

(No Model.)

2 Sheets—Sheet 1.

G. V. BENJAMIN.  
TELEPHONE SUPPORT.

No. 485,027.

Patented Oct. 25, 1892.

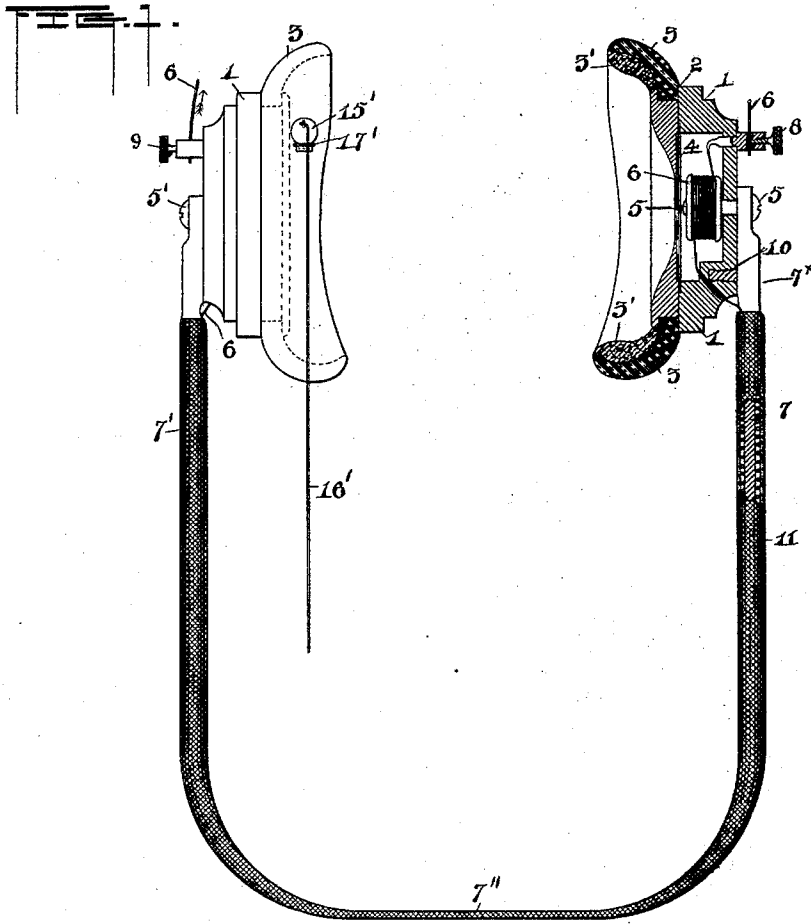


Fig. 2.

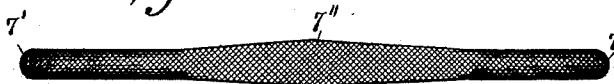


Fig. 5.



WITNESSES

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INVENTOR

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by  
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Att'y.

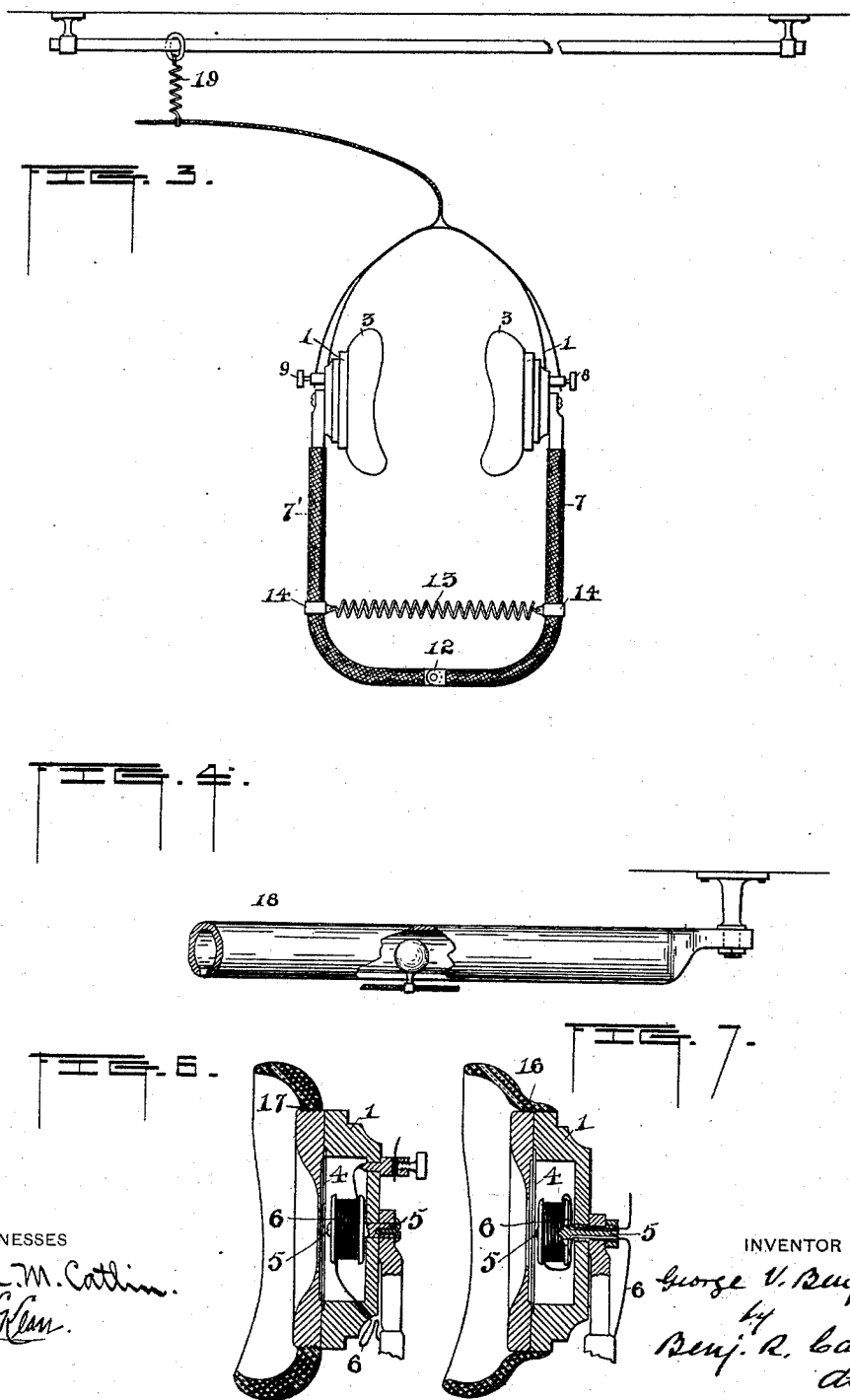
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INVENTOR

