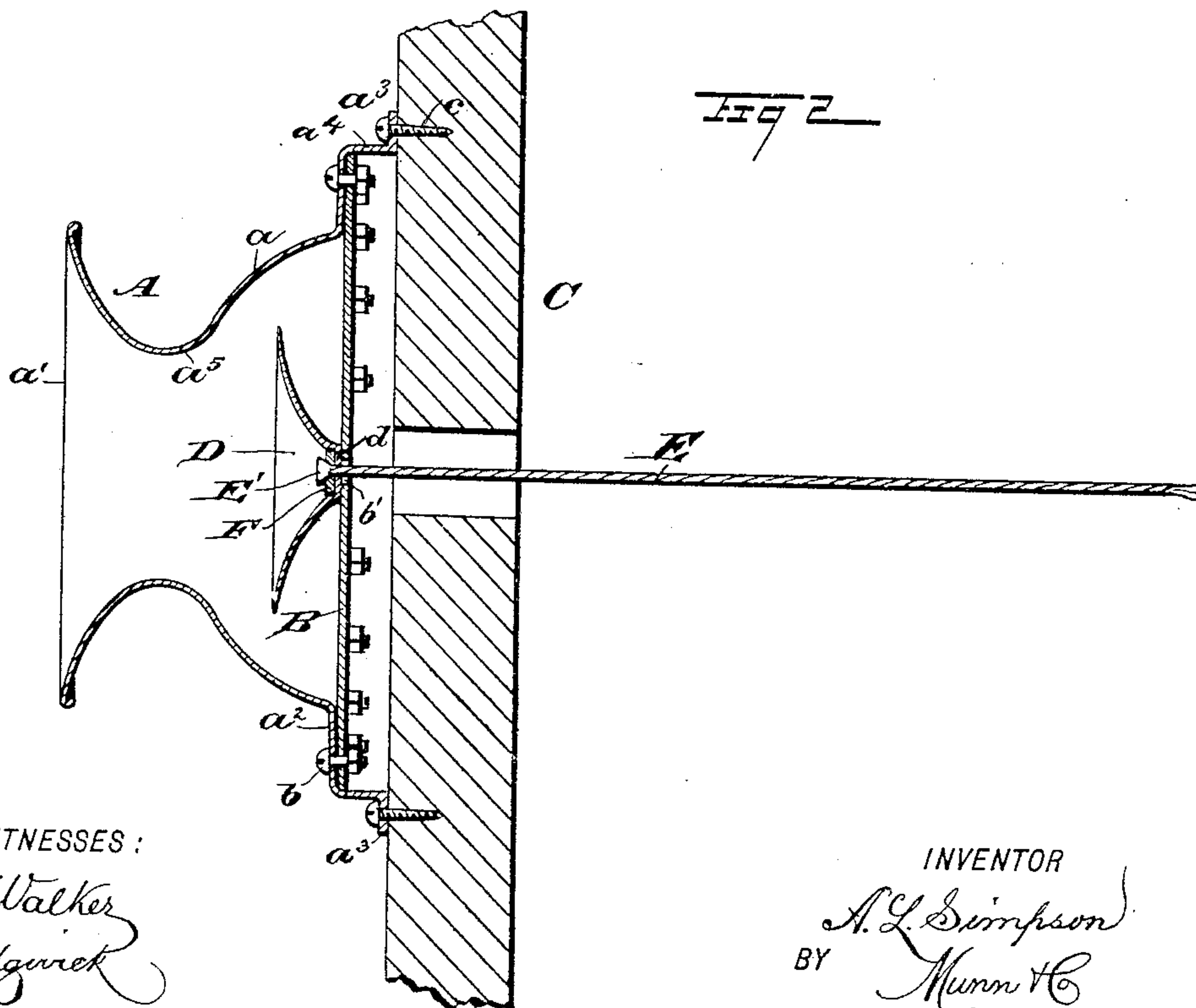
