No. 624,128. Patented May 2, 1899.

E. H. THIELSCHER.

PERMANENTLY ADJUSTED TELEPHONE.

(Application filed Sept. 1, 1898.)

(No Model.)

Fig 1

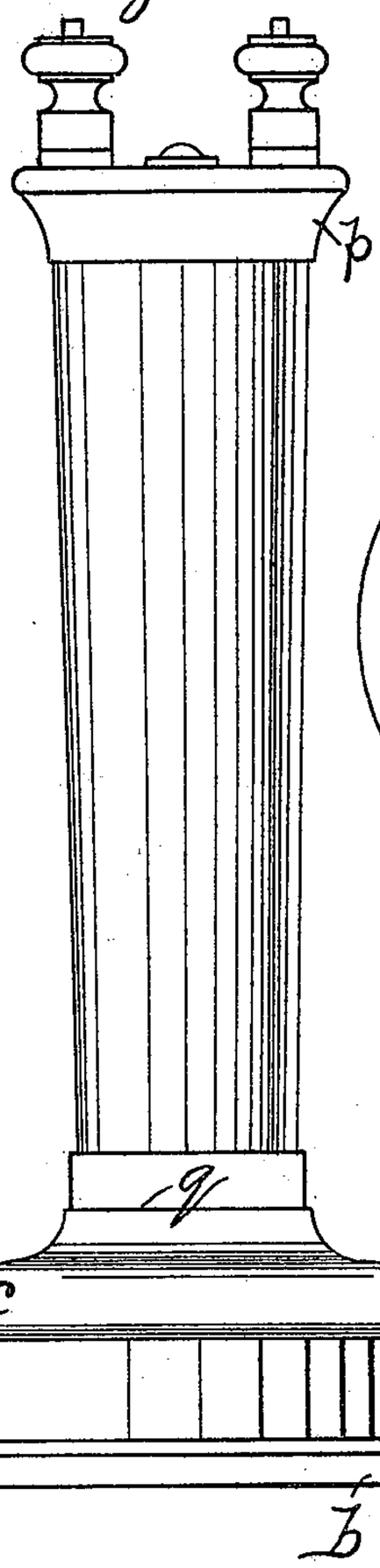
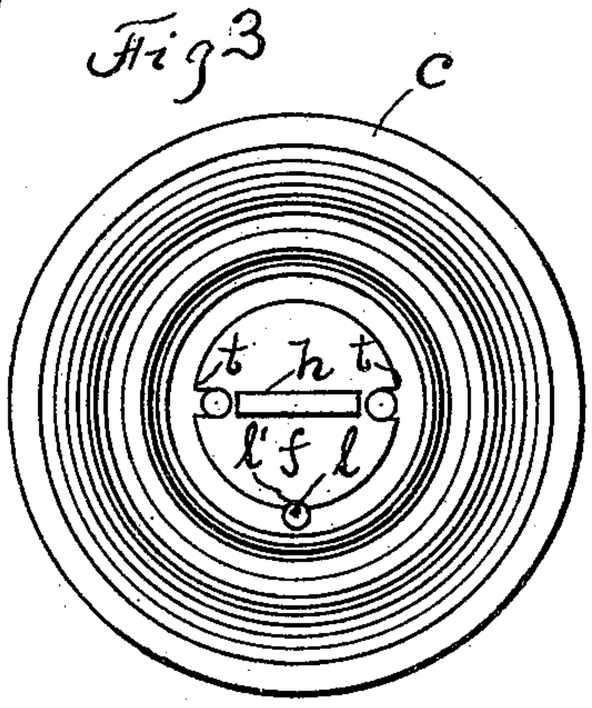


