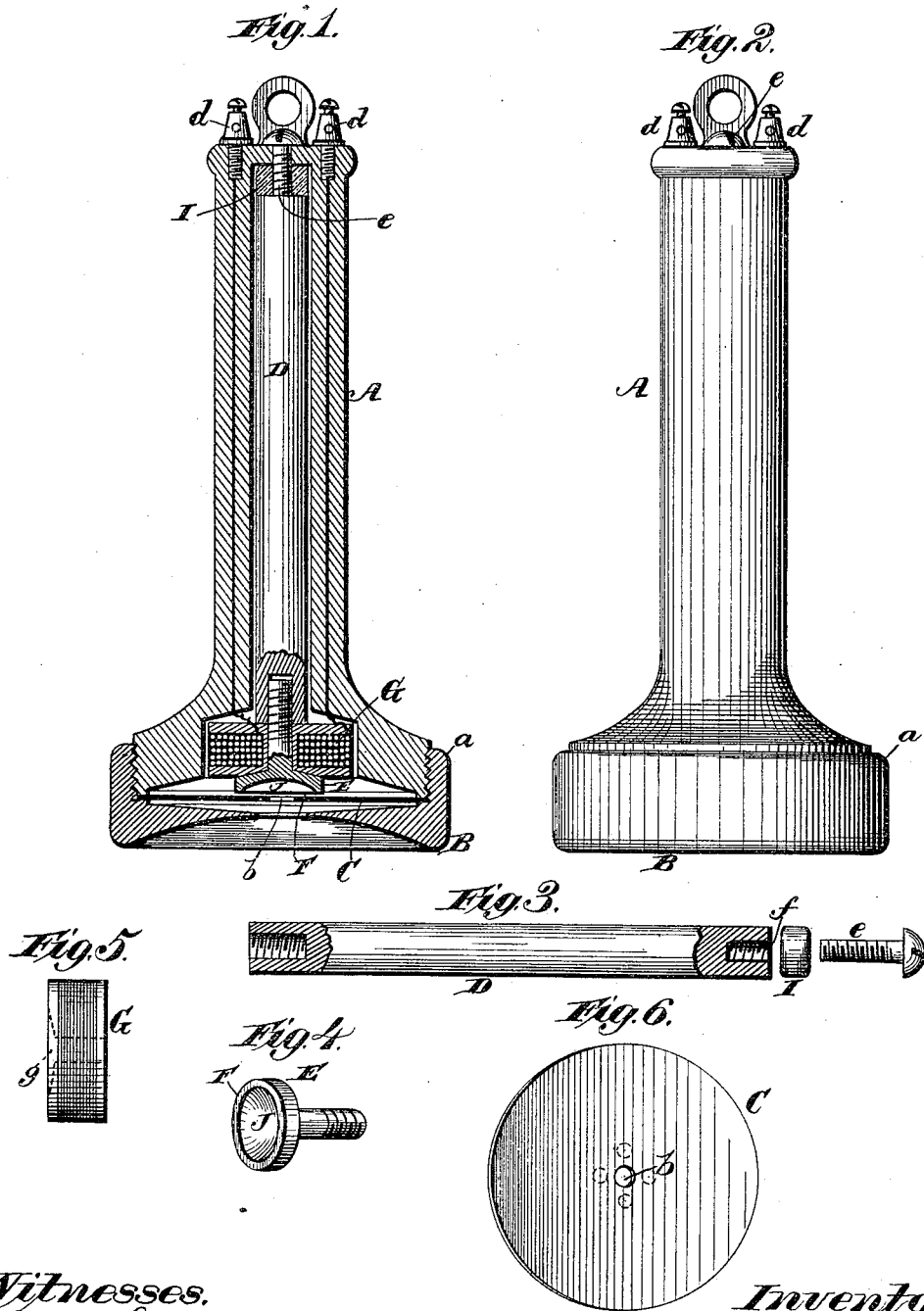


(No Model.)

S. E. BEEDY.  
TELEPHONIC RECEIVER.

No. 266,746.

Patented Oct. 31, 1882.



Witnesses.

*Phet Everett.*

*J. A. Rutherford*

Inventor.

*Seth E. Beedy.*

By *James L. Norris.*  
*Atty.*

# UNITED STATES PATENT OFFICE.

SETH E. BEEDY, OF FARMINGTON, MAINE, ASSIGNOR OF ONE-HALF TO  
JOHN J. LINSOTT, OF SAME PLACE,

## TELEPHONIC RECEIVER.

SPECIFICATION forming part of Letters Patent No. 266,746, dated October 31, 1882.

Application filed June 13, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, SETH E. BEEDY, a citizen of the United States, residing at Farmington, in the county of Franklin and State of Maine, have invented new and useful Improvements in Telephonic Receivers, of which the following is a specification.

