

(No Model.)

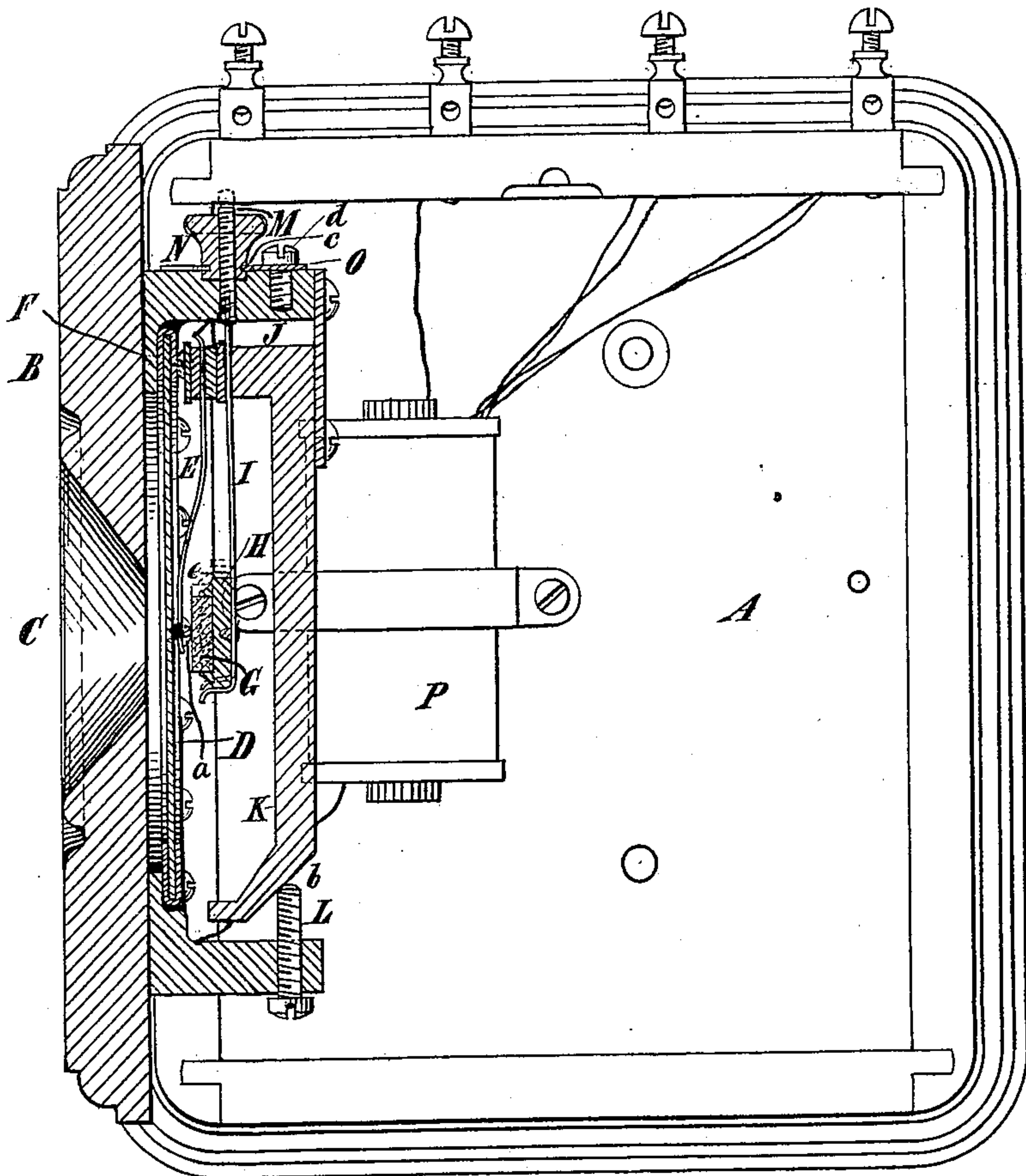
E. T. GREENFIELD.

TELEPHONE.

