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WIRELESS TELEPHONE TRANSMITTER.

APPLICATION FILED MAY 17, 1909. RENEWED JULY 11, 1911.

1,044,798.

Patented Nov. 19, 1912.

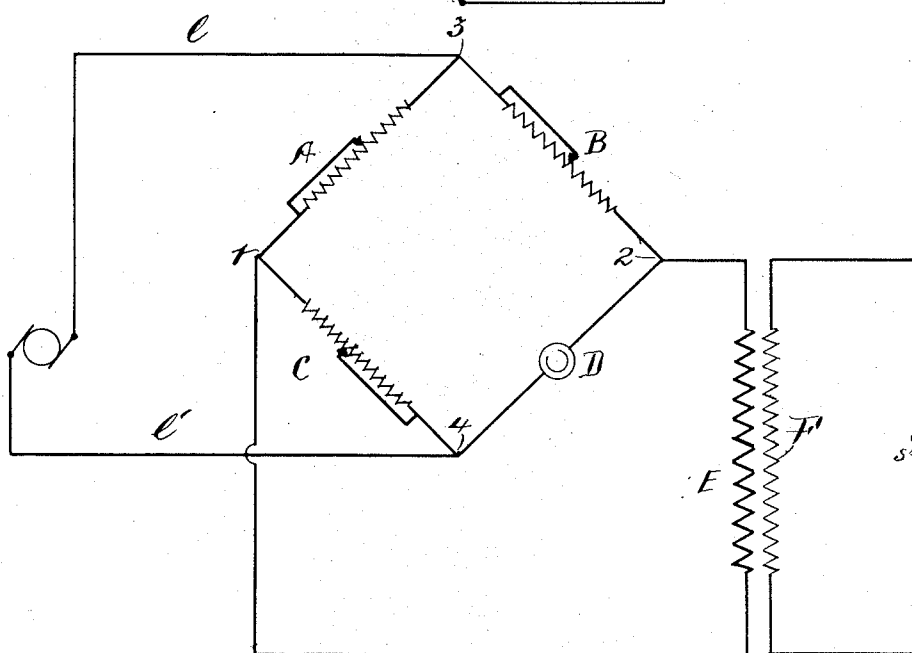
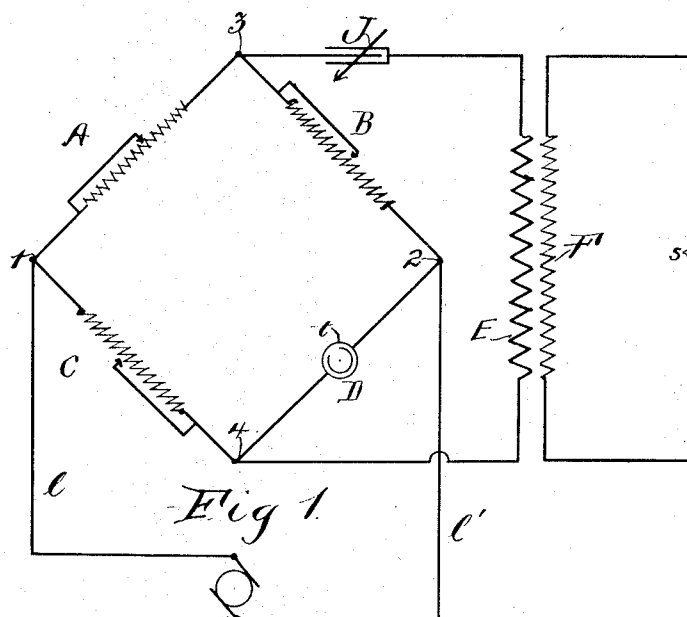


Fig 2

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN P. McCARTY AND KENDALL DOUGLAS, OF OAKLAND, AND FRANK P. HERRGUTH, OF SAN FRANCISCO, CALIFORNIA, ASSIGNORS TO UNIVERSAL WIRELESS TELEPHONE AND TELEGRAPH COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

WIRELESS-TELEPHONE TRANSMITTER.

1,044,798.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed May 17, 1909, Serial No. 496,429. Renewed July 11, 1911. Serial No. 638,046.

