No. 732,734. PATENTED JULY 7, 1903.

J. S. GOLDBERG.

TELEPHONE RECEIVER.

APPLICATION FILED FEB. 14, 1903.

NO MODEL.

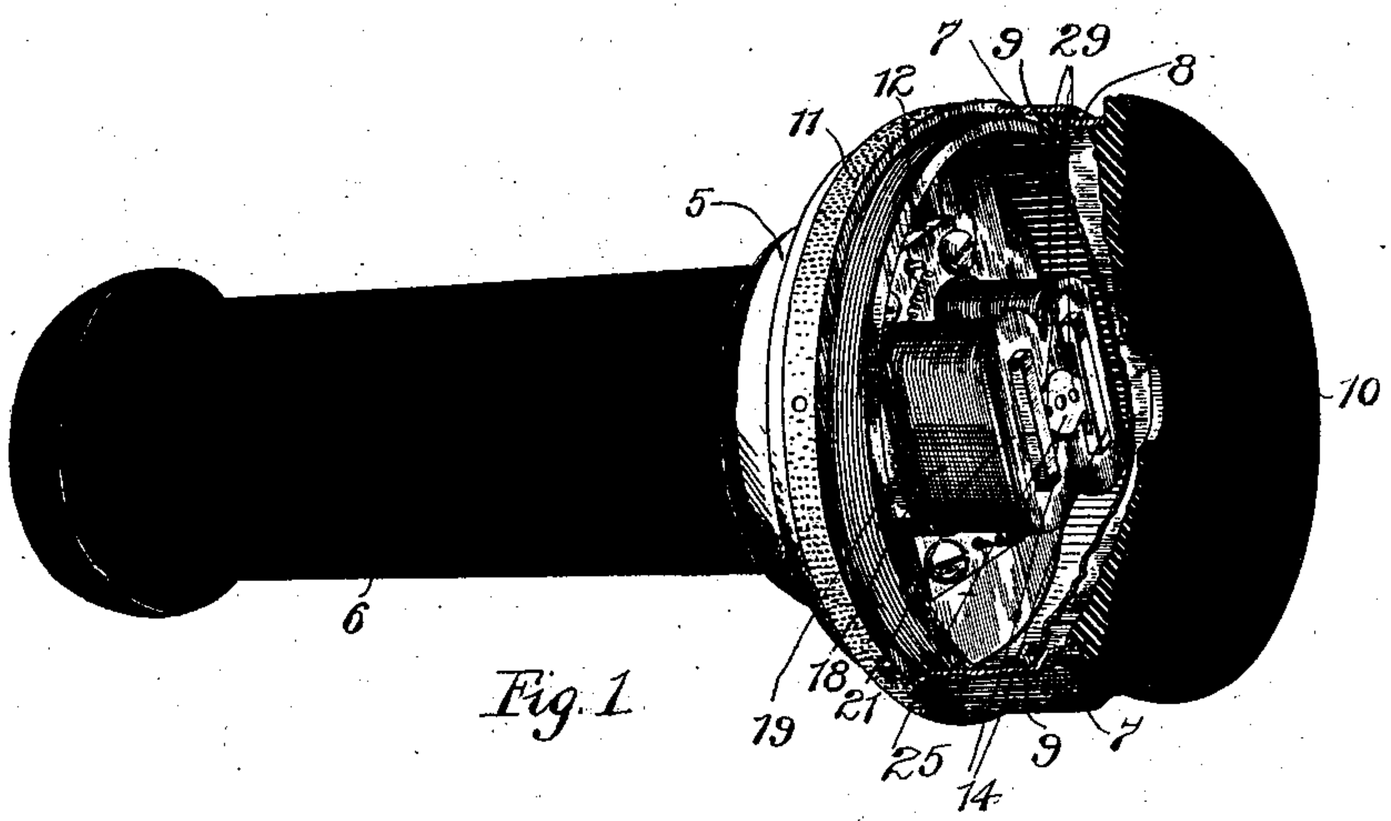


Fig. 1

