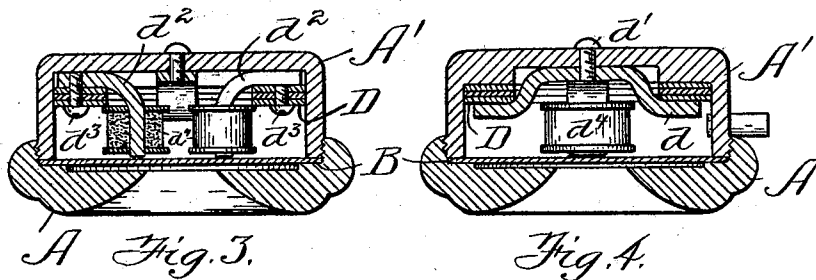
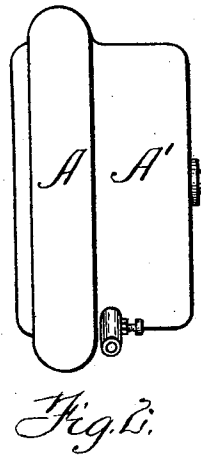
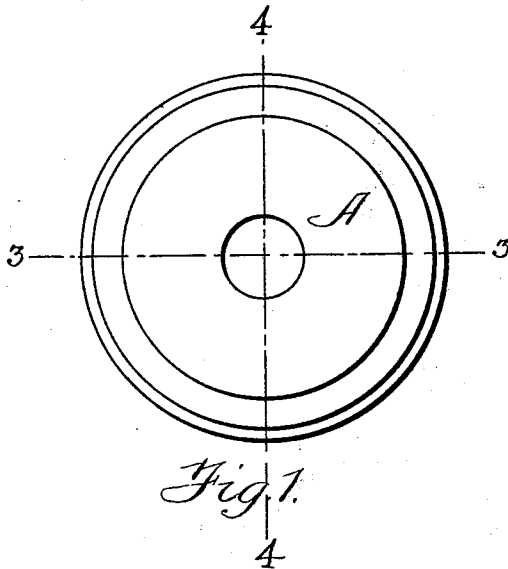


(No Model.)

A. F. BOARDMAN.  
MAGNETO TELEPHONE.

No. 520,406.

Patented May 29, 1894.



Witnesses;  
*John R. Snow*

Inventor;  
*Arthur F. Boardman*  
*J. B. Magnan*  
his Attorney.

# UNITED STATES PATENT OFFICE.

ARTHUR FRANCIS BOARDMAN, OF SOMERVILLE, ASSIGNOR OF ONE-HALF  
TO JAMES D. LEATHERBEE, OF BRAINTREE, MASSACHUSETTS.

## MAGNETO-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 520,406, dated May 29, 1894.

Application filed March 24, 1894. Serial No. 505,026. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR FRANCIS BOARDMAN, of Somerville, in the county of Middlesex and State of Massachusetts, have invented an Improved Magneto-Telephone, of which the following is a specification, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a plan, and Fig. 2 an elevation of one of my telephones. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a section on line 4—4 of Fig. 1.

In my improved telephone the casing is in two parts A A', between which the diaphragm B is clamped in the usual manner; but the permanent magnet D is ring shaped and held in the lower part A' of the case by the non magnetic clamping bar *d* and the screw *d'*. The pole pieces *d*<sup>2</sup> are bars of soft iron bent at their middle and held to the magnet D by the screws *d*<sup>3</sup>, and each pole piece has the usual bobbin *d*<sup>4</sup>.

My main invention is the improved construction consisting in a casing for a ring magnet, combined with the magnet by means of a non magnetic yoke whose ends engage the ring magnet secured at its middle to the casing; and another feature of my invention is the improved instrument as a whole.

The advantages are not only simplicity,

compactness and durability, but also the efficiency of the instrument as a receiver is admirable, and the cost is much less than of any other equally efficient receiver.

An adjusting spring between the magnet D and lower part A' of the casing may be used; but I prefer to adjust the distance between the outer surfaces of the pole and the diaphragm by grinding away the outer surface of the poles after the magnet and its pole pieces are secured in the casing A'.

What I claim as my invention is—

1. In a telephone a casing whose lower part is shaped to receive a ring magnet; a permanent ring magnet; and a clamping bar of non magnetic material, secured at its middle to the casing, and with its ends engaging the ring magnet; all arranged substantially as set forth.

2. The improved telephone above described consisting of the casing A A'; diaphragm B; permanent ring magnet D; clamping bar *d*; its screw *d'*; the pole pieces *d*<sup>2</sup> each underlying the ring magnet and projecting up through it; and the bobbins *d*<sup>4</sup>; all combined and arranged substantially as set forth.

ARTHUR FRANCIS BOARDMAN.

Witnesses:

J. E. MAYNADIER,  
JOHN R. SNOW.