No. 717,428. Patented Dec. 30, 1902.

K. B. MILLER.

TELEPHONE RECEIVER.

(Application filed June 22, 1900.)

(No Model.)

Fig. 1

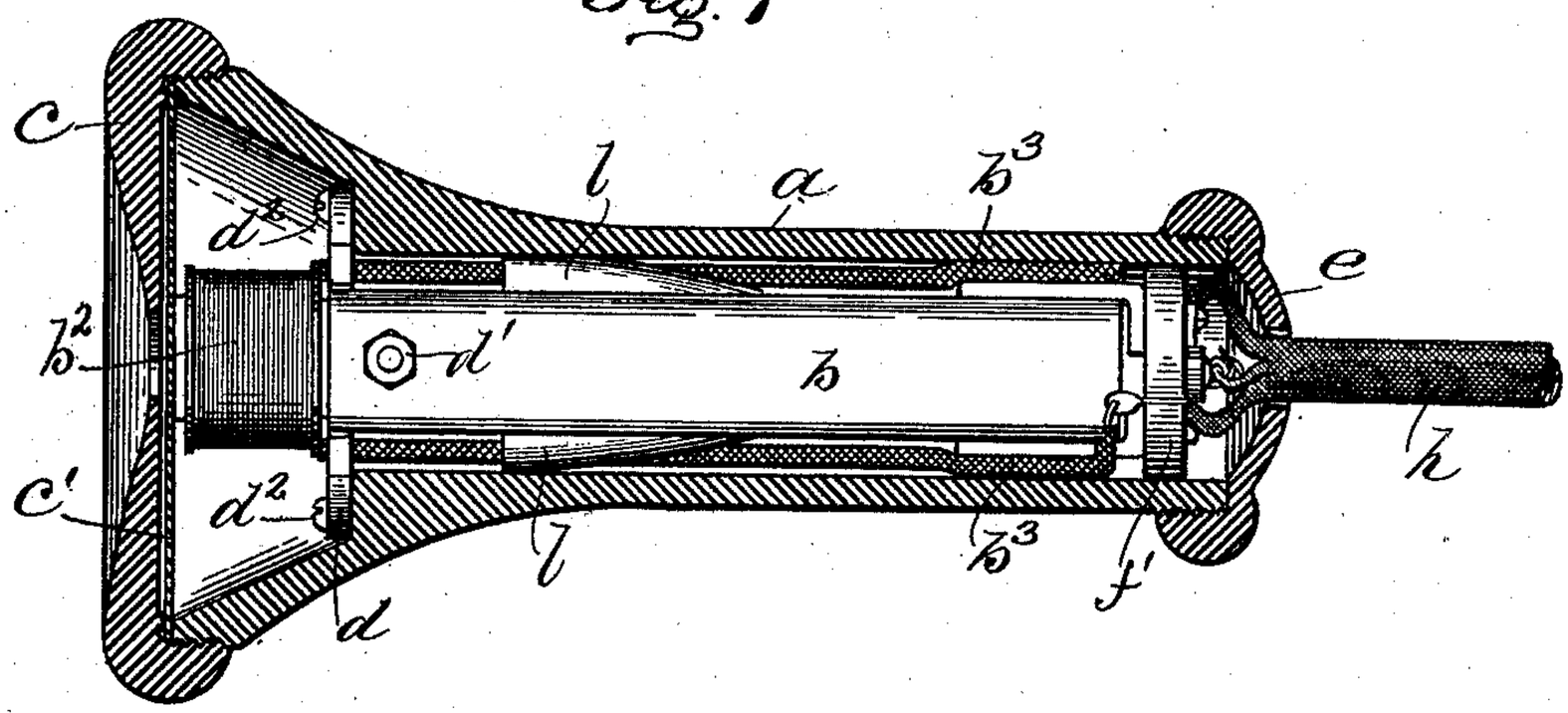


Fig. 2

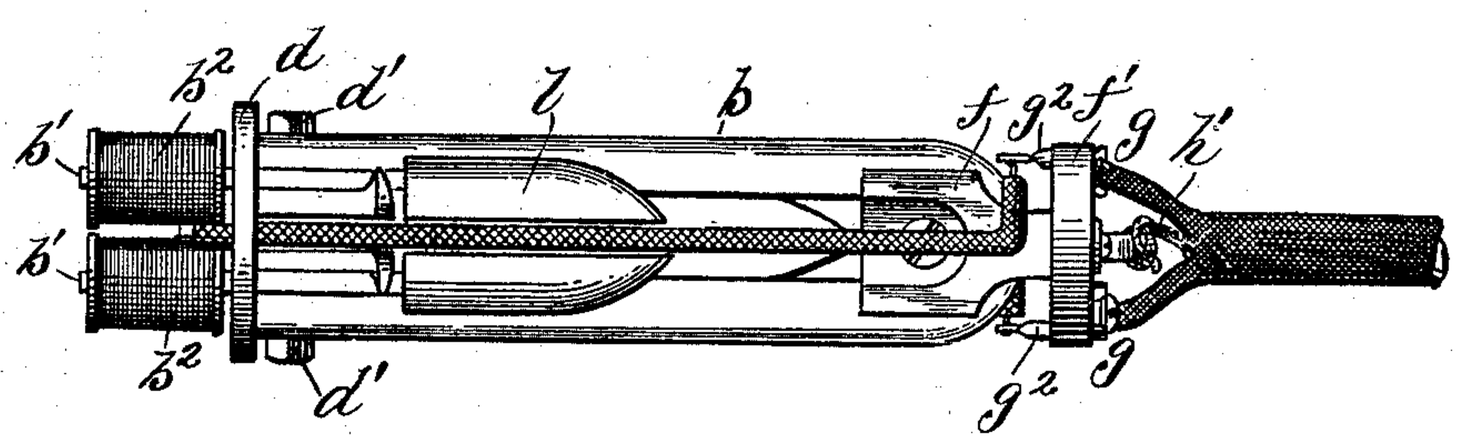


Fig. 3

