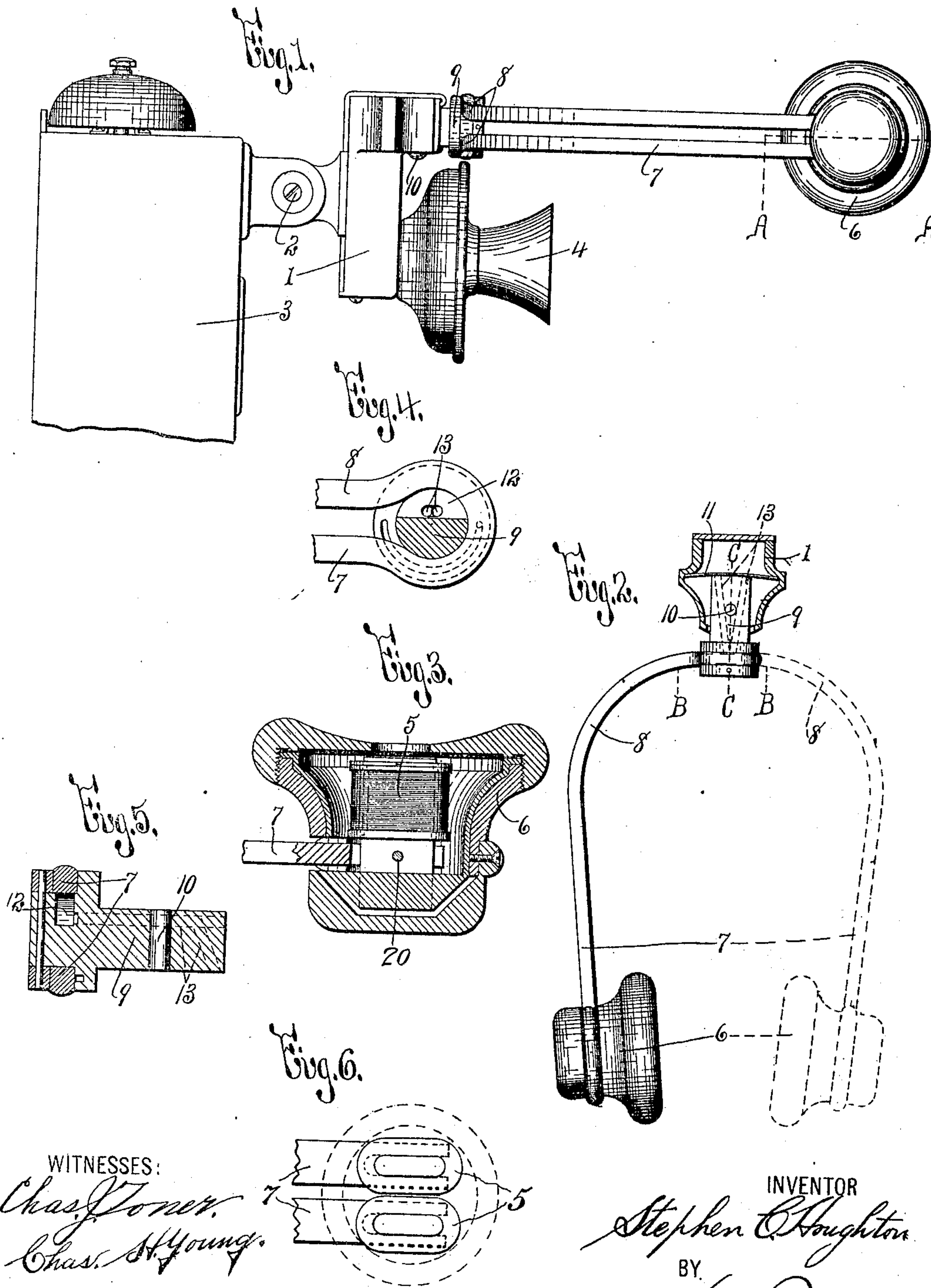


No. 837,469.

PATENTED DEC. 4, 1906.

S. C. HOUGHTON.
TELEPHONE RECEIVER.
APPLICATION FILED FEB. 18, 1905.



WITNESSES:

Chas. Jones.
Chas. H. Young.

INVENTOR

Stephen C. Houghton
BY
Hoy Parsons
ATTORNEYS

UNITED STATES PATENT OFFICE.

STEPHEN C. HOUGHTON, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE
WIRE AND TELEPHONE COMPANY OF AMERICA, A CORPORATION OF
NEW YORK.

TELEPHONE-RECEIVER.

No. 837,469.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed February 18, 1905. Serial No. 246,270.

To all whom it may concern:

Be it known that I, STEPHEN C. HOUGHTON, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Telephone-Receiver, of which the following is a specification.

This invention relates to telephones, and is intended as an improvement upon the type of telephone shown in Patent No. 759,280, granted to myself and F. M. Potter, Jr., May 10, 1904, and has for its object to provide for the employment of a permanent magnet for the receiver of extraordinary dimensions, which is adapted to serve as a support for the other parts of the receiver.

