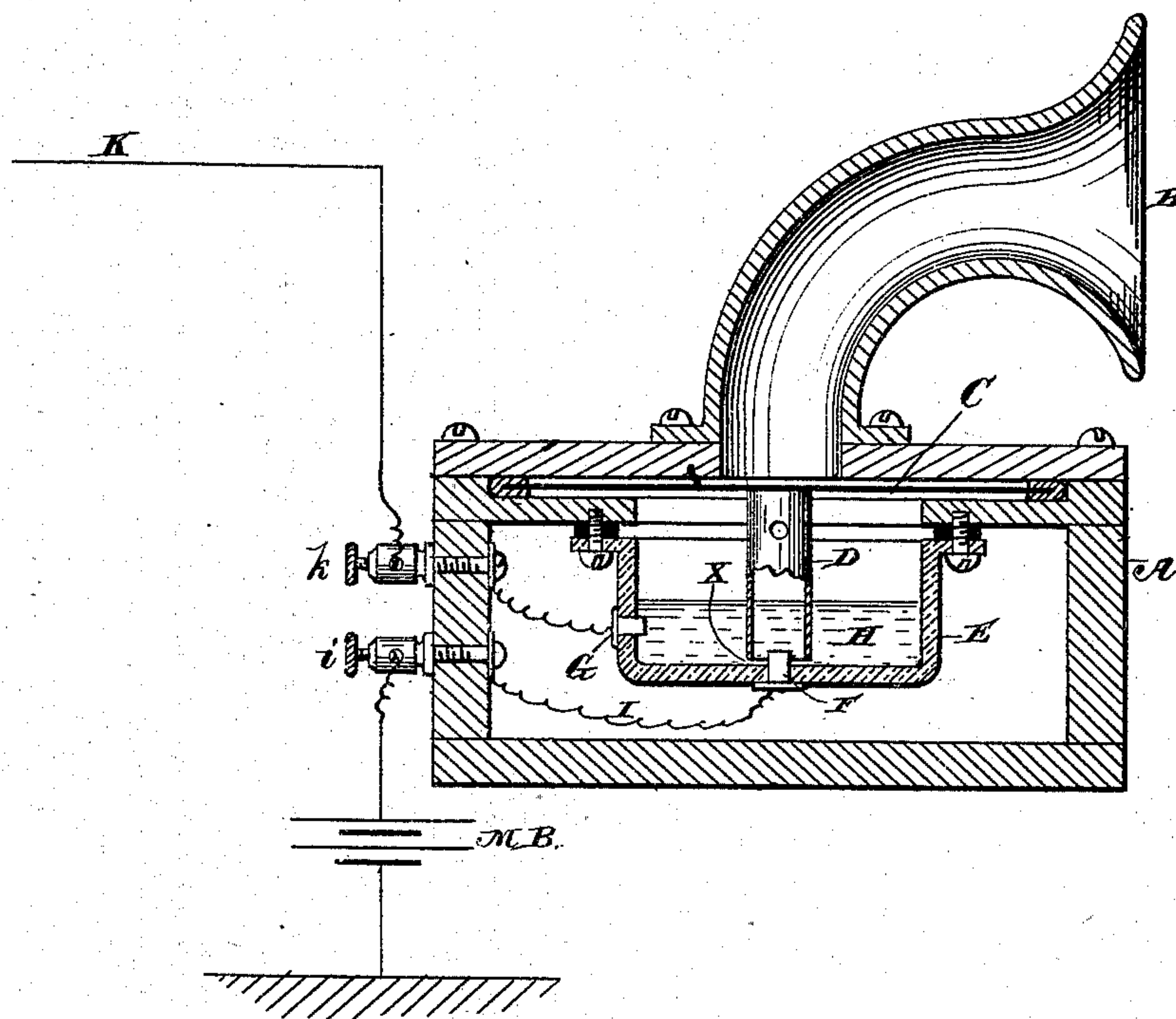


(No Model.)

J. H. ROGERS.
ELECTRIC TELEPHONE.

No. 252,521.

Patented Jan. 17, 1882.



Witnesses.

Robert Everett.

J. A. Rutherford.

Inventor.

James Harris Rogers.

By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

JAMES H. ROGERS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO FRANK HUME AND L. G. HINE, OF SAME PLACE.

ELECTRIC TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 252,521, dated January 17, 1882.

Application filed November 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARRIS ROGERS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Electric Telephones, of which the following is a specification.

My invention relates to that class of transmitters in which the electrical waves or undulations traveling the circuit are produced by variations of cross-section, quantity, or bulk of a fluid-conductor, and consequently its conductivity, placed in the line, which variations are caused by the vibrations of the transmitting diaphragm.

The object of my invention is to improve the construction of such instruments and to render them more delicate and practical.

The accompanying drawing is a vertical section through my improved instrument.

The case A of the transmitter is supported in a substantially horizontal position in any suitable place and manner, and is provided with a mouth-piece or vocalizing-chamber, B, which is curved toward the speaker, so that the edge of its mouth is in a substantially vertical plane. The diaphragm C is secured in the frame or case, as usual, and carries upon its center a downwardly-projecting tube, D, of non-conducting material. Just below the diaphragm a cup, E, of non-conducting material, is secured. This cup has two binding-screws, F and G, one, F, of which is connected centrally with the cup, so as to establish connection with the fluid-conductor H within it, and the other screw, G, is similarly secured in any suitable position, preferably in the side of the cup. The wire I from the battery M B passes from the binding-screw *i* in the case of the instrument to the central screw, F, in the cup, while the line-wire K extends from the screw G to the binding-screw *k*. The downwardly-projecting tube D extends into the fluid-conductor over the binding-screw F and in close proximity to the bottom of the cup. Fluid-conductors H of any suitable character may be used. There are many that will answer the purpose—for instance, dilute of sulphuric acid, mercury, sal-ammoniac, &c.

It will be obvious that the variations of the diaphragm caused by sounds uttered in its vicinity will cause the non conducting tube D to approach closer to and recede from the bottom of the cup containing the fluid, and that these variations of distance will cause corresponding changes in the cross-sections, volume, or quantity of the fluid at the point X, between the end of the tube and the bottom of the cup. Thus the resistance of the fluid in the circuit is increased or decreased in correspondence to the vibrations of the transmitting-diaphragm, and waves or undulations corresponding to the sound-waves produced by the sound uttered at the diaphragm are caused in the electric circuit, so that the sound uttered at the transmitter will be accurately reproduced at the receiving-station, as will be well understood.

Receivers of any well-known form may be used in circuit with my instrument.

The apparatus above described is very sensitive and produces electrical impulses of large amplitude in the line. Suitable openings should be left in the cup to permit the gases generated by the electrolytic action to escape.

Having thus described my invention, what I claim is—

1. The combination of the diaphragm, the downwardly-projecting non-conducting tube, the cup, the fluid-conductor, and its binding-screws.

2. The combination of a battery, the line-wires, a diaphragm, a fluid-conductor forming part of the circuit, the non-conducting containing-cup, and a non-conducting tube projecting from the diaphragm, which projects into the fluid and serves to increase and decrease its cross-section at a given point between the end of the projection and the cup, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAS. HARRIS ROGERS.

Witnesses:

JAMES L. NORRIS,
I. W. ROGERS.