

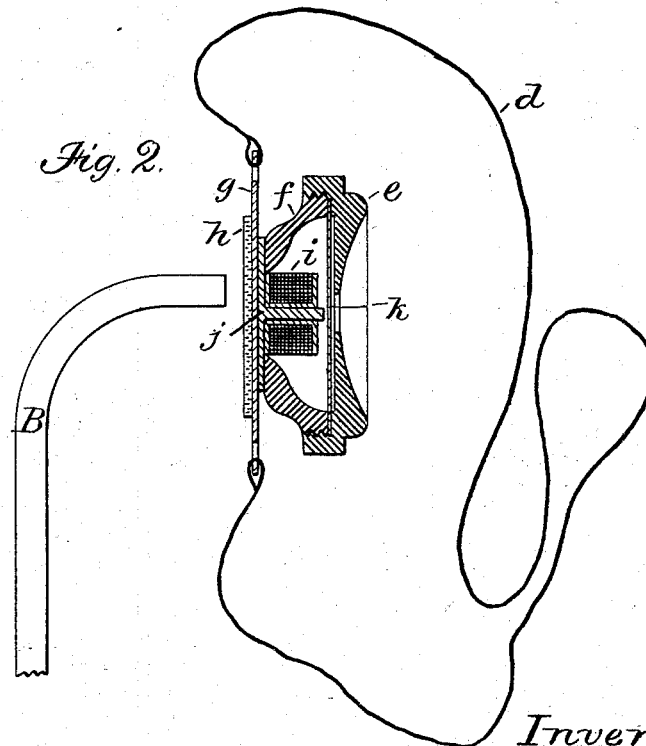
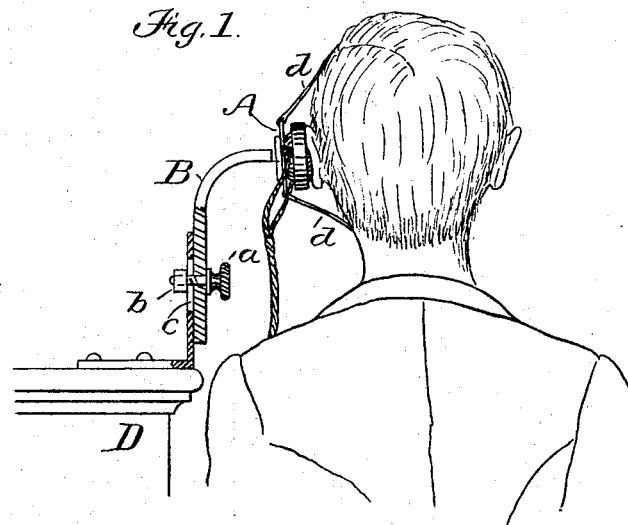
(No Model.)

E. BERLINER.

OPERATOR'S RECEIVING TELEPHONE.

No. 262,921.

Patented Aug. 22, 1882.



Attest.  
J. H. Cheever.  
Geo. Willis Pierce.

Inventor  
*Emile Berliner*

# UNITED STATES PATENT OFFICE.

EMILE BERLINER, OF BOSTON, MASSACHUSETTS.

## OPERATOR'S RECEIVING-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 262,921, dated August 22, 1882.

Application filed April 15, 1882. (No model.)

### *To all whom it may concern:*

Be it known that I, EMILE BERLINER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Operators' Receiving-Telephones, of which the following is a specification.

This invention relates to the class of telephones which are used by operators or others whose occupation requires a long-continued listening to electrically-transmitted intelligence, particularly articulate sound, and refers more definitely to receiving-telephones which are strapped to the ear. Hitherto it has been found difficult to make a receiving-telephone which is strapped to the ear, and is light enough so as not to interfere with the comfort of the operator and at the same time be efficient in service long continued. The reason is that in the practical receiving-telephone a certain amount of magnetic strength is required to polarize an electro-magnet, and as this magnetism represents a certain weight in steel (or also a certain weight in insulated wire and iron where an electro-magnet is substituted for a permanent magnet) it has been found that carrying this weight on one's head interferes with one's comfort and health. It has been tried to substitute steel springs for the ordinary bar-steel, and shape them so that they will exert pressure only to the sides of the head; but in such steel springs the magnetism is not permanent and rapidly loses its strength.

In my improvement I disconnect the magnet from the receiving-telephone, and make the former part of the station's fixtures near the operator's ear, so that the remaining parts of the telephone—viz., the sounding-chamber, electro-magnet, and diaphragm—which are strapped to that ear are in its magnetic field. This is shown in the drawings, as follows:

In Figure 1 the telephone A is strapped to the operator's ear by the strings *d d*. The magnet B is screwed to the spring C by means of the screw and nut *a b*, and the said spring C to the station fixtures D. The spring C is provided with a slot through which the screw *a'* passes, thus permitting the magnet B to be raised to

different heights, according to the usual position of each individual operator.

In Fig. 2 the parts of the telephone are more specifically shown. Here are the diaphragm K, electro-magnet *i*, and sounding-chamber parts *e* and *f*. The core of the electro-magnet is fixed to the iron plate *j*. *g* is another plate, forming a holder, and to this plate the string *d* is attached. A cushion of soft material, *h'*, is preferably glued to the back of the telephone, in order to prevent any noise in case the operator should strike with the telephone against the magnet B. As a further feature in this direction may be counted the spring C in Fig. 1, which permits the magnet to yield in case the operator should touch it.

It is evident from the above description that the requirements sought after in my invention are perfectly met—viz., a receiving-telephone of light weight is strapped to the operator's ear, and magnetism of unlimited strength is supplied without additional weight to the operator's head or discomfort of any kind. Therefore

### I claim—

1. A receiving-telephone consisting of a sounding-chamber, diaphragm, and inert electro-magnet, which is included in a telephone-circuit, and provided with straps adapted to secure the instrument to an operator's ear, in combination with a detached magnet located, as described, so that the telephone may be within the magnetic field of the magnet.

2. A receiving-telephone consisting of a sounding-chamber, diaphragm, and inert electro-magnet, which is included in a telephone-circuit and pressed against an operator's ear, in combination with a detached magnet located, as described, so that the telephone may be within the magnetic field of the magnet.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of April, 1882.

EMILE BERLINER.

### Witnesses:

J. H. CHEEVER,  
GEO. WILLIS PIERCE.