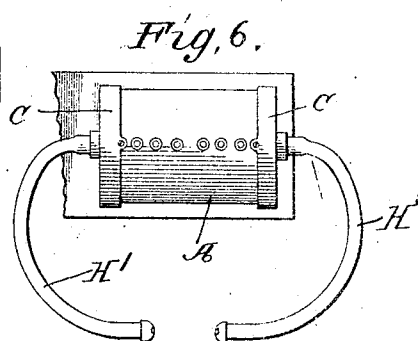
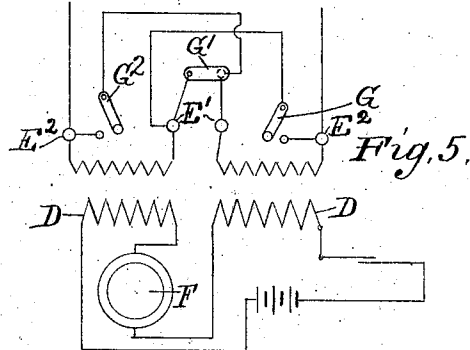
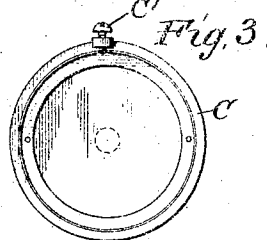
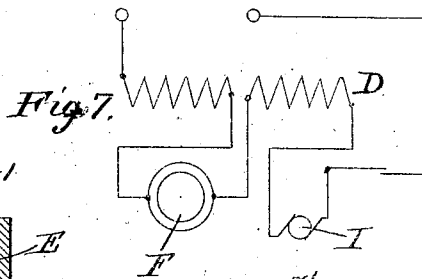
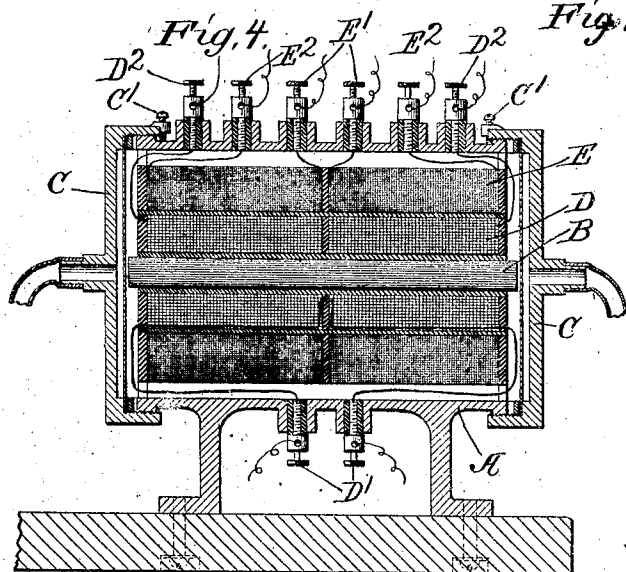
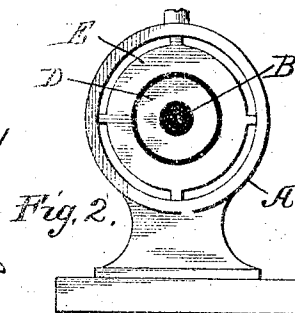
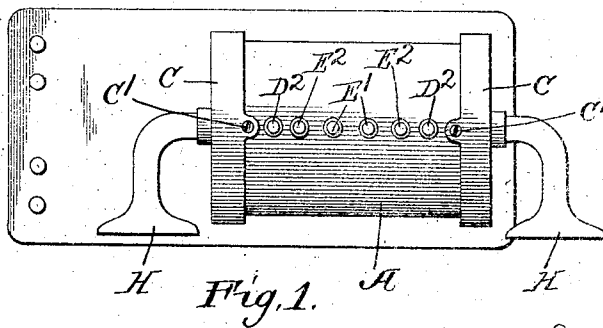


D. H. WILSON.  
TELEPHONE APPARATUS.  
APPLICATION FILED DEC. 8, 1902.

950,799.

Patented Mar. 1, 1910.



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# UNITED STATES PATENT OFFICE.

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## TELEPHONE APPARATUS.

950,799.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed December 8, 1902. Serial No. 134,262.

*To all whom it may concern:*

Be it known that I, DAVID H. WILSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Telephone Apparatus, of which the following is a specification.

My invention relates to telephone apparatus and has for its object to provide a new and improved apparatus of this description.

Referring to the accompanying drawings, wherein I have illustrated my invention: Figure 1 is a plan view of the transformer and receiver; Fig. 2 is an end elevation of Fig. 1, with one receiver removed; Fig. 3 is a view of one of the receivers removed as seen from the inner side; Fig. 4 is an enlarged longitudinal section through Fig. 1; Fig. 5 is a view showing the circuits of one instrument; Fig. 6 is a plan view of a transformer showing a modified construction; Fig. 7 is a view of the circuits when only one coil is used.

