

O. M. LEICH.
MAGNETO TELEPHONE.
APPLICATION FILED JUNE 19, 1908.

967,204.

Patented Aug. 16, 1910.

Fig. 1

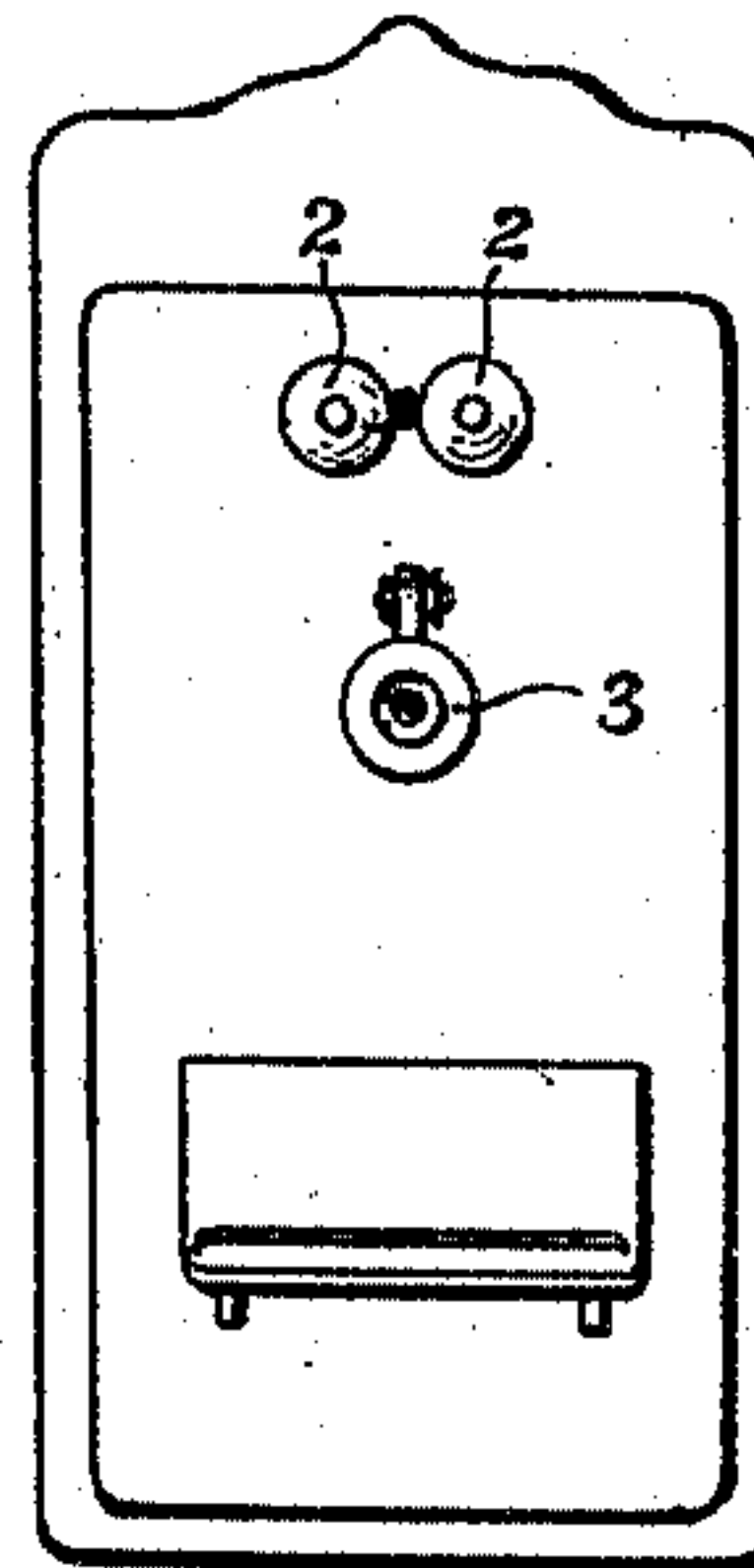


Fig. 2

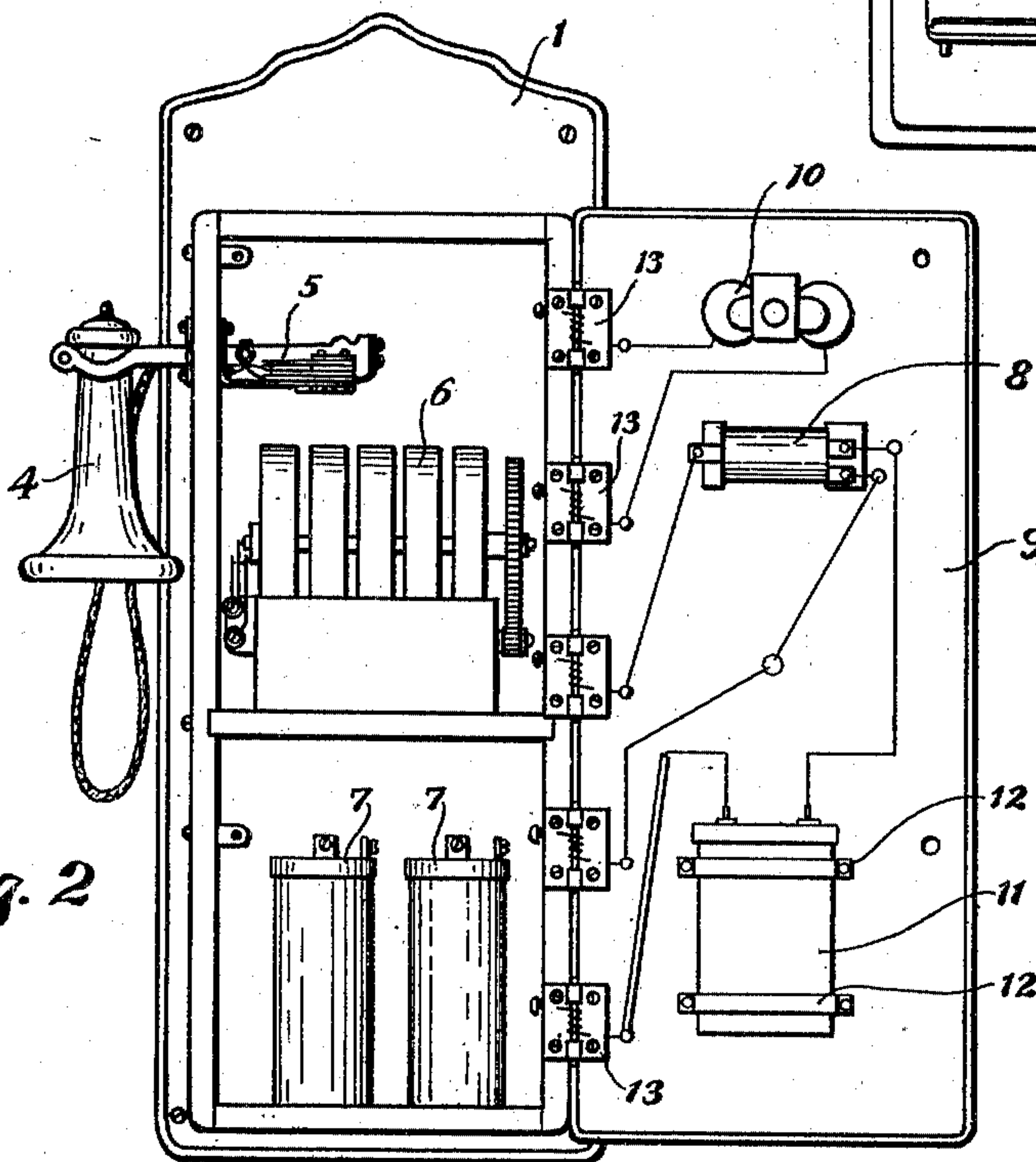
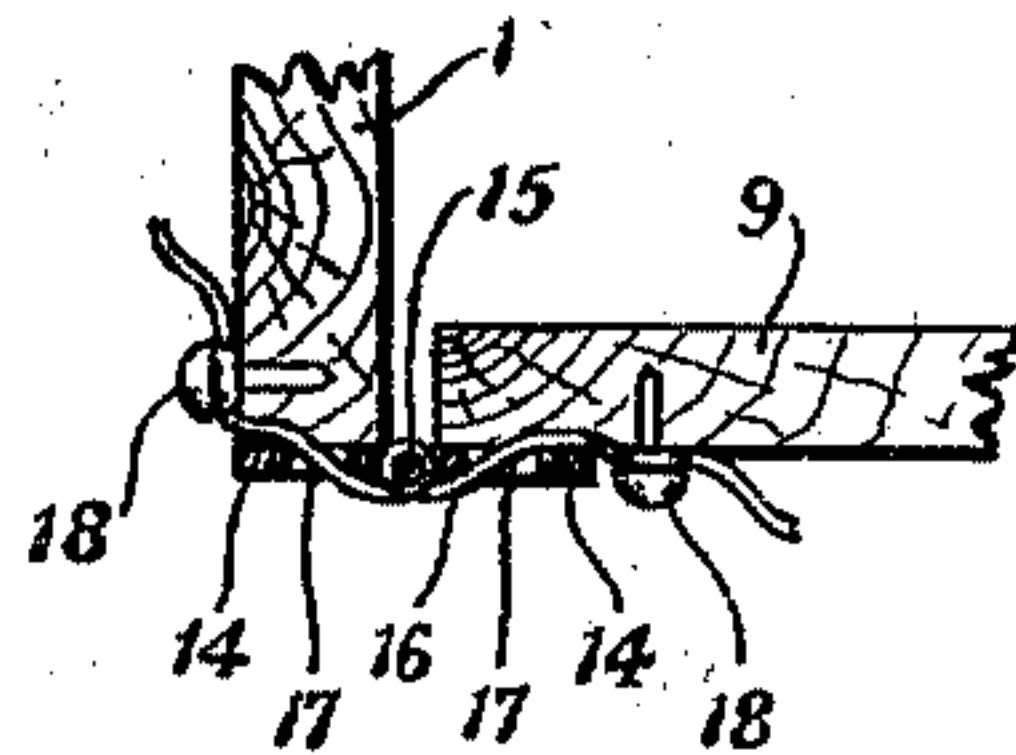