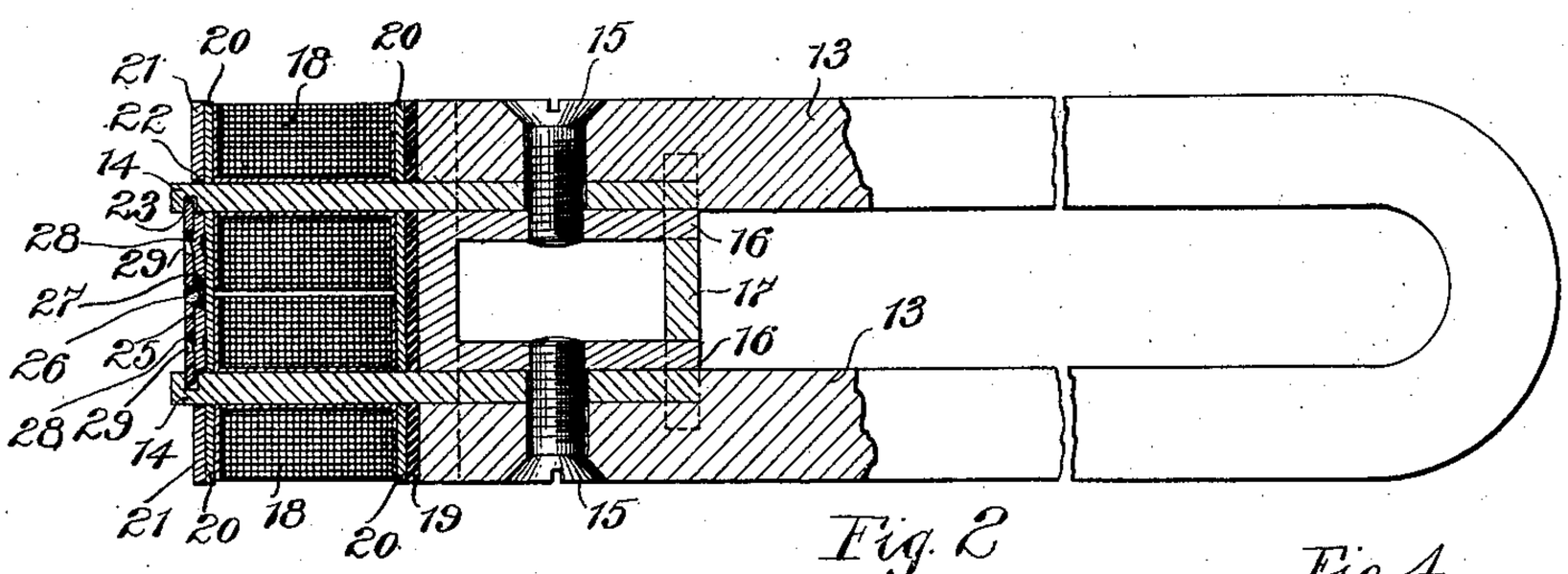


Fig. 2

Fig. 3.

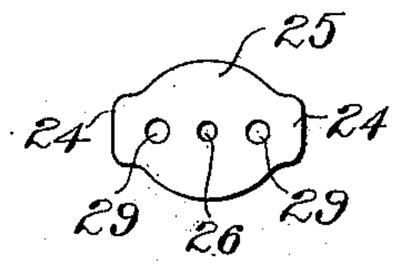


Fig. 5

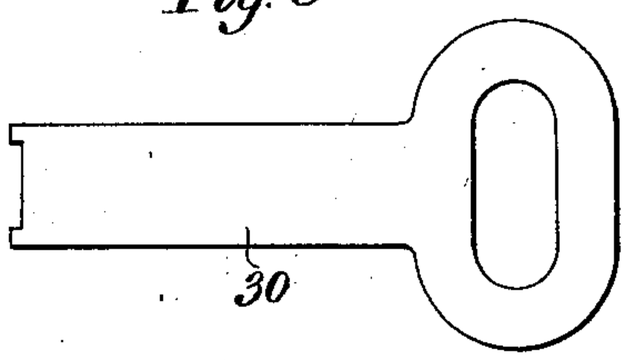
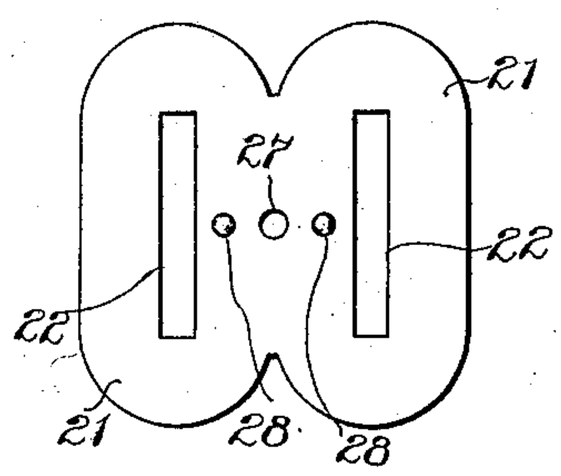


