No. 698,055. Patented Apr. 22, 1902.

# H. M. REEVES.

## TELEPHONE INSTRUMENT.

(Application filed Apr. 1, 1901.)

(No Model.)

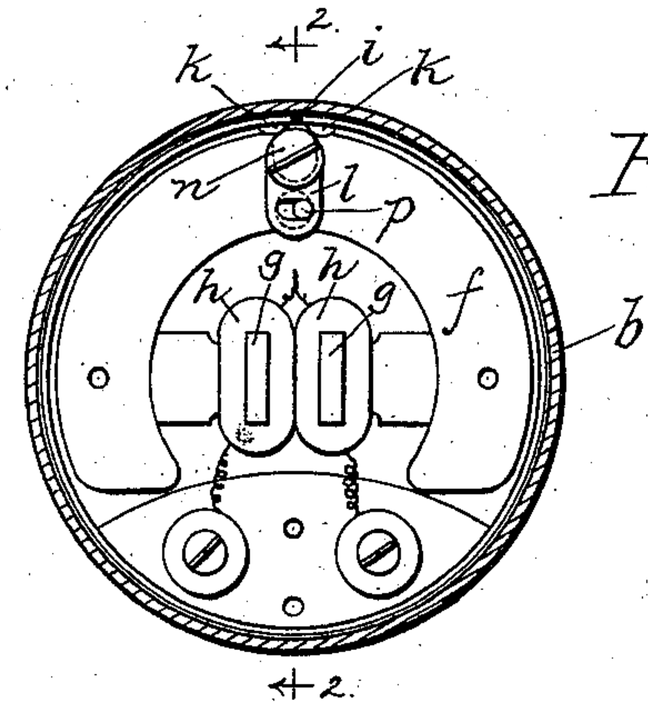



Fig. 1.

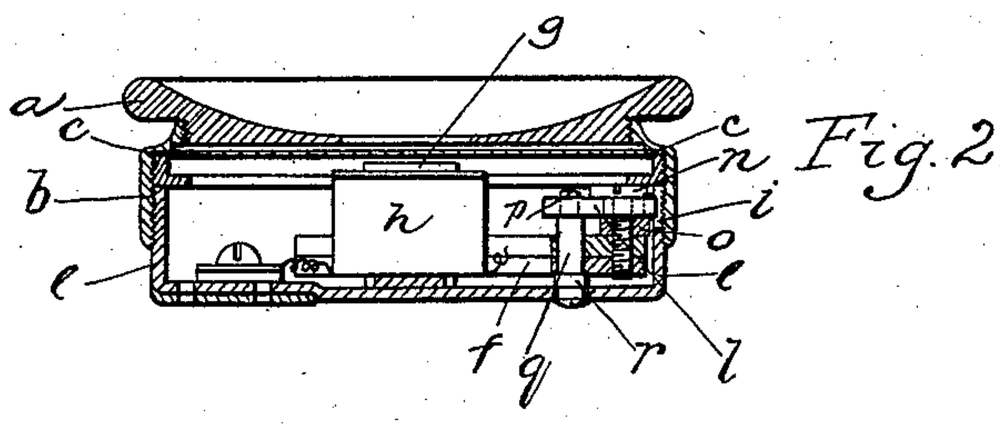



Fig. 2.

Fig. 3.

