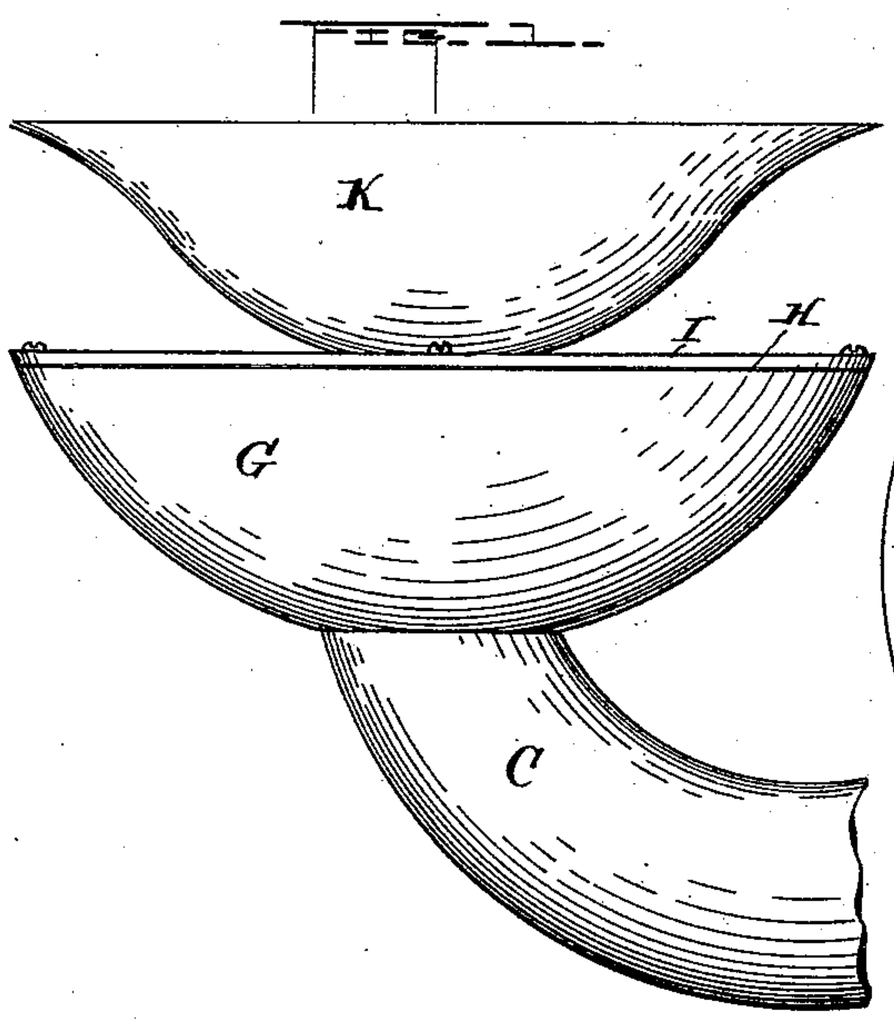
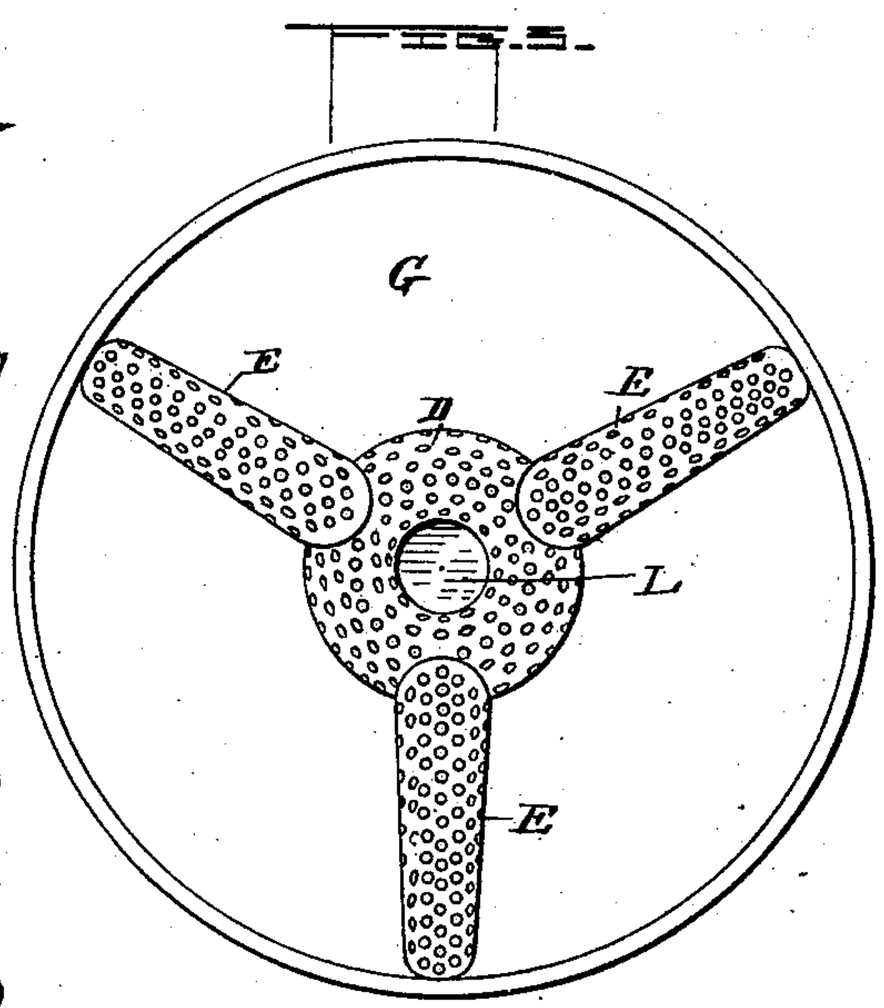
(No Model.)

