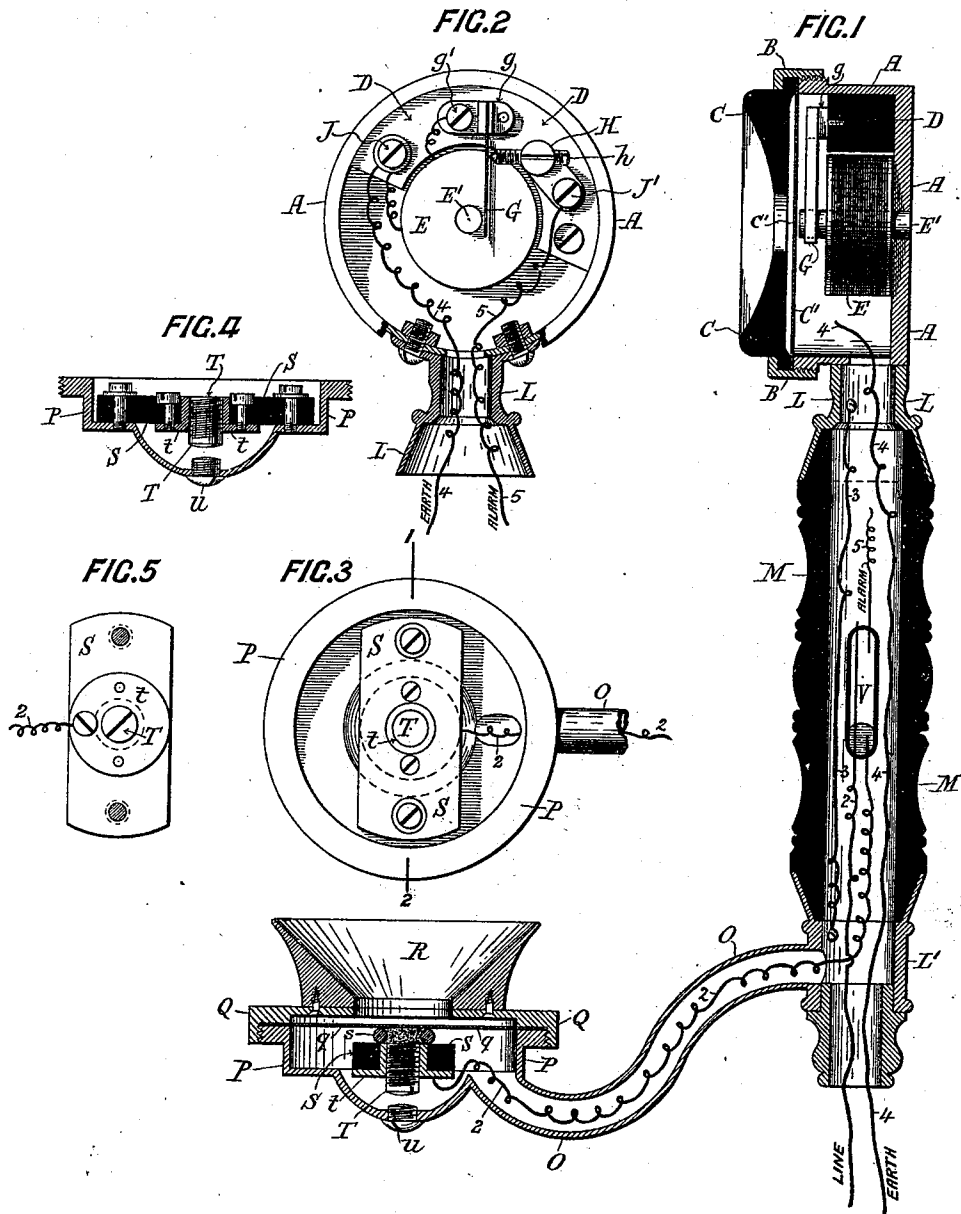


(No Model.)

P. RABBIDGE.
TELEPHONIC INSTRUMENT.

No. 511,456.

Patented Dec. 26, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

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TELEPHONIC INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 511,456, dated December 26, 1893.

Application filed April 22, 1893. Serial No. 471,479. (No model.)

To all whom it may concern:

Be it known that I, PARNELL RABBIDGE, a subject of the Queen of Great Britain and Ireland, and a resident of Sydney, in the Colony of New South Wales, have invented an Improved Telephonic Instrument, of which the following is a specification.

This invention consists in combining in one instrument a transmitter, a receiver, and a call or alarm in such a manner that when the instrument is hung on its hook the alarm or call shall be in circuit, but when it is raised to the ear and mouth of the speaker the transmitter and receiver shall be in circuit and the call will be cut out. The transmitter and receiver are connected together in a manner somewhat similar to that shown in my United States Patent No. 423,670, wherein when the receiver is placed to the ear, the transmitter shall occupy a position opposite to the mouth of the speaker. The different circuits are controlled by a gravity switch that is placed within the arm by which the receiver and transmitter are connected together.