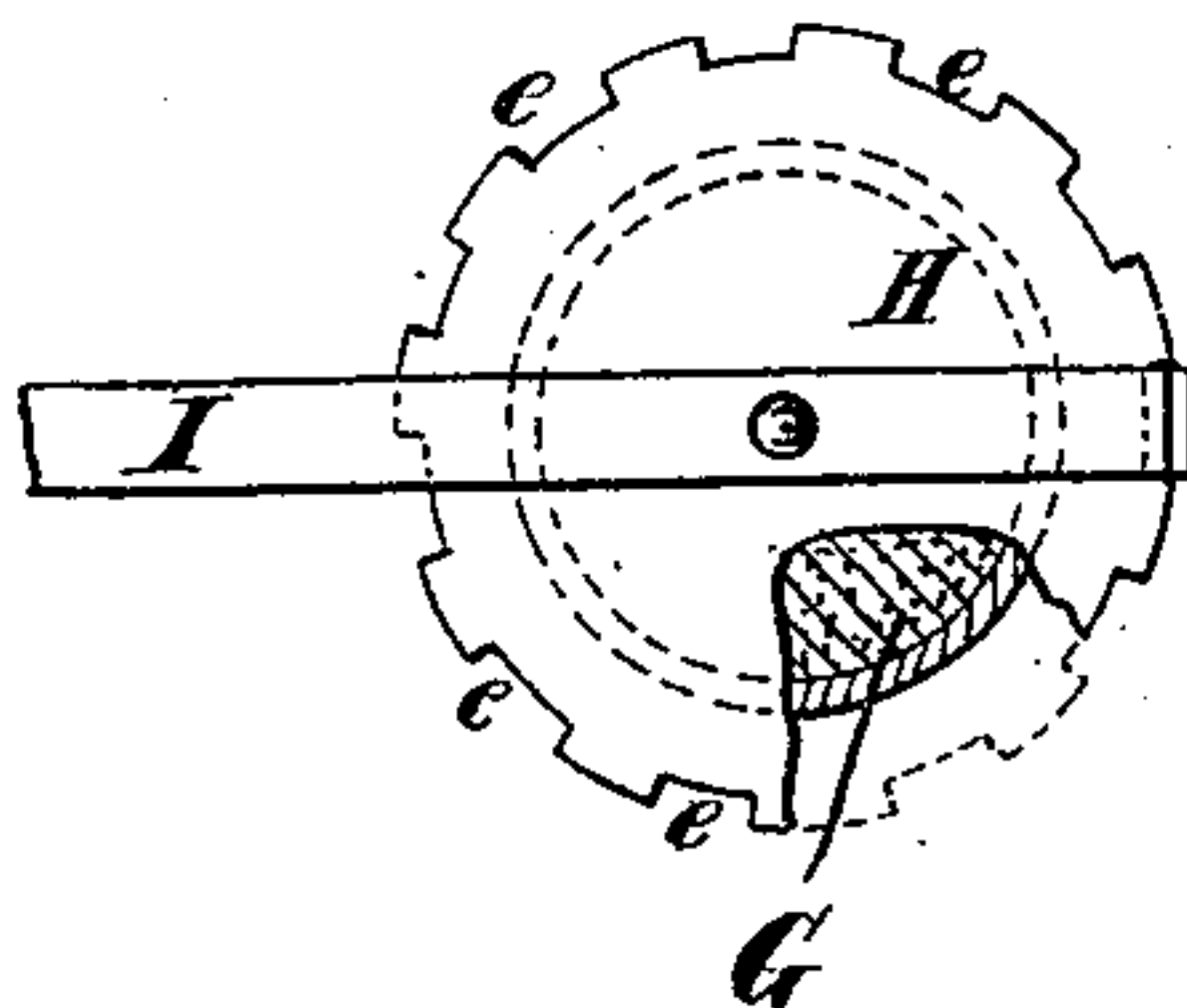
No. 246,756.

Patented Sept. 6, 1881.

*Fig. 1.*



*Fig. 2.*



Witnesses:-

Louis M. F. Whitehead.  
Wm. H. Hays

*Inventor.*

Edwin T Greenfield  
by his Attorney  
Edwin H Brown.

# UNITED STATES PATENT OFFICE.

EDWIN T. GREENFIELD, OF BROOKLYN, ASSIGNOR OF ONE-HALF TO HOLMES  
BURGLAR ALARM TELEGRAPH COMPANY, OF NEW YORK, N. Y.

## TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 246,756, dated September 6, 1881.

Application filed May 19, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN T. GREENFIELD, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Telephones, of which the following is a specification.

My invention relates particularly to telephone-transmitters wherein hard plumbago or carbon buttons are employed in connection with small opposite electrodes or contact-points. Heretofore such carbon buttons, being susceptible of no adjustment to present different portions for contact with the opposite electrode, have soon become burned or otherwise rendered unfit for further use, wherefore great expense has attended their employment.

The object of my invention is to provide for an adjustment of one of the electrodes, which may consist of a carbon button.

