

898,796.

S. S. SONNEBORN.
TELEPHONE SET.
APPLICATION FILED OCT. 1, 1907.

Patented Sept. 15, 1908.

Fig. 1.

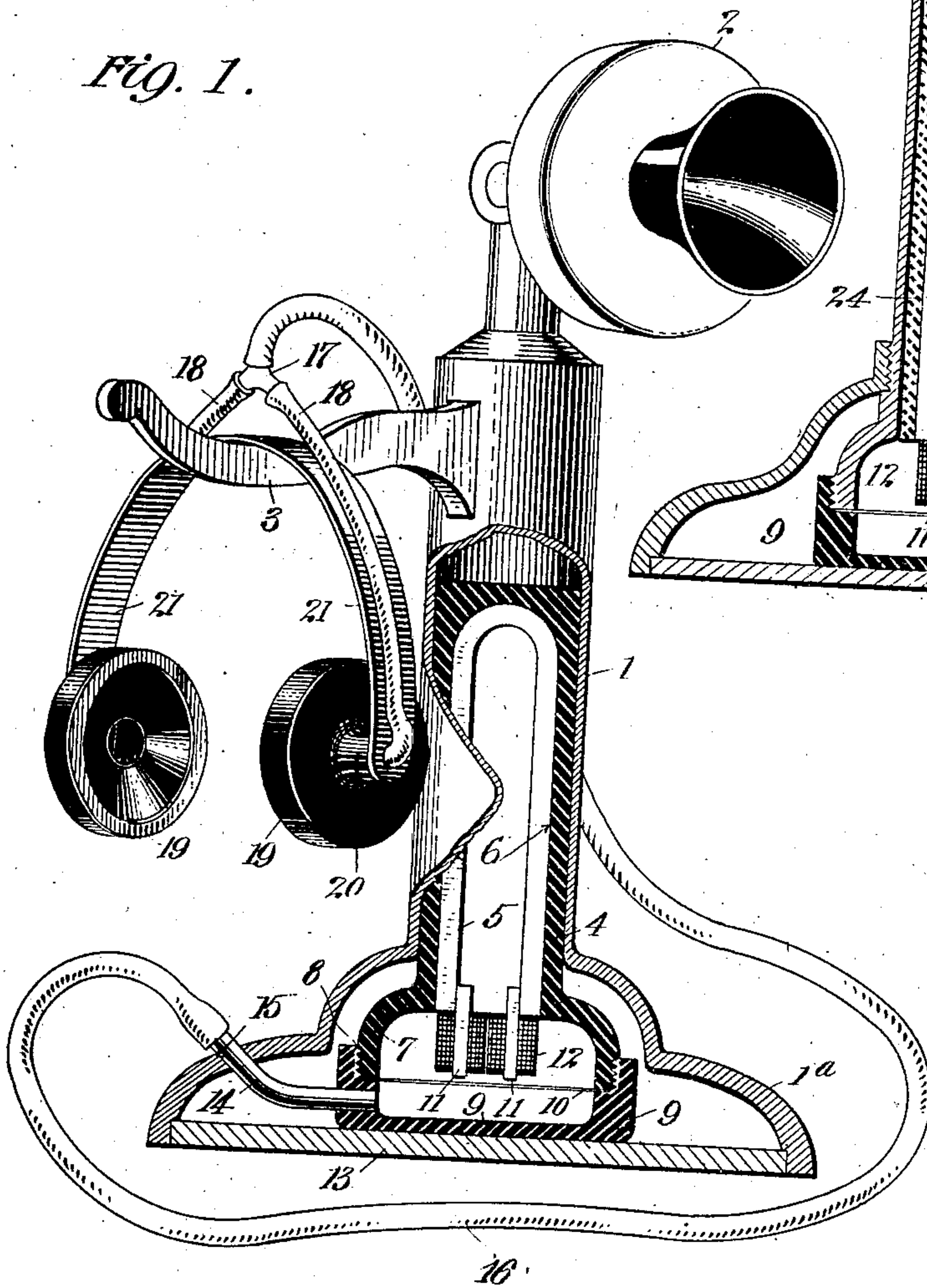
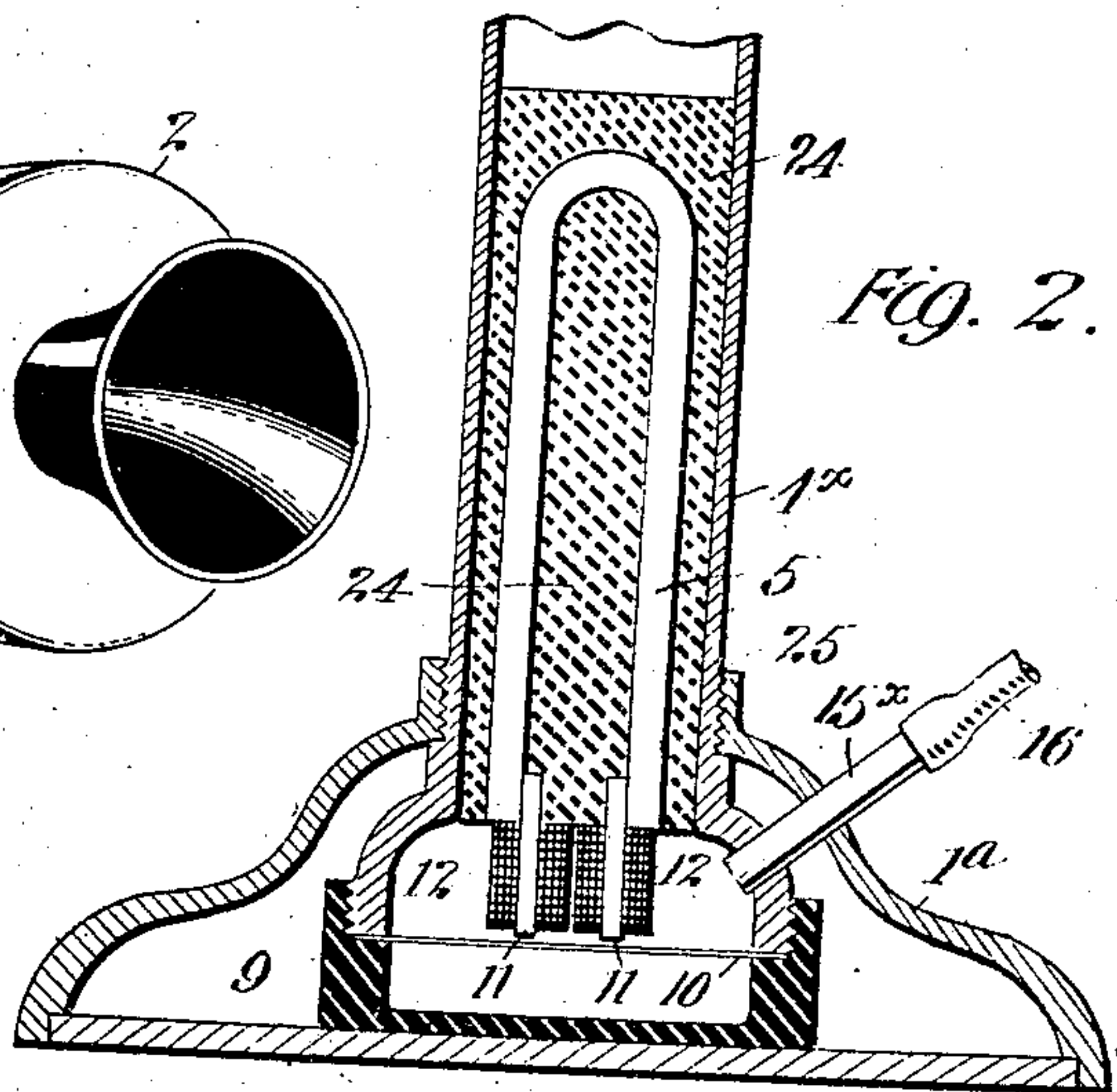


Fig. 2.



