(No Model.)

G. THOMAS.

MECHANICAL TELEPHONE.

No. 401,227. Patented Apr. 9, 1889.

Fig. 1.

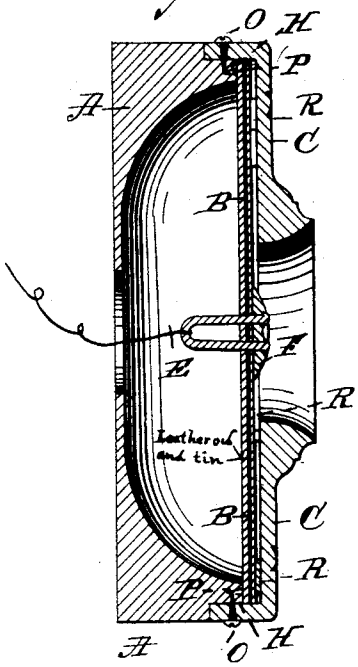


Fig. 2.

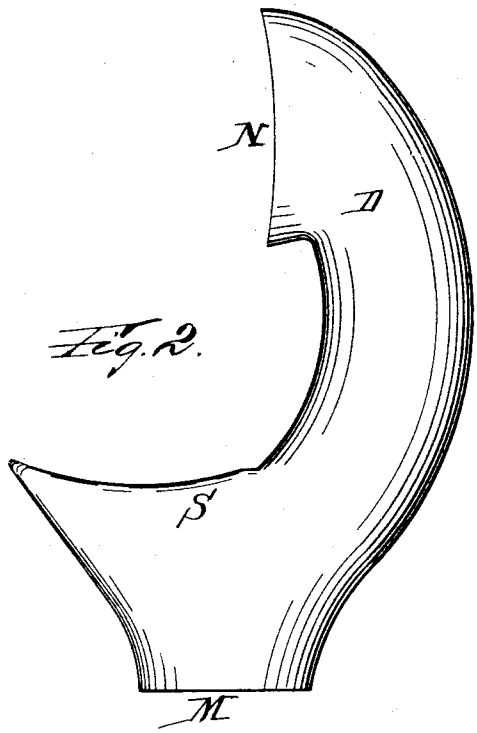


Fig. 5.

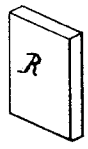


Fig. 3.

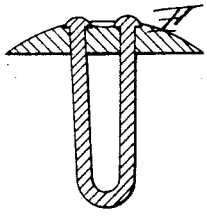
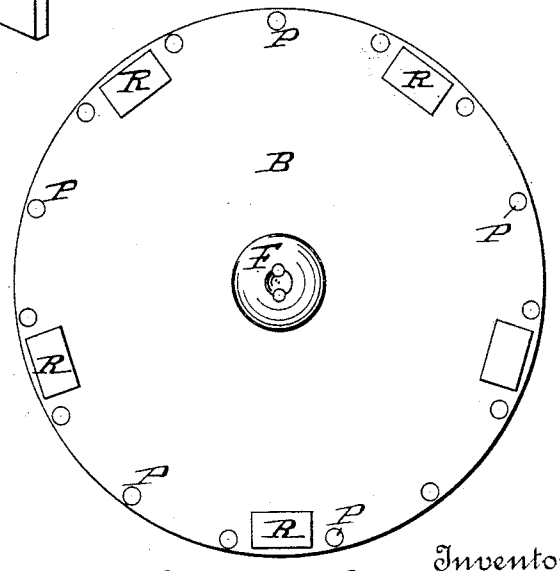


Fig. 4.



Witnesses.
John W. Copley
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Inventor
George Thomas
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UNITED STATES PATENT OFFICE.

GEORGE THOMAS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO JOSEPH H. SIMPSON, OF SAME PLACE.

MECHANICAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 401,227, dated April 9, 1889.

Application filed October 15, 1888. Serial No. 288,137. (No model.)

