R. S. RHODES.

Audiphone.

No. 219,828. Patented Sept. 23, 1879.

Fig. 1.

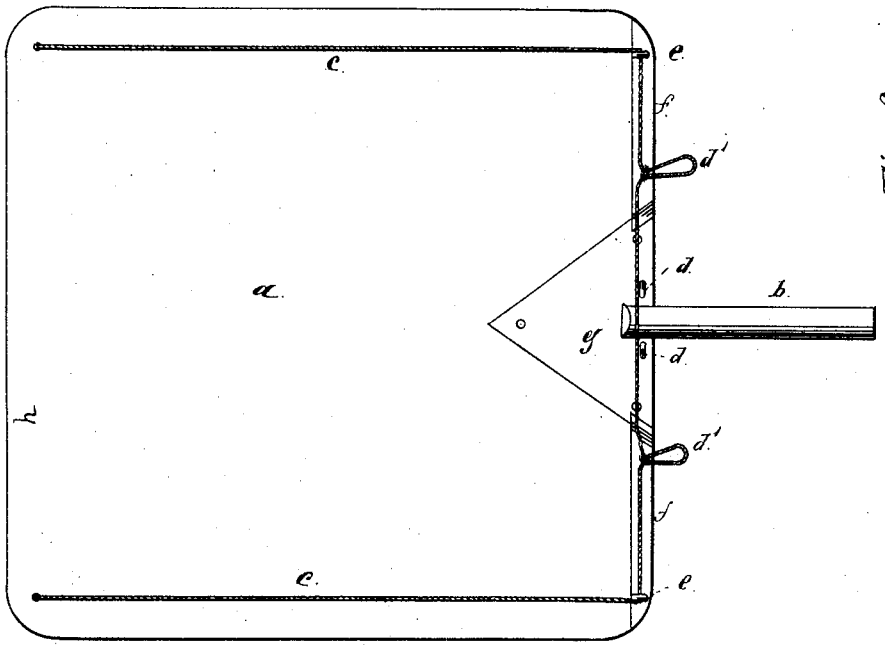


Fig. 2.

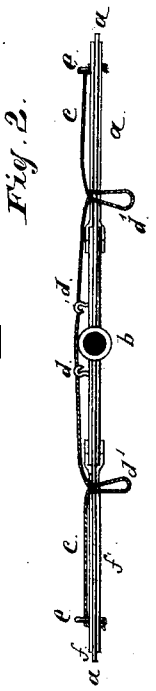


Fig. 3.

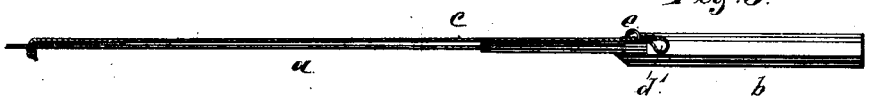
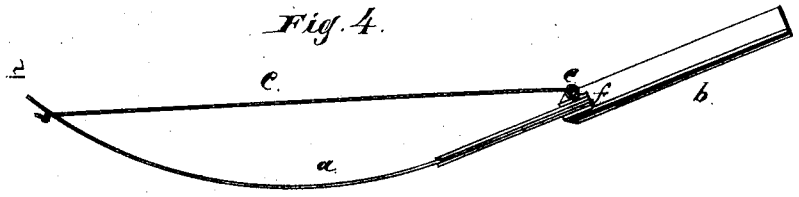


Fig. 4.



Witnesses:

H. C. Bruns.

A. W. Bond.

Inventor

Richard S. Rhodes.

UNITED STATES PATENT OFFICE

RICHARD S. RHODES, OF RIVER PARK, ILLINOIS.

IMPROVEMENT IN AUDIPHONES.

Specification forming part of Letters Patent No. **219,828**, dated September 23, 1879; application filed March 12, 1879.

To all whom it may concern:

Be it known that I, RICHARD S. RHODES, of River Park, in Cook county, State of Illinois, have invented certain new and useful Improvements in or a device for increasing sound and communicating it by the teeth, which I call an "Audiphone," and of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan or face view; Fig. 2, an end view; Fig. 3, an edge view; and Fig. 4, an edge view, showing the device strained.

The object of this invention is to carry into practical use a discovery that I have made, and produce an instrument which will receive, respond to, and communicate sound-waves to the train or acoustic nerves by means of contact with the teeth; and its nature consists in providing for that purpose a thin sheet of vulcanized or hard rubber, or of metal or of other suitable sonorous material, and subjecting it to a sufficient strain or tension to cause it to respond to sound-waves, or to cause sound-waves to give such plate or sheet their own vibrations, and in the attachments thereto, as are hereinafter more fully described and claimed as new.

In the drawings, *a* indicates the sensitive plate; *b*, a handle; *c*, a cord; *d*, hooks for holding the loops *d'* when the device is strained; *e*, eyes for holding the cord in right lines; *f*, strengthening bands or bars, and *g* a strengthening-plate for the handle.

The plate *a*, as shown, is nearly square; but there is no special form required, and it may be made fan-shaped, or in other ornamental form that will not affect its vibrations. Considerable surface is desirable, as the smaller it is the weaker is its effect or result.

The plate is made thin, so as to be sensitive to sound-waves, and it will be found useful without straining-cords or handle, as the strain may be given to it by pressing it upward against the teeth, and with a handle this will be found sufficient for ordinary conversation; but as this operation would be wearying at church, lectures, concerts, plays, &c., I have provided the plate with a handle and straining-cords, so as to hold it in proper tension.

The strain is given by placing the loops *d'* over the hooks or pins *d*, as shown; but they may be both placed over a single pin, or the cord may be drawn down on the handle and placed in a notch to hold it, so as to dispense with the hooks or pins and the loops.

When the plates are specially prepared the lower or handle edge may be thickened, so as to dispense with the strengthening-bars *f*, and the handle may be made an integral part of the device, so as to dispense with the plate *g*. The form shown, however, is the one that I deem best for an inexpensive device.

Proportions are not essential; but the size which I deem best for the plate is a surface of about eighty square inches; but for special purposes they may be made larger or smaller.

In use, the best result is obtained by placing the edge *h* of the device against the teeth to be used in conveying the sound, instead of placing any part of the surface against such teeth, and by such use the tones of an ordinary conversation are distinctly conveyed by the teeth through the bones to the brain or acoustic nerves, so that deaf persons who have once learned to distinguish words by sound can readily carry on conversations, for the large vibrating surface of the plate or the receiving-surface for sound-waves not only intensifies the sounds to be received by the holder, but it also increases the tones or intensifies the vibrations given out by the holder, making them louder, and communicates them back, so that the deaf person may hear his own words, and enable others to hear more distinctly.

I do not claim to have discovered the fact that sounds may be communicated through the mouth and Eustachian tubes by means of a plectrum held by the teeth; but I claim to have discovered and applied the means described for communicating sound through the medium of the upper teeth independently of the Eustachian tubes and by means of a strained sonorous plate, which, by practical experience, I deem much preferable to any device which

is used for conveying intensified sounds to the broken, impaired, or inoperative organs of the ear.

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

1. As an improvement in the art of enabling persons of defective hearing to distinguish sounds through the upper teeth, a sonorous plate strained to be responsive to sound-waves, to be applied thereto substantially as specified.

2. The plate *a*, in combination with one or more straining-cords, *c*, and handle, substantially as and for the purpose described.

RICHARD S. RHODES.

Witnesses:
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