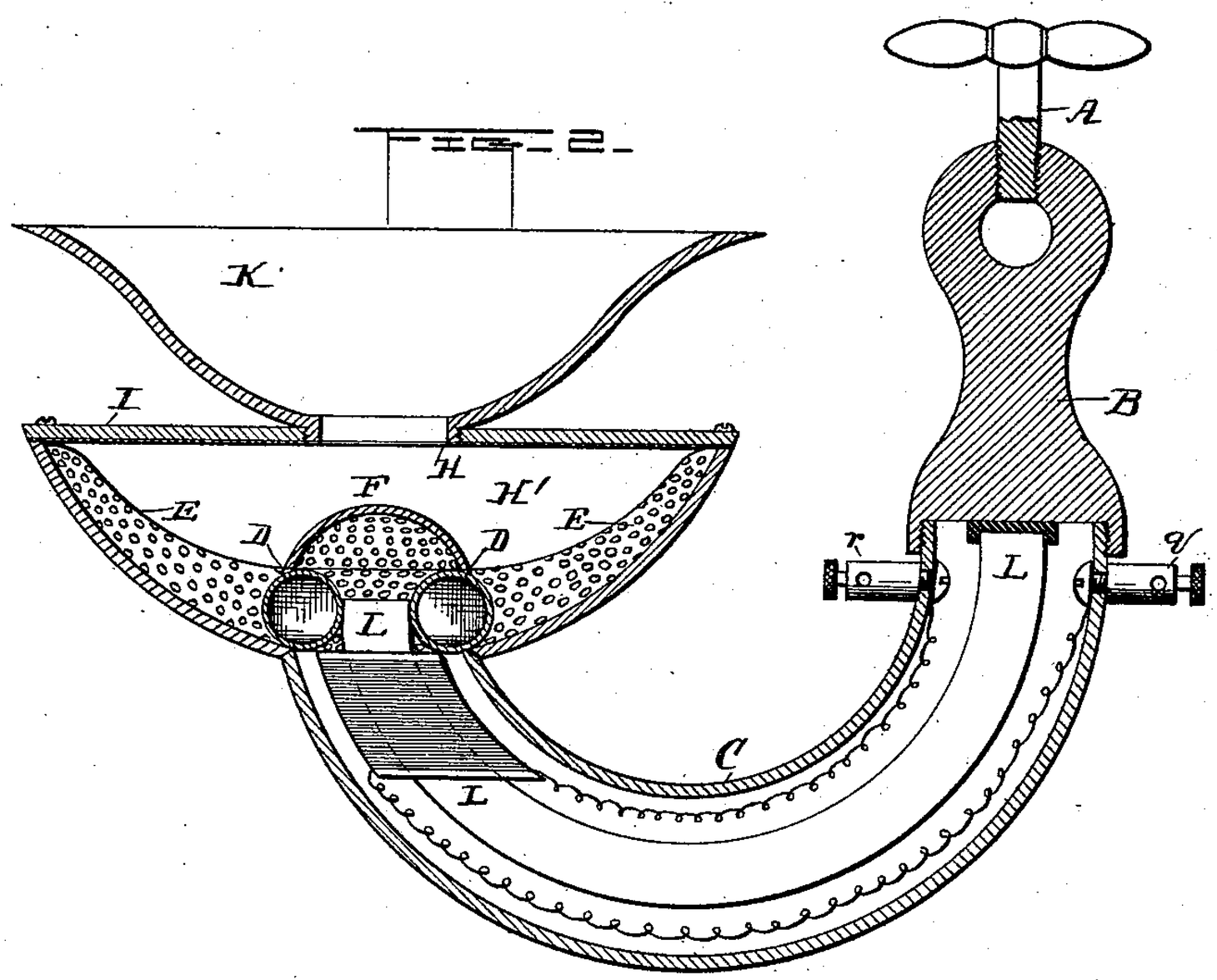
J. A. CHRISTY & E. J. BALDWIN.

