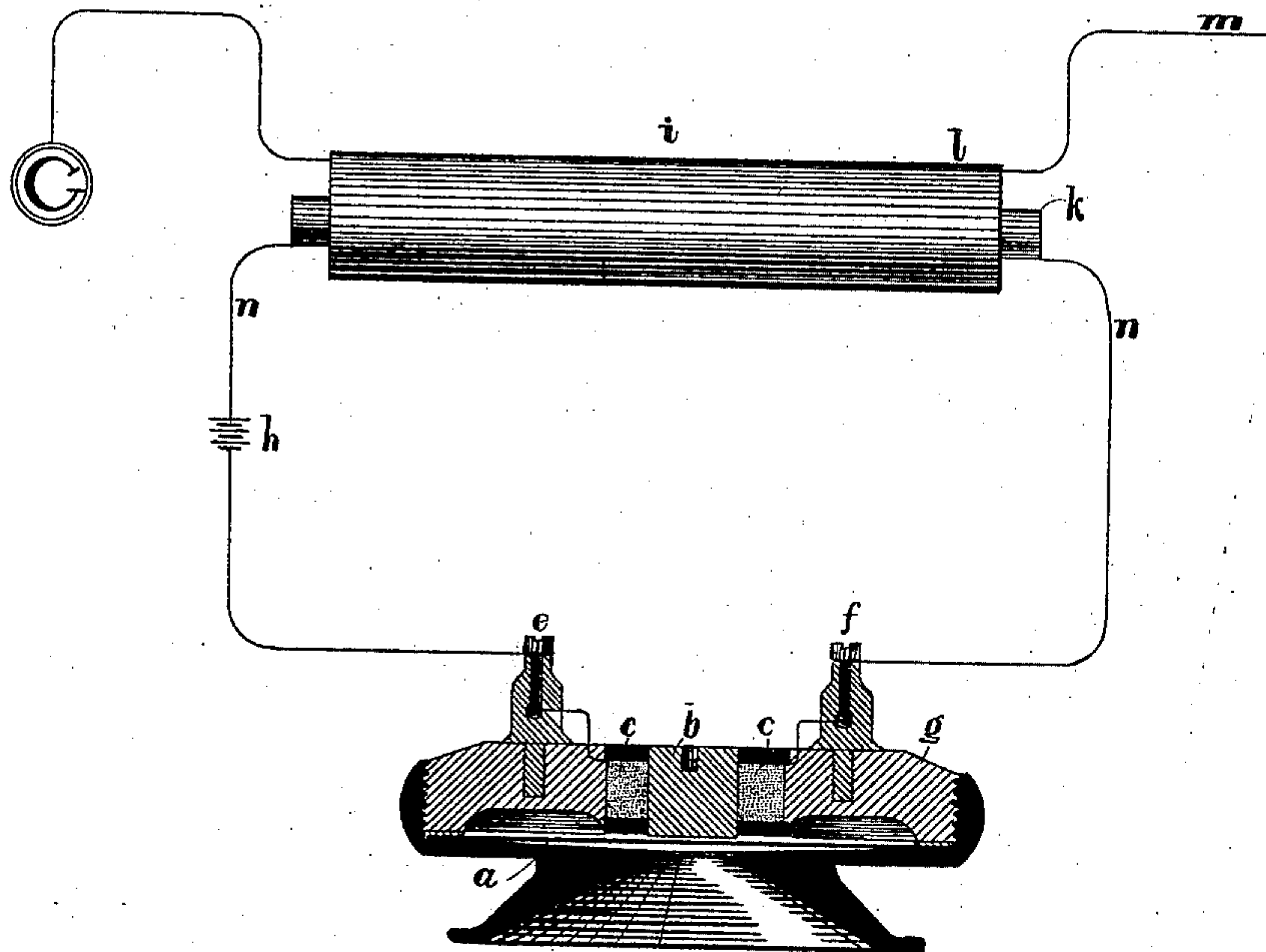


(No Model.)

C. E. SCRIBNER.  
RECEIVING TELEPHONE.

No. 298,783.

Patented May 20, 1884.



Witnesses.  
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Chas A. Warren

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# UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN BELL TELEPHONE COMPANY, OF BOSTON, MASSACHUSETTS.

## RECEIVING-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 298,783, dated May 20, 1884.

Application filed September 2, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. SCRIBNER, of Chicago, Illinois, have invented certain new and useful Improvements in Telephones, of which the following is a full, clear, concise, and exact description.

My invention is designed to render receiving-telephones lighter and more sensitive than heretofore; and it consists in the method and combinations hereinafter set forth.

My telephone, as herein described, works best when used as a receiver. It operates, however, successfully as a transmitter. The electro-magnet of the telephone in use prior to my invention is kept in a state of magnetic tension by means of a permanent magnet. The coil of the electro-magnet is wound about the soft-iron extension of this permanent magnet, or upon the pole itself, and hence voice-currents vibrating through the coil affect directly only this pole. If the magnetic strength of the permanent magnet be in anywise changed by the voice-current passing through the coil, it is only secondarily. The strength of the permanent magnet tends to keep the pole at a uniform magnetic tension, no matter in which direction the voice-current may be passing through the coil of the electro-magnet. Thus the voice-current acts upon the core or pole, and not directly upon the permanent magnet itself—that is to say, the source from which the initial magnetic tension of the core is derived. The transmitter as ordinarily used is placed in local circuit, and undulatory currents are produced in this local circuit by speaking against the diaphragm of the transmitter, and thus varying the resistance of the local circuit synchronously with the vibrations of the diaphragm. By my method the efficient strength of the current of the local circuit—that is to say, the source of the initial magnetic tension of the core—is varied simultaneously with the variation in the magnetic strength of the core of the electro-magnet of the telephone, while the resistance of the local circuit remains constant.

My invention is shown in the drawing, in which *a* is the diaphragm of the receiving-tele-

phone, and *b* the soft-iron core surrounded by the coil *c*. Binding-posts *e f* are provided in the bed-piece *g*, which may be of wood or other suitable material.

*h* is a battery placed in the circuit of the coil *c*. The said coil should be of about four or five ohms resistance.

*i* is an induction-coil, consisting of two windings. Winding *k* should be of low resistance, preferably of about one-half an ohm, while the other winding, *l*, should be of comparatively high resistance, preferably of about one hundred and fifty ohms. Winding *l* forms a part of the circuit of the main line *m*, and winding *k* forms a part of the circuit of the line *n* of the battery. No permanent magnet is necessary. The battery-current through the coil *c* charges the soft-iron core *b*, and also the soft-iron core of the induction-coil. The cores are thus made sensitive to the voice-current vibrations. These currents passing through the high-resistance winding *l* are reproduced by induction in the low-resistance winding *k*, and the induced vibrations find circuit through the coil *c* of the telephone. The magnetic tension of core *b* is thus varied and the sound-vibrations reproduced at the diaphragm *d*.

As to the state of the art prior to my invention, reference is made to the following United States Patents: No. 199,141, granted Emile Berliner, January 15, 1878; No. 225,388, granted John H. Irwin, March 9, 1880; No. 235,173, granted Francesco Rosetti, December 7, 1880; No. 241,184, granted Alexander G. Bell, May 10, 1881.

I claim—

The combination of the coil of the electro-magnet of the telephone with the primary of the induction-coil and the battery, whereby the telephone and induction-coil are rendered magnetic from the same source of electricity, substantially as and for the purpose specified.

CHARLES E. SCRIBNER.

Witnesses:

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