To all whom it may concern:

Be it known that I, GEORGE THOMAS, of the city, county, and State of New York, have invented new and useful Improvements in Acoustic Telephones, which are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a sectional view of my improved telephone; Fig. 2, a side elevation of mouth and ear piece; Fig. 3, a sectional view of diaphragm-button; Fig. 4, a plan of diaphragm; Fig. 5, a perspective view of insulator for diaphragm.

This invention relates to acoustic telephones in which a line of wire connects two vibrating diaphragms, either of which may receive or transmit sound, and its purpose is to transmit sound more clearly than has been attained by telephones as heretofore constructed.

The general construction of my telephone is not broadly new; but with my improvements a practical instrument of great efficiency is produced.

A represents the circular case of one of the receiving or transmitting instruments, (it being adapted to either use,) inclosing a broad sound-chamber covered with diaphragm B, resting on the edge of the case, which is again covered by cover C, to which the transmitting end of the mouth and ear piece is to be applied by the person using the telephone; S and D, the combination mouth and ear piece. Transmitting-wire E is attached to diaphragm B by button F.

Case A is preferably made of wood, the rear part integral with flat edges H H, on which is laid diaphragm B and inclosing-case A, forming an air-chamber. Said diaphragm is tacked at P to edges H H of case A, not screwed. Diaphragm B is covered (except where the opening admits sound-waves) by cover C, attached to case A at the sides by screws O O. I prefer that the face of the diaphragm be free from the pressure of the cover, and to attain that purpose I raise the cover off of diaphragm B by placing between cover C and diaphragm B small insulators R R, made of rubber, papier-maché, or other suitable material. The attachment of cover C to case A at the side, keeping it clear of the diaphragm, insures perfect clearness, distinctness, and purity of tone in words or messages passing through the diaphragm. If cover C is attached directly to the face of the diaphragm, it will inevitably cause inequality and unreliability in the vibration of the diaphragm and a partial deadening of tone and confusion of sound. To obviate this I protect the face of the diaphragm from any pressure of cover C by insulators R R, laid in several places on the face of the diaphragm, so as to fit squarely against the rear of cover C.

The construction of the combination mouthpiece and ear-piece is another important feature of my invention. It contains no diaphragm, and is adapted to be permanently attached to or detached from cover C at the opening thereof. It is made of papier-maché or other suitable material, and consists of two outwardly-flaring parts, D and S. Inner chamber, S, having an opening large enough to fully accommodate a person's mouth, is somewhat similar to a truncated cone with a part of its side cut out, forming two communicating chambers or passages, N M. Outer chamber, D, flares up and curves to cover a person's ear, while the mouth is placed at the opening of chamber S to talk against diaphragm B. This combination mouth and ear piece enables the sound-waves to be received with absolute accuracy, as the waves naturally follow curved chamber D after leaving diaphragm B, and become audible and clear by the time they reach the opening of chamber D.

In sending a message a part of the sound-waves is reflected by the inclined sides of space M, by which they are again reflected in converging lines on the center of the diaphragm, which strengthens the sound without confusing it.

Diaphragm B consists of a sheet of tin between two sheets of leatheroid. They are glued together, forming a strong and durable resonant diaphragm with greater elasticity and resonance than can be produced by any single substance.

The transmitting or connecting wire is attached at one end to one diaphragm and at the other to the other diaphragm, the attachment being made in each case by means of button F, made of metal about two inches in di-

ameter, flat on one side and having an annular curve on the other, with two holes near the center, through which a steel, brass, or other suitable metal rod is passed and the two ends are riveted, forming a loop or hook.

The loop or hook on button F is passed through a hole punched in the center of the diaphragm, and transmitting-wire E fastened to the loop or hook, making a strong and durable hold on the diaphragm.

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

1. A diaphragm for transmitting and receiving sound, composed of leatheroid and tin, substantially as described.

2. A combined mouth and ear attachment made rigid in one piece and adapted to be detachably attached to a telephone, and consisting of two communicating chambers, the opening of one of which, when in use, is applied to the mouth simultaneously with placing the ear at the opening of the other, substantially as described.

GEORGE THOMAS.

Witnesses:
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