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# UNITED STATES PATENT OFFICE.

GEORGE VAUGHN BENJAMIN, OF ITHACA, NEW YORK.

## TELEPHONE-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 485,027, dated October 25, 1892.

Application filed March 19, 1892. Serial No. 425,572. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE VAUGHN BENJAMIN, a resident of Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Telephone-Supports; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to a telephone-receiver provided with an ear-embracing cap or cover and to a combination of such devices for supporting elastic conductors connected with a receiver or receivers; and it has for its objects, among others, to provide means for supporting a telephone-receiver at each ear without the use of the operator's hand and by means that will exclude extraneous sounds or admit them at will, and to make such receivers and connections, including the adjacent portions of the elastic conductors, as light as practicable, and at the same time to enable the operator to freely move in various directions over considerable areas.

The invention consists in the constructions hereinafter described and particularly pointed out.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of the receivers, ear-covers, and magnet. Fig. 2 is a bottom plan of the magnet. Fig. 3 is a partially-diagrammatic view of the device with a movable support for conductors. Fig. 4 indicates a modification of a movable conductor-support. Fig. 5 is a transverse section of one of the limbs of one form of a horseshoe-magnet, and Figs. 6 and 7 are sections showing modifications of the connections between the magnet and coil.

Numerals 1 denotes a telephone receiver of non-conducting material, such as rubber. It is provided with a groove 2, adapted to receive the edge of an ear cover or cap 3, made of non-conducting and preferably elastic material, such as rubber or felt. This ear-cover is made to flare outwardly and has an exterior outline or edge that adapts it to fit the head and exclude air and sound. It may, if desired, be lined with any soft non-conducting material 3', extended close to the rim of the ear-cover and adapted to pack the joint between the ear-cover and the head or the

base of the ear. The groove 2 to receive the ear-cap is not essential in all cases and the cap may be provided with an elastic or flexible band 16, as shown in Fig. 7, of any suitable size and material, whereby it is adapted to be applied to a receiver of usual form, as shown in Fig. 6, or the cap may be provided with a screw-threaded part 17, adapted to be screwed onto a suitably-threaded part of the receiver.

4 is a diaphragm of usual construction, and 5 is a screw situated at the end of the magnet, as indicated, and wound with an insulated wire or conductor 6, made of copper, aluminum, or of any metal or alloy combining conductivity with comparative lightness of weight. These parts may be duplicated and the coil of the wire extended and wound about limbs 7 and 7' of a magnet and then about a screw 5', which is the core of a second coil of the conducting-wire 6.

8 and 9 are binding-screws. The rear of each receiver is made flat and parallel with the diaphragm and may be secured to a corresponding surface formed on a limb of the magnet 7<sup>x</sup> by a special screw 10.

