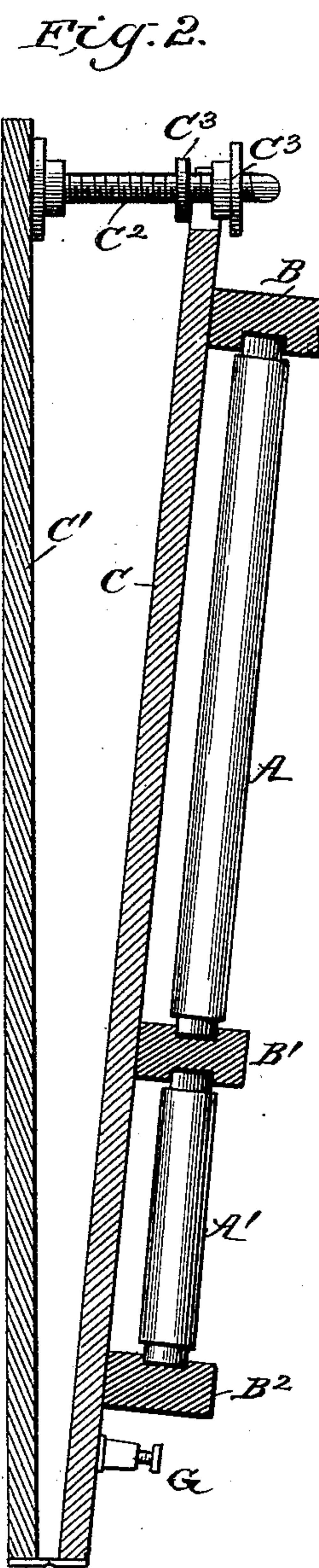
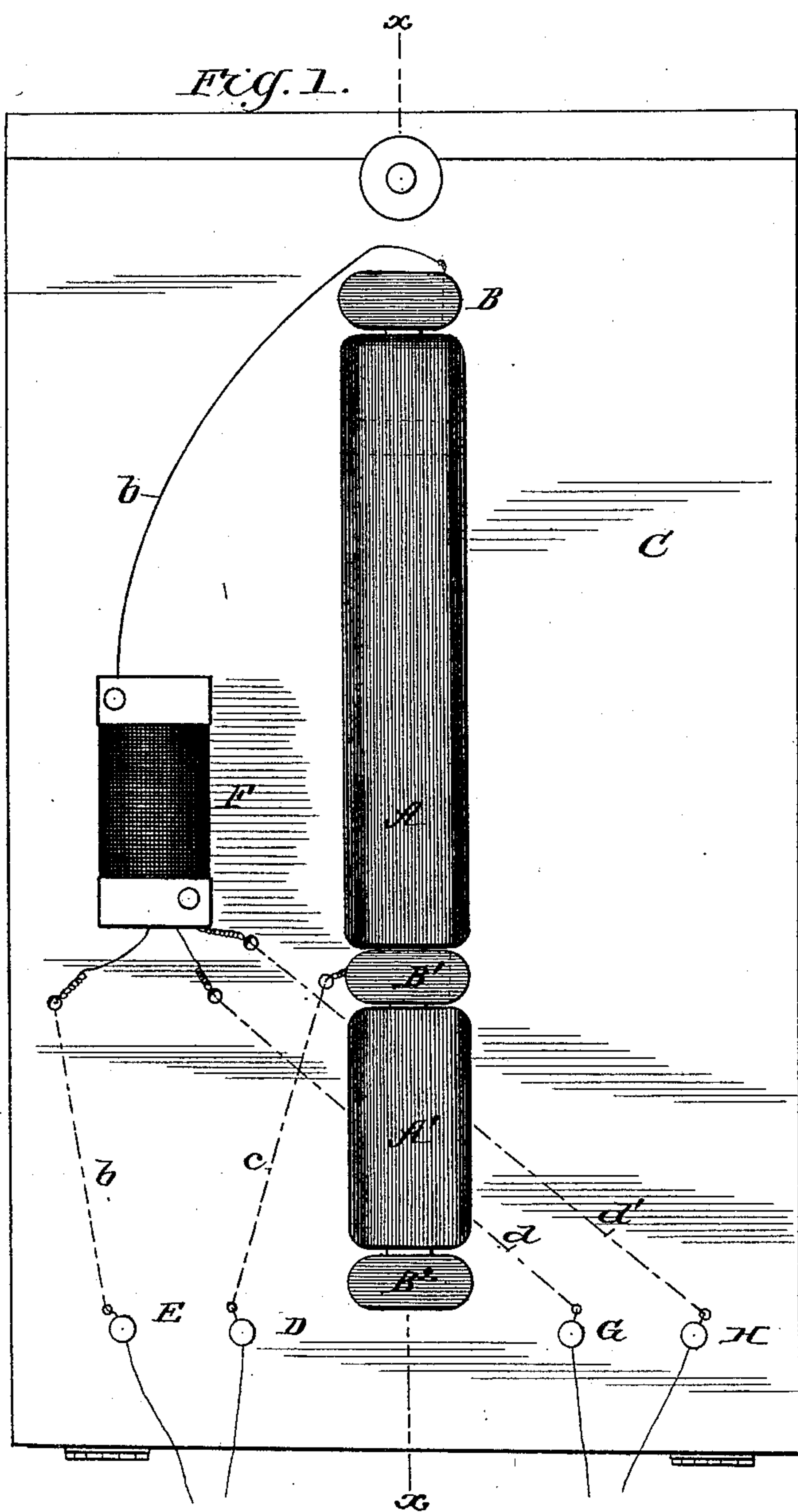


(No Model.)