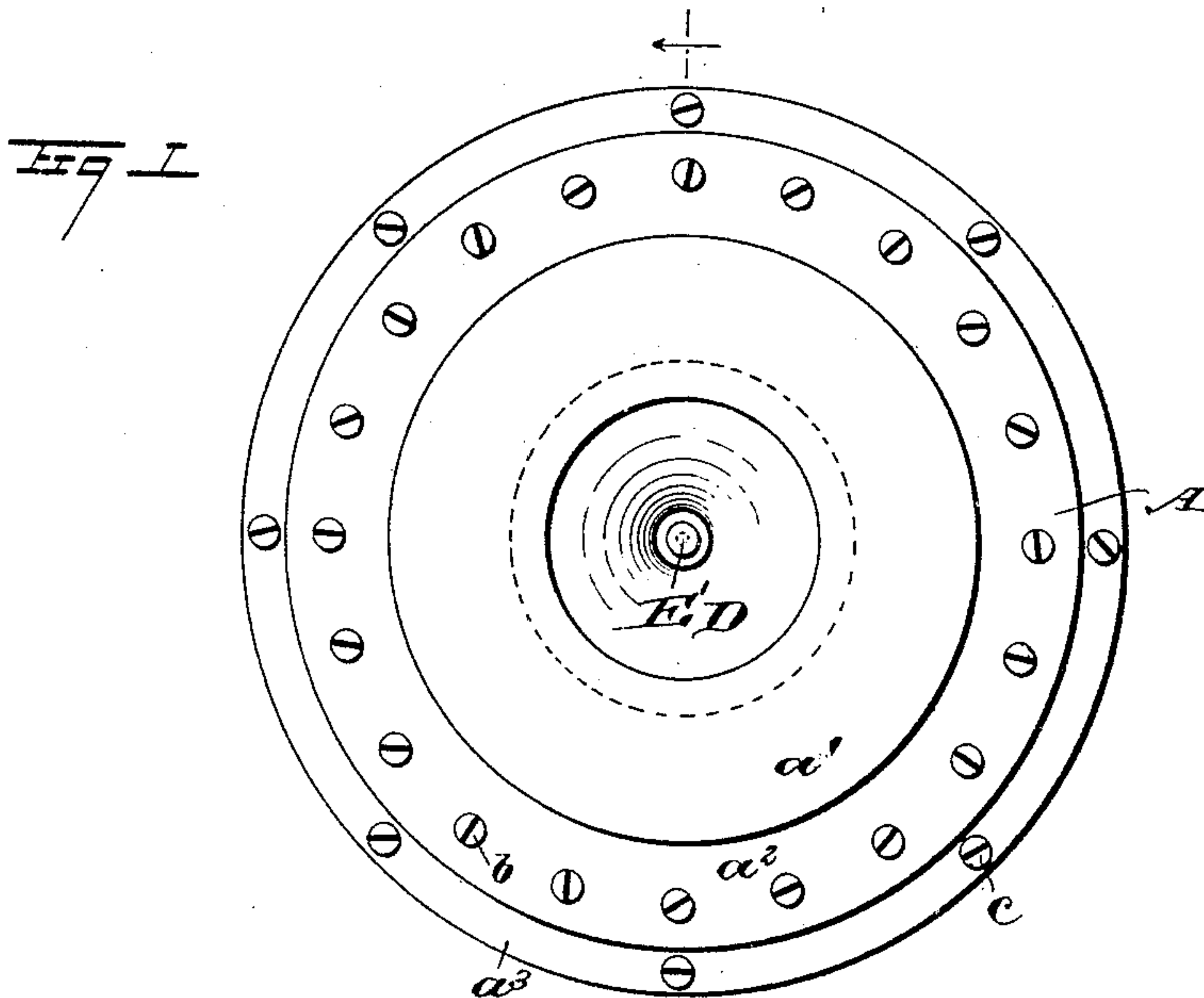


