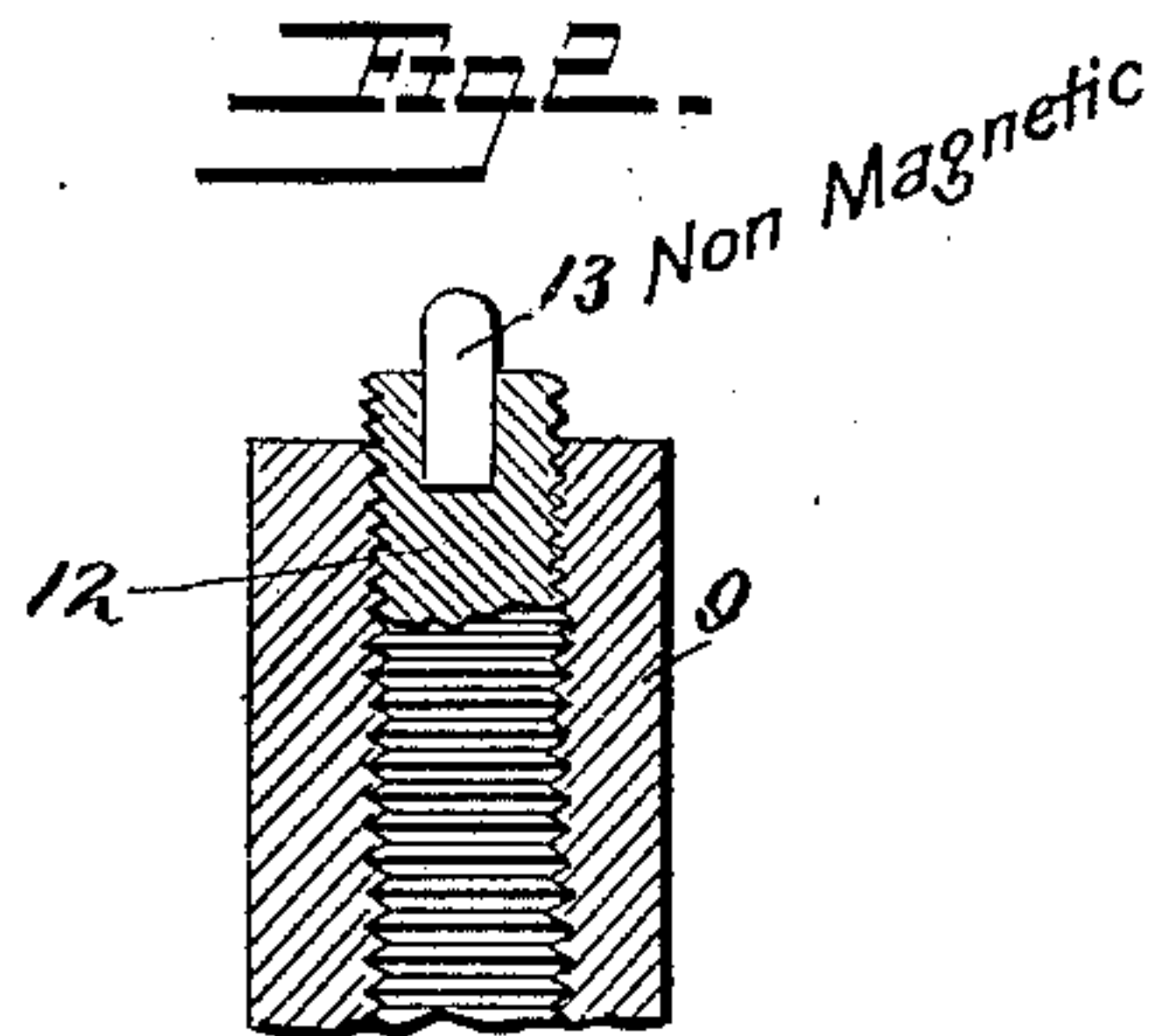
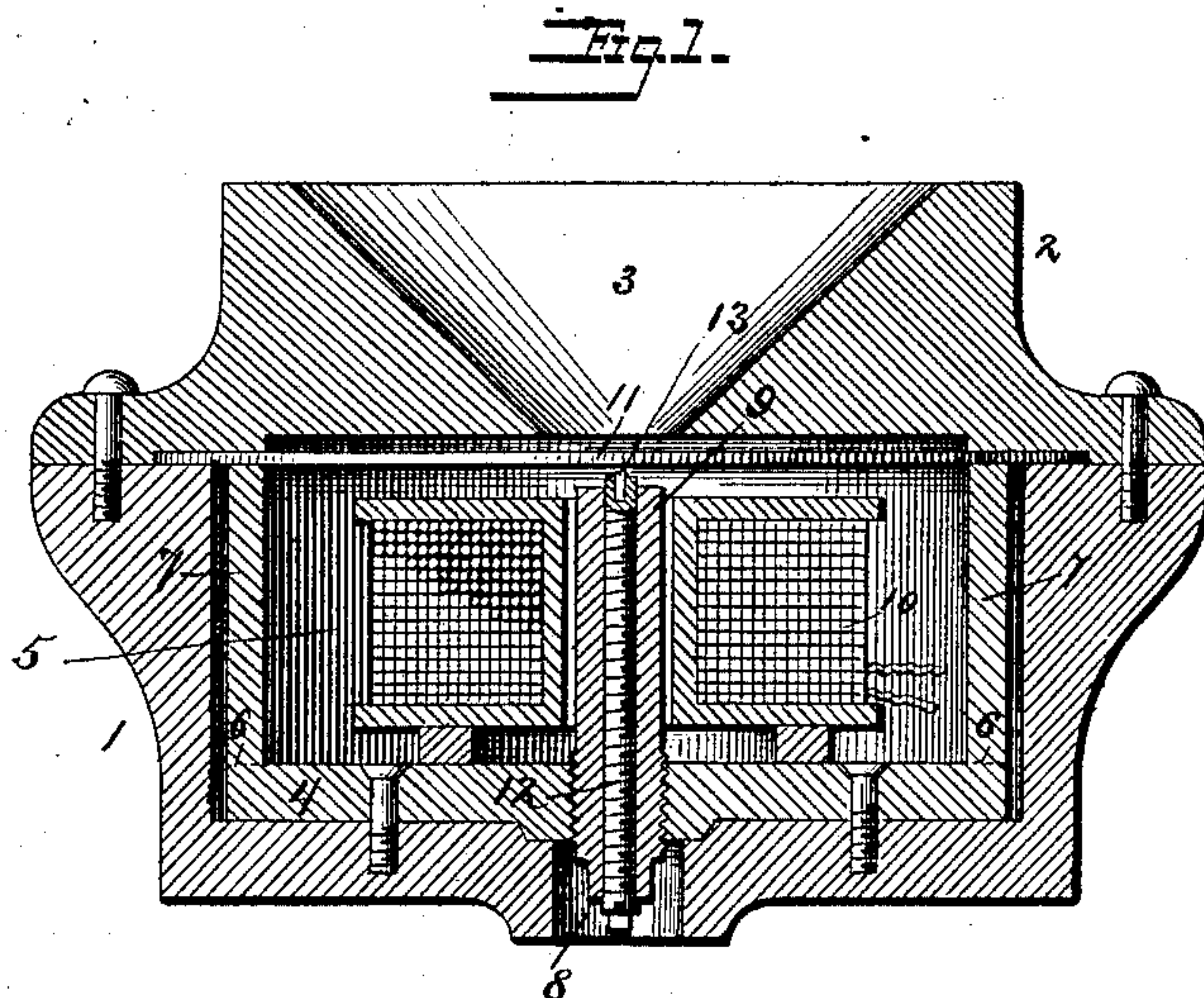


