

(No Model.)

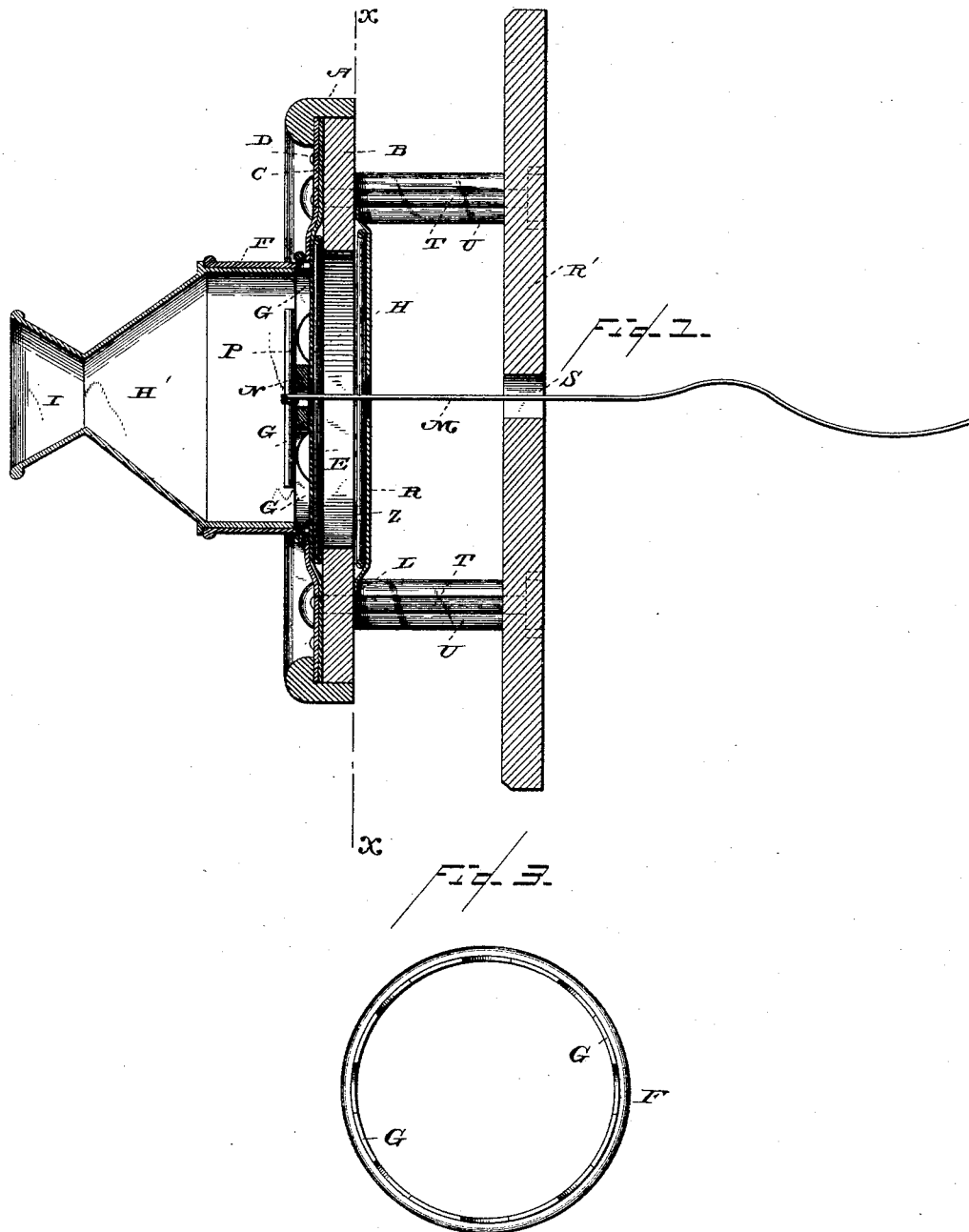
2 Sheets—Sheet 1.

S. D. BREAR.

MECHANICAL TELEPHONE.

No. 385,839.

Patented July 10, 1888.



WITNESSES.

W. A. Seshier
J. E. Turpin

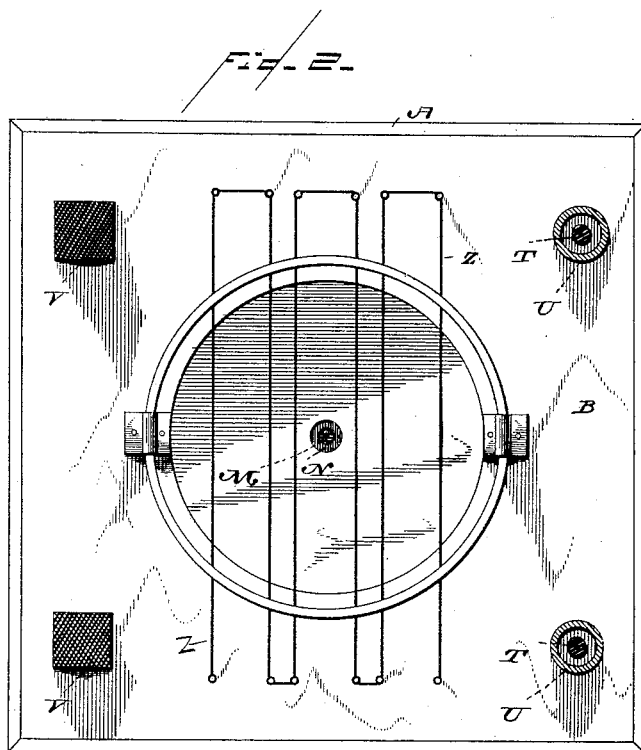
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INVENTOR.

