

1,033,098.

Patented July 23, 1912.

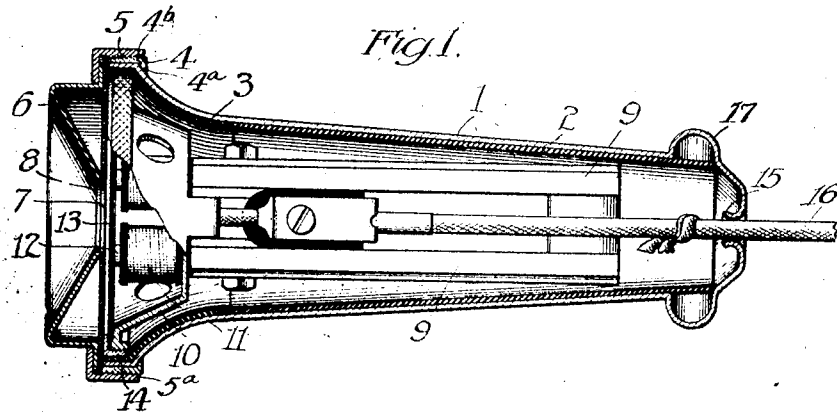


Fig. 2.

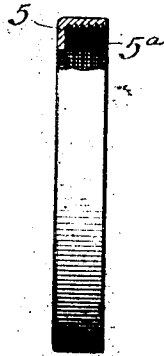


Fig. 3.

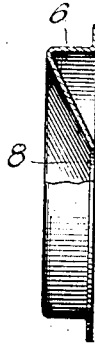
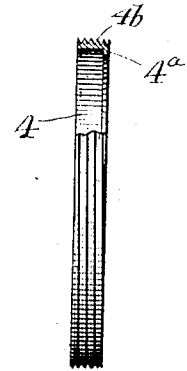


Fig. 4.



Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN HALLDOW, OF ELYRIA, OHIO, ASSIGNOR TO THE DEAN ELECTRIC COMPANY, OF ELYRIA, OHIO, A CORPORATION OF OHIO.

TELEPHONE-RECEIVER.

1,033,098.

Specification of Letters Patent.

Patented July 23, 1912.

Application filed October 8, 1908. Serial No. 456,687.

To all whom it may concern:

Be it known that I, JOHN HALLDOW, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented a certain new and useful Improvement in Telephone-Receivers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to telephone receivers and has for its object the construction of a receiver shell of metal which shall accomplish all of the purposes heretofore secured in connection with shells for such instruments and having the additional advantage of lightness, durability, improved appearance and cheapness.

Receiver shells have commonly been made heretofore of insulating material of one form or another which, generally speaking, is very brittle in nature and therefore easily broken. To avoid this difficulty the shells have usually been constructed of considerable thickness, with the result that they are both clumsy and heavy. By my invention I construct these shells of thin sheet metal and use in conjunction therewith a separate threaded ring adapted to cooperate with the body portion of the shell to secure thereto the receiver cap. This receiver cap may be constructed in one piece or it may be constructed in a manner similar to the body portion of the shell. That is, it may consist in a main portion formed of thin sheet metal, cooperating with which is a separate threaded ring to secure the cap to the body portion of the receiver. If preferred, a cap of insulating material may be used in connection with the metal shell instead of the metallic cap just referred to.

In constructing my improved receiver shell I make use preferably of forming dies to form sheet metal into the desired conformation. In order to be readily manipulated so as to assume the form required, the sheet metal used must be preferably relatively thin. This thin material, however, is not adapted to be threaded, since the threads would be so fine necessarily as to be of no use. Furthermore, the threaded portion would not possess sufficient rigidity to readily engage the cooperating threaded member. I eliminate this difficulty by using in conjunction with the thin metal forming the

body portion of the shell a separate ring which is preferably of metal, although other material may be used if desired. This ring serves to permit the forming of threads of suitable size to be practical, and also serves to reinforce the larger end of the shell so that it may be readily engaged by the cooperating threaded member.

A further advantage secured by this construction is that the receiver shell is comparatively light. In the event of forming the shell of material thick enough to be properly threaded, the shell would be so heavy as to practically prohibit its use.

A further advantage secured by my improved construction is to be found in the case in which the main portion of both the shell proper and the cap are formed for the sake of cheapness of thin sheet steel. The construction used which is above described and forms the subject matter of this invention permits the use of threaded rings of other material in connection with the formed steel members, as a result of which the possibility of corrosion of the threads engaging each other may be eliminated. If a steel shell had formed directly thereon the threads for engaging the cap, serious difficulty would result from the corrosion of the steel threads and in many cases would make it practically impossible to remove the cap from the receiver after the same had been in use for some time. This result would occur particularly in the case in which both the receiver and the cap were made of steel, each having the threads carried thereby formed directly in the steel itself.

In connection with the use of sheet steel for forming the main portion of the shell proper and the cap I employ a protecting varnish or coating, as for example enamel or japan, to thoroughly protect the steel from the contact of moisture. This means could not be used satisfactorily to protect the steel screw threads above referred to, since evidently the screw threads in order to properly perform their function must be clean and free from any foreign matter. In addition to the insulation thus secured by the enamel coating within the shell, I may employ separate insulating means between the shell and the cooperating mechanism of the receiver contained therein. This, however, does not form a part of the present invention and is not claimed herein.

