

(No Model.)

J. W. BONTA.  
TELEPHONE RECEIVER.

No. 415,700.

Patented Nov. 26, 1889.

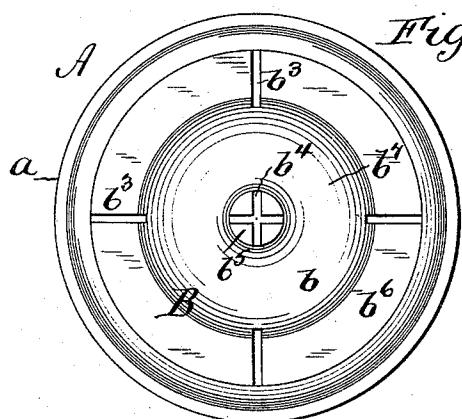


Fig. 1

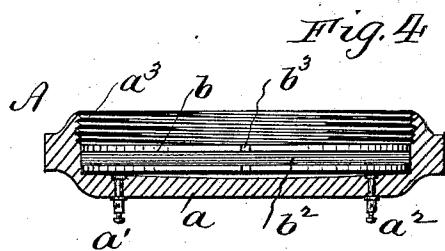


Fig. 4

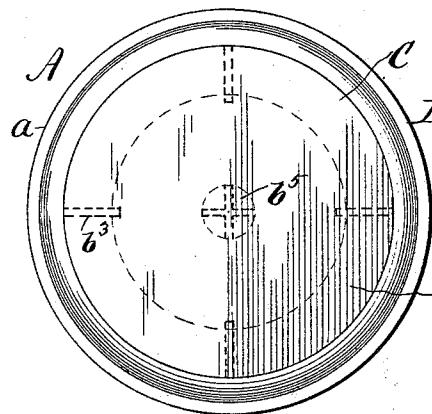


Fig. 2

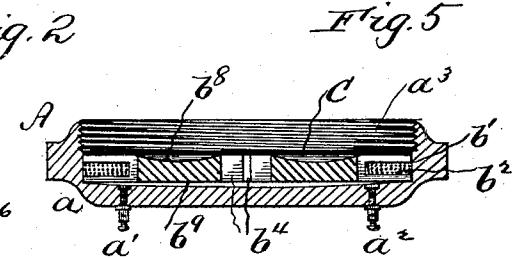


Fig. 5

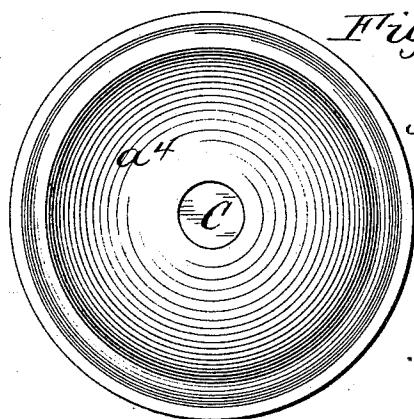


Fig. 3

A  
a

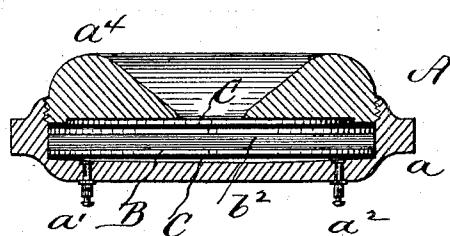


Fig. 6

WITNESSES:

Tommy Baughman  
Charl F. Dauvers

INVENTOR,

James W. Bonta  
By S. J. Van Stavoren  
attorney

# UNITED STATES PATENT OFFICE.

JAMES W. BONTA, OF PHILADELPHIA, PENNSYLVANIA.

## TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 415,700, dated November 26, 1889.

Application filed March 20, 1889. Serial No. 304,060. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. BONTA, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and 5 State of Pennsylvania, have invented certain new and useful Improvements in Telephonic Receivers, of which the following is a specification.

My invention has relation to telephonic receivers; and it has for its object a construction of magnet which admits of the use of a diaphragm which does not vibrate in front of the magnet in the sense that the diaphragm of the Bell type of receivers vibrates, and yet 15 reproduces articulate sounds clearly, distinctly, and loudly; and, further, to simplicity of construction of parts.

