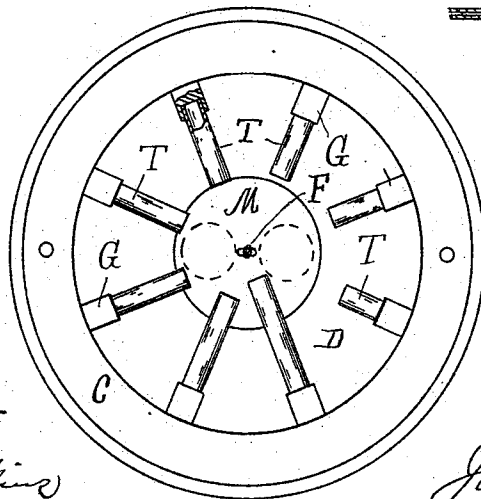
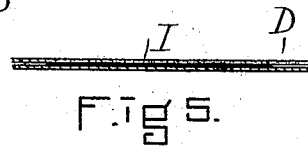
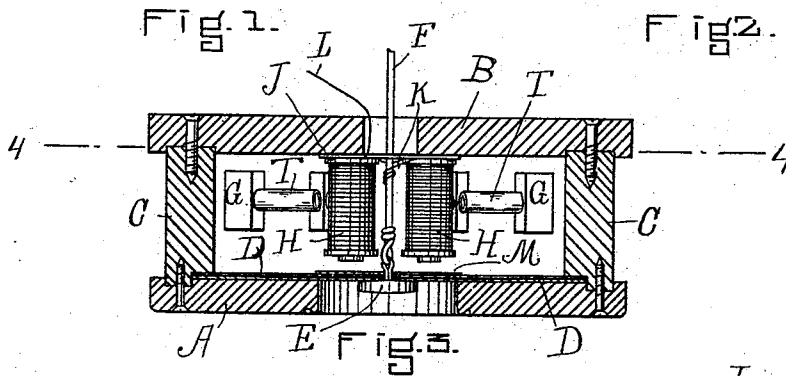
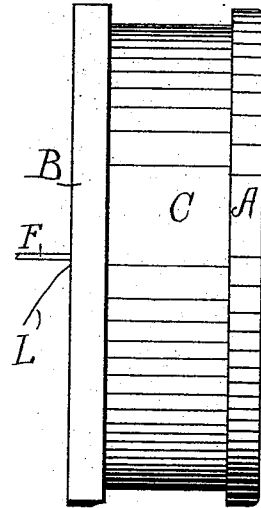
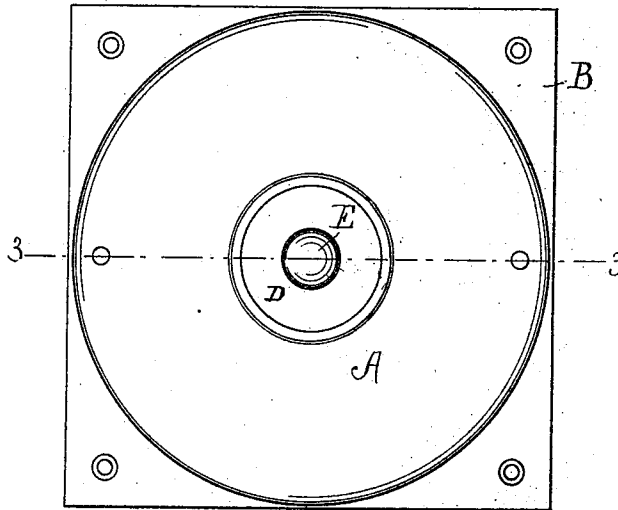


(No Model.)

J. PRINCE.
MECHANICAL TELEPHONE.

No. 528,390.

Patented Oct. 30, 1894.



WITNESSES.

Abbott A. Jenkins
Samuel P. Thrasher.

FIG. 4.

INVENTOR.

Jerome Prince
By A. O. Peters
ATTY.

