

(No Model.)

H. E. WAITE.
TELEPHONE TRANSMITTER.

No. 298,925.

Patented May 20, 1884.

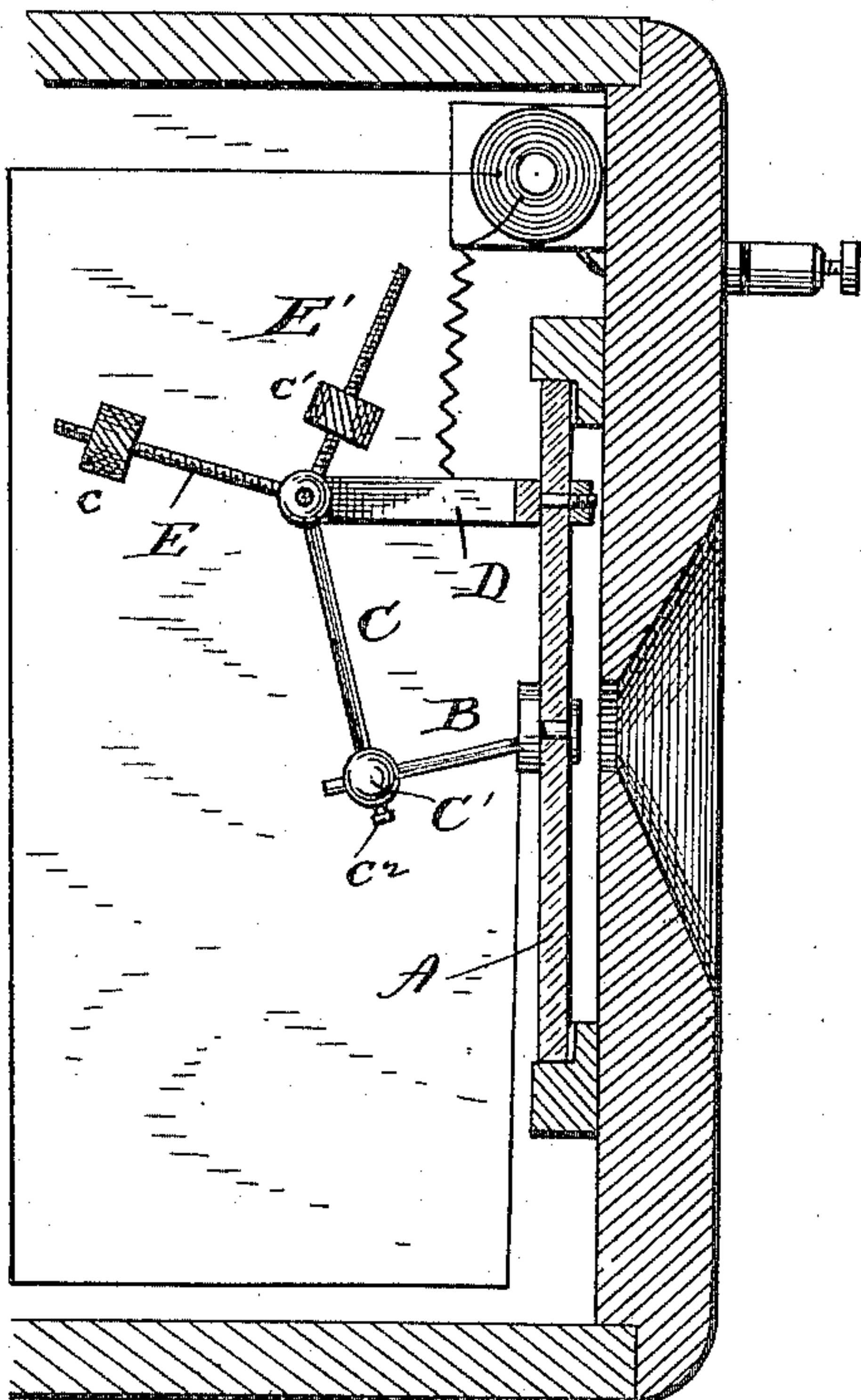


Fig. 1.

