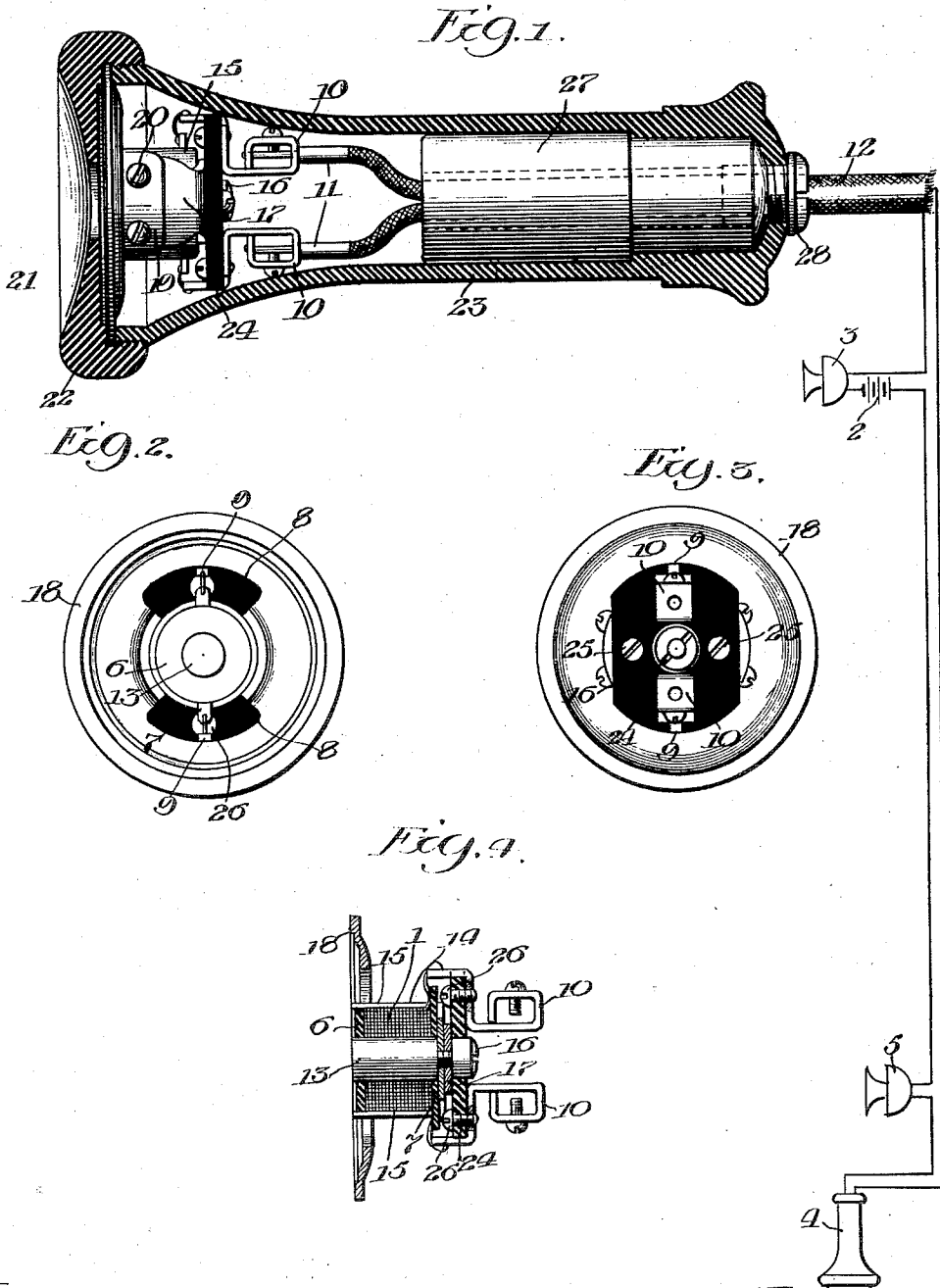


O. M. LEICH.
RECEIVER.

APPLICATION FILED MAR. 15, 1910.

1,049,499.

Patented Jan. 7, 1913.



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UNITED STATES PATENT OFFICE.

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RECEIVER.

1,049,499.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed March 15, 1910. Serial No. 549,514.

To all whom it may concern:

Be it known that I, OSCAR M. LEICH, a citizen of the United States, residing at Genoa, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Receivers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to telephone receivers, and more particularly to telephone receivers of what I call the "direct battery" type,—that is, those in which the battery which is used in the transmitter flows also directly through the receiver, and serves to energize the actuating coil thereof in a manner to place the diaphragm under stress.