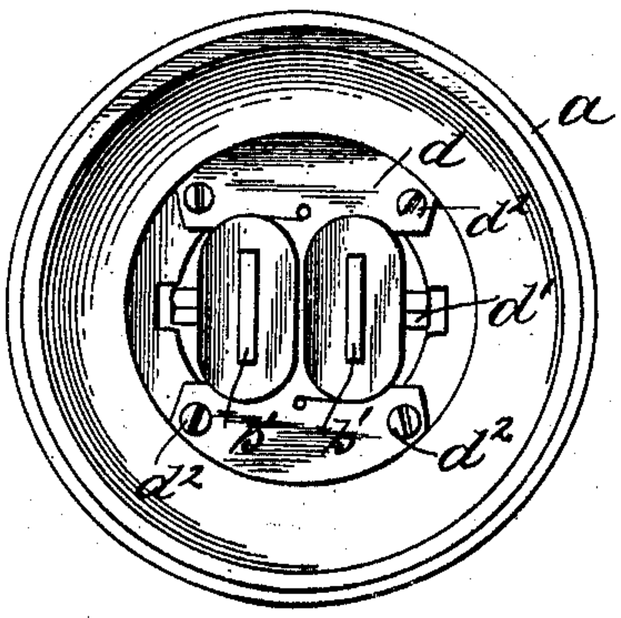


Fig. 4

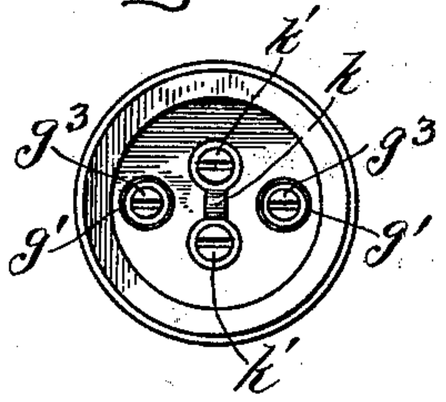
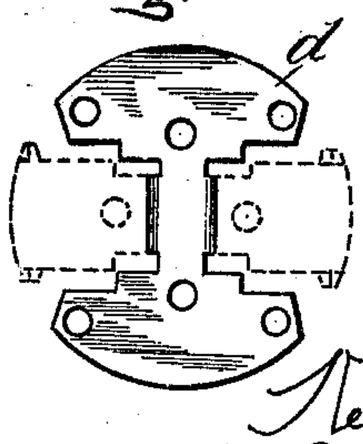


Fig. 5



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UNITED STATES PATENT OFFICE.

