

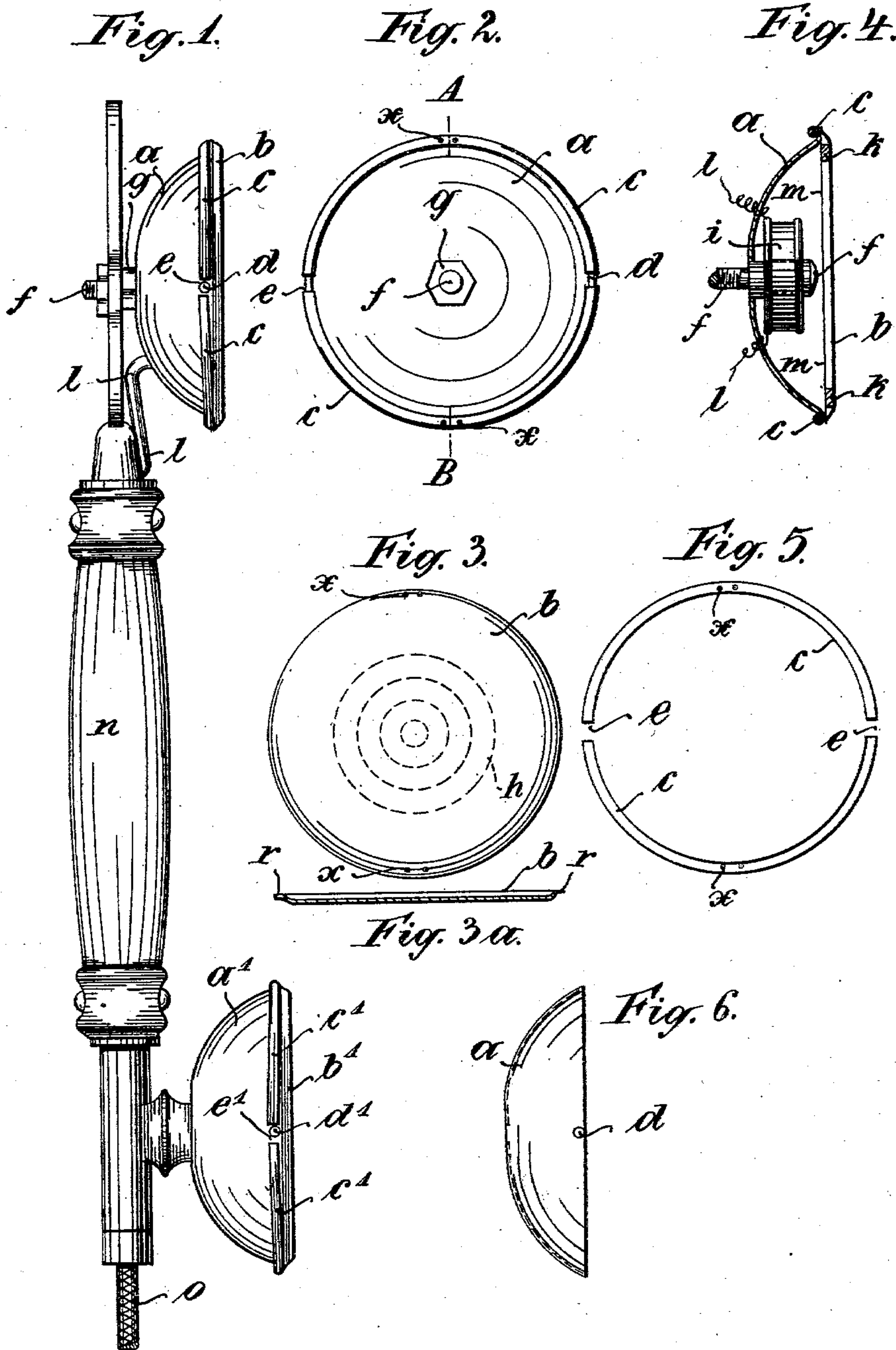
No. 753,391.

PATENTED MAR. 1, 1904.

P. HARDEGEN.
CASING FOR TELEPHONES OR MICROPHONES.

APPLICATION FILED SEPT. 3, 1902.

NO MODEL.



Witnesses:

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CASING FOR TELEPHONES OR MICROPHONES.

SPECIFICATION forming part of Letters Patent No. 753,391, dated March 1, 1904.

Application filed September 3, 1902. Serial No. 122,000. (No model.)

To all whom it may concern:

Be it known that I, PAUL HARDEGEN, manufacturer, a subject of the King of Prussia, German Emperor, residing at No. 5/6 Elisabeth-
 5 Ufer, Berlin, in the Kingdom of Prussia, German Empire, have invented new and useful Improvements in Casings for Telephones and Microphones, of which the following is a specification.

