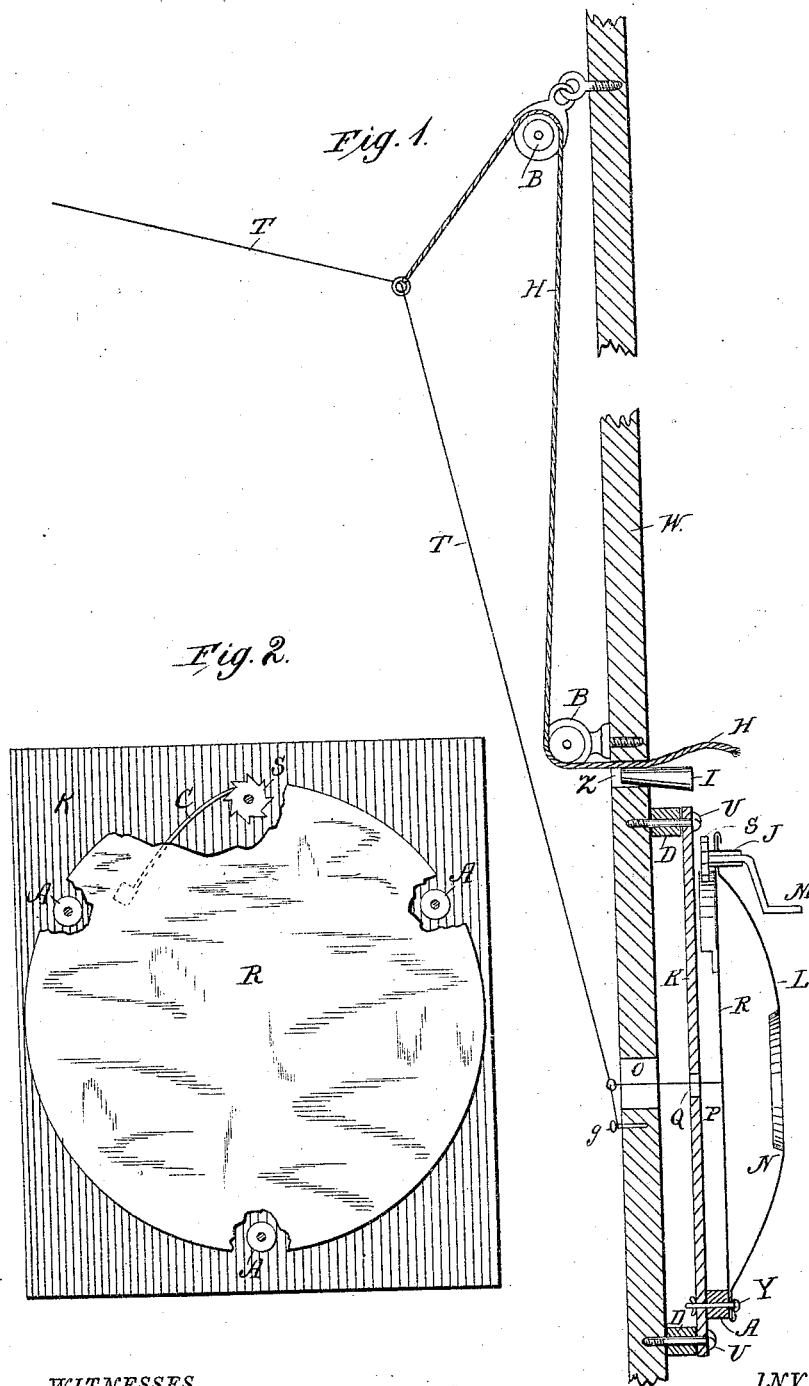


(No Model.)

J. F. SIMS.
MECHANICAL TELEPHONE.

No. 304,242.

Patented Aug. 26, 1884.



WITNESSES

W. W. Hollingsworth
W. X. Stevens

INVENTOR

John F. Sims
Merrill C.
Attorney

UNITED STATES PATENT OFFICE.

JOHN F. SIMS, OF ILLIOPOLIS, ILLINOIS.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 304,242, dated August 26, 1884.

Application filed November 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. SIMS, a citizen of the United States, residing at Illiopolis, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Mechanical Telephones, of which the following is a description.