TELEPHONE RECEIVER.

No. 471,535. Patented Mar. 29, 1892.







Witnesses
Severance.
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UNITED STATES PATENT OFFICE.

JAMES A. CHRISTY AND ELIAS J. BALDWIN, OF SAN FRANCISCO, CALIFORNIA.

TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 471,535, dated March 29, 1892.

Application filed March 16, 1891. Serial No. 385,315. (No model.)

To all whom it may concern:

Be it known that we, JAMES A. CHRISTY and ELIAS J. BALDWIN, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Telephone-Receivers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in telephone-receivers, and has for its object the provision of certain novel features of construction, as will be hereinafter described, and pointed out in the claims.

We provide a cup-shaped base having a flat cover, under which cover the diaphragm is mounted, and to the said opening on the outside is secured the apex of a bell-shaped ear-piece. The base is secured to a hollow shank, preferably of semicircular form in length, in which a magnet is placed. In the chamber of the cup-shaped base are provided perforate tubes of magnetic material, which extend from the diaphragm to a central perforated ring-tube surrounding the opening to the hollow shank. The ring-tube is also made of magnetic material, and over it may be placed a perforated dome. These tubes are connected to the magnet at the opening to the hollow shank and serve to convey the magnetic action onto the diaphragm. The perforations in them also serve a useful function in the sound-chamber.

The body of the receiver is made of non-magnetic material, preferably of a combination of papier-maché, "ore-paple," hard and soft rubber, cork, wood pulp, cinder, and brass, copper, or aluminum.

The following detail description more fully explains the construction and purpose of our said invention.

In the accompanying drawings, Figure 1 is an elevation of the exterior of the base and ear-piece with a portion of the shank attached. Fig. 2 is a sectional view of the entire instrument. Fig. 3 is a plan view of the cup-shaped base with the perforated tubes, the cover, diaphragm, and dome of the tubes being removed.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is a set-screw, which works through a butt B into a hole therein to clamp the instrument to an arm or support. A semicircular tubular shank C connects the butt B with a cup-shaped base G, which is provided with a flat cover I, having a central opening for receiving the apex of a bell-shaped ear-piece K. A diaphragm H is placed under the flat top I. In the sound-chamber H′ are provided the perforated tubes D and E, which are formed of magnetic material and are connected to the magnet L in the hollow shank C and extend up to the diaphragm. These tubes are preferably made in the form of a central ring-tube D, which surrounds the opening between the sound-chamber and the hollow shank and over which the perforated dome F may be placed, and the three (or more or less) radial branches E E, which reach up to and form contact-points on the under side of the diaphragm at its periphery, while the ring D has the end of the magnet L soldered to it. The poles of the current are connected to binding-posts *r q;* but it will be observed that we have magnetic connection with the diaphragm at three or more points, as already stated, around its periphery instead of at one point, as is now customary in telephone-receivers.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a telephone-receiver, the combination, with the diaphragm and chamber in which it is mounted, of a system of perforated magnetic tubes in said chamber connected to the actuating electro-magnet and extending up to the diaphragm, as set forth.

2. In a telephone-receiver, the combination of a cup-shaped base having a flat cover, a diaphragm mounted under said cover, and an

ear-piece mounted on said cover, with a perforated tubular magnetic ring-tube placed in the bottom of the cup-shaped base, perforated magnetic radial tubes extending from said ring-tube to the diaphragm, and a magnet connected to the said ring-tube, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES A. CHRISTY.
ELIAS J. BALDWIN.

Witnesses:
M. A. FRENCH,
GEO. W. BALDWIN.