Fig. 3



WITNESSES:

J. C. Anderson
F. B. Boice

INVENTOR.

OSCAR M. LEICH.

BY May W. Zabel
ATTORNEY.

UNITED STATES PATENT OFFICE.

OSCAR M. LEICH, OF GENOA, ILLINOIS, ASSIGNOR TO CRACRAFT-LEICH ELECTRIC CO.,
OF GENOA, ILLINOIS.

MAGNETO-TELEPHONE.

967,204.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed June 19, 1908. Serial No. 439,308.

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 Dekalb and State of Illinois, have invented a certain new and useful Improvement in Magneto-Telephones, 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 magneto telephones and has for its object the provision of an improved complete telephone assembled in a manner to provide the greatest access to the various operating parts.

In constructing telephones it is of vital importance to so arrange the apparatus that all parts may be accessible, and that those parts that are liable to go into disrepair be placed in a position from which they are easily removable and where they may be easily electrically disconnected. One difficulty in the operation of telephones, more especially magneto telephones, is explained by the fact that non-technical and uninformed people must deal with the instruments after they have left the factory. More particularly is this true of the thousands of farm telephones in use and whose number is rapidly increasing. When these telephones are originally installed it frequently happens that a condenser has not been provided with the equipment. A condenser is, however, a piece of apparatus whose need is soon realized and its installation by unskilled persons becomes necessary. The use of a condenser makes it possible to send a magneto call over a bridging party line, even though through inadvertence or "rubbering," receivers have been removed from their respective switchhooks. To facilitate the installation of such a condenser has been the subject-matter of much thought, and a number of patents, one of which was granted to A. G. Addie on December 13, 1904, and bears the Number 777,172.

My invention overcomes the objectionable features of breaking a connection within the cabinet to install the condenser, and also eliminates the expensive apparatus as outlined in the above patent. In many cases, the condenser is initially installed, but being a very delicate piece of apparatus, so far as high potential discharges are concerned, it

is frequently rendered ineffective by such discharge, very often by lightning, and it must then be replaced, also by unskilled hands. The arrangement of the apparatus in the telephone to provide for this installation or replacement of the condenser is a most important problem, and my invention accomplishes the desired result.