This invention relates to that class of telephones which use only mechanical means for transmitting sound without the aid of electricity, and are called "mechanical telephones."

The object of my invention is, first, to transmit speech and other sounds, and to reproduce the same at a distance from the point where they are received; second, to properly adjust the strain upon the transmitting-wire; and, third, to provide simple and effective means for giving a signal.

To this end my invention consists in the construction and combination of parts hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of my invention and a wall or partition supporting it, and Fig. 2 is a front elevation of the same without the bell or mouth portion and the wall.

W represents the wall, to which the wooden diaphragm K is attached by means of screws U, passing through the diaphragm K, and through cleats D, which are interposed between the diaphragm and the wall. These cleats are shown in section in Fig. 1. They cross the grain of the wood of the diaphragm K, to which they are secured to strengthen it, and they serve to separate it from the wall, leaving it free to vibrate.

R is a metallic diaphragm, to the circular edge of which the bell or mouth-piece L is attached by a flange, over the edge of which the periphery of the diaphragm R is turned, in a manner usual to sheet-metal work. The bell L is shaped like an inverted saucer, and has a central mouth or opening, E, very much smaller than the base of the bell where it joins the diaphragm, and the bell rises away from the plane of the diaphragm R, forming a sound-chamber, N, into which the person speaks to transmit a message, and to which he may place his ear to receive a message.

T represents the transmitting or line wire, which is attached at one end to the center of the diaphragm R of one telephone, and at the

other end to another similar diaphragm of a similar telephone. (Not shown in the drawings.)

O is a hole in the partition W, and Q is a hole in the center of the wooden diaphragm K, both large enough for the wire to pass freely. The line-wire is aligned to the center of these holes by means of a brace-wire secured at *g*, and it is drawn to the required tension by means of a cord H and guide-pulleys B. This cord passes into the operating-room through a hole, Z, in partition W, and a wedge or plug, I, is adapted to fit the hole Z, whereby the operator may secure the tension-cord H when he has drawn it tight enough to secure the desired result. To this end the hole Z and plug I are placed where the operator may reach them while in the act of speaking into or listening at the telephone. The parts R, forming the sound-chamber N, are secured to the wooden diaphragm K by means of screws Y, passing through all of said parts, and through blocks A, of corks or other spongy or non-sounding material, which are interposed between the metallic diaphragm R and the wooden diaphragm K, to prevent the vibrations of either diaphragm being transmitted to the other. Between these blocks A and between the two diaphragms R and K is an open space or passage, P, free to admit air and sound at all sides. Therefore the diaphragm K serves as a reflector of sound, and the back of the transmitting-diaphragm R may receive such reflected sound, as well as direct sounds through passage P. The resonance of diaphragm K is insured by its being supported on the cleats D.

To sound a call, I provide a signaling-rattle consisting of a ratchet-wheel, S, having a crank, M, and a spring, C, engaging the teeth of said wheel. When the crank is turned, the spring snaps from tooth to tooth, giving a sharp sound. This signal-rattle is secured to and wholly supported upon the diaphragm R, the crank and wheel being journaled in a sleeve, J, which is secured to said diaphragm. By thus supporting the rattle all its effect is transmitted through the line-wire, and the call is loudly sounded at the opposite telephone.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The combination, with the resonant dia-

phragm-board K, of the plate-diaphragm R and the saucer-shaped perforated bell L, secured at its edges to the said diaphragm R, substantially as shown and described.

5 2. The combination, with the resonant diaphragm-board K, of the plate-diaphragm R, having a bell closely secured upon its circumference, and the blocks A, interposed between the two diaphragms, the space between said blocks and between said diaphragms being
10 open laterally, as and for the purpose specified.

3. The combination, with the bell and trans-

mitting-diaphragm of a telephone, of a signal-rattle substantially as described, secured directly to and supported by the said diaphragm, 15 as and for the purpose specified.

4. The combination, with a wall having two holes in it, of a line-wire, T, entering one of said holes, a tension-cord, H, entering the
20 other, a wedge or plug, I, for the latter, and the guide-pulleys B, as shown and described.

J. F. SIMS.

Witnesses:

A. S. CAFFS,

DAVID JOHNSTON.