UNITED STATES PATENT OFFICE.

JEROME PRINCE, OF MILFORD, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE MUSICAL TELEPHONE COMPANY, OF SAME PLACE AND SACO, MAINE.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 528,390, dated October 30, 1894.

Application filed May 16, 1894. Serial No. 511,409. (No model.)

To all whom it may concern:

Be it known that I, JEROME PRINCE, of Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Mechanical Telephones, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is to provide improved means for transmitting human speech and other sounds, and to render the sounds so transmitted more audible and the tones of the voice more natural. Another object is to combine with my acoustic telephone an inclosed magnet having one pole connected to the transmitting wire and the other with the ground.

A characteristic feature of my improved telephone is a series of resonant tubes within the shell, such tubes varying in length and corresponding in tones to the notes of the musical scale. I use for this purpose short glass tubes held fast by one end; and I find that the harmonic vibrations due to these open tubes give a more natural and distinct tone to the voice, and facilitate its transmission. Combining with them a magnet connected to the wire and the ground, gives a most effective telephone. I provide also a peculiar composite diaphragm having a front face of compressed fiber backed with duck or other woven fabric, with an interposed central sheet of isinglass.

In the drawings Figure 1 is a front elevation and Fig. 2 a side view of my improved telephone. Fig. 3 is a central section, on the line 3—3 of Fig. 1, and Fig. 4 is a rear view, the back plate being removed on the line 4—4 Fig. 3. Fig. 5 shows a portion of the composite diaphragm, in section.

A is the front plate having a central opening serving as a mouth piece.

B is the back plate and C the cylindrical wall, comprising with the front and back the case or shell of the instrument.

D is the diaphragm, held at its edge between the parts A and C.

E is the usual button on the end of the line wire F by which the diaphragm is strained rearwardly.

Within the shell and secured endwise to its wall C is a series of eight glass tubes T of different lengths, open at their inner ends and set in sockets G formed in or fixed to the wall. These tubes converge toward the line wire F, and are like organ pipes with a slight musical vibration corresponding to the several notes of the scale. The sockets close the outer ends of the tube.

I introduce a double-coil magnet H into the central space in the instrument, the plate J upon which it is mounted being fixed to the back-board B, the line wire running through said plate. One pole of this magnet is connected to the line wire by the fine wire K, while the other is grounded by connecting its wire L to a gas-pipe or other metal connection with the ground. See Fig. 3. Between the magnet and the diaphragm I place a thin disk M, preferably of sheet metal, serving as a shield preventing contact of the parts when the diaphragm is strained rearwardly in use. This disk is supported centrally by the wire F, or rather by the eye of the button E.

I prefer to use the composite diaphragm illustrated in Fig. 5. A front layer of thin compressed fiber, a rear layer or backing of woven fabric, and a central sheet of isinglass I are cemented together. The diaphragm so made up is found to be free from the metallic ring which has been so objectionable heretofore.

I claim as my invention—

1. In a mechanical telephone the shell inclosing a series of open tubes fixed in position, in combination with a suitable diaphragm and mouth-piece and a conducting wire leading therefrom, substantially as set forth.

2. In a mechanical telephone, the shell inclosing a series of glass tubes of varying lengths open at one end and held in contact with the shell, in combination with a vibrating diaphragm closing the front of the shell and with a tension wire leading therefrom, substantially as set forth.

3. In a mechanical telephone, the shell inclosing a series of resonant tubes open at one end, in combination with a magnet inclosed within the shell and having one of its poles

connected to the line wire, substantially as set forth.

4. In a mechanical telephone, a diaphragm having an outer face or layer of compressed fiber, a backing of woven fabric fixed to said face layer, and an interposed sheet of isin-
5 glass at and near the center of said diaphragm, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 9th day of May, A. D. 1894.

JEROME PRINCE.

Witnesses:

A. H. SPENCER,
HENRY W. FOLSOM.