I find that by arranging the apparatus as herein shown, the condenser is provided for in a manner that its inclusion in or exclusion from the circuit is a simple matter.

In accordance with my invention I mount the ringer very close to the top of the flat closure of the telephone instrument, and immediately below the induction coil. Below this is the transmitter, and this then leaves a large space for the condenser. I then arrange the conductors on the closure in such a manner that none of them cross each other, and so that the conductor leading from the secondary of the induction coil, in series with which is the receiver, runs to the lower inner corner of said closure. The latter conductor thus runs past the large space left for a condenser, so that all that is necessary to install a condenser is to mount it upon the closure and cut this one conductor, whose free ends are then united to the two terminals of the condenser, making this a very simple operation, which can, in general, be performed by even unskilled persons. The same advantages present themselves when replacing a burned condenser. With this arrangement the back of the cabinet, which is its most inaccessible portion, need not carry any conductors.

To this end my invention consists of the improved arrangement of the parts and assembling thereof as outlined by the accompanying drawing illustrating the preferred embodiment thereof in connection with which I will now describe my said invention in detail.

In the drawing Figure 1 illustrates the outside view of my improved telephone. Fig. 2 shows the same telephone with the cover thrown open, and Fig. 3 shows a detailed constructional view of the hinge mechanism employed.

My improved telephone consists of the cabinet 1, on which are mounted gongs 2—2, and a transmitter 3, arranged upon a suitable arm. Likewise a receiver 4, a switch-

hook 5, a magneto generator 6, and batteries 7—7. The switchhook 5 is self-contained, as shown, meaning thereby that said switchhook itself is a unitary, concrete structure complete within itself. It has heretofore been difficult to make the induction coil accessible in telephones of this kind, one of the reasons being the difficulty of proper connection with the various other parts of the telephone. In my improved instrument I mount the induction coil 8, on the door 9, of the cabinet. And I am enabled to do this more particularly by virtue of the improved constructional features of the hinges employed, which will be more thoroughly explained later. I also mount upon the door 9, a ringer or calling device, 10, I further mount upon the door 9 of the cabinet the condenser 11, which condenser is held in place by suitable straps, 12—12. It will thus be seen from this description and from the illustration that the seven parts of the telephone, namely the receiver, switchhook, generator, batteries, ringers, induction coil and condenser are immediately accessible the minute the door is opened. This improved construction makes it possible to more easily repair any parts in a telephone which is in service and which may be giving trouble.

I come now to the improved constructional features for making interconnections between the various apparatuses. I employ five hinges 13, which secure the door 9, to the cabinet 1, and through the agency of these hinges indirectly connection is made between the parts mounted on the door, namely the ringer, the induction coil, the transmitter, and the condenser, and the remaining parts of the telephone which are mounted in the cabinet, namely the receiver, the switchhook, the generator and the batteries. The wire leading from the lowermost hinge 13, is preferably insulated part of the way, so that it cannot come in metallic contact with the batteries when the door is closed. To explain more in detail my improved hinge construction I refer to Fig. 3. The hinge consists of the two plates 14—14, which are hinged together by means of the bolt 15. Around the bolt 15 I preferably pass a spring 16, the ends of which spring after a few convolutions around the bolt 15, extend away from the said bolt 15, to apertures 17—17 provided in the plates 14. Adjacent to the two plates of the hinge I provide escutcheon pins 18—18, about which the free ends of the spring 16 are twisted, and preferably soldered. It will thus be seen that between the escutcheon pins 18—18, associated relatively with each hinge 13, there is a permanent and absolute metallic contact. I thus provide suitable metallic contact means between the swinging door 9, and the fixed portion of the cabinet 1. The wires leading from the apparatuses

in the telephone are brought to the escutcheon pins on the inside of the cabinet and the wires leading from the apparatuses on the door 9, are brought to the escutcheon pins 18, which are mounted on said door 9. It will thus be seen that a metallically continuous connecting means is provided through each hinge, which interconnects metallically and without a break the various parts mounted on the door and the various parts mounted in the cabinet.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to limit myself to the precise construction and arrangement as herein set forth, but having thus set forth its most salient features, what I claim as new and desire to secure by Letters Patent is:—