(No Model.)

J. H. TABONY.  
TELEPHONE RECEIVER.

No. 360,626.

Patented Apr. 5, 1887.



Witnesses  
Jno. G. Hinkel  
Wm. A. Harris

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By his Attorneys.  
Foster & Freeman



# UNITED STATES PATENT OFFICE.

JOSEPH H. TABONY, OF NEW ORLEANS; LOUISIANA.

## TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 360,626, dated April 5, 1887.

Application filed January 31, 1887. Serial No. 236,069. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. TABONY, a citizen of the United States, and a resident of the city of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Telephone-Receivers, of which the following is a specification.

It is a well-known fact that rods of iron, steel, and other magnetic materials experience a change of length when they are being magnetized or demagnetized in such a manner that they become larger when magnetized and shorter when demagnetized. Similar changes occur when the magnetic condition of a magnet-rod is varied, and heretofore several applications of this phenomenon have been made in the arts. Notable among these is the telephonic receiver of Reis, and my invention, based upon the same principle, may be regarded as an improvement upon the Reis receiver.

In the annexed drawings, which form a part of this specification, I have illustrated, in Figure 1, one form which my invention may assume, showing an axial section of my receiving-telephone; and in Fig. 2, a detail of construction.

The main body of the instrument consists of a case, 1, of any suitable form, and a mouth-piece, 2, provided with the usual sound-opening, 3. I have shown a rather short and flat case, which, if desired, may be provided with a suitable handle; but it will be understood that I am not restricted to this shape, since I may use with equal advantage a case having the general outline of the ordinary hand-runner, or any other suitable form.