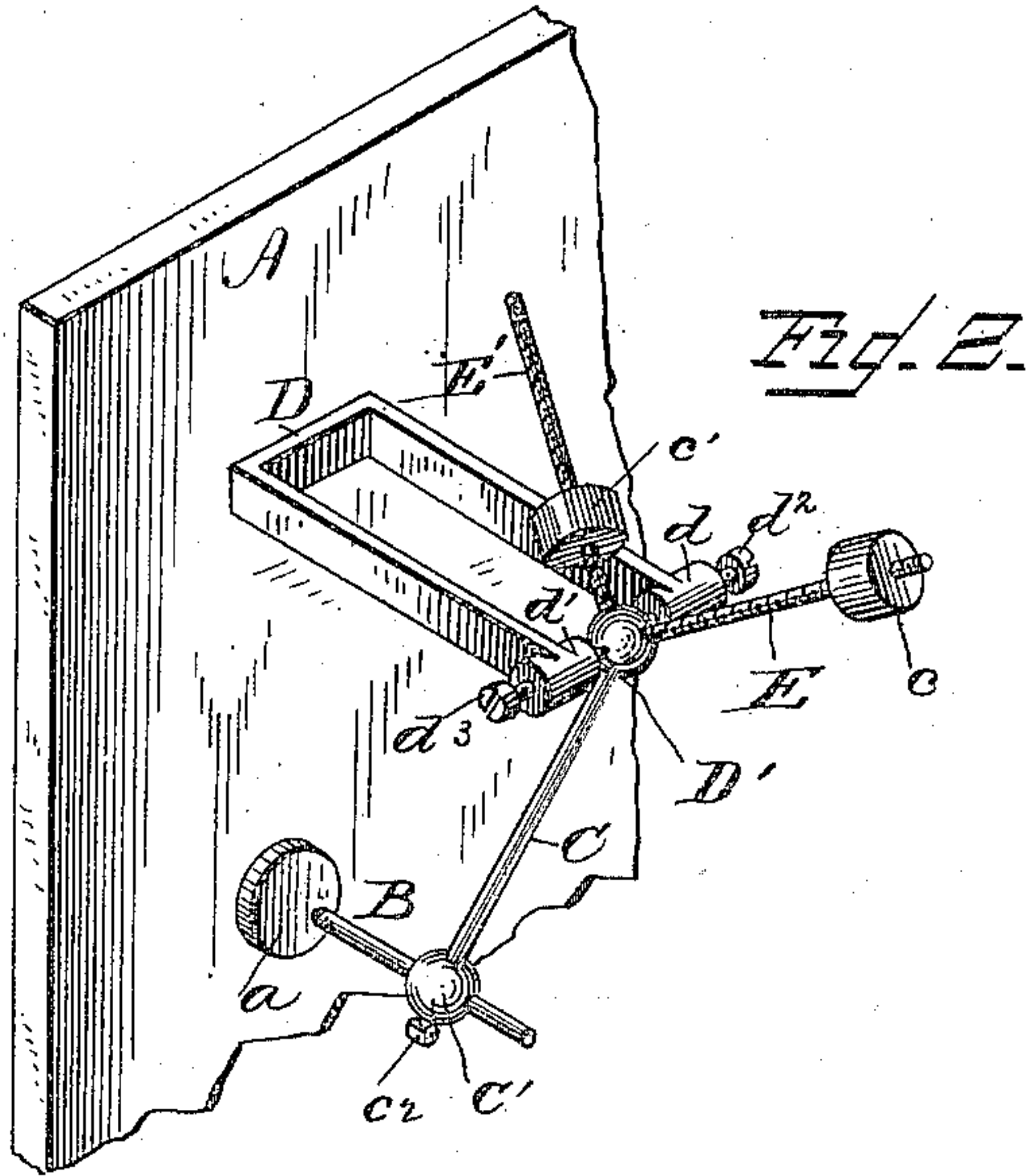


Fig. 2.