The several drawings illustrating my invention are as follows:

Figure 1 is a longitudinal sectional view taken through the receiver shell proper and the receiver cap and shows the cooperating mechanism contained within the shell. Fig. 2 shows, partly in side view and partly in section, the threaded ring used in connection with the thin metal receiver cap to secure the same to the body portion of the receiver. Fig. 3 is a view partly in section and partly in side view showing the thin metal receiver cap; and Fig. 4 is a cross section of the insulating disk. Fig. 5 is a similar view of the threaded ring used in connection with the body portion of the shell to engage the threaded part of the receiver cap.

Similar numerals refer to similar parts throughout the several views.

As shown in the several drawings, the receiver shell 1 is of tubular conformation having a slight taper, as indicated, and is enlarged at its left-hand end to cooperate with the threaded ring used to engage the receiver cap. The threaded ring 4, as shown in Fig. 5, has formed on its right-hand end, as shown in the drawings, an inwardly extended flange 4^a adapted to engage the shoulder formed near the left-hand end of the shell 1 and thus prevents the ring 4 from slipping over the member 1 to the left, as shown in the drawings. This ring 4 is of such an internal diameter as to practically fit the cylindrical portion of the shell 1 formed upon its left-hand end. The ring 4 has formed in its outer surface screw threads 4^b for engaging the receiver cap. The smaller end of the shell 1 has an enlarged annular portion 17 formed thereon which is adapted to engage the receiver hook when the receiver is not in use. The material of the shell is continued around the smaller end and has an opening 15 formed in the end, through which the conductor cord 16 is adapted to pass. The edges of the opening 15 are formed inward, as indicated, so that the sharp edge of the opening cannot come in contact with the conductor cord.

The cooperating mechanism of the receiver is of the well known type in which such mechanism is completely assembled independently of the receiver casing. As shown in the drawings, it consists essentially of permanent magnets 9, 9 having secured to their left-hand ends a metal cup 10 within which the receiver coils 11, 11 are located. The outer edge of the cup 10 is threaded and adapted to cooperate with a threaded ring 14, the diaphragm 13 of the receiver being clamped between the threaded ring 14 and the cup 10 in operative relation to the poles 12 extending through the coils. The cooperating mechanism just described

is insulated from the shell 1 by means of tubes 2 and 3 of insulating material, such as vulcanized fiber or the like, which effectually prevent contact between the metal of the shell and any part of the cooperating mechanism.

The cap used to close the larger end of the shell 1 and to secure in position therein the cooperating mechanism consists of a main portion 6 of thin sheet metal formed as indicated and adapted to cooperate with a separate ring 5 so formed as to surround the portion 6 and extend into engagement with the threaded portion of the body of the receiver shell to clamp the cap 6 against its left-hand end. An insulating disk 7 of fiber or similar material is used to prevent contact between the cooperating mechanism of the receiver and the receiver cap.

While I have shown my invention in the particular embodiment herein described, I do not, however, limit myself to this construction, but desire to claim broadly any equivalent modification that will suggest itself to those skilled in the art.

What I claim is:

1. A telephone receiver shell consisting of a body portion, a threaded ring loosely engaging said body portion, a cap portion, and a threaded ring loosely engaging said cap, said threaded rings adapted to interengage to fasten said cap and body together.
2. A telephone receiver shell consisting of a body portion, a threaded ring thereon, a cap portion and a threaded ring loosely mounted thereon, said threaded rings adapted to interengage to fasten said cap to said body portion.
3. A telephone receiver shell consisting of a body portion having a shoulder thereon, a threaded ring adapted to fit over the body portion and having a flange adapted to engage the shoulder, a cap portion having a threaded ring loosely mounted thereon, said threaded rings adapted to interengage to fasten said cap and body portion together.
4. In a telephone receiver shell, the combination of a body portion, a threaded ring on said body portion, a cap portion having a flange thereon, a threaded ring mounted on said body portion, and having a flange adapted to engage the flange on the cap, said threaded rings adapted to unite the cap and body portion.
5. In a telephone receiver shell, the combination of a body portion having a shoulder thereon, a threaded ring loosely mounted thereon and having a flange engaging the shoulder, a cap portion having a threaded ring mounted thereon, said rings adapted to intermesh to connect said body and cap, and to hold said first named threaded ring against said body portion preventing their separation.

6. In a telephone receiver shell, the combination of a body portion having a threaded ring loosely mounted thereon, a cap portion and threads on said cap adapted to engage said threaded ring to unite said cap and body portion.

7. In a telephone receiver shell, the combination of a body portion, threads on said portion, a cap portion having a flange thereon, a threaded ring having an annular flange thereon adapted to be mounted on said cap so the flanges interengage, said ring adapted to engage the threads on the body portion to unite the cap thereto.

8. In a telephone receiver shell, the combination of a body portion, threads on said portion, a cap portion, a threaded ring loosely mounted on said cap portion and adapted to engage the threads on the body portion to firmly secure said parts together.

9. In a telephone receiver shell, the combination of a body portion having a thread-

ed ring loosely mounted thereon, a cap portion having a threaded part associated therewith and adapted to engage the threaded ring to unite said parts, said threaded ring held upon the body portion by virtue of the engagement of the cap part therewith.

10. In a telephone receiver shell, the combination of a body portion, threads on said portion, a cap portion having a threaded ring loosely mounted thereon, said threaded parts adapted to interengage to unite said portions, said threaded ring retained in position on said cap by virtue of said interengagement.

In witness whereof, I hereunto subscribe my name this 5th day of October A. D. 1908.

JOHN HALLDOW.

Witnesses:

WM. W. DEAN,
A. D. T. LIBBY.