Witnesses:
Francis Ober
Ambrosio

S. S. Sonneborn
Inventor

UNITED STATES PATENT OFFICE.

SOL S. SONNEBORN, OF NEW YORK, N. Y.

TELEPHONE SET.

No. 898,796.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed October 1, 1907. Serial No. 395,393.

To all whom it may concern:

Be it known that I, SOL S. SONNEBORN, a citizen of the United States, residing at the city of New York, in the borough of Brooklyn and State of New York, have invented certain new and useful Improvements in Telephone Sets, of which the following is a full, clear, and exact description.

My invention relates to a form of telephone, and in the more specific aspects illustrated, a desk telephone having the general appearance and ordinary characteristics of the usual standard desk telephone in use, but which is much more sensitive, so that ordinary conversation may be more plainly heard, especially in public or noisy places, for long distance work, and for persons who are defective in hearing, or who for any reason have trouble in hearing at an ordinary telephone receiver.

The usual or standard desk telephone is in common use and comprises a cylindrical standard or column supporting a hinged transmitter and a switch hook at its upper end. This arrangement is in universal use, and for this reason, any telephone mechanism departing widely therefrom in general appearance or manner of use, is objectionable, since it does not accord with the established habits or customs of the telephone using public. At the same time, the instrument does not give perfect satisfaction in many cases, particularly those above enumerated.

It is the main object of my present invention to provide a telephone instrument not departing widely from the above form of ordinary standard desk telephone, but which overcomes the difficulties mentioned, being sensitive enough for all purposes and requirements.

In carrying out my invention, I provide two ear pieces, which has the double advantage of giving a two-fold sound impression to the operator, and also cutting off extraneous noises which ordinarily assail the open ear of the telephone user. But although two ear pieces are employed, the telephone user is not subjected to the burden and inconvenience of telephone instruments on a head band, which are heavy and uncomfortable even in the small sizes. Moreover, such small sizes of receiver ordinarily used with a head band are not as efficient or sensitive as the type having a longitudinally extending magnet. By the present inven-

tion, the efficiency and sensitiveness of the latter type of receiver are retained, while, at the same time, the double ear pieces are very light and not burdensome or uncomfortable.

In the drawings: Figure 1 is a side elevation partly in section of a desk telephone embodying the principles of my invention; Fig. 2 is a sectional view illustrating a slightly modified construction.

Referring to the drawings in which like parts are designated by the same reference sign, 1 indicates a cylindrical column, standard or supporting frame of a desk telephone having the usual hinged transmitter 2 at its upper end.

3 indicates a switch hook which may be of the ordinary construction controlling the circuits of the telephone in the usual manner.

The lower end of the column or standard 1 is enlarged or extended to form a base 1^a on which the apparatus may rest with the necessary firmness and stability. The interior of this base or enlargement 1^a constitutes a chamber or cavity which I utilize in carrying out the present invention.

The features thus far described are of substantially the ordinary form in desk telephones, and in themselves constitute no part of the present invention.

Within the column or standard 1, there is inserted a telephone receiver 4, the essential characteristic of which is a longitudinally extending magnet or magnets 5 embedded in the insulating body 6. The insulating body 6 has an external form adapted to be inserted tightly in the tubular interior of the column or standard 1.

7 indicates a flared or extended portion of the insulating body 6 at the lower end thereof and which is threaded at 8 to receive a closed cap 9 analogous to the ordinary cap of a telephone receiver, except that it is made without the usual central perforation.

10 designates a diaphragm clamped between cap 9 and flange 7. The magnet or magnets 5 have polar extensions 11 on which are wound bobbins 12 in the telephone circuit.