Figure 1 shows in side elevation, partially broken away, a telephone embodying my invention. Fig. 2 is a plan view and partial section of the receiver and its permanent magnet, which serves as a support for it, and the permanent or fixed support for said permanent magnet, the dotted lines indicating the reverse position of the receiver and its supporting-arm. Fig. 3 is a transverse section of the receiver shown in Fig. 1, taken on the dotted lines A A. Figs. 4 and 5 are sectional views taken on the dotted lines B B and C C, Fig. 2; and Fig. 6 is a detail showing in plan view the electromagnets supported by the arms of the permanent magnet.

1 represents what I herein term a "permanent" or "fixed" support for the transmitter and receiver, it being herein shown as pivoted at 2 to a case 3, although it may be fixed, if desired. This support is made as a shell or case of any suitable size, shape, and construction.

4 is the transmitter, which is preferably mounted on the support 1.

The receiver has a pair of electromagnets 5 (see Fig. 3) contained within its case, which are located back of the usual diaphragm, and the cores of said magnets are extended rearward into engagement with the rear wall of the case, being thereby supported. The permanent magnet 7 for the receiver is herein shown as of the horseshoe type, comprising a pair of arms and a heel. The extremities of the arms of said permanent magnet extend through a hole in the side of the receiver-case and are bifurcated to embrace the cores of the electromagnets, and said cores are pivotally connected to the extremities of said arms by a suitable pin or pins 20 or other-

wise. The receiver is thus pivotally connected to the extremities of the arms of the permanent magnet and is free to rock thereon.

The arms of the permanent magnet are bent, as at 8, near the heel, and the heel is circularly formed to embrace the circumferentially-grooved head of a stud 9, the shank of which projects into the support 1 and is pivoted at 10 to said support and is held in a predetermined position by a suitable spring 11, which bears upon or against its inner end. The permanent magnet for the receiver thus serves as a supporting-arm for the receiver and is bent for the purpose of holding the receiver in a certain position with respect to the transmitter, and its circularly-formed heel frictionally embraces the stud 9, so that it may be turned on said stud to occupy a position at either side of the transmitter and to remain in whatever position it may be set.

The conductors leading to the receiver (not herein shown) pass between the arms of the permanent magnet 7 to an opening 12 in the head of the stud 9 and through openings 13 (see dotted lines, Figs. 2 and 5) in the shank thereof and are connected to any suitable switch (not shown) adapted to be actuated by the rocking movement of the stud 9 on its pivot 10 to connect the receiver with the talking-circuit.

By utilizing the permanent magnet of the receiver as a supporting-arm for the receiver it may be made of extraordinary dimensions and the efficiency of the receiver increased.

It will be understood that in lieu of the described means for rotatably connecting the permanent magnet to its support any other suitable means may be substituted therefor, and, furthermore, more or less changes may be made in the other component parts of the apparatus without departing from the spirit and scope of my invention.

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

1. In a telephone, the combination with a fixed support, of a permanent magnet of the horseshoe type for the receiver, the heel of which embraces said support and a receiver connected to the extremities of the arms of said magnet, substantially as described.

2. In a telephone, the combination with a fixed support, of a permanent magnet of the horseshoe type for the receiver, the heel of

which embraces said support, and a receiver pivotally connected to the extremities of the arms of said magnet, substantially as described.

5 3. In a telephone, the combination of a fixed support, a permanent magnet for the receiver, connected to said support, a receiver-diaphragm, and electromagnets located back of the receiver-diaphragm, the
10 cores of which are pivotally connected to said permanent magnet, substantially as described.

4. In a telephone, the combination of a fixed support, a permanent magnet of the
15 horseshoe type for the receiver, connected to said support, a receiver-diaphragm, a pair of electromagnets located back of the receiver-diaphragm, the cores of which are pivotally connected to the extremities of the arms of
20 said magnet, substantially as described.

5. In a telephone, the combination of a fixed support, a transmitter attached to it, a stud on said support near the transmitter, a permanent magnet of the horseshoe type for
25 the receiver, the heel of which frictionally embraces said stud, whereby said magnet may be turned to occupy a position at either side of the transmitter, and a receiver attached to the extremity of said magnet, substantially as described.
30

6. In a telephone, the combination of a

fixed support, a transmitter attached to it, a stud on said support, a permanent magnet of the horseshoe type for the receiver, the heel of which embraces said stud, and a receiver connected to the extremities of the arms of said magnet, substantially as described. 35

7. In a telephone, the combination of a fixed support, a transmitter attached to it, a stud on said support, a permanent magnet of the horseshoe type for the receiver, the heel of which embraces said stud, and a receiver connected to the extremities of the arms of said magnet, substantially as described. 40

8. In a telephone, the combination of a fixed support, a transmitter attached to it, a stud on said support, a permanent magnet of the horseshoe type for the receiver, the heel of which embraces said stud and a receiver pivotally connected to the extremities of the
50 arms of said magnet, substantially as described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county
55 of Onondaga, in the State of New York, this 7th day of February, 1905.

STEPHEN C. HOUGHTON.

Witnesses:

S. DAVIS,

R. ARONSON.