My invention accordingly consists of the combinations, constructions, and arrangements of parts, as hereinafter more particularly described in the specification and pointed out in the claims, having reference especially to a magnet having a disk-core, which serves as the spool for the magnet and 25 which has a number of poles or is multipolar at its circumference or periphery and at its center on both ends of said spool or core, the outer surfaces of said poles on both ends of the spool or core being in the same plane 30 for contact or resting surfaces for the diaphragm at its rim and at its center. Reference is to be had to the accompanying drawings, wherein—

Figure 1 is a plan of the magnet and receiver-casing, the ear-piece and diaphragm being removed. Fig. 2 is a like view with the diaphragm in position and the ear-piece removed. Fig. 3 is a similar view with the ear-piece in position. Fig. 4 is a transverse section of the receiver-casing with ear-piece removed, showing the magnet in elevation therein and the diaphragm located between the rear end of the magnet and the casing. Fig. 5 is a like view showing the magnet in section and the diaphragm in front of the same; and Fig. 6 is a transverse section of Fig. 3, showing the magnet in elevation and a diaphragm in front of and at the rear of the same, or two diaphragms and intervening magnet.

50 A represents a telephonic receiver-casing, composed of a body  $a$ , provided with the usual binding-posts  $a'a^2$ , interiorly or other suitably

located threaded portion  $a^3$ , to which is screwed the ear piece or cap  $a^4$ , and said casing may be of the configuration shown, or it may be 55 configured as desired.

B represents a magnet, which for purposes of my invention I prefer to make of a disk form, and to this end I take a core  $b$ , of disk form, and in its periphery provide an annular slot  $b'$ , in which is wound a helix  $b^2$ , so that said core serves as the spool for the magnet. The outer rim or circumference of the spool or core  $b$  is provided with a series of radially-arranged kerfs or slots  $b^3$  at regular 65 intervals, to divide said portion of the core into a number of poles or to make it multipolar, and at the center of the core a corresponding series of kerfs or slots  $b^4$  are provided, to make the core multipolar at its center as well as at its rim. Between the center  $b^5$  and the rim or end  $b^6$  of the magnet-core or spool  $b$ , on each end or side of the same, is a space  $b^7$ , which may be grooved, as indicated at  $b^8$ , Figs. 1 and 5, or it may be straight, 75 as indicated at  $b^9$ , Fig. 5. In any case, however, the intervals or spaces  $b^7$  may be configured. The outer surfaces of the poles at the center and at the rim or ends of the spool or core  $b$  are flush or level and do not project 80 beyond one another. A diaphragm  $C$ , therefore, resting upon either side of said core or spool, contacts or bears upon the center poles and also the circumferential poles of the core  $b$ ; or, in other words, the center of the dia- 85 phragm as well as its rim contact with or rest upon separate series of poles common to core  $b$ , and said diaphragm does not vibrate in front of the magnet in the manner prescribed for diaphragms of the Bell and kindred type 90 of telephonic receivers, but is molecularly agitated by action of the magnetic currents induced in the multipoles of the core  $b$  by the currents sent over the line and through the helix  $b^2$ .

In practice I have found that the instrument acts or works and reproduces distinctly and clearly whether the diaphragm is located in front of or to the rear of core  $b$ , or if two diaphragms are used, as indicated in Fig. 6.

The best results are obtained when the core  $b$  is made a permanent magnet and a diaphragm is used on one side of the same, preferably the front side, in which case the core

*b* then becomes a permanent magnet, having a group or series of center poles or a multi-polar center and a group or series of circumferential poles upon which rest the center 5 and rim of the diaphragm, and said magnet also serving as a spool for the helix *b*<sup>2</sup>.

What I claim is—

1. A telephonic receiver having a disk-magnet provided with facial center and circumferential poles, in combination with a diaphragm which has a center and rim support on said poles, substantially as set forth.
2. In a telephonic receiver, the disk magnet or core *b*, having a series of center and circumferential poles, and a diaphragm having a center and rim support on said poles, substantially as set forth.
3. A telephonic receiver having a permanent disk-magnet with integral center and circumferential poles, and a diaphragm having a center and rim support on said poles, substantially as set forth.
4. In a telephonic receiver, the combination

of a permanent magnet *B*, having a peripheral slot *b*', a series or group of poles at its circumference and at its center, a helix *b*<sup>2</sup> in said slot, and a diaphragm or diaphragms having a center and rim support on said poles, substantially as set forth. 25

5. The permanent magnet *b*, having peripheral groove *b*', circumferential slots or kerfs *b*<sup>3</sup>, center slots or kerfs *b*<sup>4</sup>, combined with a helix *b*<sup>2</sup> in groove *b*', and a diaphragm, substantially as set forth. 30

6. A telephonic receiver comprising a disk-magnet having radially-arranged circumferential slots or kerfs, separate corresponding slots or kerfs at its center, and a diaphragm, substantially as set forth. 35

In testimony whereof I affix my signature in presence of two witnesses. 40

JAMES W. BONTA.

Witnesses:

E. C. PARAMORE,  
J. DANIEL EBY.