The numerals 4 5 designate a cup-shaped structure of iron or steel, and if made of the latter material it is magnetized axially, so as to have one of its poles diffused around its rim 7 and the other pole at the bottom 4, which rests upon the bottom of the case and is secured to the same by screws, as shown, or otherwise. There is a hole, 8, through the central portion of the bottom of the case, and this hole registers with a similar but screw-threaded hole in bottom 4 of the cup-shaped magnet, as shown. A rod, 9, of soft iron, screw-threaded near its lower end, enters the screw-threaded

hole in the bottom 4 of the cup-magnet, and constitutes the core of the electro-magnet, the coil 10 of which is suitably secured within the cup-magnet. A diaphragm, 11, of any suitable material, is applied upon the top of the case, and is then, also, in contact with the upper edge of the cup-magnet, which is flush with the upper end of the case. If the diaphragm is made of magnetic material, it becomes one pole of the magnetic system composed of the cup-magnet, the core, and the diaphragm, the upper free end of the core being then the other pole of the system. The diaphragm is held in place by the mouth-piece 2, which clamps the former between itself and the case.

The core 9 is perforated and screw-threaded axially, and a screw-threaded pin, 12, of any desired metal enters said perforation, projecting at both ends beyond the same, as is clearly shown in the drawings. The upper end of pin 12 is tipped with a short piece of non-magnetic material, such as ivory, bone, hard rubber, or the like. The tip 13 is rounded at its extremity, and is adapted to make contact with the center of the diaphragm in accordance with the variations in the current. It will be noticed that hole 8 is larger than the lower end of core 9, so that a tool may be applied to the latter to adjust its upper end nearer to and farther from the diaphragm, as desired. Similarly a tool may be applied to the lower projecting end of pin 12, whereby the pin may be so adjusted as to make contact with the diaphragm when in operation in such a manner as to secure the best results.

The receiver, constructed as described, is placed in a telephonic circuit, and when, by the action of the distant transmitter, the telephonic currents pass through coil 10, the core 9 becomes alternately elongated and contracted, and since its lower end is secured to the rather thick and inflexible bottom 4 of the cup-magnet the upper end of said core, when elongated, tends to approach to the diaphragm, and when tip 13 is in contact with the center of said diaphragm the latter is forced outwardly toward the mouth-piece. When the core is contracted, it recedes from the diaphragm and the relation between the latter and the tip is changed; but by reason of the magnetic attraction between the diaphragm



and the core of the magnet the diaphragm is caused to impinge or vibrate against the tip 13. Thus, by the varying magnetic condition of the core, caused by the telephonic currents, 5 the diaphragm is made to vibrate in response to these currents and to impinge upon the tip quite forcibly, which results in loud sounds, which are heard at the ear-piece.

I may dispense with tubular portion 5 of 10 the cup 4 5, in which case the bottom 4 of this structure becomes a simple plate. This is indicated by the dotted lines 6. The plate 4 is then made of any desired material, not necessarily magnetic. If this construction is adopted, the 15 diaphragm may also be made of non-magnetic material, and is then vibrated purely by the elongations and contractions of the core.

Other modifications will suggest themselves to those skilled in the art, and I wish it to be 20 understood that I do not limit myself to the details of construction herein described.

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

25 1. In a telephonic receiver, the combination of a magnetic rod, adjustably fixed at one end, and a diaphragm adapted to vibrate against a projection from the other end of said rod, with a helix in the telephonic circuit surrounding 30 said rod, substantially as described.

2. In a telephonic receiver, the combination of a magnetic rod, adjustably fixed at one end,

and an adjustable pin passing through the axis of said rod, with a tip of ivory or equivalent material secured to the pin, a diaphragm ar- 35 ranged to vibrate against the tip of the pin, and a helix in the telephonic circuit surrounding the magnetic rod, substantially as described.

3. In a telephonic receiver, the combination 40 of a cup-shaped magnet, having an adjustable core passing through its axis, with a magnetic diaphragm in magnetic contact with the cup-magnet, an adjustable pin passing through the axis of the magnetic rod and arranged to con- 45 tact with the diaphragm, and a helix or coil in the telephonic circuit surrounding the magnetic rod, substantially as described.

4. In a telephonic receiver, the combination 50 of a cup-shaped magnet and a magnetic diaphragm in contact with one pole of the same, with a soft-iron core forming the other pole, an adjustable pin through the axis of said core arranged to contact with the diaphragm, and 55 a coil or helix in the telephonic circuit surrounding the core, substantially as described.

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

JOSEPH H. TABONY.

Witnesses:

W. CLARENCE DUVALLE,

WM. A. HARRIES.