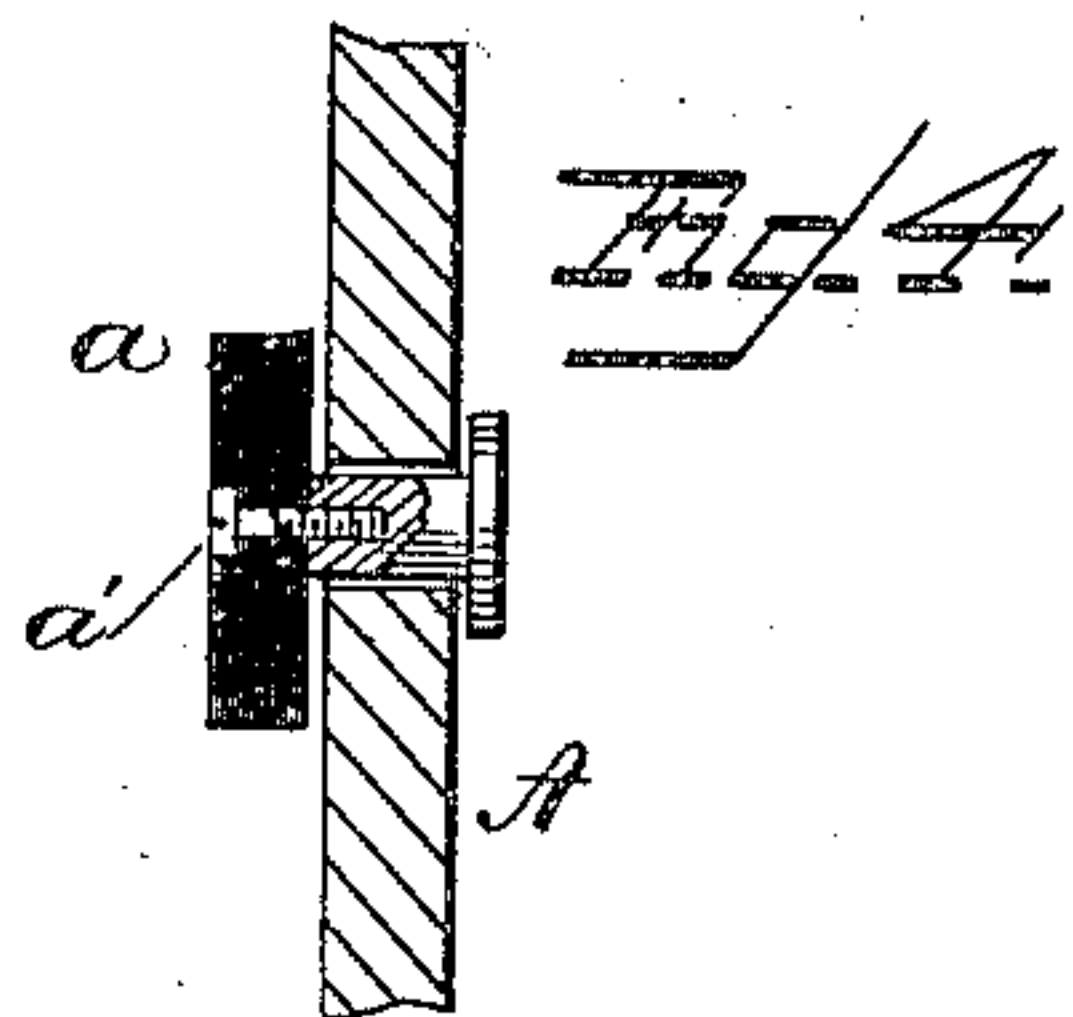


Fig. 4.