KEMPSTER B. MILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 717,428, dated December 30, 1902.

Application filed June 22, 1900. Serial No. 21,147. (No model.)

To all whom it may concern:

Be it known that I, KEMPSTER B. MILLER, 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 part of this specification.

My invention relates to a telephone-receiver, my object being to provide an improved form of receiver in which the binding-posts and electrical connections at the rear of the receiver may be wholly inclosed within the surrounding casing or shell of the receiver.

In an application filed by me of even date herewith, Serial No. 21,148, I have described and claimed a form of receiver in which the binding-posts and electrical connections are provided in the space between the removable cap or cover at the rear of the receiver and a transverse wall or partition which is carried upon the casing or shell of the receiver.

In accordance with the present invention I mount the binding-posts and electrical connections, as before, between a removable cap at the rear of the receiver and a transverse wall; but instead of mounting the wall upon the casing or covering of the receiver I mount the same upon the rear of the receiver-magnet, whereby the transverse wall or partition carrying the electrical connections may be readily removed with the magnet and without disconnecting the same therefrom.

In accordance with my prior invention it was necessary when removing the magnet from the casing to disconnect from the binding-posts the wires extending to the magnet-coils. In accordance with the present invention the magnet may be removed from the casing, while the electrical connections remain intact. Moreover, if the receiver is dropped and caught by the cord the strain due to the fall comes directly on the magnets and not upon the shell, thus decreasing liability of damaging the adjustment of the parts.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a sectional view of the receiver of my invention. Fig. 2 is a view showing the magnet removed from the casing. Fig. 3 is a view of the forward end of the receiver, showing the ear-piece and diaphragm removed. Fig. 4 is a view of the rear end of the receiver, showing the removable cap or cover removed. Fig. 5 is a detail view of the plate upon which the magnet is mounted.

Like letters refer to like parts in the several figures.

At the forward end of the casing or shell *a* the ear-piece *c* is mounted, between which ear-piece and the end of the casing is secured the diaphragm *c'*. The magnet *b* is secured to a supporting-plate *d*. This supporting-plate has wings which extend along the inner faces of the members of the magnet, and a bolt *d'* passes through the ends of the magnet and the wings and the pole-pieces, thereby securing all the parts firmly together. The supporting-plate also carries laterally-extending portions adapted to be secured, by means of screws d^2 d^2, to a shoulder carried upon the interior of the casing *a*. Pole-pieces b' b' are mounted upon the ends of the magnet *b*, and the magnet-coils b^2 b^2 are supported upon the respective pole-pieces.

At the rear end of the casing *a* a removable cap or cover *e* is provided, which is adapted to screw upon the end of the casing. Fitting within the casing and mounted upon the plate *f*, secured to the end of the magnet *b*, is a transverse wall or partition or supporting-plate *f'*. Upon this transverse wall binding-posts *g g* are provided, the binding-posts comprising cups *g' g'*, each carrying a shank g^2, passing through a slot or opening provided in the wall *f'*. The cups *g'* are held in position by means of the screws g^3 g^3, which engage tapped holes provided in the wall *f'*.

The conductors b^3 b^3, which extend to the magnet-coils b^2 b^2, are connected with the opposite shanks g^2 g^2 of the binding-posts, and the ends of the conductors of the flexible supporting-cord *h* are secured in position beneath the heads of the screws g^3 g^3. The supporting-cord *h* passes through a central opening provided through the removable cover *e* and in the present instance is shown as having a cord *h'* formed integral therewith at

the end and adapted to be tied or otherwise secured to clip *k*, which is secured to the wall *f'* by means of screws *k' k'*.

Between the members of the magnet *b* a body *l*, of lead or other similar material, is provided, which is adapted to impart the requisite weight to the receiver, so that the same may freely operate the gravity-switch with which the same is usually employed in practice. This body *l* is provided with channels or grooves upon the opposite faces for the accommodation of the conductors b^3 b^3.

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

1. In a telephone-receiver, the combination with a suitable casing or shell and the magnet contained therein, of an insulating wall or support carried at the rear end of said magnet and secured thereto, binding-posts or connecting devices for the electrical connections mounted thereon, a removable cap between which and said insulating-support the electrical connections are adapted to be contained, and a suspending-cord passing through an opening in said cover or cap and carrying a cord adapted to be secured to said insulating part to remove the strain from the electrical connections, substantially as described.

