(No Model.)

A. G. MILLER.

MECHANICAL TELEPHONE.

No. 288,835. Patented Nov. 20, 1883.

Fig. 1.

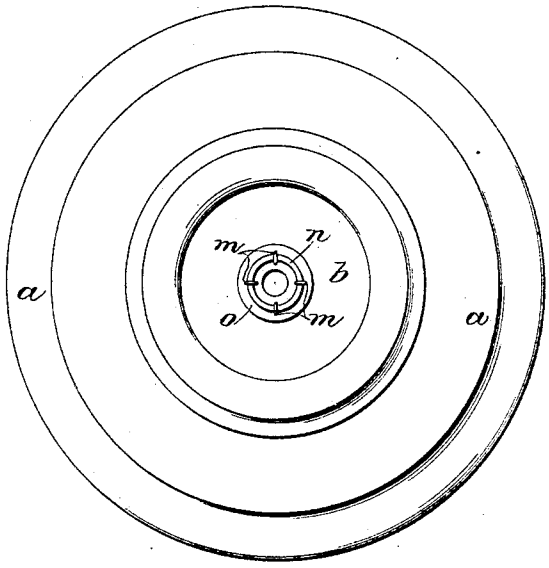


Fig. 2.

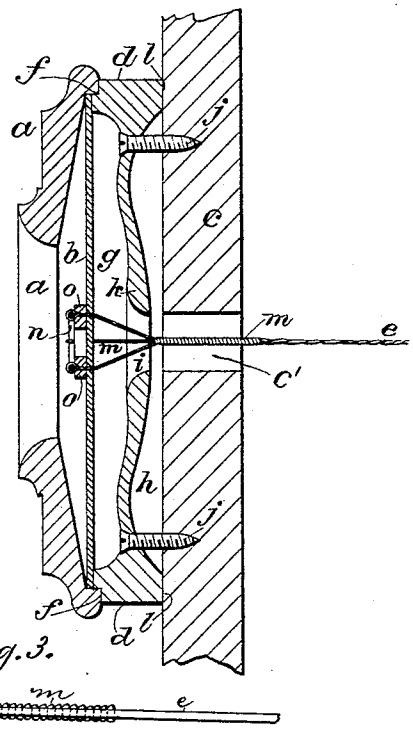


Fig. 3.

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UNITED STATES PATENT OFFICE.

ABIUD G. MILLER, OF LEYDEN, NEW YORK.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 288,835, dated November 20, 1883.

Application filed July 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, ABIUD G. MILLER, of Leyden, in the county of Lewis and State of New York, have invented a new and Improved Mechanical Telephone, of which the following is a full, clear, and exact description.

The object of my invention is to provide an improved mechanical or acoustic telephone which will transmit and receive speech and other sounds with greater clearness and naturalness of tone than is possible with instruments of this class as commonly constructed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of my improvement, and Fig. 2 a central sectional elevation thereof, as secured to a suitable support in position for use. Fig. 3 is an enlarged view, making apparent the distinction between the metallic line-wire and its silken connection.

The mouth-piece *a* of the instrument is centrally-apertured for the passage of the sound-waves to the diaphragm *b*, which I secure firmly at its edges within a rabbet of the mouth-piece, or to its inner face.

I make the diaphragm *b* of spruce wood or root, which, I have discovered, possesses great sonorousness, combined with sufficient great strength in a thin layer or veneer to resist or sustain the tension of the line-wire.

The mouth-piece *a* and attached diaphragm are held to the wall *c* on a bed-piece, *d*, by the tension of the line-wire *e* upon the diaphragm *b*, a rabbeted joint of the mouth-piece with the bed-piece being preferred, as shown at *f*, Fig. 2.

The bed-piece *d* is recessed at both sides, as at *g h*, and centrally apertured at *i*, for the passage of the threads connecting the line-wire to the diaphragm, and the bed-piece is secured to the support *c* by screws *j*. The front recess, *g*, affords a space between the diaphragm *b* and the central web, *k*, of the bed-piece for free action of the diaphragm, promoting clearness of enunciation when the instrument is used as a receiver, in which case the thin web *k* more especially acts as an auxiliary to the diaphragm *b*. The rear recess, *h*, leaves the web *k* and secures a small marginal support, *l*, for the transmitter, thus avoiding a large contact with the wall *c*, and preventing excessive vibration and absorption of dampness, which would interfere with the working of the instrument by decreasing the sensitiveness of the diaphragm to the sound-waves.

Indistinct articulation and the ringing abnormal sounds common to acoustic telephones arise largely from the resonant qualities of the wire, and are more especially noticeable where a metallic wire connects with a metallic diaphragm. To avoid these defects I connect the line-wire *e* to the diaphragm *b* by the cords *m*, of silk, which are twisted about the end of the wire *e*, for a firm connection therewith, pass through opening *c'* of support *c*, and diverge at the end of the wire into three or more strands, which pass through aperture *i* of web *k* and the diaphragm *b*, and are secured to a metal ring, *n*, between which and the diaphragm a rubber or leather ring, *o*, is interposed. This construction has in practice proved effective in securing a remarkable clearness of enunciation and naturalness of tone not common to instruments of this class.

I make the line-wire *e* of strands twisted together, the twists numbering about twenty to the lineal foot of wire, and I apply to the strands a coating of varnish or like adhesive substance, to bind the strands together to prevent a rubbing of the strands on each other, which would cause discordant or rumbling sounds in the receiver. This construction of the wire *e* not only makes it strong and protects it from the weather, but, combined with the silken-cord connections to the diaphragm, aids largely in clear transmission over line-wires of considerable length.

The bed-piece *d* is secured to support *c* to hold apertures *i c'* in alignment, and the cords *m* being secured to the center of the diaphragm *b*, and the mouth-piece being suitably fitted to the bed-piece, the cords *m* and line-wire *e*, when under tension, will always be free from contact with extraneous objects.

I make the diaphragm *b* about seven inches in diameter, and the ring *n* about seven-eighths of an inch in diameter, these sizes having in practice given good results.

I do not abandon or dedicate to the public any patentable feature set forth herein and

not hereinafter claimed, but reserve the right to claim the same, either in a reissue of any patent that may be granted upon this application, or in other applications for Letters Patent that I may make.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A telephone bed-piece, *d*, recessed at *g* on one side and at *h* on the opposite side, having a central hole, *i*, and web *k*, and provided with the small marginal support *l*, to adapt it to be used as and for the purpose specified.

2. The combination, with the mouth-piece *a*, fitted with diaphragm *b*, of the bed-piece *d*, recessed to form the auxiliary apertured diaphragm *k*, substantially as herein shown and described, and for the purposes set forth.

3. The combination, with the diaphragm *b* and the metallic line-wire *e*, of the non-resonant silk-cord connection *m*, substantially as shown and described.

4. The combination, with the spruce-wood diaphragm *b*, the metallic line-wire *e*, and the silken cord *m*, secured to the wire *e*, and branching outward through the diaphragm, of the rubber or leather washer *o* and metallic ring *n*, substantially as shown and described.

5. A telephone line-wire made of metallic twisted strands stuck together by some adhesive to prevent the rubbing of the strands on each other and the production thereby of rumbling sounds in the receiver, as described.

6. A mechanical telephone constructed with an apertured mouth-piece, *a*, spruce-wood diaphragm *b*, bed-piece *d*, recessed at both faces and centrally apertured, the twisted and varnished line-wire *e*, branched silk cord *m*, washer *o*, and ring *n*, substantially as and for the purposes herein set forth.

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Witnesses:

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