To all whom it may concern:

Be it known that we, JOHN P. McCARTY and KENDALL DOUGLAS, both residing at Oakland, in the county of Alameda, and FRANK P. HERRGUTH, residing in the city and county of San Francisco, State of California, have invented a new and useful Improvement in Wireless-Telephone Transmitters, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

Our invention relates to wireless telephony and has for its object to provide new and improved means for transmitting speech or tone between distant points through the intervening media and without interconnecting wires.

Our object is attained by the means illustrated in the accompanying drawings, which comprise diagrammatic views of a transmitting device, the various figures showing various forms of applying our device.

The same numeral of reference marks the same part throughout the various views.

In general terms our invention consists in combining with an ordinary telephone transmitter, a Wheatstone bridge, a source of power, and a high tension transformer having a spark gap.

Referring to the drawings, Figure 1 shows the four arms A, B, C, D, of a Wheatstone bridge. The resistances in all the three arms A, B, and C are adjustable and non-inductive. The arm D contains a telephone transmitter *t*. A source of constant current is applied between the points 1 and 2; and from the points 3 and 4 leads 1 and 1' pass to the primary E of a transformer, the secondary F of which is connected with a spark gap *s*. In the circuit of the transformer primary, a condenser J is connected, said condenser being of the ordinary adjustable type. The bridge arms are then adjusted in any desired ratio relatively to the normal resistance of transmitter *t*, so that ordinarily the potential difference between 3 and 4 is zero. Varying the resistance of arm D by vibrating the diaphragm of the transmitter causes potential differences to appear between 3 and 4, which come in waves corresponding with

the vibrations of the diaphragm; and these potential differences may be made very great or very small by properly adjusting the bridge arm ratios. The potential difference waves between 3 and 4 transmit wave currents through the primary circuit of E, and these currents in turn produce sparks across the points at *s*, which are transmitted through the surrounding media and received by ordinary wireless telephone apparatus.

Fig. 2 shows a view of our device having a continuous metallic primary circuit, without a condenser therein. Under some conditions the use of a condenser in this circuit would be contraindicated, and we wish it to be understood that the condenser may be dispensed with when expedient.

By the described arrangement, we are enabled to talk well over long distances.

Having described our invention what we claim as new and desire to secure by Letters Patent of the United States is:

1. In a wireless telephone transmitter the combination with a Wheatstone bridge, a telephone transmitter in one of the arms thereof, a transformer having its primary connected across the bridge and its secondary connected with spark gap points, a direct current source connected with the remaining points of the bridge, and a condenser in said primary circuit.

2. In a wireless telephone transmitter, the combination with a Wheatstone bridge, a telephone transmitter forming one of the arms thereof, of a high tension transformer having its primary bridging the same and its secondary provided with a spark gap.

3. In a wireless telephone transmitter, the combination with a transformer having a spark gap, of a Wheatstone bridge electrically connected with said transformer having a telephone transmitter in one of its arms.

4. In a wireless telephone transmitter, having primary and secondary circuits, means for varying the current in the primary circuit in correspondence with spoken words, consisting of a telephone transmitter arranged in one of the arms of a Wheatstone bridge, the primary circuit including said Wheatstone bridge.

5. In a wireless telephone transmitter, a

circuit including a Wheatstone bridge having the resistance of one of its arms variable, and means for varying said resistance in correspondence with spoken words.

5 6. In a wireless telephone transmitter, a primary circuit including a Wheatstone bridge having a telephone transmitter in one of its arms.

10 7. In a wireless telephone transmitter, a primary circuit including a Wheatstone bridge having a telephone transmitter in one of its arms, and a secondary circuit having a spark gap.

15 8. In a wireless telephone transmitting system, a radiating system, a normally bal-

anced circuit system associated therewith, a source of current energy associated with said balanced system, and means operated by and in accordance with sound waves for disturbing the balanced condition of said 20 normally balanced circuit system.

In testimony whereof we have set our hands this 10th day of May, A. D. 1909, in the presence of the two subscribed witnesses.

JOHN P. McCARTY.

KENDALL DOUGLAS.

FRANK P. HERRGUTH.

Witnesses:

FRANK P. MEDINA,

E. G. MEDINA.