2. In a telephone-receiver, the combination with a suitable shell or casing having an interior shoulder, a permanent horseshoe-magnet within the casing, pole-pieces mounted on the inner faces of the ends of the magnet, a transverse supporting-plate at the end of the magnet having rearwardly-bent wings adapted to extend along the inner faces of said pole-pieces, and laterally-extending portions of said plate adapted to be secured to the said shoulder to hold the magnet in place within the shell, a bolt adapted to be passed through the ends of the magnet, the pole-pieces and the wings to secure the several parts together, an insulating wall or support mounted upon the end of said magnet, and a removable cover or cap between which and said insulating-support the electrical connections are contained, substantially as described.

3. In a telephone-receiver, the combination with a shell or casing having a longitudinal bore, of a permanent magnet mounted within the said bore and secured at its forward end to the interior of said casing, pole-pieces at the forward end of said magnet, coils upon said pole-pieces, a diaphragm carried at the forward end of said casing and in front of said pole-pieces and coils, a cap carried at the forward end of the casing and over the diaphragm, an insulating wall or support mounted upon and secured to the rear end of said magnet and adapted to fit within the bore of the casing to laterally support and insure the alinement of the magnet within the said bore of the casing, electrical connections mounted upon said wall or support with which the said coils at the forward end of the magnet are connected on the one side and with which the conductors of the receiver-cord are adapted to connect on the other, the said shell or casing extending rearwardly beyond the said wall or support to provide room for the electrical connections, and a removable cap or cover secured to the rear end of said shell or casing to protect and conceal the said electrical connections, the said cap or shell having an aperture through which the receiver-cord is adapted to pass to the said electrical connections, the arrangement being such that the magnet together with its insulating wall or support and the said electrical connections may be drawn out the forward end of the shell without disconnecting the receiver-cord from the said electrical connections.

4. In a telephone-receiver, the combination with a shell or casing of insulation having an enlarged or flaring forward end, of a permanent magnet extending through the bore of said casing and secured thereto at its forward end, said securing means being wholly within the interior of the casing, pole-pieces and magnet-coils for the forward end of said magnet, a diaphragm placed across the forward end of the said casing adjacent to and in front of the said pole-pieces, an insulating-cap threaded upon the forward end of the said casing to close the said forward end and to clamp the diaphragm thereto, said cap also serving as a protecting-cover for said diaphragm to prevent injury thereto, an insulating wall or support carried by and secured to the rear end of said magnet, said wall or support fitting the bore of the casing and serving to laterally support and to insure the alinement of said magnet within the bore of the casing, electrical connections mounted upon said wall or support with which the coils of the magnet are connected and with which the conductors of the receiver-cord are adapted to connect, an insulating cap or cover threaded upon the rear end of the said casing to protect and shield the said connections, said cap or cover having an aperture through which the receiver-cord passes, the arrangement being such that the magnet may be withdrawn from the forward end of the casing without disturbing the connections between the said coils and the said electrical connections mounted upon the insulating wall or support and without disconnecting the receiver-cord from said connections, the said insulating casing, cap and cover forming an entire insulating exterior for the receiver devoid of all metal parts.

5. In a telephone-receiver, the combination with a shell or casing formed wholly of insulation and having a flaring forward end provided with interior shoulders, a permanent magnet placed within the bore of said shell and having laterally-extending portions at its forward end, said portions engaging said interior shoulders of the casing to limit the rearward movement of the magnet within the casing, screws passing through the said laterally-extending portions and into the said

shoulders to firmly secure the magnet within the casing, pole-pieces for said magnet and coils upon the said pole-pieces, a diaphragm carried at the forward end of the casing adjacent to and in front of the pole-pieces and coils, a cap adapted to be secured to the forward end of the casing and covering said diaphragm, an insulating wall or support carried at the reverse end of the magnet and adapted to fit the bore of the casing and serving to steady the rear end of the magnet within the casing, electrical connections carried by said wall or support with which said coils are connected and with which the conductors of the receiver-cord are adapted to be connected, and a removable cap or cover through which the receiver-cords are adapted to pass secured to the rear end of said casing to inclose the said electrical connections and form a neat and ornamental end for the receiver.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

KEMPSTER B. MILLER.

Witnesses:
KEENE H. ADDINGTON,
HENRY W. BELFIELD.