To this end my invention consists in the combination, with the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable to present different portions of its face to the other electrode, of means for positively securing said adjustable electrode in different positions to which it may be adjusted.

One electrode may be adjustable so as to present diametrically-opposite points to the other electrode, or the first said electrode may be adjustable circumferentially; and for facilitating the adjustment one electrode is preferably adjustable both diametrically and circumferentially.

The invention also consists in details of construction to be hereinafter described.

In the accompanying drawings, Figure 1 is a view of a telephone-transmitter and case with the cover open and with the transmitter shown in transverse section; and Fig. 2 is a back view of the cup thereof which contains the carbon button and of a portion of the spring whereby it is suspended.

Similar letters of reference designate corresponding parts in both figures.

A designates the case of the telephone-transmitter, and B designates the cover thereof, hinged to the said case, and having the transmitter secured to it.

C designates the mouth-piece of the transmitter; and D designates the diaphragm, secured at or near its edges, behind said mouth-piece, in a suitable frame, by overlapping spring-fingers impinging on its rear side or otherwise.

E designates a metallic spring, suspended from a support, F, and furnished opposite the center of the diaphragm with a platinum point, *a*, constituting an electrode of the transmitter.

G designates a carbon button, forming the other electrode, fitted in a brass or other metallic cup, H, suspended by a metallic spring, I, from a support, J, fastened to the cover B of the case A. The cup H constitutes a weight, which, by its inertia, modifies the contact of the carbon button with the opposite electrode *a* when the latter is actuated by the diaphragm when subjected to the influence of sound-waves.

K designates a bridge-piece, suspended near one end from the support J, and impinging at that end against the spring I, whereby the carbon button is suspended. Its lower end is furnished with an inclined cam-like face, *b*, upon which bears a screw, L, which may be adjusted to cause the spring I to make the carbon button press with more or less force against the opposite electrode.

In this example of my invention the spring I, instead of being suspended directly from the support J, is suspended from a screw, M, fitted loosely in said support and engaging with a thumb-nut, N. This nut is provided with a groove, *c*, with which engages a bifurcated plate, O, secured to the support J by a screw, *d*. This nut is thus precluded from movement upward or downward; hence, when turned, it raises or lowers the carbon button so as to present a diametrically-different point or portion to the opposite electrode *a*. As here shown, the brass cup H, containing the carbon button G, is pivoted centrally to the spring I, and may be rotated or turned circumferentially relatively thereto. To secure it in position relatively to said spring, I preferably provide the spring with an adjustable catch to engage with the circumference of the cup, and such a catch may be made in a simple manner by extending the lower end of the spring downward and bend-



ing it transversely over the circumference of the cup, so that it can engage with one of a series of notches, *e*, provided thereon. By pulling back the end of the spring so as to disengage it from the notch *e*, with which it may be engaged, the cup may be adjusted circumferentially relatively to the spring I, and when so adjusted the end of the spring will engage with another notch, *e*, and secure the cup in position again.

P designates an induction-coil arranged in the case A, and connected with the electrodes of the transmitter and with the line-wires in the ordinary or any other suitable manner.

It will be seen that by my invention I provide for adjusting a great many points or portions of the carbon button into position for presentment to the opposite electrode, and hence that I provide for a much longer use of the said button than has heretofore been practicable.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable to present different portions of its face to the other electrode, of means for positively securing said adjustable electrode in different positions to which it may be adjusted, substantially as specified.

2. The combination, with the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable eccentrically to said diaphragm to present it at diametrically-different points to the other electrode, of means for positively securing said adjustable electrode in different positions to which it may be adjusted, substantially as specified.

3. The combination of the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable circumferentially to present different points to the opposite electrode, and means for securing said adjustable electrodes in different positions to which it may be adjusted, substantially as specified.

4. The combination, with the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable circumferentially to present different points to the opposite electrode, of a catch for securing the said adjustable electrode in position when so adjusted, substantially as specified.

5. The combination, with the diaphragm of a telephone-transmitter, of a carbon button, G, cup H, spring I, to which said cup is pivoted, and having its end formed to constitute a catch, and the notches *e* in the cup, substantially as specified.

6. The combination of the diaphragm and electrodes of a telephone-transmitter, one of said electrodes being adjustable eccentrically to the diaphragm and circumferentially to present different points to the opposite electrodes, substantially as specified.

7. The combination, with the diaphragm of a telephone-transmitter, of a carbon button, G, cup H, spring I, to which said cup is pivoted, screw M, and nut N, substantially as specified.

EDWIN T. GREENFIELD.

Witnesses:

H. F. NEWBURY,  
T. J. KEANE.