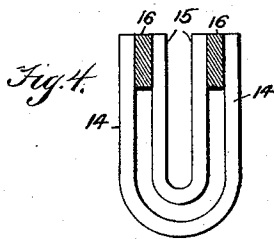
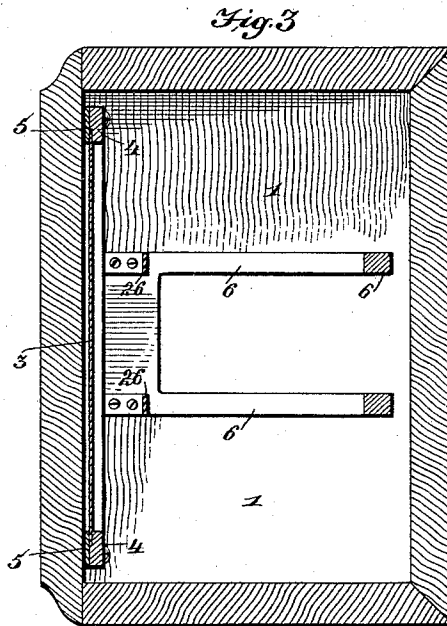
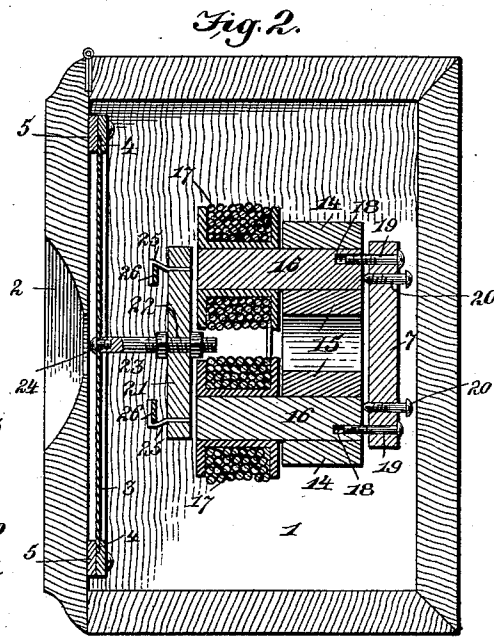
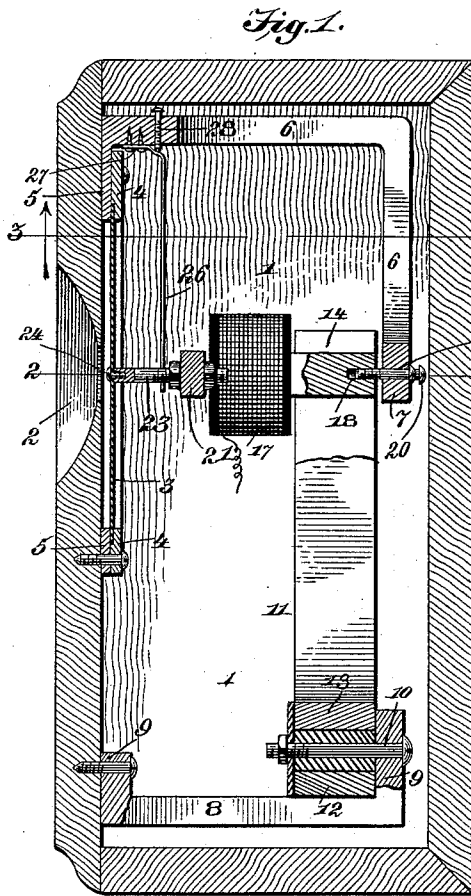


(No Model.)

L. E. DYE.
MAGNETO TELEPHONE.

No. 580,851.

Patented Apr. 20, 1897.



Inventor

Leonard E. Dye

Witnesses

H. E. Dietrich
J. P. Volkmann

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

LEONARD EUGENE DYE, OF MORRIS, MINNESOTA.

MAGNETO-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 580,851, dated April 20, 1897.

Application filed May 27, 1896. Serial No. 593,282. (No model.)

To all whom it may concern:

Be it known that I, LEONARD EUGENE DYE, a citizen of the United States, residing at Morris, in the county of Stevens and State of Minnesota, have invented a new and useful Magneto-Telephone, of which the following is a specification.

This invention relates to magneto-telephones; and it has for its object to effect certain improvements in telephones of this character whereby the same shall be rendered extremely sensitive to sound-waves and capable of inducing a strong and firm current in the coils to accurately reproduce sound and the human voice.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a vertical sectional view of a telephone embodying the improvement contemplated by this invention. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1. Fig. 3 is a similar view on the line 3 3 of Fig. 1. Fig. 4 is a vertical longitudinal sectional view of the upright U-shaped or horseshoe magnets.

Referring to the accompanying drawings, the numeral 1 designates a telephone or transmitter box provided in the front side thereof with the usual sound-opening 2, toward which the voice is directed in using the telephone, and arranged within the box 1 over the opening 2 at the inner side of such opening is the vibratory diaphragm 3, consisting of a thin disk of brass or other suitable material secured at its edges, as at 4, to the clamping-ring 5, which clamping-ring is secured to the inner face of the front side of the box 1 and forms a part of the arched bracket-frame 6, arranged within the upper part of the box 1 and provided at the lower end of the rear depending portion thereof with a cross-bar 7, the function of which will be more particularly referred to.