My invention relates to telephone-receivers; and it consists, first, in perforating the diaphragm at a point which is central with the opening of the cap; second, in a permanent magnet set in the tubular handle, and having a soft-iron core with a disk which is cupped or concaved upon the face next the diaphragm, and is beveled upon the opposite face to fit a corresponding formation in the spool; third, in forming the permanent magnet of the core in two separate pieces.

Referring to the drawings, Figure 1 is a central longitudinal section through the receiver. Fig. 2 is an elevation. Fig. 3 is a detail view of the permanent magnet, the core being removed. Fig. 4 is a detail view of the soft-iron core removed from the permanent magnet. Fig. 5 is a side elevation of the spool. Fig. 6 is a view of the diaphragm.

A in said drawings indicates the tubular handle of the receiver, which is constructed substantially in the usual form.

B is the cap or ear-piece, which may be attached by cutting a female thread upon the flange *a* and a male thread upon the handle, and screwing the parts together, or in any other suitable manner.

C is the diaphragm, which is placed in the ear-piece and held in position by screwing the flanged handle into the cap until it rests upon the edge. At the central point in this diaphragm I form one or more than one perforation, *b*, so arranged that if one perforation is used it shall be concentric with the opening in the ear-piece B, whereas if several openings are formed, as shown in dotted lines, Fig. 6, they shall be arranged concentrically to said opening and within a certain area, hereinafter specified.

D is the magnet, which is made in the form of a straight metal bar inclosed within the tubular handle. It is provided at the end nearest the ear-piece with a soft-metal core, E, which may be adjustably united to the mag-

net by screwing it into an aperture in the end, or in any other suitable manner. At its extremity, near the diaphragm, this core has an enlarged disk, F, of somewhat greater diameter than the said opening in the ear-piece, said disk being cupped or concaved upon the face adjacent to the diaphragm, as shown at J. Upon the opposite face the disk is beveled to give it an inclined or convex surface, which approaches parallelism with the concavity of the opposite surface.

G indicates the spool, which is mounted upon the iron core E, one of its walls or faces being cut away concentrically with the opening in the spool wherein the disk F sits, as illustrated in Fig. 1. By this construction the disk and the coil may be placed in close proximity to each other. The wires pass from the spool through the longitudinal walls of the handle to binding-posts *d d* upon its extremity.

The magnet D, with its core E, may be adjusted toward and from the diaphragm by a screw, *e*, which engages with a female thread in the aperture *f* in the end of the magnet. An elastic cushion, I, may be interposed between the magnet and the end of the handle to throw the magnet toward the diaphragm when the screw *e* is withdrawn; but instead of this cushion any suitable device may be employed which will accomplish a similar result.

I have already described the location of the opening or openings in the diaphragm C as being concentric with the sound-opening in the ear-piece. It will also be noticed that the disk F is so formed that its concave face is concentric with said opening. It should be further noted that when more than one perforation are employed they shall all be arranged wholly within the area bounded by the periphery of said disk.

By making the magnet and core separately I can form the latter in dies more easily and cheaply, and obtain a permanent magnet with a soft-iron core, which gives much better results. Again, by beveling off the under face of the disk F and seating it in a corresponding concavity, *g*, (shown in Fig. 5, dotted lines,) I am enabled to bring the coil upon the bobbin G close to the extremity of the magnet, where-  
Finally, by concaving the face of the disk the

sound-waves are amplified and focused as they come from the disk, and in this condition are thrown upon the diaphragm immediately opposite the central opening or openings in the diaphragm opposite the concavity, and hence are received and heard with increased volume, distinctness, and timbre.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A telephone-receiver provided with a single diaphragm having one or more perforations, as described, in combination with an adjustable soft-iron core having a concaved or cup-shaped extremity next the diaphragm, and a stem which passes through the spool and into the permanent magnet, as set forth.

2. In a telephone-receiver provided with a perforated diaphragm, the combination, with an adjustable permanent magnet adjustably secured to the telephone-handle at one end, the opposite end being provided with a soft-iron core having a cup-shaped extremity, of

the bobbin G, secured to the permanent magnet and soft-iron core, substantially as set forth.

3. In a telephone-receiver having a perforated diaphragm, a soft-iron core provided with a cupped or concaved exterior face adjacent to and larger than the opening or openings in the diaphragm, said core being secured to the permanent magnet and adjustable with relation to the diaphragm, substantially as set forth.

4. The combination, with the permanent magnet and the soft-iron core, of the concaved disk and perforated diaphragm, as set forth.

5. In a telephonic receiver having an adjustable permanent magnet, a cup-shaped detachable core adjustably secured to the permanent magnet, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SETH E. BEEDY.

Witnesses:

JAMES L. NORRIS,

ALBERT H. NORRIS.