1. A wall telephone comprising a cabinet and a door, hinges for rotatably mounting said door to said cabinet, telephone apparatus including dry batteries mounted in the cabinet, a transmitter and arm mounted on the door, a ringer mounted on the door, a self-contained switchhook fastened to the side-wall of the cabinet, an induction coil mounted on the door, a generator mounted upon a shelf within said cabinet spring conductors associated with said hinges for interconnecting the telephone apparatus on the door with the telephone apparatus in the cabinet, escutcheon pins provided for each spring conductor, one in the cabinet and one on the door, connecting wires leading from the telephone apparatus mounted on the door to said escutcheon pins and connecting wires leading from the telephone apparatus in the cabinet to the escutcheon pins mounted in the cabinet.

2. A wall telephone comprising a cabinet and a door, hinges for rotatably mounting said door to said cabinet, telephone apparatus including dry batteries mounted in the cabinet, a transmitter and arm mounted on the door, a ringer mounted on the door, a self-contained switchhook fastened to the side-wall of the cabinet, an induction coil mounted on the door, a generator mounted upon a shelf within said cabinet, spring conductors associated with said hinges for interconnecting the telephone apparatus on the door with the telephone apparatus in the cabinet, escutcheon pins provided for each spring conductor, one in the cabinet and one on the door, connecting wires leading from the telephone apparatus mounted on the door to said escutcheon pins and connecting wires leading from the telephone apparatus in the cabinet to the escutcheon pins mounted in the cabinet, said connecting wires leading from the telephone apparatus in the cabinet being soldered to the ends of the spring conductors associated with the escutcheon pins mounted in the cabinet, and

said connecting wires leading from the apparatus on the door being soldered to the ends of the spring conductors associated with the escutcheon pins mounted on the door.

3. A wall telephone comprising a cabinet and a door, hinges for rotatably mounting said door to said cabinet, telephone apparatus including dry batteries mounted in the cabinet, a transmitter and arm mounted on the door, a ringer mounted on the door, a self-contained switchhook fastened to the side-wall of the cabinet, an induction coil mounted on the door, a generator mounted upon a shelf within said cabinet, spring conductors associated with said hinges for interconnecting the telephone apparatus on the door with the telephone apparatus in the cabinet, escutcheon pins provided for each spring conductor, one in the cabinet and one on the door, connecting wires leading from the telephone apparatus mounted on the door to said escutcheon pins, connecting wires leading from the telephone apparatus in the cabinet to the escutcheon pins mounted in the cabinet, said connecting wires leading from the telephone apparatus in the cabinet being soldered to the ends of the spring conductors associated with the escutcheon pins mounted in the cabinet, and said connecting wires leading from the apparatus on the door being soldered to the ends of the spring conductors associated with the escutcheon pins mounted on the door, and insulating sleeving provided upon the connecting wires on the door where they are adjacent to the batteries when the door is closed.

4. A wall telephone comprising a cabinet and a door, hinges for rotatably mounting said door to said cabinet, telephone apparatus including dry batteries mounted in the cabinet, a transmitter and arm mounted on the door, a ringer mounted on the door, a condenser mounted on the door, a self-contained switchhook fastened to the side-wall of the cabinet, an induction coil mounted on the door, a generator mounted upon a shelf within said cabinet, spring conductors associated with said hinges for interconnecting the telephone apparatus on the door with the telephone apparatus in the cabinet, escutcheon pins provided for each spring conductor, one in the cabinet and one on the door, connecting wires leading from the telephone apparatus mounted on the door to said escutcheon pins, connecting wires leading from the telephone apparatus in the cabinet to the escutcheon pins mounted in the cabinet, said connecting wires leading from the telephone apparatus in the cabinet being soldered to the ends of the spring conductors associated with the escutcheon pins mounted in the cabinet, and said connecting wires leading from the apparatus on the

door being soldered to the ends of the spring conductors associated with the escutcheon pins mounted on the door, and insulating sleeving provided upon the connecting wires on the door where they are adjacent to the batteries when the door is closed.

