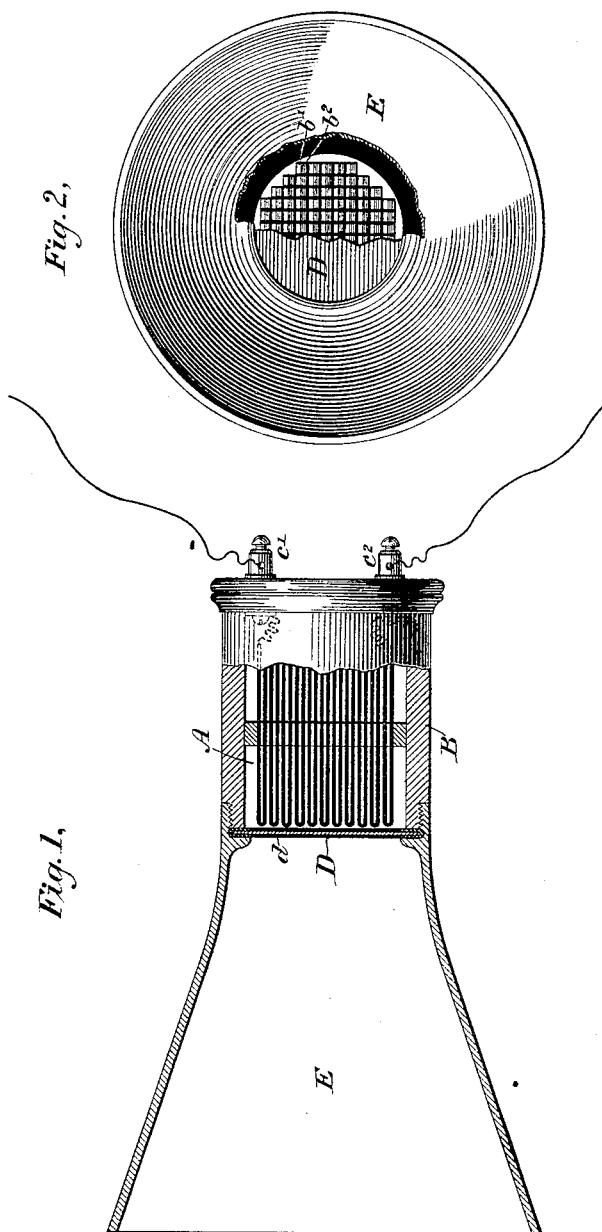


(No Model.)

W. STANLEY, Jr.  
THERMAL TELEPHONE.

No. 348,501.

Patented Aug. 31, 1886.



Witnesses

*Geo. W. Breck.*  
*Carrie C. Ashley*

Inventor

*William Stanley Jr.,*  
By his Attorneys  
*Robert Edgeworth*

# UNITED STATES PATENT OFFICE.

WILLIAM STANLEY, JR., OF GREAT BARRINGTON, MASSACHUSETTS.

## THERMAL TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 348,501, dated August 31, 1886.

Application filed January 18, 1886. Serial No. 188,824. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM STANLEY, Jr., a citizen of the United States, residing in Great Barrington, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Thermal Telephones, of which the following is a specification.

My invention relates to the construction of a telephonic transmitter capable of producing electric currents or impulses, the strength of which are determined by and are correlative with air-waves conveying sonorous vibrations.

The object of the invention is to provide a telephonic transmitter in which the current to be transmitted is derived from a thermo-electric battery, which is so acted upon through vibrations or air-waves as to cause a current to be produced dependent upon the strength and character of the air-waves.

The invention consists in combining with a thermo-electric battery of suitable form and construction means for varying the heat applied thereto correlative with the variations in the air-waves.

A convenient method of carrying out the invention is to support a diaphragm of some heat-conducting medium—such, for instance, as copper—near the battery, in such position that it will approach and recede from the battery under the influence of the air-waves produced by sonorous vibrations or otherwise. The diaphragm is first slightly heated or warmed by breathing upon it, and the movements of this heated body, under the influence of the air-vibrations, will cause the battery to produce currents dependent upon the proximity of the diaphragm thereto.

It has been proposed to employ a thermal battery in a telephone-transmitter, relying upon the variations in temperature due to the breath of the speaker to produce the required variations in current, and it has also been proposed to divert a stream of warm air from a thermal battery by speaking against it. My invention differs from these in that a body, capable of being heated and retaining heat for a time, is caused to move to and fro before the battery by the waves, and to thus increase and diminish the heating effects which it itself produces upon the battery, the warmth of the breath of the speaker serving only to afford heat to the body so moved.

In the accompanying drawings, Figure 1 is

a transverse section of an instrument embodying the features of the invention; and Fig. 2 is an end view of the same, partly in section.

Referring to the figures, A represents a thermo-electric pile or battery, which may be conveniently formed by uniting the ends of a series of strips of alternate different metals,  $b'$  and  $b''$ , in a manner well understood. Such a battery may be conveniently placed in a case, B, one end of the series of strips being connected with a binding-post,  $c'$ , and the other with a similar post,  $c''$ . In front of the battery there is placed a disk or diaphragm, D, of copper, brass, iron, or other heat-conducting material. This diaphragm is surrounded by a rubber or other elastic washer,  $d$ , and is preferably supported by being clamped between a flange upon the case and the end of a suitable mouth-piece or sound-collector, E, which is preferably of material which will not readily conduct heat. The mouth-piece is screwed into the case, and it surrounds the diaphragm and extends outward a sufficient distance to collect and concentrate the air-vibrations upon the diaphragm.

I claim as my invention—

1. The combination of a thermo-electric battery and diaphragm or plate of heat-conducting material supported in proximity thereto.

2. The combination, substantially as hereinbefore set forth, of a thermo-electric pile or battery, and a diaphragm capable of being acted upon by sound-waves to vary the amount of heat applied to said battery.

3. The combination, substantially as hereinbefore set forth, of a thermo-electric battery, a diaphragm of conducting material, and yielding supports therefor.

4. A telephonic transmitter or thermophone consisting of a thermo-electric battery and a copper diaphragm in proximity thereto.

5. A thermophone consisting of the combination, substantially as hereinbefore set forth, of the thermo-electric pile and the case B, the terminals  $c'$   $c''$ , the diaphragm D, and the mouth-piece E.

In testimony whereof I have hereunto subscribed my name this 23d day of December, A. D. 1885.

WILLIAM STANLEY, JR.

Witnesses:

CAROLINE E. DAVIDSON,  
CHARLES A. TERRY.