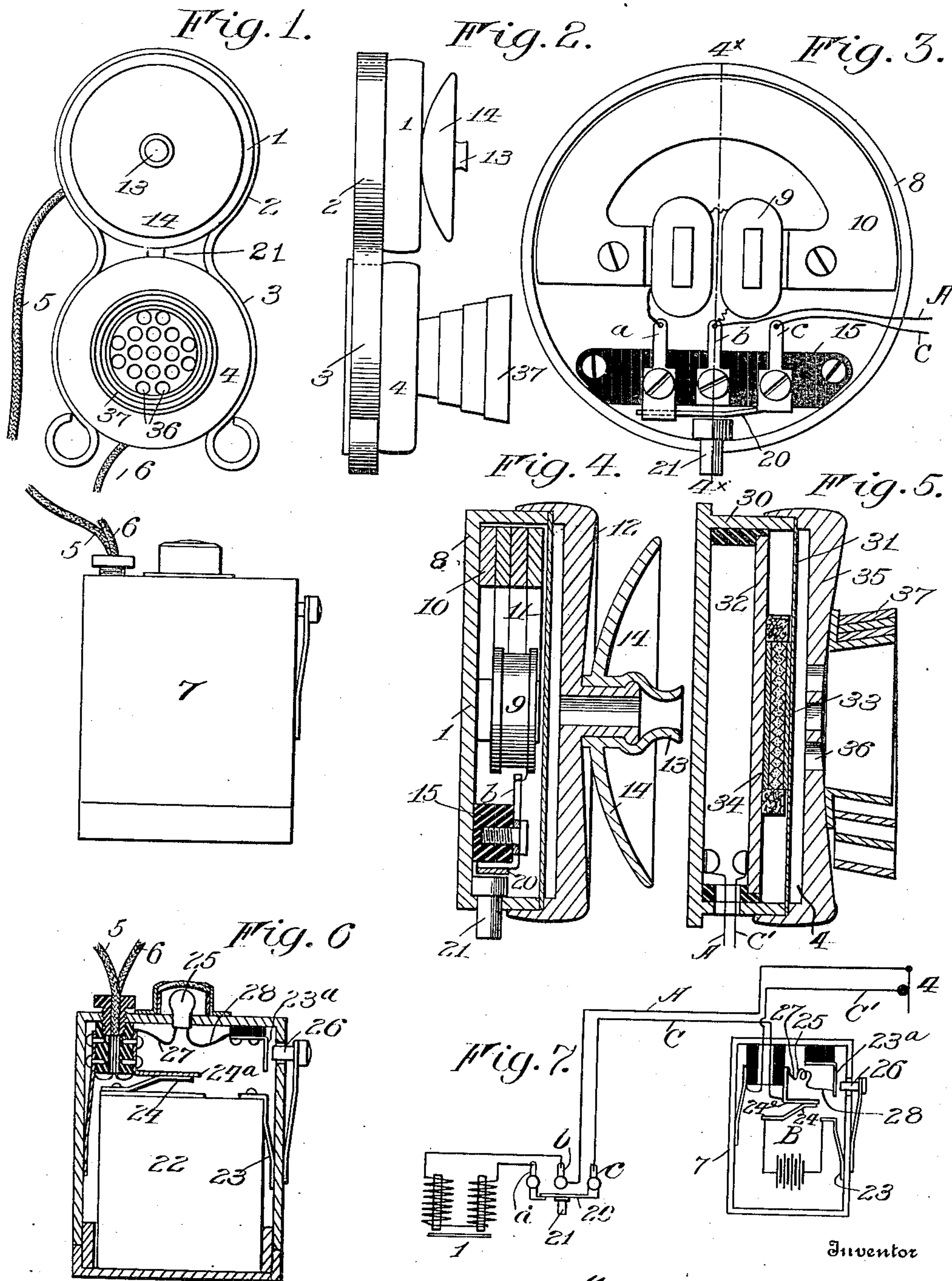


No. 837,534.

PATENTED DEC. 4, 1906.

G. BABCOCK.  
TELEPHONE APPARATUS.  
APPLICATION FILED AUG. 31, 1905.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## TELEPHONE APPARATUS.

No. 837,534.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed August 31, 1905. Serial No. 276,496.

*To all whom it may concern:*

Be it known that I, GARRISON BABCOCK, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Telephone Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference characters marked thereon.

My present invention relates to telephones, and has for its object to provide an instrument which is simple and compact in construction and may be conveniently carried either in a person's hand or in an ordinary pocket of a garment, adapting it particularly for the use of persons having impaired hearing.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a view illustrating a complete apparatus embodying my invention. Fig. 2 is a side elevation of the receiver and transmitter, showing the latter in the supporting-frame. Fig. 3 is an enlarged detail view showing the receiver with the cover removed. Fig. 4 is a cross-sectional view on the line 4×4× of Fig. 3. Fig. 5 is a similar view of a transmitter. Fig. 6 is a detail view of the battery. Fig. 7 is a diagrammatic view illustrating the circuit.

Similar reference characters in the several figures indicate similar parts.