5. The combination with a cabinet and a hinged closure therefor, of electrical apparatus mounted both in said cabinet and on said closure, a hinge between said closure and said cabinet, a spring conductor associated with said hinge for connecting electrical apparatus on said closure with apparatus in said cabinet, conductors leading from apparatus in the cabinet and on the closure, the ends of said spring conductor being soldered respectively to the conductors from the apparatus in the cabinet and on the closure, and retaining devices adjacent to said hinge both on the cabinet and on the closure for securing said soldered ends in place respectively in the cabinet and on the closure.

6. A magneto telephone comprising a cabinet and a flat closure therefor, a generator mounted upon a shelf within said cabinet, an induction coil having a primary and a secondary winding upon said closure, a transmitter also mounted on said closure, one terminal of said primary winding being connected to one terminal of said secondary winding, a conductor leading from said united terminals to one hinge of the cabinet, a second conductor leading from the other terminal of the secondary winding to another hinge of said cabinet, a third conductor leading from the other terminal of the primary winding to the transmitter, and a fourth conductor leading from said transmitter to a third hinge of said cabinet, the conductors being so arranged upon said closure that the second conductor is accessible so that a condenser may be readily inserted in this last named conductor and supported on the lower portion of the closure.

7. A magneto telephone comprising a cabinet and a flat closure therefor, a generator mounted within said cabinet, a switchhook mounted within the cabinet, batteries mounted in said cabinet, a transmitter mounted upon said closure near the central portion thereof, a condenser mounted on said closure below the transmitter, an induction coil mounted upon said closure near the top thereof, a conductor leading from a terminal of the primary winding of said induction coil to said transmitter, a conductor leading from said transmitter to one hinge of the cabinet, a conductor from the secondary of said induction coil leading to another hinge at the lower inner corner of said closure, means for fastening said conductor to said closure near the hinge, and means providing a conductive extension of said conductor from said hinge to within said cabinet, said

last named conductor being readily accessible for the insertion and removal of the condenser.

5 8. A magneto telephone comprising a cabinet and a flat closure therefor, a generator mounted within said cabinet, a switchhook mounted within the cabinet, batteries mounted in said cabinet, a transmitter mounted upon said closure near the central portion thereof, an induction coil mounted upon said closure near the top thereof, a conductor leading from a terminal of the primary winding of said induction coil to said transmitter, a conductor leading from said transmitter to a hinge of the cabinet, a conductor from the secondary of said induction coil leading to the lower inner corner of said closure, means for fastening said conductor to said closure thereat, a condenser mounted upon said closure serially included in said conductor, and means providing a conductive extension of said conductor within said cabinet said conductor between the induction coil and the fastening on the closure being free from other conductors whereby it is readily accessible for removal or replacement of the condenser.

9. A magneto telephone comprising a cabinet and a flat closure therefor, a generator mounted within said cabinet, a switchhook mounted within the cabinet, batteries mounted in said cabinet, a transmitter mounted upon said closure near the central portion thereof, an induction coil mounted upon said closure near the top thereof, a conductor leading from a terminal of the primary

winding of said induction coil to said transmitter, a conductor leading from said transmitter to a hinge of the cabinet, conducting means from the secondary of said induction coil leading to the lower inner corner of said closure, means for fastening said conducting means to said closure thereat, and means providing a conductive extension of said conducting means within said cabinet said conducting means being so arranged on the closure that a condenser may be readily inserted in or removed therefrom by unskilled persons.

10. A local battery telephone comprising a cabinet and closure therefor, telephone apparatus mounted in the cabinet and having fixed connections on the side of the cabinet adjacent the closure, an induction coil, a transmitter and a condenser mounted upon the closure, the condenser being in an otherwise unoccupied portion on the inside face of said closure, and connections for said induction coil, transmitter and condenser extending to the fixed connections for the telephone apparatus in the cabinet, said connections including a conductor easily accessible for the withdrawal and insertion of the condenser therein extending from the secondary of said induction coil to within the cabinet.

In witness whereof, I hereunto subscribe my name this 31st day of March, A. D. 1908.

OSCAR M. LEICH.

Witnesses:

MAX W. ZABEL,
O. M. WENNICH.