Within the lower part of the telephone or transmitter box 1 is arranged a bracket-supporting arm 8, provided with flanged ends 9, the outer of which flanged ends is secured to the front side of the box, and the inner of which

flanged ends has bolted thereto, by means of a suitable clamping-bolt 10, an upright permanent magnet 11. The upright permanent magnet 11 essentially is a compound magnet and comprises a pair of different-sized horseshoe magnets arranged parallel and one within the other, said different-sized magnets being designated by the numerals 12 and 13, respectively. The outer and inner parallel permanent magnets 12 and 13 are adapted to have arranged between the adjacent upright poles 14 and 15 thereof, and in contact with such poles, the soft-iron pole-pieces 16. The pole-pieces 16 are arranged parallel and are disposed at right angles to the vertical disposition of the magnets 12 and 13, between which they fit, and said pole-pieces are extended beyond the front side of the permanent magnet 11 to form cores for the induction helices or coils 17, encircling the same at one side of the permanent magnet. The induction helices or coils 17, encircling the pole-pieces 16, at one side of the permanent magnet, are joined in series, and are designed to be connected up in the telephone-circuit in the usual way, the circuit connections being well known and forming no part of the present invention.

The rear ends of the soft-iron pole-pieces 16, which register in the spaces between the poles of the double or compound permanent magnet, are provided with the threaded sockets 18, which receive adjusting-screws 19, mounted in the ends of the cross-bar 7 of the bracket-frame 6 and directly adjacent to the screws 19. The said cross-bar also has mounted therein separate adjusting-screws 20, the pointed ends of which bear directly against the rear ends of the pole-pieces 16 and, in conjunction with the screws 19, provide for varying the distance between the front ends of the magnetized pole-pieces 16 and the horizontal soft-iron inductive armature 21.

The soft-iron inductive armature 21 is arranged to play over the front ends of the parallel magnetized pole-pieces 16 and is centrally and adjustably secured on the inner threaded end 22 of a short connecting post or rod 23, the outer end of which is secured centrally, as at 24, to the vibratory diaphragm 3. Adjacent to its opposite ends the inductive armature 21 has projected from the outer side thereof angled stirrups 25, within which

are arranged the lower free ends of balancing-springs 26, the upper ends of which springs are secured fast, as at 27, to the under side of the upper portion of the bracket-frame 6. Adjacent to the fastening 27 for the upper ends of the springs 26 are arranged tension-screws 28, adjustably mounted in the frame 6 and bearing against the springs 26 to regulate the tension thereof to provide for the proper balancing of the armature 21.

The springs 26 are of sufficient strength to balance the magnetic attraction of the extension pole-pieces 16 for the inductive armature 21, thereby leaving the armature in perfect equilibrium and free to vibrate in response to the vibrations of the vibratory diaphragm 3. When sound-waves strike the diaphragm 3, the vibrations of the diaphragm are transmitted to the armature 21, which in turn vibrates against the outer ends of the magnetized extension pole-pieces and causes currents of electricity to be induced in the helices or coils 17, which will correspond to the vibrations of the sound-waves, it being noted at this point that the pole-pieces are constantly magnetized by reason of their contact with the permanent magnet 11, and the helices or coils may be of from forty to sixty ohms resistance. The construction of telephone herein described provides for a greater strength of current than is usually obtained in magneto-telephones, and will thereby reproduce sound and the human voice through more resistance than most telephones of this kind, and the manner of mounting the different parts provides for the balancing of the entire instrument and a consequent increase in the sensitiveness thereof.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a magneto-telephone, the combination with the box and the diaphragm; of an upright permanent magnet supported within the box, a stationary bracket-frame arranged above the magnet, extension pole-pieces adjustably secured at one end to the bracket-frame and fitting against the poles of the permanent magnet, induction helices or coils encircling the pole-pieces at one side of the permanent magnet, an armature connected with the diaphragm and disposed adjacent to the front ends of the pole-pieces, and balancing-springs connected with the opposite ends of the armature, substantially as set forth.

2. In a magneto-telephone, the combination with the diaphragm; of an upright permanent magnet having two pairs of poles, parallel extension pole-pieces adjustably fitted at one end respectively between the poles of each pair of poles of the permanent magnet, induction helices or coils encircling the pole-pieces at one side of the permanent magnet, an inductive armature connected with the diaphragm and disposed adjacent to the front faces of the pole-pieces, and balancing-springs connected with said armature, substantially as set forth.

3. In a magneto-telephone, the combination with the box, and the vibratory diaphragm therein; of an upright permanent magnet supported within the box and comprising a pair of different-sized horseshoe magnets arranged parallel and one within the other, parallel extension pole-pieces fitted between the adjacent poles of the two magnets, induction helices or coils encircling the pole-pieces at one side of the permanent magnet, the armature connected with the diaphragm, and balancing-springs connected with the armature, substantially as set forth.

4. In a magneto-telephone, the combination with the box, and the vibratory diaphragm; of a pair of different-sized permanent horseshoe magnets arranged parallel and one within the other, parallel extension pole-pieces fitted between the adjacent poles of the two magnets, induction helices or coils encircling the pole-pieces at one side of the permanent magnets, an arched bracket-frame supported within the upper part of the box and provided at the lower end of the rear depending portion thereof with a cross-bar, adjusting-screws mounted in said cross-bar and engaging with the pole-pieces, an inductive armature arranged adjacent to the front ends of the pole-pieces, a post or rod connection between the armature and the diaphragm, said armature being provided near its opposite ends with offstanding angled stirrups, and adjustable balancing-springs fastened at their upper ends to the top portion of said bracket-frame and having their lower free ends engaging said stirrups, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LEONARD EUGENE DYE.

Witnesses:

WM. C. BICKNELL,
H. E. DYE.