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UNITED STATES PATENT OFFICE.

SAMUEL D. BREAR, OF WINONA, MINNESOTA.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 385,839, dated July 10, 1888.

Application filed January 23, 1888. Serial No. 261,617. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. BREAR, a citizen of the United States, residing at Winona, in the county of Winona and State of Minnesota, have invented certain new and useful Improvements in Telephones; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in acoustic telephones; and it has for its objects to construct an instrument that will be extremely sensitive, that will adjust itself to the tension of the conducting-wire, and that will possess the greatest simplicity in all its parts, as more fully hereinafter explained.

The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal sectional view of my improved telephone; Fig. 2, a transverse sectional view taken on the line *x x* of Fig. 1, and Fig. 3 a rear view of the drum or outer casing of the telephone detached.

Referring to the drawings, the letter A indicates a frame inclosing a rectangular tablet, B, of wood or other suitable material, to the outer face of which is secured a metallic sheet, C, by means of suitable fastening devices, D. The wooden tablet is provided with a central opening of suitable diameter, and around said opening, at its forward edge, is secured a wire annulus or ring, E. The metallic sheet secured to the tablet is provided with a corresponding central opening, and through said opening extends the rear end of a drum, F, which constitutes the sound-receiving casing of the telephone. The said drum is fastened in the opening of the metallic sheet, and its rear edge is cut away at intervals, forming a series of bearings, G, which extend inside of the ring before mentioned.

The letter H indicates a diaphragm, of membrane or other suitable material, which is stretched over the ring or annulus on the outside of the same, and which is confined closely to the face of the wooden tablet at intervals around its aperture by means of the bearings G, before mentioned, so as to keep it in a state of high tension, and to cause it to readily respond to the vibrations in the volume of air in

front of it when a sound is produced opposite the trumpet of the telephone. The drum at its outer end is provided with a condensing-casing, H', and trumpet I, by means of which the sound from the voice or other source may be directed upon the diaphragm.

The rear of the wooden tablet around the central opening thereof has secured to it a wire annulus or ring similar to the ring before mentioned, and to the rear face of the said tablet is secured a metallic plate, R, by means of fastening devices L, or otherwise, so as to bear against the ring and keep itself in a state of tension and out of contact with the tablet at that point. Between the ring and the rear face of the tablet are stretched and clamped a series of vibratory strands, Z, of rubber or other suitable material, which act in conjunction with the vibratory diaphragm and the rear vibratory sheet to amplify the vibrations of the sound-waves entering the trumpet, and thus increase the sensitiveness of the telephone. The diaphragm has a central opening, through which passes one end of the conducting-wire M, which also passes through a disk, N, which bears against the front of the diaphragm, the end being confined by a cross-bar, P.

R indicates the supporting-tablet of the telephone, which is constructed of wood or other suitable material, and which is to be attached to a wall or other support, being provided with a central aperture, S, for the passage of the conducting-wire above mentioned. The tablet B is secured to said supporting-tablet by means of the bolts T, being held therefrom by means of the glass tubes U, surrounding the bolts, and the elastic blocks V, of rubber or other suitable material, which adjust the parts automatically to the tension of the wire under the expansion and contraction of the same when stretched between the two instruments.

The instruments at the communicating stations, being suitably mounted upon a wall or other support, are connected by the conducting-wire, which is drawn taut, as is usual in this class of telephones, any vibration in the tension, due to expansion and contraction upon changes of temperature or otherwise, being regulated by the rubber blocks before mentioned. The diaphragm receives the sound-waves, as usual, and is vibrated thereby, the vibrations being conducted by the wire to the diaphragm

of the receiving-instrument. The metallic plate at the rear of the front tablet acts as a reverberator, and, in conjunction with the vibratory strands, causes a reverberatory reaction upon the diaphragm, amplifying its vibrations, and thus rendering the telephone extremely sensitive.

Having described my invention, what I claim is—

10 1. In an acoustic telephone, the combination, with the diaphragm-tablet, of the wire annulus surrounding the central opening of the same and the drum having a series of bearing-points at its rear pressing upon the diaphragm, whereby the same is stretched over
15 the ring and confined at intervals to the face of the tablet, substantially as specified.

2. The combination, with the diaphragm-tablet, of the annulus secured around the opening at the rear thereof, the rear vibratory
20 plate stretched and confined over said annulus

or ring, the diaphragm and wire connections, the drum, and a connecting-wire, substantially as specified.

3. The combination, with the diaphragm-tablet and the annulus at the rear thereof, of the vibratory strands strung between said annulus and the tablet, the drum and a connecting-wire, and the diaphragm and wire connections, substantially as specified. 25

4. The combination, with the diaphragm-tablet, the condensing-drum, front ring, and diaphragm, of the rear ring and vibratory strands, the rear reverberating plate, and the conducting-wire, the whole arranged to operate substantially in the manner specified. 30 35

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

SAMUEL D. BREAR.

Witnesses:

W. A. FINKELNBURG,
O. C. FINKELNBURG.