10 My invention relates to improvements in casings for telephones and microphones, whereby by the latter are protected against atmospheric influences; and the objects of my improvement are, first, to provide a protective bell-
 15 shaped casing of steel, iron, and the like; second, to provide a core of steel, iron, and the like and to place it in magnetic connection with said casing, so as to form therewith a bipolar magnet under the influence of an elec-
 20 trical current; third, to provide a coil on said core while being insulated therefrom and from said casing; fourth, to provide a protective cover having either a large central aperture or a plurality of fine slits and arranged for
 25 holding a vibrating diaphragm within said casing; fifth, to provide two semicircular springs on said cover, which are preferably in their middles secured to the cover and leave be-
 30 tween their free ends spaces, they being arranged for grasping the external edge of the casing, and, sixth, to provide a pin on said casing for engaging the spaces between the ends of said springs, and thereby preventing the
 35 cover from turning. I attain these objects by the arrangement illustrated in the accompanying drawings, in which—

40 Figure 1 is a side view of a microphone or combination of a telephone with a microphone, both being constructed in accordance with my invention. Fig. 2 is a rear view of the tele-
 phone. Fig. 3 is a front view of the cover of the same. Fig. 3^a is a top view of the same. Fig. 4 is a vertical longitudinal section of the
 45 telephone on the line A B in Fig. 2. Fig. 5 is a rear view of the two springs arranged for being secured to the rear side of the cover, and Fig. 6 is a side view of the casing alone to show
 its pin *d*.

Similar letters of reference refer to similar parts throughout the several views.

50 The protective casing *a* of the telephone is bell-shaped, preferably in the shape shown, and pressed from sheet of steel, iron, and the like, so as to be capable of forming with
 55 the core *f*, of steel, iron, and the like, a bipolar magnet under the influence of an electric current. The casing *a* is mounted on the core *f* and magnetically connected therewith. For securing these two parts a nut *g* is em-
 60 ployed. On the core *f* within the casing *a* a coil *i* is mounted, which is insulated both from the core and from the casing. Its two wires *ll* in a usual manner lead to a cable *o*, contained
 65 in the handle *n*. For protecting also the vibrating diaphragm *m* from the atmospherical influences in the simplest manner without the use of any thread a cover *b*, having a raised
 70 edge *r*, (see Fig. 3^a), is employed, which is provided with two semicircular springs *c c*, the middles of which are affixed to the cover
 75 *b* by means of rivets *x x* or other suitable means. The springs *c c* are preferably round in section, as is shown in Fig. 4, so as to be capable of easily gripping over and snapping
 80 behind the edge of the casing *a*. (See Figs. 1, 2, and 4.) In order to prevent the cover *b* from turning on the casing *a*, the latter is provided with a pin *d*, (see Fig. 6,) which en-
 85 gages the space *e* between two neighboring ends of the springs *c c*. Where it is so preferred, a packing-ring may be arranged on the inside of the cover *b* along its edge *r*. It
 90 will be seen that for closing the casing *a* all that is required is to simply put the cover *b* on the edge of the casing, when its springs *c c* will yield, grip over, and snap behind the
 edge of the casing. Then the cover *b* will be held securely. It is preferable to so arrange
 the two semicircular springs *c c* that their free ends are kept at a certain distance from
 the cover, as is shown in Fig. 1, so that they are enabled to draw the cover and its pack-
 ing-ring more tightly to the edge of the casing.

The cover *b* is arranged for holding a vibrating diaphragm *m*, which may be kept at
 a certain distance from the cover by a more

or less elastic ring *k*. When the cover *b* is put on the casing *a*, the vibrating diaphragm *m* will be secured between the edge of the cover and that of the casing, and thus be put into contact with the second pole of the magnet.

The cover *b* is preferably provided with a plurality of fine slits *h*, (see Fig. 3,) arranged in concentric circles or in any suitable uniform manner for allowing of the verberations caused by the voice reaching the vibrating diaphragm *m*. Where it is so preferred, however, the cover *b* may have a large central aperture in place of the slits *h*.

The microphone is similarly arranged as the telephone as far as the casing and the cover are concerned. The corresponding parts are denoted by the same letters, with the exception that the index has been added.

Having now described my invention, that what I wish to secure by Letters Patent of the United States is—

The combination with a core of steel, iron

and the like, of a bell-shaped casing of steel, iron and the like capable of forming with said core a bipolar electromagnet, an insulated coil mounted on said core within said casing and placed in an electrical circuit, a cover for said casing, a vibrating diaphragm held by said cover within said casing near said core, said cover having a plurality of apertures for allowing of the verberations of the voice reaching said diaphragm, two semicircular springs secured to said cover for grasping the edge of said casing, and a pin on said casing for engaging between the free ends of said springs and thereby preventing said cover from turning, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

PAUL HARDEGEN.

Witnesses:

WOLDEMAR HAUPT,
WILLIAM MAYNER.