Fig 3



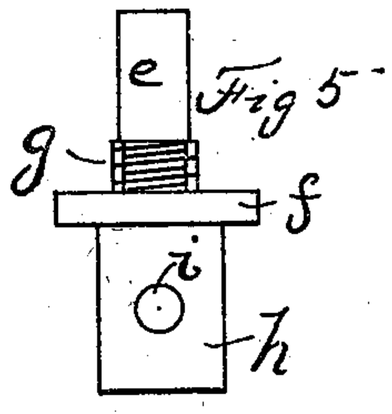


Fig 5

Fig 2

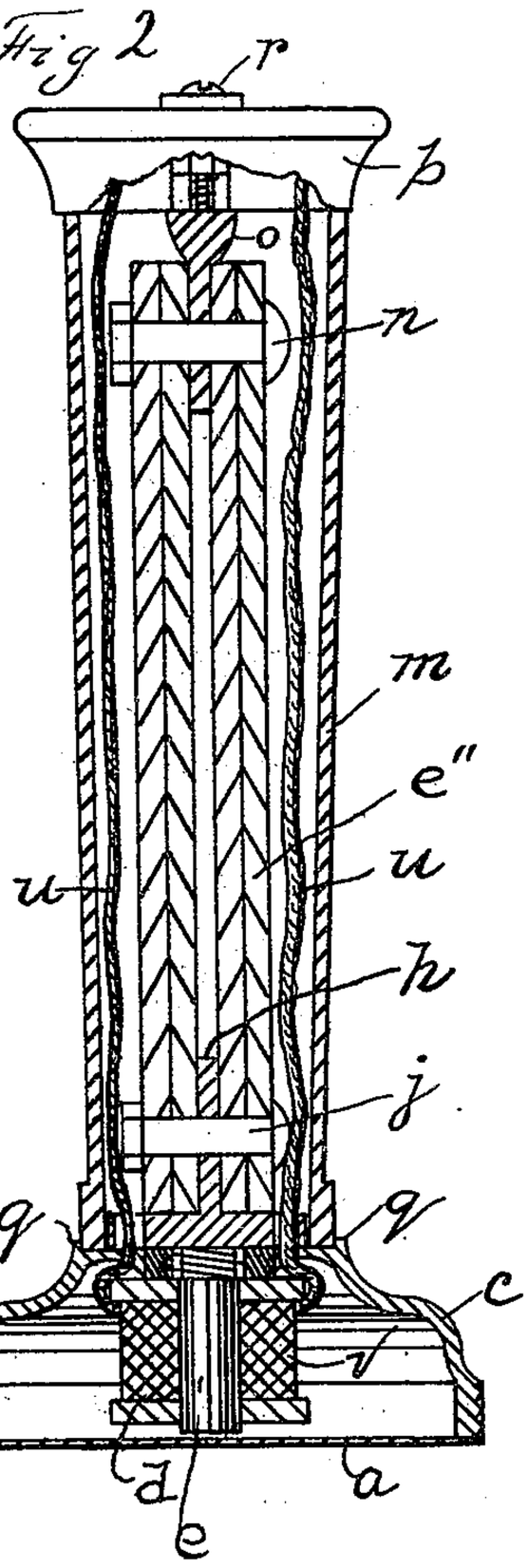


Fig. 4

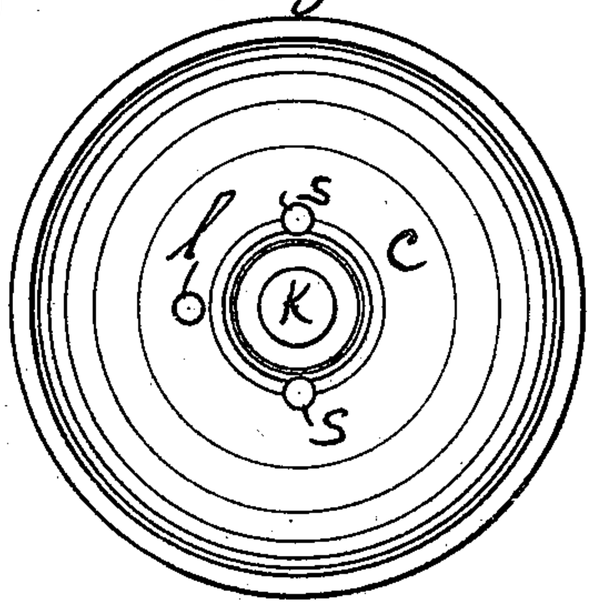
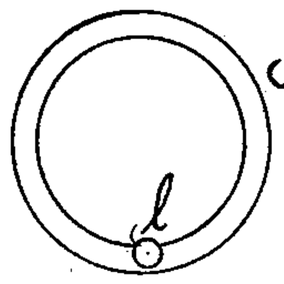


Fig 6



WITNESSES:

J. E. Coleman.

E. C. Thompson.

INVENTOR

Ernest H. Thielscher

BY

Edward C. Thompson

ATTORNEY

UNITED STATES PATENT OFFICE.

ERNEST H. THIELSCHER, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO THE HOLTZER-CABOT ELECTRIC COMPANY, OF SAME PLACE AND BOSTON, MASSACHUSETTS.

PERMANENTLY-ADJUSTED TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 624,128, dated May 2, 1899.

Application filed September 1, 1898. Serial No. 689,989. (No model.)

To all whom it may concern:

Be it known that I, ERNEST H. THIELSCHER, a citizen of the United States of America, and a resident of Brookline, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Permanently-Adjusted Telephones, of which the following is a specification.

My invention relates particularly to the mechanical construction of the metal head of a telephone-receiver.

Heretofore it has been found that the shells or handles of telephones expanded and contracted under changes of temperature, affecting the adjustment and proper working of the instrument.

The object of this invention is to produce a reliable and efficient means for permanently adjusting the pole-piece relatively to the diaphragm, so that the variations of temperature and moisture will not cause any displacement of the pole-piece in relation to the diaphragm.

