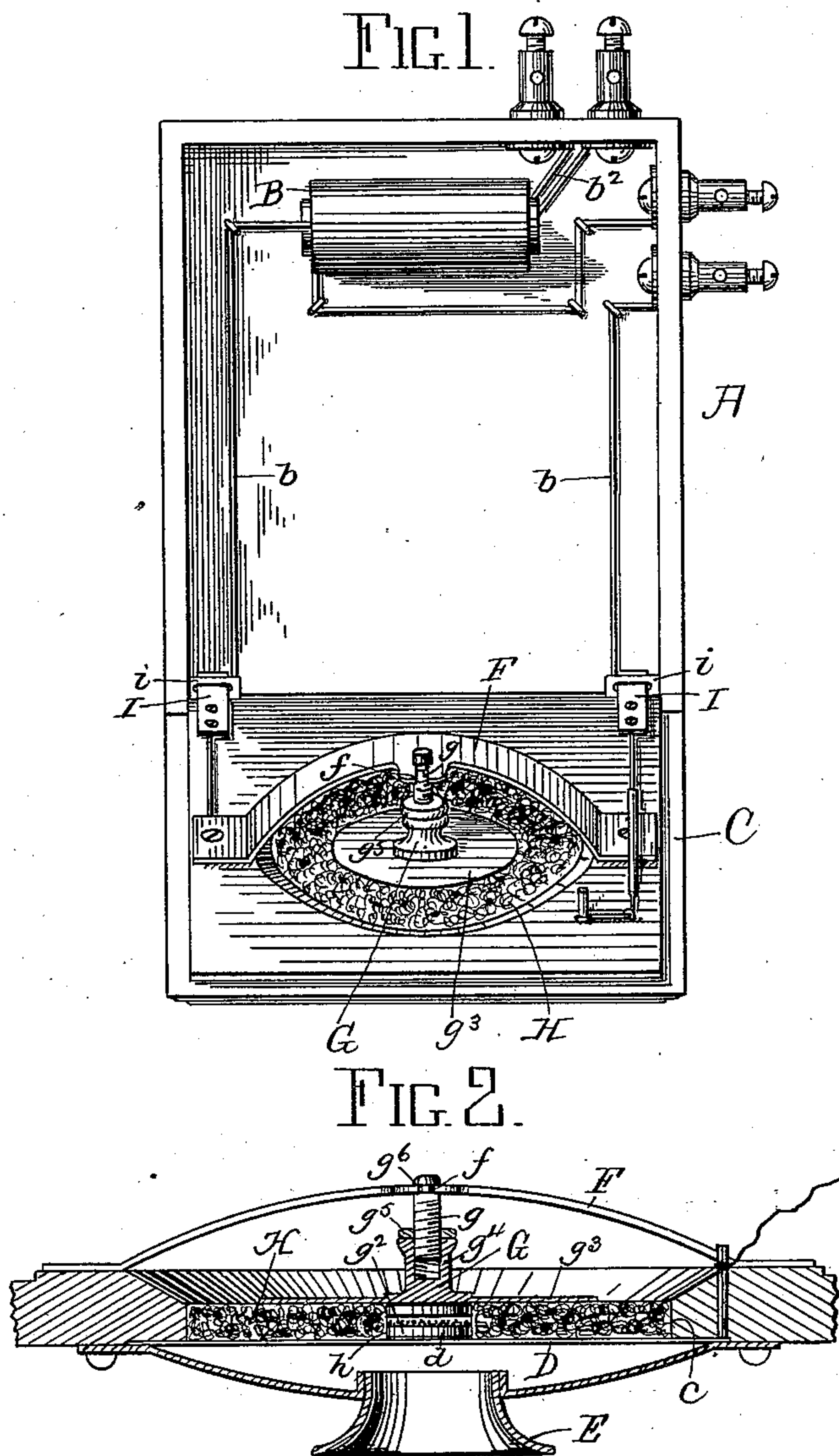


(No Model.)

D. DRAWBAUGH.  
TELEPHONE TRANSMITTER.

No. 540,959.

Patented June 11, 1895.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 540,959, dated June 11, 1895.

Application filed February 23, 1895. Serial No. 539,478. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL DRAWBAUGH, a citizen of the United States, residing at Eberly's Mill, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Telephone-Transmitters with Removable and Adjustable Electrodes; and I do hereby 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.

This invention relates to telephone transmitters.

The object is to produce a telephone transmitter which shall be so constructed as to permit of the parts being readily removed or replaced at will, and in which the arrangement will effect the highest possible range of usefulness and effectiveness with the smallest possible combination of elements; furthermore, to provide a telephone transmitter having its electrodes separated by an interposed body of granular carbon, one of the electrodes being fixed and the other movable, whereby to permit of the proper adjustment of the electrodes with relation to the bulk of the interposed body of granular carbon; furthermore, to provide a telephone transmitter having a fixed and a removable electrode, the latter being capable of adjustment to and from the fixed electrode without removal from its supporting mechanism; furthermore, to provide a novel form of hinge for supporting the lid or cover in movable relation with the telephone box or casing, the said hinge forming an electrical connection between the transmitter and the mechanism contained within the box or casing, and being of a construction that will permit of the disengagement or separation of its parts without the removal of the screws or other fastening device holding it in place on the casing.