P. FITZSIMMONS.  
TELEPHONE TRANSMITTER.

No. 452,636.

Patented May 19, 1891.



WITNESSES:  
*Fred G. Dieterich*  
*Edw. W. Byrum.*

INVENTOR:  
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ATTORNEYS



# UNITED STATES PATENT OFFICE.

PHILIP FITZSIMMONS, OF BIRMINGHAM, ALABAMA, ASSIGNOR OF ONE-HALF  
TO PATRICK H. LINNEHAN, OF SAME PLACE.

## TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 452,636, dated May 19, 1891.

Application filed December 23, 1890. Serial No. 375,576. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP FITZSIMMONS, of Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Improvement in Telephone-Transmitters, of which the following is a specification.

My invention is in the nature of an improved telephone-transmitter, which is of simple construction, not liable to derangement, and which secures a clear tone and full volume of sound, enabling the speaker to be distinctly heard even when standing at a distance from the transmitter.

Figure 1 is a front view of the transmitter applied to a board and designed to be hung up anywhere on the side wall; and Fig. 2 is a vertical section through line  $x x$ .

A is a carbon electrode in the shape of a pencil or flat bar, (an ordinary lead-pencil may be used,) having its ends tenoned or reduced in size and entered into sockets in carbon blocks B B', fastened to the supporting-board C. This carbon electrode is loosely held in its carbon-supports, so that it may readily vibrate within the same from the action of the sound-waves.

D E are binding-posts leading, respectively, to the two poles of the battery. Of these binding-posts E is connected by a wire  $b$  with the primary wire of an induction-coil F, and passing through the same extends thence to the upper carbon-block B. The other binding-post D is connected by wire  $c$  to the carbon-block B' at the bottom of the carbon electrode A.

G H are two other binding-posts which are connected by wires  $d d'$  with the ends of the secondary wire of the induction-coil. These binding-posts are to be connected, respectively, to the line and the ground. Now when the sound vibrations strike the carbon electrode A, the latter, being sustained loosely in a position sensitive to the air-vibrations, is set to vibrating within its carbon-blocks, and the passage of the current through the points of contact between the carbon electrode and its supporting-blocks produces the undulatory current necessary to the reproduction of the sounds.

I may, in addition to the long carbon electrode first named, use one or more others simi-

larly constructed and supported by carbon-blocks.

I have shown at A' a second short carbon electrode provided with tenons and supported in a similar way between the carbon-blocks B' B<sup>2</sup>. For this arrangement of two electrodes the battery-wire  $c$  should be connected to the carbon-block B<sup>2</sup> at the end of the series. The only advantage secured by an additional number of carbon electrodes is to make the tones clearer, stronger, and more certain.

The advantages secured by my transmitter are simplicity, cheapness and freedom from derangement, clearness, and volume of tone with but little battery-power, permitting speech to be transmitted when the speaker is several yards away from the transmitter, and enabling it to be used in hospitals by patients in bed by the aid of a receiver applied to the head, so that patients with infectious diseases can converse with their friends at a distance. The same advantages permit it to be employed in churches, colleges, and public halls for transmitting the speech of the speaker. It also enables deaf persons to make a successful use of the instrument. The transmitter is also constructed without any box or case, and may be readily transported and hung up, like a picture-frame, at different points in the building. It is furthermore provided with a back C', to which the board C is hinged at the bottom, a screw-stem C<sup>2</sup>, with nuts C<sup>3</sup> C<sup>3</sup> at the top giving an adjustment for changing the inclination of the board C and its attached parts to vary the pressure of the electrode against its carbon-blocks.

My transmitter, having no diaphragm, produces no wooden or metallic sound, but gives a natural reproduction of either speech or sound. The electrodes in my transmitter, being shaped and placed in position as shown, will give a natural reproduction of sound or speech with the least known battery-power—viz., it can be used with a battery composed of two inches wide and one-fourth inch thick carbon and a zinc plate of same dimensions, with a cloth saturated with a solution of either sal-ammoniac or common salt and placed between the plates.

Iron and zinc with saturated cloth can be used as a battery, or a battery composed of a

thin piece of silver two inches square or less and zinc plate of same dimensions with the saturated cloth (before mentioned) placed between the metals. It can also be used with  
5 batteries made of various other metals used similarly to the above-named metals.

It will also be seen that my transmitter, having a set or check screw, can be adjusted to any desired degree of sensitiveness and is  
10 firmly held in position.

My transmitter can be used in portable form by deaf persons without any incumbrance, owing to the small amount of battery-power required.

15 My transmitter can also be used on a burglar-alarm system or by a watchman.

As a modification of my invention, the supporting-blocks may be formed with tenons

which enter sockets in the ends of the electrodes. 20

Having thus described my invention, what I claim as new is—

The combination, in a telephone-transmitter, of a board C', having a screw-stem C<sup>2</sup> at its upper end, a board C, hinged to the lower 25 end of board C' and provided with two or more carbon blocks B B', sustaining a loose carbon electrode A, and screw-nuts C<sup>3</sup> C<sup>3</sup>, arranged upon the stem C<sup>2</sup> upon opposite sides of the board C for adjusting the inclination of the lat- 30 ter and its electrodes, substantially as shown and described.

PHILIP FITZSIMMONS.

Witnesses:

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P. D. MACKEY.