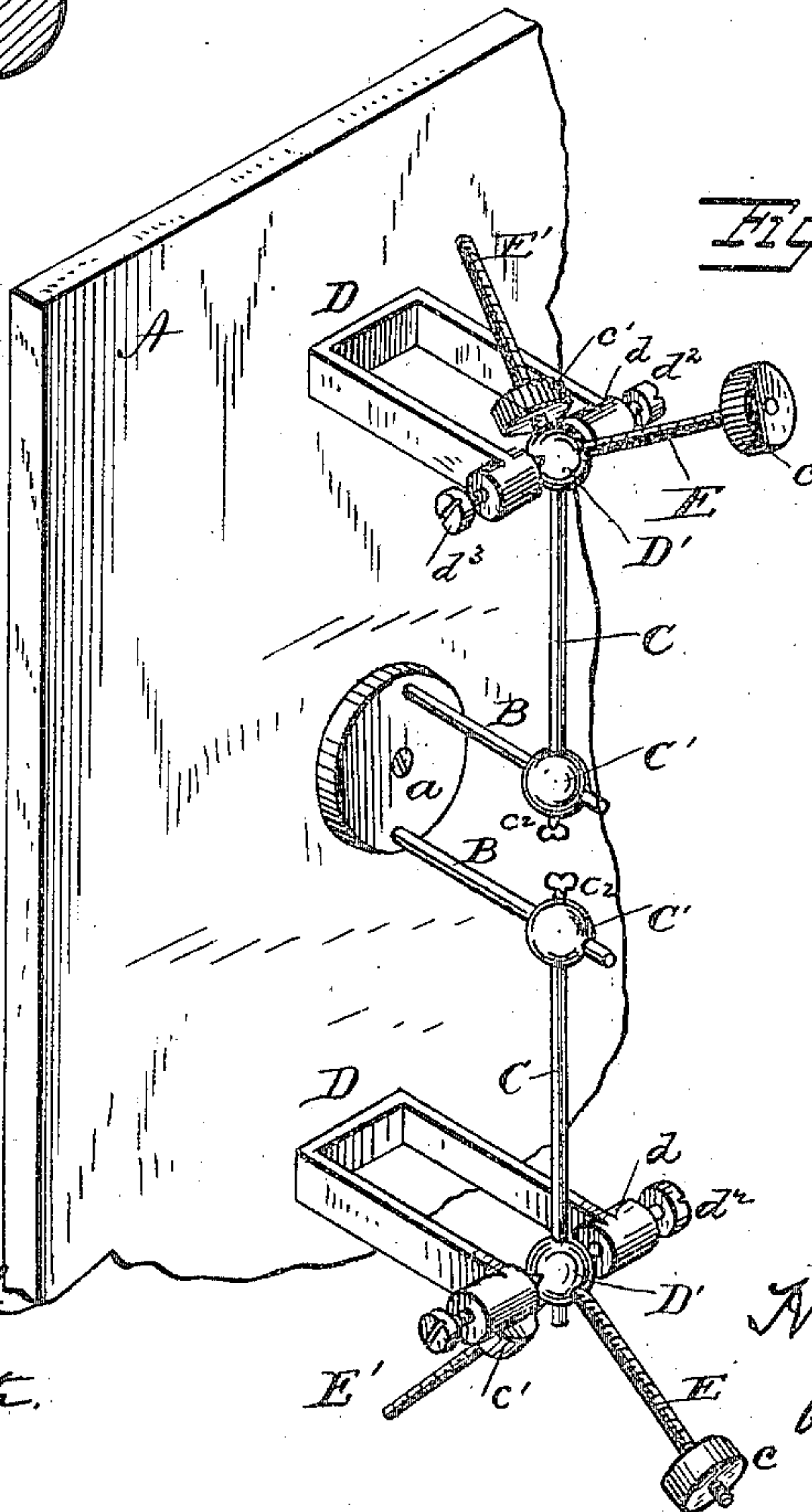


Fig. 3.

WITNESSES
Frank L. Ouraud
Per. M. Smith.

INVENTOR
Henry E. Waite
by A. L. Smith.
Attorney.

UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES F. LIVERMORE,
TRUSTEE, OF SAME PLACE.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 298,925, dated May 20, 1884.

Application filed November 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WAITE, of New York, county of New York, and State of New York, have invented a new and useful
5 Improvement in Telephone-Transmitters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

10 My invention relates to the manner of adjusting the electrodes of a telephone-transmitter, whereby they are adapted to be either brought into very delicate contact one with the other, so that their adjacent faces barely
15 meet or touch, or to be forced together with a greater pressure, as may be desired; and it consists in providing one of said electrodes with an arm or arms having counter weights or balances adjustable thereon back and forth,
20 whereby said electrode may be balanced with great accuracy and rendered capable of extremely delicate adjustment in connection with the other electrode, all as hereinafter described.

25 Figure 1 is a side elevation, and Fig. 2 a perspective view, showing my improvement. Fig. 3 is a perspective view showing two of my improved electrode-balancers applied to the diaphragm of a telephone-transmitter, and so
30 arranged thereon that the pencils thereof bear upon the same carbon button secured to the diaphragm; and Fig. 4, a detail sectional view of a portion of the diaphragm with the carbon button or electrode applied thereto
35 through a perforation in the same.