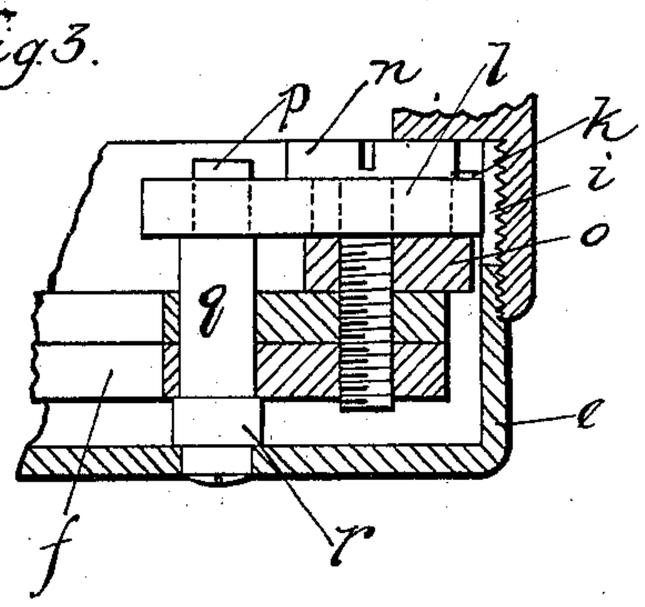
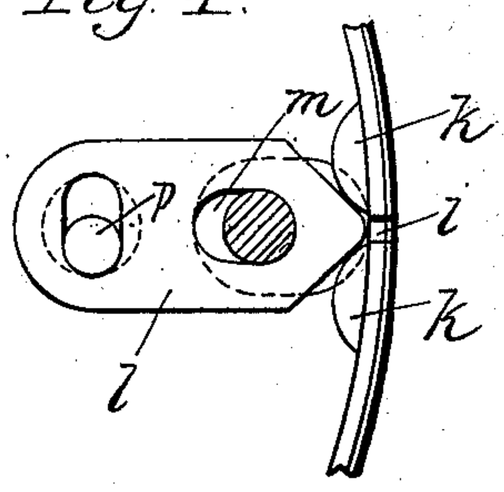



Fig. 4.

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# UNITED STATES PATENT OFFICE.

HARRY M. REEVES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## TELEPHONE INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 698,055, dated April 22, 1902.

Application filed April 1, 1901. Serial No. 53,845. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY M. REEVES, 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 Instruments, (Case No. 2,) 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 instruments, and has for its object the provision of improved means for securing the adjustment of the diaphragm with respect to the pole or poles of the magnet of a receiver or transmitter.

By means of my invention I am enabled to effect the adjustment of the diaphragm without taking the instrument apart and also to secure or lock this adjustment.

In practicing my invention the case of the instrument that contains the diaphragm includes two parts that have threaded engagement, and the casing also contains an adjustment-securing device that forces one threaded member of the casing into firm engagement with the companion threaded member, the means for operating this locking device extending through the casing, where it may be reached when the locking device is to be operated to secure the adjustment that has been obtained.

In the preferred embodiment of the invention the diaphragm is fixedly secured to the mouth or the ear piece of the instrument by means of a follower-ring having threaded engagement with the portion of the casing to which this mouth or ear piece is secured. The complementary portion of the casing constitutes a mounting for the diaphragm and is provided with threads that are preferably adapted to have engagement with the threads upon the mouthpiece portion of the casing and is preferably inclosed by the latter casing portion. In order to effect binding engagement between the parts of the casing that are united by threaded engagement, I slot the inner case portion transversely to the threads and provide cams, one upon each side of the slot. A cam-block having engagement with both of these cam portions is mounted within the casing of the instrument and has engagement with an eccentric that is actuated from the exterior of the casing, which eccentric upon operation serves to effect a movement of the cam-block against the cams to thereby separate the walls of the slot to expand the inner casing portion into locking engagement with the outer casing portion.

I will explain my invention more fully by reference to the accompanying drawings, in which—

Figure 1 is a top view of my improved receiver, the ear-cap and diaphragm being removed, the surrounding parts being shown in section. Fig. 2 is a partial sectional view on line 2 2 of Fig. 1. Fig. 3 is an enlarged side view, partially in section, of the improved means which I employ for securing the outer casing in place. Fig. 4 is a top view of the same.

Like characters of reference refer to like parts in the different views.

I have shown an instrument that is designed particularly for an operator's head-telephone; but I do not wish to be limited to this adaptation of the invention, as it may equally well be embodied in telephones of other shapes and having other uses.