Fig. 4



Witnesses:
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No. 732,734. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

JOHN S. GOLDBERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 732,734, dated July 7, 1903.

Application filed February 14, 1903. Serial No. 143,285. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. GOLDBERG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, 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 electromagnets, and is particularly well adapted for use in conjunction with telephone-receivers. As applied to such receivers my invention relates particularly to the electromagnet-coils and an improved means whereby such coils may be fastened in place on the electromagnet-cores.

My invention provides a telephone-receiver of great simplicity, decreased cost of manufacture, and one in which the parts are readily assembled.

As is well known by those skilled in the art, it frequently happens that the electromagnet-coils of a telephone-receiver are burned out and destroyed, necessitating the replacement of such windings. My invention provides means whereby such burned-out coils may be removed and replaced by new coils without the necessity for the removal of other parts of the telephone-receiver. The replacement of burned-out coils can thus be accomplished without undue loss of time and without the use of tools, such as screw-drivers and wrenches. By means of my invention it is an easy matter to change the coils of a telephone-receiver to obtain receivers of different resistances, as is frequently found desirable in practice.

My invention will be understood by reference to the accompanying drawings, in which—

Figure 1 illustrates in a perspective view the particular features of my invention, parts being broken away to more clearly illustrate the interior construction. Fig. 2 is a central longitudinal cross-sectional view. Figs. 3 and 4 are views illustrating details of the preferred construction.

I have shown my invention as applied to a receiver in which there is provided a metal frame-piece 5, into the back side of which is screw-threaded the hard-rubber inclosing tube 6. The frame-piece 5 is screw-threaded at its front side to accommodate the screw-threaded cap-ring 7, in which the receiver-diaphragm 8 is clamped by means of the clamping-ring 9. To the front side of the cap-ring 7 is screwed the earpiece 10, which is preferably made of hard rubber. In order to adjust the diaphragm with respect to other parts of the instrument, the cap-ring 7 may be adjusted on the screw-threaded frame-piece 5, the capping-ring being held in proper adjustment by means of the clamping-ring 11, which acts like a set-nut in binding the capping-ring 7 against the threads of the frame-piece 5. The table 12 is secured to the metallic frame-piece 5 and forms a means of support for the horseshoe permanent magnet 13, to the poles of which the soft-iron cores 14 14 are clamped by screws 15 15 engaging depending leg portions 16 16 of the table 12, a distance-piece 17 being inserted to preserve a proper relative distance between the electromagnet-cores. Over each of the electromagnet-cores is placed an electromagnet-coil 18, which coils are insulated from the metallic table 5 by means of a vulcanite washer 19. The electromagnet-coils 18 are wound each on a paper-spool 20, which may be of a form illustrated in my copending application, Serial No. 143,284, filed February 14, 1903.

A metal washer 21, (best illustrated in Fig. 4,) having openings 22 22 fitting over the cores 14 14, serves to hold the electromagnet-coils in place upon the cores. The inner face of each of the electromagnet-cores 14 is provided with a milled slot 23, adapted to engage the projecting ears 24 24 of a metal button 25. This button is preferably stamped from sheet metal in such a way that a circular depression 26 on its lower side may engage a corresponding opening 27 in the metal washer 21. A pivotal support for the button is thus provided to keep it centered with respect to the electromagnet-cores. The method of assembling the device of my invention will be apparent.