11 is a non-conducting covering, which in practice will extend over both limbs of the magnet. The limbs 7 and 7' are preferably formed of soft iron and connected by a piece of spring-steel 7'', welded thereto. This is made wider and thinner in cross-section than a limb and is preferably enlarged toward its longitudinal center. The core of the coil may be slotted or bored out, as indicated in Fig. 7, and have a pivotal connection with the magnet, and the wire of the coil can be passed through the slots or bored-out openings, the construction being such that the receivers can be turned with relation to the magnet without drawing upon the wire. The friction of the parts will normally hold them in fixed relation to each other. A solid pivot may be employed, adapted to turn in a bearing in the magnet, said pivot being an extension of the core of the coil, as indicated in Fig. 6.

It is contemplated making the magnet hollow in whole or in part, as indicated at 7''' in Fig. 5, to decrease its weight without seriously impairing its strength and efficiency. In case a hollow or tubular magnet is employed the conductor may be led through its interior. Instead of joining by the welded-

steel connection they may be hinged together, as indicated at 12, Fig. 3, and connected by a spring 13.

14 indicates adjustable clasps, whereby the spring may be held at a greater or less distance from the hinge, according to the greater or less pressure of the ear-cover against the head, if desired.

15' is a valve normally closing an opening in the ear-cover, but provided with a lever or equivalent, whereby it may be opened when the operator desires to hear other than the telephonic sounds.

16' indicates a cord for opening the valve, and 17' a spring for closing it when the cord is free.

To enable the operator to move over a considerable area while the receivers are supported upon his head in operative position and his hands are free for any desired service, the plus and minus wires, preferably enveloped together, are suspended from an overhead rod or tube.

In Fig. 3 is shown a rod supporting a ring, which by the medium of an elastic cord or coil 19 supports conductors inclosed in a non-conducting envelope. Another form of supporting device is indicated in Fig. 4. 18 indicates a slotted tube, one end of which is supported in any suitable manner, as from a hanger, and preferably so that it may be swung about its point of support. Within the tube is placed a ball or equivalent carriage, from the bottom of which, through the tube-slot, the conductors are suspended. If desired, an elastic coil or cord 19 may also be used in connection with this form of supporting device. As the telephone-user moves lengthwise of any given position of the tubular support the ball is drawn along through the tube, and as said support swings about a center he can move to any place within a circle as large and larger than that described by the rod.

The above-described devices, made as light as practicable and by means of the particular construction specified, are supported on the head by means of the magnet, or if a magnet properly shaped for the purpose be not used with the other parts of the improvement the receivers, one or both, may be supported in any convenient manner, as by the ear cover or covers, with or without supporting-straps analogous in form to the magnet illustrated. The receivers being thus supported, the auditor has his hands free for copying, running an engine, waving a signal, or for any desired manipulations.

The magnet is preferably flattened in cross-section and of the horseshoe type, and in case it is made entire can be adjusted to suitably hold the receivers and ear-covers by bending the metal.

The entire exclusion of all but telephonic sounds and the conveyance of the latter to both ears alike render hearing easier and prevent the injury which may be occasioned by the exclusive use of one ear. It also lessens

the danger of diversion of the mind to external sounds, and if it is desired to hear the latter it is only necessary to open the valves.

Having thus described my invention, what I claim is—

1. In a telephone, the combination of receivers adapted to be applied to both ears with a horseshoe-magnet having two limbs of soft iron, joined together by a piece of spring-steel integral therewith, substantially as set forth.

2. In a telephone, the combination of receivers with a horseshoe-magnet having two limbs of soft iron, joined together by a piece of steel, said limbs being hollow for the reception of a conductor, substantially as set forth.

3. In a telephone, the combination of receivers with a horseshoe-magnet having two limbs of soft iron, joined together integrally by a piece of spring-steel having a thinner and wider transverse sectional area than a limb, substantially as set forth.

4. In a telephone, the combination of receivers with a horseshoe-magnet having two limbs of soft iron, joined together integrally by a piece of spring-steel having a thinner and wider transverse sectional area than a limb and having said area enlarged toward its longitudinal center, substantially as set forth.

5. In a telephone, the wire coil having a core extending through the back of the receivers and grooved to receive both ends of the wire, substantially as set forth.

6. A telephone-receiver, a conducting-wire, a suspending cord or wire, and movable cord-support consisting of a slotted tube, the cord being provided with a carriage fitted in the tube, whereby said support of a suspending-cord of a conducting-wire of a telephone may be moved horizontally, substantially as set forth.

7. A telephone-receiver, devices for supporting said receiver in operative position on the head, a conducting-wire, a supporting-rod, a suspending cord or wire, and a freely-movable cord-supporting ring, whereby said telephone and cord-support and conducting-wire may be moved to various positions with and by the operator's head, substantially as set forth.

8. A telephone-receiver, a conducting-wire, a suspending cord or wire, and movable cord-support consisting of a slotted tube, the cord being provided with a carriage fitted in the tube, whereby said support of a suspending-cord of a conducting-wire of a telephone may be moved horizontally, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE VAUGHN BENJAMIN.

Witnesses:

T. J. McELHENY,  
WM. HAZLITT SMITH.