In the accompanying drawings:—Figure 1 is a vertical section of the whole apparatus. Fig. 2 is a plan view of the receiver with the ear piece and diaphragm removed. Fig. 3 is a plan view of the transmitter with the mouth piece and the diaphragm removed. Fig. 4 is a cross section of Fig. 3, on the line 1—2. Fig. 5 is a back or under view of the plate that carries the microphone.

A, is a soft iron casting in the form of a shallow circular box.

B, is a brass ring screwed onto the iron casting A, and which holds the ear piece C and diaphragm C' of the receiver.

D, is a half ring of suitable insulating material for holding the terminals and vibrating armature in position.

E, is an electro magnet, the core E' of which is rigidly secured to the casting A.

G, is the vibrating armature which is in the form of a flat spring. It is the vibration of this armature that rapidly interrupts the current thus producing a rapid vibration of the receiver diaphragm and consequently giving out a musical note or sound which constitutes the call. The spring armature G, is carried

by a brass plate *g*, that is secured by the screw *g'*, and contact made with the casing A.

H, is a pillar that carries the adjustable contact screw *h*, which is platinum tipped. This screw *h*, makes contact with the spring armature G. In the receiver the diaphragm C', makes contact with the metal casing A, and thereby will form one pole of the electro magnet E. By this arrangement increased sensitiveness is obtained.

J J', are binding screws that are secured to the insulating piece D.

L, is a brass casting that is secured to the casing A, of the receiver, and by means of which the receiver is secured to the hollow handle M. At the other end of this hollow handle M, is a brass casting L', to which is rigidly secured a metal tube O, the extremity of which opens into the transmitter. The transmitter consists of a hollow box P, the form of which is shown in Figs. 1, 3 and 4.

Q, is a brass plate or cap that screws on the box P, and which holds the diaphragm *q*, in position. The mouthpiece R, is secured to the cap Q, which is provided with the usual central aperture to allow the sound waves to act on the diaphragm.

Within the transmitter casing is secured a small slab S of slate or other suitable material. The slab S, forms a support for the microphone. The microphone consists of an indiarubber or other suitable flexible ring, the central space in which is filled with granular carbon. See transmitter in Fig. 1. The microphone is held in place between the diaphragm *q*, and the slab S, by means of the screw T, which has its bearing in a brass plate *t*, which is secured to the slab S. The screw T, serves to regulate the degree of intimacy of contact between the granular carbon and the diaphragm. The contact surfaces of the diaphragm and the screw T, are platinized or otherwise suitably coated to prevent oxidation. *u*, is a screw plug, placed in the bottom of the casing P, and which may be removed for the purpose of adjusting the screw T. Within the hollow handle M, is placed a gravity switch V, which consists of a tubular vessel that contains a globule of mercury, and is provided with the necessary internal contact points for closing the different

circuits according to the position in which the instrument is held. In the position in which the instrument is shown in the drawings the alarm circuit is cut out, and the receiver and transmitter are in circuit. In Fig. 1, circuit is complete from the line wire through the gravity switch V, through wire 2, microphone S, diaphragm Q, case P, tube O, wire 3, case A, screw g' , that is in contact with case A, electro magnet E, binding screw J, and to earth by wire 4. When the instrument is inverted the transmitter and receiver circuit will be cut out and the alarm circuit closed (see Fig. 2) from line wire through switch V, wire 5, binding screw J', contact screw h , screw g' , electro magnet E, binding screw J, to earth through wire 4.

When the instrument is not in use it is hung upon a hook by the curved portion of the tube O, and will therefore be in the reverse position to that shown in the drawings.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In telephonic apparatus the telephone receiver with a spring armature contact breaker that is contained within the receiver casing whereby an interrupted current is obtained and the diaphragm of the receiver is caused to act as an alarm or call; in combination with a transmitter that is rigidly secured to the receiver by means of an arm, in such a position that when the receiver is placed to the ear the transmitter opposes the mouth of the operator, as herein described.

2. In telephonic apparatus the telephone receiver with a spring armature contact breaker that is contained within the receiver

casing whereby an interrupted current is obtained and the diaphragm of the receiver is caused to act as an alarm or call; in combination with a transmitter that is rigidly secured to the receiver by means of an arm, in such a position that when the receiver is placed to the ear the transmitter opposes the mouth of the operator, and with a gravity switch which closes the required circuits according to the position in which the instrument is held as herein specified.

3. A receiver case, diaphragm, electro magnet and spring armature or contact breaker, the spring armature being distinct from the diaphragm and inclosed within the case, in combination with a gravity switch, whereby the alarm circuit shall be cut out when the receiver is held to the ear as described.

4. In telephonic apparatus a transmitter rigidly secured to a receiver in such a position that when the receiver is placed to the ear the transmitter is opposite the mouth of the operator; in combination with a gravity switch whereby when the receiver is placed to the ear the receiver and transmitter are both in circuit, and an alarm or call cut out of circuit when the receiver is placed to the ear and when the instrument is placed in a reversed position the alarm or call is connected in circuit, and the receiver and transmitter cut out of circuit.

In witness whereof I have hereunto set my hand in presence of two witnesses.

PARNELL RABBIDGE.

Witnesses:

T. ORMOND O'BRIEN,
Notary Public, Sydney, New South Wales.
MANFIELD NEWTON, C. E.