In receivers, as principally used at the present time, a permanent magnet is used to provide this normal stress in the diaphragm, but I find that when using receivers for common battery systems, I can utilize the battery which furnishes current to the transmitter directly in the receiver, to take the place of the permanent magnet. In receivers of this kind, it is necessary to provide additional weight to compensate for the loss of the permanent magnet, in order that the receiver may properly perform its auxiliary function of actuating the switch-hook, as is well understood. The weight which I prefer to employ is removable, and is secured preferably by screw-threaded means within the shell, and my receiver embodies other features,—notably, the provision of a symmetrical air gap between the magnetic portions and the diaphragm, and also other features of construction for simplifying the manufacture of the parts, all as will more clearly appear from the detail description of the same, in connection with the accompanying drawing, in which—

Figure 1 is a detail sectional view of a receiver, showing its circuit connections; Fig. 2 is a front view with the shell, cap, weight and diaphragm removed; and Fig. 3 is a rear view of the apparatus shown in Fig. 2; Fig. 4 is a sectional view of the apparatus shown in Figs. 2 and 3.

My improved receiver consists of a coil 1, which is under the direct influence of a battery 2, serially included with a trans-

mitter 3, and which are designed to actuate a distant station consisting of similar receiver 4 and transmitter 5. It will be seen from this that the battery 2 furnishes current directly to the transmitter and receiver, both in series. The coil 1 is provided with an end plate 6, and a second end plate 7, which end plate 7 has lugs or ears 8, 8, which support the terminal wires of said coil, and lead them properly to terminal clips 9, 9, which form parts of connectors 10, 10, which connectors are associated by means of the connecting pins 11, 11, with a cord 12, which cord passes from the exterior of the shell to the interior thereof. The coil 1 has a core 13, which coil and core are set in a cylindrical receptacle 14, which is closed at one end, but is provided with two longitudinal slots 15, 15, which accommodate the ears 8, when the coil is set in place. A nut 16 is adapted to engage a screw-threaded extension of the core 13, and secure it to the U-shaped member 17. The U-shaped member carries a diaphragm support 18, which is of a ring-like construction, having projecting ears 19, by means of which it is fastened to the U-shaped member 17, through the agency of screws 20, 20. The diaphragm 21 is held in place upon a diaphragm support 22 and receiver shell 23.

It will thus be seen that a very open construction of diaphragm support is obtained, which makes the various parts of extremely simple construction, and furthermore, by reason of the diaphragm being acted upon by the core 13 and a cylindrical receptacle 14, a uniform distribution of magnetism, relative to the axis of the device, is obtained, and furthermore, a uniform air gap throughout the entire periphery of the magnetic parts. An insulating member 24 is secured to the U-shaped member 17, by means of screws 25, and screws 26 hold the connectors 10 in place.

From the foregoing, it will be seen that but very few parts compose the entire structure, and all the parts are rigidly secured together. The connectors 10 can accommodate the various kind of cord tips in use, and are thus flexible and universal. Within the shell 23 I provide a weight 27, through which weight the cord 12 passes, and which weight is secured in place by means of a ferrule 28, screw-threaded into

the said weight, said ferrule having a flange overlapping the outer portion of the shell to hold said weight securely in position.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not limit myself to the precise construction and arrangement herein set forth, but

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

1. A telephone receiver of the direct battery type, comprising a diaphragm, an actuating electromagnet therefor, a shell for inclosing said diaphragm and electromagnet, a flexible cord leading from the exterior of said shell to said electromagnet, a weight removably mounted in said shell, having a longitudinal aperture through which said flexible cord passes, and a ferrule having screw threaded engagement with said weight for holding said weight in position within the shell, said shell being clamped between said weight and said ferrule.

2. A telephone receiver of the direct battery type, having a diaphragm, a diaphragm support, a shell and cap to hold said support and diaphragm together, an insulating member removably mounted on the outside face of said support, connectors mounted upon said member, an electromagnet mounted with said diaphragm support and means projecting through said insulating member to hold said electromagnet in place.

3. A telephone receiver of the direct battery type, having a diaphragm, a diaphragm support, a slotted cylindrical cup of magnetic material open at the diaphragm end, secured to said diaphragm support, and a coil within said cup, said coil having an end plate provided with ears projecting outside of said cup through said slots.

In witness whereof, I hereunto subscribe my name this seventh day of March A. D. 1910.

OSCAR M. LEICH.

Witnesses:

MAX W. ZABEL,
HAZEL JONES.