Like letters refer to like parts throughout the several figures.

Referring now to Figs. 1 to 5 inclusive, I have illustrated a transformer inclosed within a suitable casing A. The coils are placed upon the core B and may be of any suitable form and arrangement. At one or both ends of the core B I provide a telephone receiver C, which may consist of any of the usual constructions. The primary and secondary coils D and E of the induction coil may be formed in any desired way and wound upon the core in any suitable manner. As herein shown, the two coils are wound upon separate sleeves, so that they may be independently placed upon and removed from the core. Both of these coils are preferably divided into sections. The primary coil, for example, has the ends of the two sections connected to the binding post D<sup>1</sup>, while the other ends are connected to the binding post D<sup>2</sup>. The secondary coil has one end of each section connected to the binding post E<sup>1</sup> and the other end connected to the binding post E<sup>2</sup>. It is of course evident that the dividing of the coils into sections may be omitted, but when this construction is used the transmitter F is connected between the two sections of the primary coil, as shown in Fig. 5. When the secondary coil is divided into sections, I

prefer to arrange it so that the two sections may be connected in series or in multiple. This result is obtained by means of the switches G, G<sup>1</sup> and G<sup>2</sup>. When the switches G<sup>1</sup> and G<sup>2</sup> are open and the switch G<sup>1</sup> is closed, the two sections are in series, and when the switch G<sup>1</sup> is open and the switches G<sup>1</sup> and G<sup>2</sup> are closed, the two sections are in multiple. Whether or not the coils will be used in series or in multiple depends upon the conditions presented. The receivers C are preferably formed in a cap, which is detachably attached to the ends of the casing of the induction coil and which may be held in position by the set screws C<sup>1</sup>. In Fig. 1, I have shown the two receivers, although one may be used, and these receivers are each provided with horns H. In Fig. 6, instead of horns, I have shown tubes H<sup>1</sup>, which may be placed to the hearer's ears.

In Fig. 7, I have illustrated the circuits wherein only the coil D is used, there being placed in circuit with the coil and the transmitter a generator or dynamo I. This construction is adapted for submarine use because of the arrangement of the parts for various reasons among which may be mentioned the arrangement and location of the parts, as this arrangement and location permits the reduction of the adverse induction effect when the conductors are in cables.

It will be seen that by applying the receiver directly to the core of the induction coil, so as to be actuated thereby, I obviate the insertion in the circuit of an extra coil and core necessary for the receiver, and this among other advantages also insures far better results than are otherwise attainable.

I have illustrated in detail particular constructions embodying my invention, but these constructions are more or less diagrammatic and are used for purposes of illustration to make my invention clear.

It is of course evident that the parts may be greatly varied in form, construction and arrangement and that some of the parts may be omitted and others used with parts not herein shown, without departing from the spirit of my invention. I therefore do not limit myself to the constructions shown.

I claim:

1. The combination with an induction coil having a suitable core, of a primary and secondary coil one over the other, both the primary and secondary coils being divided into

separate sections, a casing for such coils, two removable end pieces connected with said casing, a telephone receiver opposed to each end of said core, said telephone receivers forming the end of the casing.

2. The combination with an induction coil of an inclosing casing therefor, two telephone receivers, one opposed to each end of the core of said coil so as to be actuated thereby, the coils separated into sections by a separating device near the middle thereof, and a telephone transmitter in circuit with said induction coil.

3. A telephone apparatus comprising an induction coil provided with a coil conductor divided into sections, a telephone transmitter connected in circuit between the sections, and a telephone receiver associated with each end of the core of said coil.

4. A telephone system, comprising a coiled conductor wrapped about a core and divided into two sections, and a telephone transmitter interposed in the circuit between the two sections of the coil a source of electric supply in circuit with said coil, one of the sections of the coil being intermediate the transmitter and the source of electric supply the other section of said coil located at a different point in the circuit.

5. A telephone system comprising a coiled conductor wrapped about a core and divided into two sections, a telephone transmitter interposed in the circuit between the two sections of the coil, a casing inclosing said coil.

a series of binding posts on the periphery of said casing, a receiver associated with the core of said coil, and a generator in circuit with the coil and transmitter.

6. A telephone apparatus, comprising an induction coil, having a primary and secondary coil, the primary coil being divided into sections, a transmitter inserted in circuit between the sections of the primary coil, a receiver provided with a diaphragm opposed to the core of the induction coil and actuated thereby.

7. A telephone apparatus, comprising an induction coil, having a primary and secondary coil, the secondary coil being divided into sections, means for connecting said sections in series or in multiple, a receiver provided with a diaphragm opposed to the core of the induction coil and actuated thereby.

8. A telephone apparatus, comprising an induction coil, having a primary and secondary coil, the primary coil being divided into sections, a transmitter inserted between the sections of the primary coil, a receiver provided with a diaphragm opposed to the core of the induction coil and actuated thereby, the secondary coil being divided into sections, and means for connecting said sections in series or in multiple.

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