A telephone set or apparatus constructed in accordance with my invention embodies generally a receiver 1, mounted in a supporting-frame 2, provided with spring-arms 3, forming a handle by means of which the user may hold the receiver against his ear, and which are also adapted to receive and support the transmitter 4 in juxtaposition to the receiver when it is not in use. Both the receiver and the transmitter are connected by flexible cords 5 and 6, respectively, containing the circuit-conductors leading to a small dry battery 7, as will be further described.

The receiver comprises a shell or casing 8, containing the usual electromagnets 9 on a

core 10, arranged beneath the diaphragm 11, which is secured by a removable cover-piece 12. The latter has an outer concave surface, as shown in Fig. 4, and projecting outwardly from the center is a perforated extension 13, adapted to project into the orifice of the skull or the outer meatus of the ear of a person. In order to more thoroughly exclude and reduce the effect of air vibrations exteriorly of the receiver, the ear-piece 13 is surrounded by a flexible dish-shaped disk 14, which is adapted to engage the outer ear and to be more or less flattened against the concave surface of the cap when in operative position. Arranged in one of the parts of the instrument, preferably in the receiver, is a bridge-piece 15, of insulating material, carrying the contacts *a*, *b*, and *c*, the first two of which receive the terminal wires of the electromagnets 9, which are connected directly to one of the circuit-wires, (indicated by *A*,) which leads indirectly to one side of the battery *B*. The other contact *c* is provided with a laterally-extending spring-finger 20, adapted to engage a laterally-extending end on the contact *a* when the talking-circuit is closed and to connect said contact with the other side of the battery by means of the circuit-wire *C*. As it is desirable to cut out the battery when the telephone is not in use, I provide a movable member 21, located beneath the spring 20, projecting outwardly from the side of the shell 8 in position to be operated inwardly when the transmitter 4 is inserted between the spring-fingers of the holder, as shown in Fig. 2.

The battery which I employ comprises a dry cell 22, having pole-pieces 23 and 24. This cell is removably secured in the metallic casing, (indicated by 7 in Fig. 1,) forming one contact engaging the pole-piece 23 and to which one of the circuit-wires is connected. The other circuit-wire is connected to the insulated contact-piece 24<sup>a</sup>, engaging the pole-piece 24 when the cell 22 is in place within the casing. A small incandescent lamp 25 is also arranged on the casing 7, having one of its terminals connected to the contact 24<sup>a</sup> and the other joined to a contact-piece 23<sup>a</sup>, which may be engaged by a spring-operated contact-button 26, carried on the casing and adapted to be moved inwardly by the operator, which may be engaged with the pole-



piece to close the lamp-circuit when it is desired to make a battery test.

The transmitter 4 comprises a cylindrical case 30, containing a diaphragm 31 and a bridge 32, provided on their proximate faces with the front and back electrode-plates 33 and 34, respectively, between which is located the usual powdered carbon or other conductive material. The front of the transmitter is closed by a cover 35, having a central perforation or a series of perforations 36, leading to the diaphragm 31, and arranged thereon is a collapsible trumpet or mouth-piece composed of a plurality of tapering telescoping rings 37, which may be drawn outwardly, as shown in Fig. 2, and collapsed, as indicated, when the device is not in use, the inner ring being secured to the cover 35 and surrounding the perforations 36. The circuit connecting the transmitter and receiver with the battery and the test-lamp is shown in Fig. 7, from which it will be seen that the conductor A extends directly to the diaphragm 31. One side of the battery B is connected by the conductor C' to the back electrode 34, while a continuation of the said conductor C extends from the other side of the battery through the contact c, spring-finger 20, to the contact a, when the finger is released by removing the transmitter from the holder out of engagement with the button-plunger 21. The test-lamp 25 has one of its terminals 27 connected to the conductor C, while its other terminal 28 leads to the contact 23<sup>a</sup>, with which engages the push-button 26, attached, as before described, to the conductor C by its connection with the casing 7, which is in engagement with the contact 23. The conductors A and C' are woven into the flexible cords 5 and 6, and when the device is in operation the battery is carried in the user's pocket, and the cords being of convenient length he may hold the receiver in engagement with one of his ears and

hand the transmitter to the person with whom he desires to engage in conversation.

In a telephone apparatus constructed in accordance with my invention comprising a receiver and transmitter which are adapted to be detachably secured together and providing means on one part controlled by the other for breaking the battery-circuit when the instrument is not in use a battery of relatively small size and one that is light in weight may be employed, as current is not generated excepting when used to furnish working current for the apparatus. By providing the battery in a removable case having means, such as the lamp 25, for testing its strength the operator may readily determine from time to time if it is producing the proper amount of electromotive force and when exhausted he may remove the old cell and place a new one in the casing.

I claim as my invention—

1. In a telephone set, the combination with a circuit and a receiver and transmitter arranged therein, a supporting-handle on one of the parts comprising holding-arms adapted to detachably retain the other part in proximity thereto.

2. In a telephone set, the combination with a circuit and a receiver and transmitter arranged therein, of a switch controlling said circuit located in the receiver, arms projecting at one side of the transmitter comprising a handle by means of which it may be supported when in use, said arms being also adapted to secure the transmitter to the receiver, and a switch-operating member located between the arms adapted to be operated when the transmitter is inserted between them.

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Witnesses:

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