parallel relation to the fixed plate, the condenser being in shunt across the energizing circuit, an electromagnet controlling each vibratable plate, and means in series with the coils of the electromagnets having a resistance that varies in accordance with sound waves impressed thereon.

2. Space telephony apparatus comprising an energizing circuit including the primary of a transformer, and a condenser of variable capacity, an antenna circuit including the secondary of the transformer, a telephone transmitter circuit in shunt to the primary of the transformer including a condenser having fixed and vibratable plates and field magnets in series with a generator for the transmitter circuit and influencing the vibratable plates together with means in series with the field magnets having a resistance that varies in accordance with sound waves impressed thereon.

3. Space telephony apparatus comprising an energizing circuit including in series a generator, a primary of a transformer and a condenser of variable capacity, an antenna circuit including the secondary of the said transformer and a telephone transmitter circuit in shunt to the primary including a condenser consisting of an insulating casing with fixed and vibratable plates therein connected in shunt across the limbs of the energizing circuit, electro-magnets each controlling a vibratable plate, a generator in series with the coils of the magnets, and a transmitter in series with the coils and generator having a resistance that varies in accordance with sound waves impressed thereon.

4. In space telephony apparatus, a condenser consisting of an insulating casing, a fixed plate therein, vibratable plates connected in parallel and in spaced insulated relation thereto, and an electro-magnet controlling each vibratable plate, and means in series with the coils having a resistance that varies in accordance with sound waves impressed thereon.

5. In space telephony apparatus, a condenser consisting of a cylindrical insulating casing, a transverse plate secured in the casing, vibratable plates connected in parallel in spaced insulated relation to the fixed plate, electro-magnets in series in the casing whose poles are adjacent the vibratable plates, and means in series with the coils having a resistance that varies in accordance with sound waves impressed thereon.

6. The combination with a condenser transmitter of a plurality of electromagnets operatively connected therewith, and in circuit with each other, and a microphone in circuit with said electromagnets.

7. The combination with a condenser transmitter, of a plurality of means operating simultaneously on an element of said condenser, and means to vary the amplitude of the vibrations of said element.

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

VICTOR H. LAUGHTER.

Witnesses:
C. R. STICKNEY,
A. M. SHANNON.