In the accompanying drawings, A represents the diaphragm of a telephone-transmitter, said diaphragm being made of cork, wood, or other suitable material, and suspended or
40 held grasped at its edges in any usual way within the casing inclosing the same. At or near the center of this diaphragm is secured a button or electrode, *a*, by preference in the form of a flat cylinder, and attached to the
45 diaphragm as shown—that is, by a pin or bolt, *a'*, passing through its center into a nut or button upon the opposite side of the diaphragm, or a small flanged hub, which projects through

or partly through a perforation in the diaphragm—this construction adapting the cylindrical electrode *a* to be revolved or turned on its own axis when being adjusted for a purpose hereinafter set forth. To the diaphragm is also secured a U-shaped bracket or standard, D, the arms of which are provided at their outer ends with threaded perforations *d d'*, for the reception of screws *d² d³*, which pass through them and are sharpened at their ends or pointed, as shown, to serve as pivotal points for suspending between them a suitable arm
50 or lever, C E E', which will now be described. This arm or lever is composed of three portions, C, E, and E', by preference radiating from a hub, D', which is adapted to rotate freely, being held suspended between the pivotal points or adjustable screws *d² d³*, above
55 referred to, thus adapting the radiating arms C, E, and E' to vibrate with great ease. The arm C, at its outer swinging end, is provided with an enlargement, C', which is perforated for the reception of a carbon point or electrode,
60 B, the arm C being of such length that the said carbon point, when in proper working relation to the carbon button or electrode *a*, hereinbefore referred to, will rest lightly in contact therewith. The electrode B is adjustable
65 through the perforation in the enlargement C' of arm C, and when adjusted as desired can be held securely in place by means of a set-screw, *c²*, or equivalent. The other arms, E and E',
70 are provided with a screw-thread, as shown, extending their entire length, and weights or heavy nuts *c* and *c'* work thereon, and are adjustable toward and away from the hub D', serving as counter-weights for the purpose of
75 balancing the arm C, containing the electrode B, and thereby adapting the latter to be adjusted relatively to the carbon button or electrode *a* with great accuracy.

It will be obvious that one or more than two
80 arms, E E', containing weights *c c'*, may be employed for the purpose of balancing the arm C, and the electrode B attached thereto, without departing from my invention, an arrangement including two sets being represented
85 in Fig. 3. By attaching to the diaphragm

A a number of these electrode-balancers—for instance, four—and arranging them in a circle, so that the pivoted arms C will radiate from a common center and the carbon pencils or electrodes B B all rest in slight contact with the adjustable carbon button *a*, located at the common center, a transmitter of greatly-increased sensitiveness, and one which will be found very effective in practice, will be produced. As the surface of the electrode *a* becomes roughened by the action of the other electrode, B, upon it, it may be partially revolved, as before stated, thus bringing a new contact-point under each of the electrodes or carbon-points B B, which arrangement will be found very desirable.

The electrodes *a* and B may be connected with the coil and battery in any well-known or usual manner.

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

1. In a telephone-transmitter, the combination, with the diaphragm thereof, of the flat cylinder *a*, of carbon, secured to a flanged hub projecting through a perforation in the diaphragm, whereby the said carbon cylinder is adapted to be revolved or adjusted, for the purposes and substantially as described.

2. In a telephone-transmitter, the combination, with the diaphragm thereof, carrying the electrode *a*, adjustable as and for the purpose described, of a pencil, B, balanced in contact with electrode *a* by means of the arms

E, E', and C, secured to the hub D', pivoted within a standard, D, secured to the diaphragm, the arms E E' being provided with adjustable weights or counterbalances for regulating and adjusting the pencil B relatively to the electrode *a*, substantially as described.

3. In a telephone-transmitter, the combination, with the diaphragm thereof, of a pencil-electrode, B, balanced in delicate contact therewith by means of an arm, C, and the arms E E', carrying the weights *c c'*, all of said arms C, E, and E' radiating from a common hub, D', pivoted between the arms of a standard-bracket, D, secured to the said diaphragm, the said weights *c c'* being adjustable lengthwise of the arms E E' for varying the amount of pressure of the pencil B upon the electrode *a*, substantially as specified.

4. In a telephone-transmitter, the combination of a pencil-electrode, B, adjustable relatively to the diaphragm, in combination with pivoted arms C E E', provided with adjustable weights *c c'*, the arms E E' and weights *c c'* being so arranged that the pencil-electrode B may be balanced in contact with electrode *a* whatever may be the position or inclination of the diaphragm A.

In testimony whereof I have hereunto set my hand this 23d day of November, A. D. 1883.

HENRY E. WAITE.

Witnesses:

E. L. WHITE,
REX. M. SMITH.