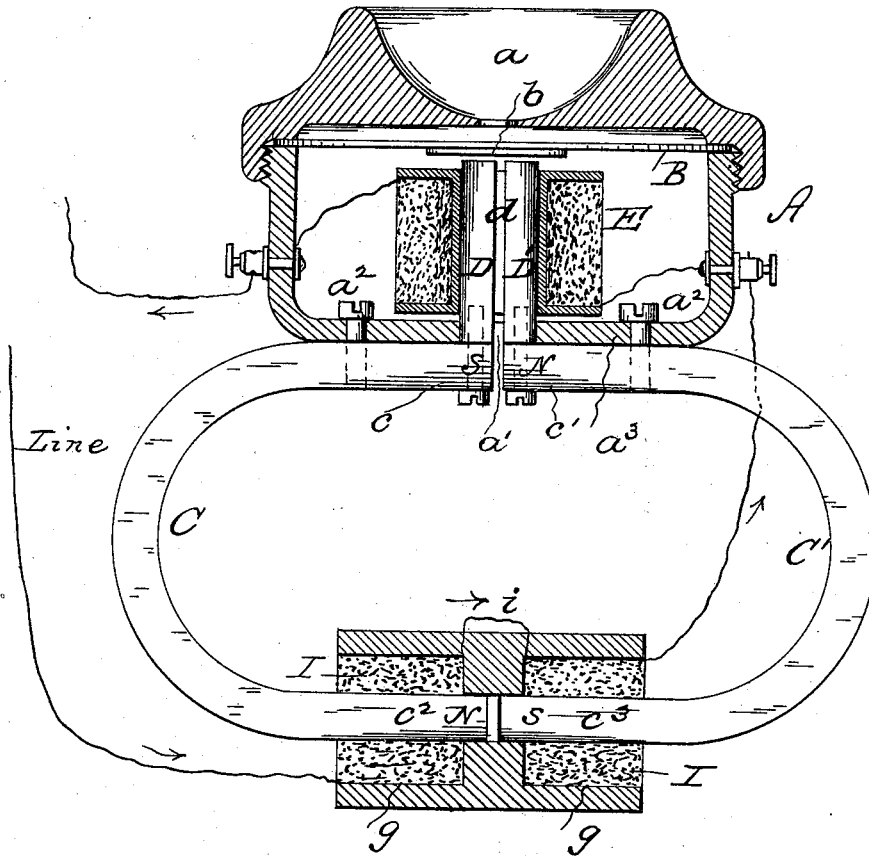


(No Model.)

J. F. McLAUGHLIN.
TELEPHONE.

No. 343,334.

Patented June 8, 1886.



WITNESSES:

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JAMES F. McLAUGHLIN, OF PHILADELPHIA, PENNSYLVANIA.

TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 343,334, dated June 8, 1886.

Application filed July 21, 1884. Renewed April 15, 1886. Serial No. 199,020. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McLAUGHLIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telephones, of which the following is a specification, reference being had therein to the accompanying drawing, wherein is shown a longitudinal vertical section illustrating the construction of a telephone embodying my improvements.

My invention has relation to that form of telephones in which the core of the diaphragm-helix is composed of two adjacent but separated soft-iron bars or pole-pieces secured to opposing ends of separate permanent magnets; and it has for its object to simplify the construction of the instrument and increase its efficiency.

My invention accordingly consists of the combination, construction, and arrangement of parts comprising a telephone, as hereinafter described and claimed.

In the drawing, A represents the box or casing, of the usual or other suitable construction, having a removable mouth-piece, *a*, and a diaphragm, B, which is preferably made of wood and provided with a suitable plate or armature, *b*, on its rear side. The case A is secured to the ends *c c'* of two horseshoe-shaped permanent magnets, C C', by means of screws *a'*, and has a central aperture, *a'*, in its rear wall, *a'*, for the passage of two soft-iron bars, D D', placed parallel to one another, but separated so as not to contact, as shown. These bars D D' are respectively secured to the opposing ends *c c'* of magnets C C', and form a divided or split core, *d*, for the helix E, which is in circuit with the line-wire. The members of the split core *d* are preferably connected to the opposite poles of the magnets by screws *d'*, or otherwise, as desired. The magnets C C', it will be noted, are external to box A, and are so placed that their pole-pieces oppose each other to form an elliptical-shaped arrangement of magnets, as shown, which, if desired, may be utilized as a handle for the telephone. Said ends *c c'* are

surrounded with helices I I, electrically connected at *i*, in which case the sleeve G is chambered out at each end, as shown at *g*, to receive the helices I, to not only protect them, but also to serve as a hand-piece for the telephone and for maintaining the magnet ends *c c'* in due and fixed alignment. The helices I I are in circuit with helix E and its ground and line circuits.

When the helices I are used, the impulses sent over the line to the telephone first pass through helices I before entering helix E. The current-impulses, as they traverse the former, set up magnetic disturbances in the magnets C C', substantially in unison with the corresponding impulses induced in the core *d* by the current-impulses in helix E. The combined action of the simultaneous disturbances in magnets C C' and core *d*, as above described, gives a resultant increased or intensified magnetic disturbance for or in the pole-piece *d*, for vibrating the diaphragm and cause it to reproduce sounds clearly and distinctly.

What I claim is—

1. A telephone comprising a case, a diaphragm, and a helix common to two separate soft-iron bars, each of which is attached to a pole of separate permanent magnets arranged with their poles opposing but separated from one another, the other poles of which are provided with helices, and all said helices being in circuit with one another or in common line-circuit, substantially as shown and described.

2. In a telephone, the combination of horseshoe permanent magnets C C', arranged with their poles facing but separated from one another, soft-iron bars D D', secured to a pair of poles of said magnets, and forming a split or divided core-piece for a helix, E, helices I, surrounding the remaining poles of said magnet, and circuit-connection for said helices, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. McLAUGHLIN.

Witnesses:

S. J. VAN STAVOREN,
CHAS. F. VAN HORN.