

1,356,403.

Patented Oct. 19, 1920.

Fig. 1.

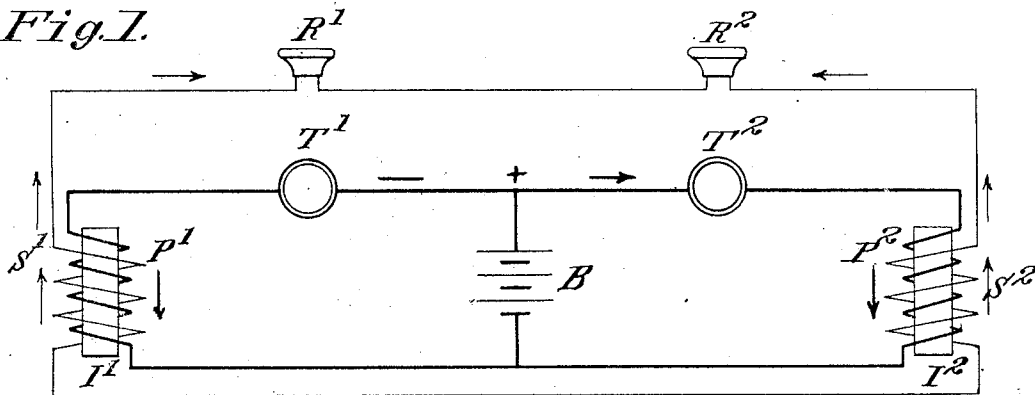


Fig. 2.

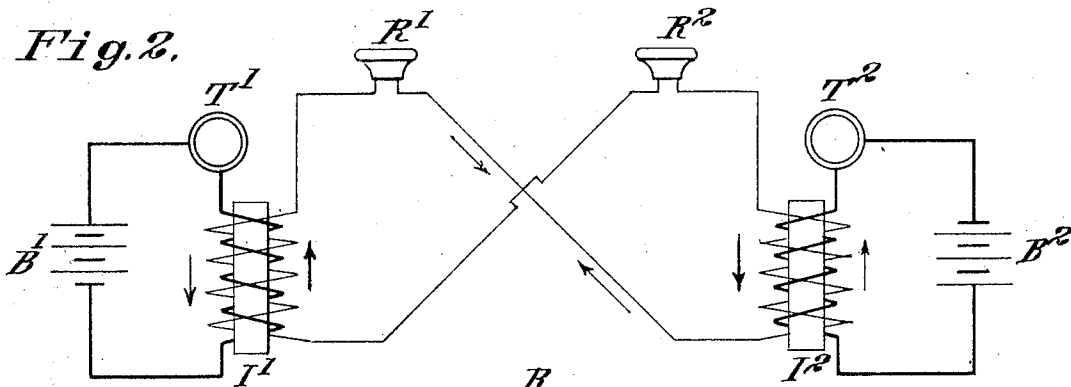
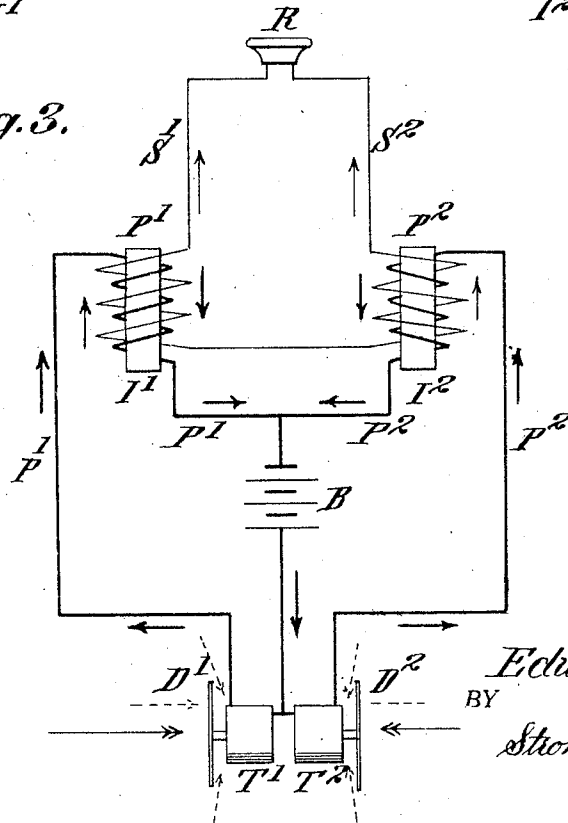


Fig. 3.