13 indicates a plate at the bottom of the enlarged portion 1^a of the column or standard 1, and serving to tightly close the interior cavity thereof.

The space between the cap 9 and the diaphragm 10 communicates with the bent pipe 14 leading through the wall of the standard or column 1 at the point 15.

16 denotes a flexible or rubber tube at the

end of which is a forked pipe 17, the purpose of which is to divide the passage of the tube 16 into two separate portions respectively joined to the tubular extensions or pipes 18.

19 indicates the ear pieces conveniently made in the form of hard rubber or similarly resonant cups, with extending protuberances 20 to which the pipes 18 are connected.

21 indicates a resilient steel band which may be used in some cases to support the ear cups or pieces 19 in proper relation against both ears of the telephone user.

The column or standard 1 is of sufficient size to receive a telephone receiver having longitudinal magnets of such large and ample proportions as to insure great efficiency and sensitiveness. Inasmuch as the standard with its attached parts reposes on a desk or support in use, the extra weight of the receiver by which its efficiency and sensitiveness are obtained, is not objectionable. The use of the double ear pieces 19 divides the sound of the receiver between both ears of the telephone user which also is advantageous, not only from the standpoint of easy hearing, but from certain hygienic considerations as well. But although easy hearing is insured, the usual form and characteristics of a desk telephone are not changed, nor are there provided heavy, uncomfortable or burdensome parts to be put upon the telephone subscriber's head, as is required with the forms of apparatus in which separate telephone receivers directly constitute the ear pieces. A further advantage lies in the fact that there is no hard rubber shell liable to be broken as is the case with the ordinary telephone receiver only supported by a loose cord connection. It is evident that all the parts of the receiver are fully protected by the transmitter frame in which they are embedded.

In Fig. 2, I have illustrated a slight modification, the essential characteristic of which is that the telephone receiver casing virtually forms the standard or column of the apparatus. The telephone magnet or magnets are designated 5 and carry pole pieces 11 and bobbins 12 acting on a diaphragm 10 in a manner similar to the form of the invention shown in Fig. 1. The body of the telephone receiver is, however, differently formed and is designated 4^x. This part 4^x forms the column or standard of an apparatus analogous

to the part 1 of Fig. 1. If desired, the magnets 5 may be supported in the body 4 of the receiver by a bed 24 of plastic or insulating substance. The enlarged base 1^a of the instrument may be threaded on to the part 4^x at the point 25 in this form of the invention. A further difference lies in the arrangement of the tube or pipe 15^x which, in this case, extends from the cavity containing the magnet bobbins, etc., instead of the cavity adjacent the cap 9. The sound vibrations are, of course, transmitted equally well from either side of the diaphragm. The feature of the tube 16 and the ear pieces 19, etc., may be the same as in the construction of Fig. 1.

It is evident that the essential principles of my invention can be embodied in many different types of apparatus or telephone including those fixed upon or attached to their supporting surfaces. I do not therefore desire to be limited or restricted to the particular details of construction shown.

What I claim, is:—

1. In a desk telephone, a hollow standard or column having a transmitter and a switch hook, a telephone receiver forming part of said standard, a pair of ear cups or pieces, and tubular connections therefrom to said receiver.

2. In a desk telephone, a hollow standard or column having a transmitter and a switch hook, a telephone receiver having a longitudinal magnet co-axially contained in and forming part of said standard or column, an ear cup or piece, and tubular connections therefrom to said receiver.

3. In a desk telephone, a hollow standard or column having a transmitter and a switch hook, said standard being enlarged at its base to form a correspondingly enlarged interior cavity, a telephone receiver having a longitudinal magnet co-axially contained in and forming part of said standard, said receiver having its diaphragm end within said enlarged portion of the standard, an ear cup or piece, and tubular connections therefrom to said receiver.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

SOL S. SONNEBORN.

Witnesses:

E. A. OBRIG,
K. M. GORDON.