By my invention it is practically impossible for the receiver to fail to operate satisfactorily after it is once constructed and placed upon the market however much it may be subjected to different atmospheric influences. Tests have shown that the instrument is always in working order. The expansion of the shell or handle or cup or other part or parts has no effect whatever upon the permanency of the adjustment. The organization comprises a cup which is covered by the usual diaphragm held down by the earpiece, a threaded and shouldered pole-piece screwed through the back of the cup and extending therein for receiving the magnet-spool, a key rigidly locking the shoulder and pole-piece to the cup, and an extension on the back of the shoulder clamped to the permanent magnet of the telephone. Secondarily and yet important is a flange formed on the cup, so that the end of the tubular handle of the telephone fits between the said shoulder and the said flange.

Figure 1 is an exterior elevation of the complete telephone. Fig. 2 is an elevation in section of that which is shown in Fig. 1. One or two details are omitted. This view exhibits the internal construction from one point of view. Fig. 3 is a plan of the cup for the magnet, but the other portions of the telephone are omitted. Fig. 4 is an inverted plan of the cup. The spool of the magnet is omitted. Fig. 5 shows the pole-piece of the magnet and its support, the same being shown from different directions in Figs. 2, 3, and 4. Fig. 6 shows one end of the handle and pin.

a is a diaphragm held on in the usual manner by the threaded earpiece *b*, so that it covers the cup *c*, which is preferably made of metal and which contains the magnet *d*. The pole-piece *e* of the magnet is directly behind the diaphragm at a distance to permit the proper vibration by an undulatory current passing through the coil of the magnet. The pole-piece *e* of the magnet extends from a shoulder *f* and is threaded at one end *g* near the shoulder *f*. On the other side of the shoulder is a projection *h*, having a hole *i* for a bolt *j*. The pole-piece *e* is screwed into a hole *k* in the bottom of the cup *c*, so that the said pole-piece *e* extends into the cup and so that the projection *h* extends outward on the other side. The pole-piece *e* becomes rigidly locked to the cup *c* because of a pin *l*, passing through a hole in the cup and a notch *l'* in the shoulder *f*. The pin *l* thereby prevents the screw *g* from turning in either direction, and consequently the pole-piece *e* remains at a fixed distance from the diaphragm *a* however much the shell or handle *m* may expand or contract. The long permanent magnet *e''* extends into the handle *m*, and one end is bolted by the bolt *j* to the projection *h*, while the other end is held centrally by being bolted by the bolt *n* to the arm *o*, extending from the cap *p* at the farther end of the handle.

It will be noticed that any expansion or contraction of the handle *m* cannot cause a change in the distance between the pole-piece *e* and the diaphragm *a*. The lengthening and shortening of the handle *m* may take place freely in a direction away from the cup *c*. The cup *c* cannot become loose by unscrewing, because the pin *l* keys it to the shoulder *f*.

A further part of the invention consists of

a projecting rim *q* on the cup *c*, located around the end of the handle *m* to confine the end of the handle *m* and to prevent it from spreading outwardly when pressure is applied by putting on or taking off the cap *p* or when pressure is applied by means of the screw *r*, which draws upon the extension *o*.

The holes *s* in the cup *c* and the notches *t* in the shoulder *f* are for the passage of the insulated conductors *u*, which lead to the magnet-coil *v*.

The pin *l* is shown also in the slot in the handle or shell *m*, and thus serves to prevent the latter from turning, so that the pin *l* locks both the pole-piece and handle to the cup.

I claim as my invention—

1. In a telephone, the combination of a cup for containing the magnet-spool, a detachable pole-piece for the magnet, applied to the cup, and means for preventing relative rotary motion of the cup and pole-piece.

2. In a telephone, the combination of a cup for holding the magnet, a pole-piece provided with a shoulder, and with a threaded portion which is screwed into the cup, a projection on the shoulder opposite the pole-piece, and fixed to the permanent magnet of the telephone, and means for locking the cup to the shoulder of the pole-piece.

3. In a telephone, the combination of a cup for containing the magnet, a handle, for containing the permanent magnet, and bearing against the back of the cup, a flange on the cup extending closely around one end of the handle, and means connected to the permanent magnet located at the other end of the handle for pressing the handle against the cup the other end of the permanent magnet being connected up rigidly with the cup.

4. In a telephone, a cup for containing the magnet, a pole-piece with a shoulder secured to the cup which has a flange concentric to the shoulder, and a tubular handle clamped against the cup, the end of the handle being located between the flange and the shoulder.

5. In a telephone, the combination of a cup for containing the magnet-spool, a detachable pole-piece applied thereto, a shell, for containing the permanent magnet of the telephone, held against the cup, and a pin locking the cup, pole-piece and shell to one another.

Signed this 29th day of August, 1898.

ERNEST H. THIELSCHER. [L. S.]

Witnesses:
I. A. FOSTER,
A. POLLARD.