The ear portion *a* may be of hard rubber and has threaded engagement with the outer casing portion *b*, near one end of which casing portion a diaphragm *c* is secured by a follower-ring *d*, having threaded engagement with threads provided upon the interior of the said casing portion. The inner casing portion *e*, constituting a mounting for the diaphragm, is provided with threads upon its exterior that have threaded engagement with the corresponding threads upon the casing portion *b*, the engaging parts of these casing portions preferably constituting rims. A permanent magnet *f* is secured to the casing portion *e*, polar projections *g g* of this magnet being provided with helices *h h*. The casing portion *b* is screwed upon the casing portion *e* until the said polar extensions are brought within the desired distance of the diaphragm, whereafter the casing parts may be locked together by means of my improved

device, which will now be described. The threaded rim portion of the casing *e* is provided with a slot *i*, and cams *k k* are provided upon the inside of the said rim, one cam being located upon each side and adjacent to the said slot. A cam-block *l* is provided with an elongated slot *m*, through which the stem of a screw *n* passes into the permanent magnet. A washer *o* is interposed between the cam-block and the permanent magnet, whereby the nose of the cam-block, that is preferably wedge-shaped, is maintained in line with the cams *k k*. The other end of the cam-block is provided with a slot that engages a pin *p*, that is eccentrically mounted upon a shaft *q*, that extends through the flat face of the casing *e* and there terminates in a slotted portion that may be engaged by a screw-driver to effect the rotation of the shaft, and thereby a reciprocation of the cam-block to wedge the cams *k k* apart to effect a locking engagement between the engaged threaded parts of the casing portions *b* and *e* or to withdraw the cam-block from this engagement with the cams to permit screwing or unscrewing of the casing portion to effect a new adjustment of the diaphragm. The shaft *q*, upon which the eccentric-pin is mounted, is preferably provided with an enlarged portion *r*, that is interposed between the flat wall of the casing and one pole of the compound permanent magnet, whereby a displacement of the shaft is prevented. The washer *o* is preferably enlarged or provided with a projection that extends underneath the cams *k k*, whereby a pressure upon the slotted end of the shaft *q* will not effect a displacement of the permanent magnet.

While I have herein shown and particularly described the preferred embodiment of my invention, it is obvious that changes may readily be made without departing from the spirit thereof, and I do not, therefore, wish to be limited to the precise embodiment set forth; but,

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

1. In a telephone, the combination with a telephone-casing, of a diaphragm rotatably secured upon the casing, and manually-operated means located within the casing and operable from the exterior thereof, whereby the adjustment of the diaphragm may be locked, substantially as described.

2. In a telephone, the combination with the casing thereof, of a diaphragm having threaded engagement with its mounting or support, a locking-cam block having engagement with one of the parts having the said threaded engagement, and an eccentrically-mounted cam-pin to force the cam-block into and out of engagement with one of the said portions having threaded engagement, substantially as described.

3. In a telephone, the combination with the casing thereof, of a diaphragm having threaded engagement with its mounting or support, a locking-cam block having engagement with one of the parts having the said threaded engagement, and an eccentrically-mounted cam-pin to force the cam-block into and out of engagement with one of the said portions having threaded engagement, the said pin being provided with means extending through the casing of the instrument to secure its operation from without the instrument-casing, substantially as described.

4. In a telephone, the combination with the casing therefor, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, and manually-operated means within the casing for locking the two parts together after one has been rotated upon the other to secure the desired adjustment of the diaphragm, the said means being accessible from the exterior of the casing, substantially as described.

5. In a telephone, the combination with the casing thereof, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, a cam-block within the casing, an eccentric cam-pin also within the casing and accessible from the exterior thereof and having engagement with the said cam-block, and cams provided upon one of the portions of the casing and adapted for engagement with the said cam-block, the said casing being provided with a slot between the said cams whereby the cam-block in engaging the cams may separate the portions of the casing upon each side of the slot and secure binding engagement between the threaded portions of the casing, substantially as described.

6. In a telephone, the combination with the casing thereof, formed in two parts having threaded engagement, of a diaphragm provided upon one of the parts, and cam mechanism within the casing for locking the two parts together after one has been rotated upon the other to secure the desired adjustment of the diaphragm, the said cam mechanism being accessible from the exterior of the casing, substantially as described.

In witness whereof I hereunto subscribe my name this 27th day of March, A. D. 1901.

HARRY M. REEVES.

Witnesses:
MAX W. TABEL,
HARVEY L. HANSON.