The electromagnet-cores being fastened to the permanent magnet and the table 12 being fastened to the frame-piece 5, the vulcanite washer 19 is slipped over the projecting ends of the cores 14. The electromagnet-coils properly wound on their spools 20 are then slipped over the electromagnet-cores, after which the metallic washer 21 is brought into position. The thickness of the parts is preferably such that a slight compression of the coils is necessary in order to permit the face of the washer 21 to move far enough onto the electromagnet-cores to permit the button 25 to be turned by means of a spanner-wrench 30, such as illustrated in Fig. 5. To retain the projecting ears 24 within the milled slots 23 on the inner sides of the cores, slight projections 28 28 are stamped upon the face of the washer 21 to engage the spanner-wrench holes 29 of the button 25. These registering holes and projections 28 serve to retain the button in its normal crosswise position to retain the electromagnet-coils in place on their cores. The terminals of the coils are connected through the hard-rubber casing 6 to a cord in the manner well understood by those skilled in the art.

It will be seen that by means of my invention the assembly of the parts of such a receiver is greatly simplified, thereby cheapening the cost of construction.

The removal of a burned-out set of coils is readily effected by engaging the button with the spanner-wrench 30 and turning it to disengage the slots 23 in the cores 14. The spools may then be slipped from the cores and replaced by others, which are fastened in position by the washer 21 and button 25, whose ears are turned within the slots 14 and the holes 29 engaged by the projections 28 on the washer 21.

While I have herein shown a preferred embodiment of my invention in which the same is applied to a telephone-receiver, it will be apparent to those skilled in the art that my invention may be equally well applied to other apparatus, and I do not, therefore, wish to limit myself to the precise disclosure herein set forth; but,

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

1. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer adapted to hold said coils in place on said cores, and a button having ears engaging slots in said cores to retain said washer in place.

2. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer fitting over said cores to hold said coils in place, and a button pivotally mounted on said washer and having ears engaging slots in said cores to retain said washer in place.

3. In a telephone-receiver, the combination with a horseshoe permanent magnet, of cores fastened to the poles of said magnet, paper-spools on said cores, electromagnet-coils wound on said spools, a washer fitting over said cores, and a button engaging slots in said cores to hold said washer in contact with said spools.

4. In a telephone-receiver, the combination with a horseshoe permanent magnet, of cores fastened to the poles of said magnet, a table secured to said cores, spools on said cores, electromagnet-coils wound on said spools, a washer fitting over said cores, the said spools being retained in position between said washer and said table, and a button having ears engaging slots in said cores to hold said washer in contact with said spools.

5. In a telephone-receiver, the combination with a horseshoe permanent magnet, of cores fastened to the poles of said magnet, spools on said cores, electromagnet-coils wound on said spools, a washer fitting over said cores, a button engaging slots in said cores to hold said washer in contact with said spools, and a projection on said washer engaging an opening in said button to pivotally mount the same.

6. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer adapted to hold said coils in place on said cores, and a rotatable button pivotally mounted on said washer having ears engaging slots in said cores to retain said washer in place.

7. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer adapted to hold said coils in place on said cores, a button pivotally mounted on said washer having ears engaging slots in said cores to retain said washer in place, and means whereby said button may be engaged to cause a suitable rotation thereof.

8. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer adapted to hold said coils in place on said cores, and a retaining-button rotatably mounted on said washer having ears engaging slots in said cores and having openings adapted to be engaged by a spanner-wrench to cause the rotation of said button.

9. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a washer adapted to hold said coils in place on said cores, a button pivotally mounted on said washer having ears engaging slots in said cores to retain said washer in place, and projections on said washer adapted to register with openings in said button to retain the ears of said button in said slots.

10. In a telephone-receiver, the combination with the electromagnet-cores thereof, of coils adapted to fit over said cores, a table

against which said coils may rest at one end, a washer fitting over said cores to hold said coils in place thereon, and a button having ears engaging slots in said cores to retain said washer in place whereby said coils are put in compression between said washer and said table.

In witness whereof I hereunto subscribe my name this 11th day of February, A. D. 1903.

JOHN S. GOLDBERG.

Witnesses:
LYNN A. WILLIAMS,
HARVEY L. HANSON.