(No Model.)

A. L. SIMPSON.  
ACOUSTIC TELEPHONE.

No. 479,726.

Patented July 26, 1892.



WITNESSES:

*H. Walker*  
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# UNITED STATES PATENT OFFICE.

ALFRED L. SIMPSON, OF NEW YORK, N. Y.

## ACOUSTIC TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 479,726, dated July 26, 1892.

Application filed February 24, 1892. Serial No. 422,608. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED L. SIMPSON, of the city, county, and State of New York, have invented a new and Improved Acoustic Telephone, of which the following is a full, clear, and exact description.

The invention relates to acoustic telephones, the object being to increase their sensitiveness to sounds and promote economy in their manufacture.

The invention consists in the novel features hereinafter particularly described, and defined in the claims.

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

Figure 1 is a front view of a telephone embodying my improvements, and Fig. 2 is a central longitudinal section.

The case A of my improved telephone is made of metal, in one piece, and fashioned to form the rearwardly-flaring resonating-body  $a$  and the integral mouth or bell  $a'$ , the case thus being made flaring both front and rear, the body as well as the mouth being bell shape, but flaring oppositely. At the back the case departs outwardly from the body  $a$  to form the flat and narrow annular seat  $a^2$ , to which the diaphragm B is secured within the case by bolts  $b$  or the like. From the outer edge of the seat  $a^2$  the case is bent twice at right angles to form the flange  $a^3$ , parallel with the diaphragm-seat  $a^2$ , and a neck  $a^4$ , which spaces the said flange and seat. Thus when the flange  $a^3$  is secured by screws  $c$ , for instance, to a wall or other support C a chamber is formed between the said support and the inner side or back of the diaphragm. In connection with the case and diaphragm thus arranged I provide an improved resonator D within the case at the front of the diaphragm, such resonator being of metal, made bell shape, and formed with a central flat seat  $d$ , adapted to be seated against the face of the diaphragm, so that the resonator flares outwardly in the direction of the mouth  $a$ , the size of the resonator at the edge being greater than the width of

the contracted neck  $a^5$ , formed by the junction of the body  $a$  and mouth  $a'$ . This resonator is held to the diaphragm solely by the tension of the line-wire E, which passes through a central aperture  $b'$  in the diaphragm through the seat  $d$  of the resonator D and through a separate washer F at the outer face of the seat  $d$ . After being passed through the washer F the strands of the line-wire at its extreme end are slightly untwisted and a drop of solder is applied and made so that a somewhat conical head  $E'$  is formed for preventing the wire from being drawn through the parts.

It will be seen that in securing the line-wire and the resonator none of the parts are secured or fixed to the diaphragm, the whole being sustained in proper relation solely by the tension of the line-wire. In this way the vibratory attributes of the diaphragm are fully preserved, so that it will be sensitively responsive to sound.

By forming the complete case in one piece of metal, which is spun to form the body, mouth, diaphragm-seat, and securing-flange, the vibrations of the body resulting from the sounds deflected from the resonator will be communicated to the diaphragm without being deadened or appreciably lessened, there being no intermediate joints to take them up, and these vibrations, coupled with those produced by the direct action of the voice on the resonator, greatly increase the efficiency of the telephone. Further, the case, it will be seen, may be very cheaply produced.

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

1. An acoustic telephone comprising a metal case having a bell-shaped mouth, a flaring resonating-body, an annular diaphragm-seat, a neck extending from the seat and an attaching-flange extending from the neck parallel with the said seat, a diaphragm secured near its periphery only to the seat, and a bell-like resonator held to the outer face of the diaphragm by the tension of the line-wire only, substantially as described.

2. In an acoustic telephone, the combina-



tion, with a case having a bell-shaped mouth  
and a flaring resonating-body and a dia-  
phragm held to the rear of the resonating-  
body, of a bell-shaped resonator of a size  
5 greater than the diameter of the neck formed  
by the junction of the mouth and body and  
held to the diaphragm by the tension of the

line-wire, substantially as and for the pur-  
pose set forth.

ALFRED L. SIMPSON.

Witnesses:

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