With these objects in view, the invention consists in a telephone transmitter having a fixed and a removable electrode the latter being adjustable to and from the fixed electrode; furthermore, in a telephone transmitter having a fixed and a removable electrode, a body of granular carbon interposed between the electrodes, and means for adjusting the re-

movable electrode to and from the fixed electrode and locking it in its adjusted position; furthermore, in a telephone transmitter having a fixed and a removable electrode, the latter being held in operative position by spring pressure, and means for adjusting the removable electrode to and from the fixed electrode and for locking it in its adjusted position; furthermore, in a telephone transmitter having a fixed and a removable electrode, the latter being provided with a movable shank carrying a locking device; furthermore, in a telephone transmitter having a fixed and a removable electrode, a bearing located on the transmitter support, and a movable shank on the removable electrode engaging the bearing and having means for locking the shank in the desired adjustment; furthermore, in a telephone transmitter, comprising a fixed and a removable electrode, an elastic annulus located between the electrodes, a body of interposed carbon held in place by the annulus, and means for moving the removable electrode to and from the fixed electrode, whereby to permit of the proper adjustment of the electrodes with relation to the bulk of the interposed body of granular carbon, and, finally, in the various novel details of construction of a telephone transmitter, as will hereinafter be fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like letters of reference indicate corresponding parts, I have illustrated one form of embodiment of my invention capable of carrying the same into effect, although other embodiments may be employed without departing from the spirit thereof.

In the drawings, Figure 1 is a view partly in elevation and partly in perspective, the box or casing of the telephone being in elevation, displaying an induction-coil therein, with its attached primary and secondary connections and the lid or cover dropped, displaying the rear portion of the transmitter. Fig. 2 is a transverse sectional view showing more clearly the relative positions occupied by the different parts of the transmitter.

Referring to the drawings, A designates the box or casing of the telephone; B, an induc-



tion coil located therein;  $b$ , the primary circuit, and  $b^2$  the secondary circuit, and as these parts may be of any preferred or well known construction, a detailed description of them is deemed unnecessary.

The lid or cover C is provided with an orifice  $c$ , covering which is the diaphragm D having a centrally arranged carbon button or electrode  $d$ , and secured over the diaphragm is a mouth-piece E of the ordinary construction. Upon the inner side of the lid or cover is secured a bow-shaped plate F, which is by preference of a resilient nature, and provided with a recess  $f$  forming a bearing for the shank  $g$  of the second electrode G. This latter electrode comprises a carbon button  $g^2$ , arranged in juxtaposition to and in alignment with the button  $d$ , a metallic disk  $g^3$ , and a stud or projection  $g^4$  arranged centrally of the disk  $g^3$  and into which is screwed the shank  $g$ , the latter being held at the desired adjustment by means of a locking-nut  $g^5$ . In order to hold the shank in proper operative position with relation to the bearing  $f$ , the shank is provided with a circumferential groove  $g^6$  near its upper end, which groove engages the side walls of the bearing, as clearly shown in Fig. 2.

Within the orifice  $c$  is placed a carbon holder H, which is constructed of any suitable elastic or porous substance, such as sponge or other spongiform material, and is provided with a central opening  $h$  in which fits the carbon buttons  $d$  and  $g^2$ , between which is interposed a body of granular carbon, that serves to prevent make and break of the circuit when the instrument is in use, as is well understood.

The cover C is connected with the box or casing A by a novel form of hinge which also serves as a conductor. The hinge comprises a plate I, one on each side of the lid, to which are connected the primary circuit  $b$ , and a slotted plate  $i$  connected, one, to each side of the casing, and through which projects the plates I. The inner ends of the plates I are slightly upturned in order to prevent disengagement of the members of the hinge when the lid is in the position shown in Fig. 1; but, when the lid is brought to a vertical position, the members may be disengaged without necessitating the removal of the screws holding the parts in place. The object of construct-

ing the hinge in this manner is to permit of the ready removal of the lid from the casing, should it be desired to repair the transmitter, or for other purposes.

In assembling the parts of the transmitter described, the annulus D is placed in position, after which the granular carbon is spread upon the carbon button D, the walls of the orifice in the annulus serving to hold the carbon in position. The electrode G is then placed in position with a button  $g^2$  in the orifice of the annulus, and the shank  $g$  is then adjusted with relation to the bulk of the granular carbon, after which the locking nut  $g^5$  is screwed down upon the stud or projection  $g^4$ , thereby locking the shank in its adjusted position. Should it be desired to remove the electrode G, it will be necessary only to disengage the shank  $g$  from contact with the bearing  $f$  in a manner that will be readily understood.

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

1. A telephone transmitter having a fixed and a removable electrode, a body of granular carbon interposed between the electrodes, an elastic carbon-holder having an opening of a size to fit the electrodes thereby to keep the granular carbon in operative position with relation thereto, and means for adjusting the movable electrode with relation to the fixed electrode, substantially as described.

2. A telephone transmitter having a fixed and a removable electrode, a body of granular carbon interposed between the electrodes, an elastic carbon-holder having an opening of a size to fit the electrodes thereby to keep the granular carbon in operative position with relation thereto, and means for adjusting the removable electrode to and from the fixed electrode and locking it in its adjusted position, substantially as described.

In testimony whereof I affix my signature in presence of witnesses.

DANIEL DRAWBAUGH.

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