INVENTOR.

Edwin S. Pridham

BY

Strong & Townsend

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWIN S. PRIDHAM, OF OAKLAND, CALIFORNIA, ASSIGNOR TO THE MAGNAVOX COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF ARIZONA.

TELEPHONE SYSTEM.

1,356,403.

Specification of Letters Patent.

Patented Oct. 19, 1920.

Application filed May 7, 1918. Serial No. 233,133.

To all whom it may concern:

Be it known that I, EDWIN S. PRIDHAM, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvement in Telephone Systems, of which the following is a specification.

This invention relates to telephones, and more especially to a localized communication circuit for use in noisy places.

There are certain places where communication is restricted to very short distances as from pilot to observer on an aeroplane where it is very difficult to understand speech without some telephonic arrangement.

The present invention embodies a means for successfully carrying on telephonic communication in the environment of noise, and is applicable to those situations where the speaker and listener are close together and are practically equidistant from the source of the extraneous noise.

Having reference to the accompanying drawings,

Figure 1 shows the circuit by means of which the above mentioned end is obtained.

Fig. 2 shows a modification.

Fig. 3 shows the two transmitter elements combined to form one unit.

B is a battery for supplying energy to the transmitters T^1 and T^2 though obviously the transmitters could be supplied with individual batteries. P^1 and P^2 are the primaries of the respective induction coils I^1 and I^2 . S^1 and S^2 are the secondaries of said induction coils. R^1 and R^2 are respectively the receivers of the two stations.

It will be seen from the circuit as shown that current from the battery B flows through the transmitters T^1 and T^2 and their respective primaries of the induction coils I^1 and I^2 in the same direction since their respective terminals are connected to like poles of the battery B. The receivers R^1 and R^2 are connected in series with their respective induction coils and the line. Now since the transmitters are substantially equidistant from the source of the extraneous noise vibrations it will be seen that if a compressional wave strikes both transmitters with approximately equal force there will be an increase of current through both transmitter circuits. This current will flow in the same direction through both primaries

of the induction coils I^1 and I^2 . However, the secondaries S^1 and S^2 with their respective receivers are connected in series consequently the currents which are generated in the secondaries of the system will oppose each other and there will be no effect produced in the receivers R^1 and R^2 . If, however, while vibrations due to undesired noise are affecting both transmitters with approximately equal force, voice vibrations are directed into only one of the transmitters, it will be seen that these vibrations will affect the whole secondary circuit and the receivers will respond to the energy created by the voice vibrations.

In Fig. 2 is shown the circuit where independent batteries are used. In this case it is only necessary to see that the secondaries are connected in the proper manner to secure a neutralization of currents generated simultaneously by the transmitters 1 and 2.

In Fig. 3 the two transmitter elements T^1 and T^2 are combined in a single unit. In this case the diaphragms D^1 and D^2 are close together and practically equally exposed to the noise vibrations.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a telephone system for use in excessively noisy places, a circuit for the elimination of extraneous noise vibrations, said circuit comprising a source of electrical energy, primary circuits, including respectively transmitters and the primary circuits of induction coils, said primary circuits connected in parallel to the poles of said source of electrical energy, and secondary circuits connected in series, said secondary circuits comprising telephone receivers and the secondary circuits of said induction coils substantially as shown.

2. A telephone circuit for use in noisy places comprising primary circuits, including a source of electrical energy, transmitters and the primary circuits of induction coils; said primary circuits being so connected to the source of energy that current flows in the same direction through the said primary circuits of said induction coils, and secondary circuits including telephone receivers and secondary circuits of said induction coils, said secondary circuits being connected in series so that simultaneous equal

variations of current in said primary circuits will be neutralized in said secondary circuits.

3. In a telephone circuit for the elimination of undesired noise vibrations, comprising two primary circuits, said primary circuits including respectively two transmitters and two primary circuits of induction coils, a source of energy for said primary circuits;
5
10 and secondary circuits comprising telephone receivers and the respective secondaries of said induction coils; said secondary circuits

being so connected in series that like variations of current in the respective primary circuits are neutralized in the secondary circuits. 15

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWIN S. PRIDHAM.

Witnesses:

JOHN H. HERRING,
W. W. HEALEY.