

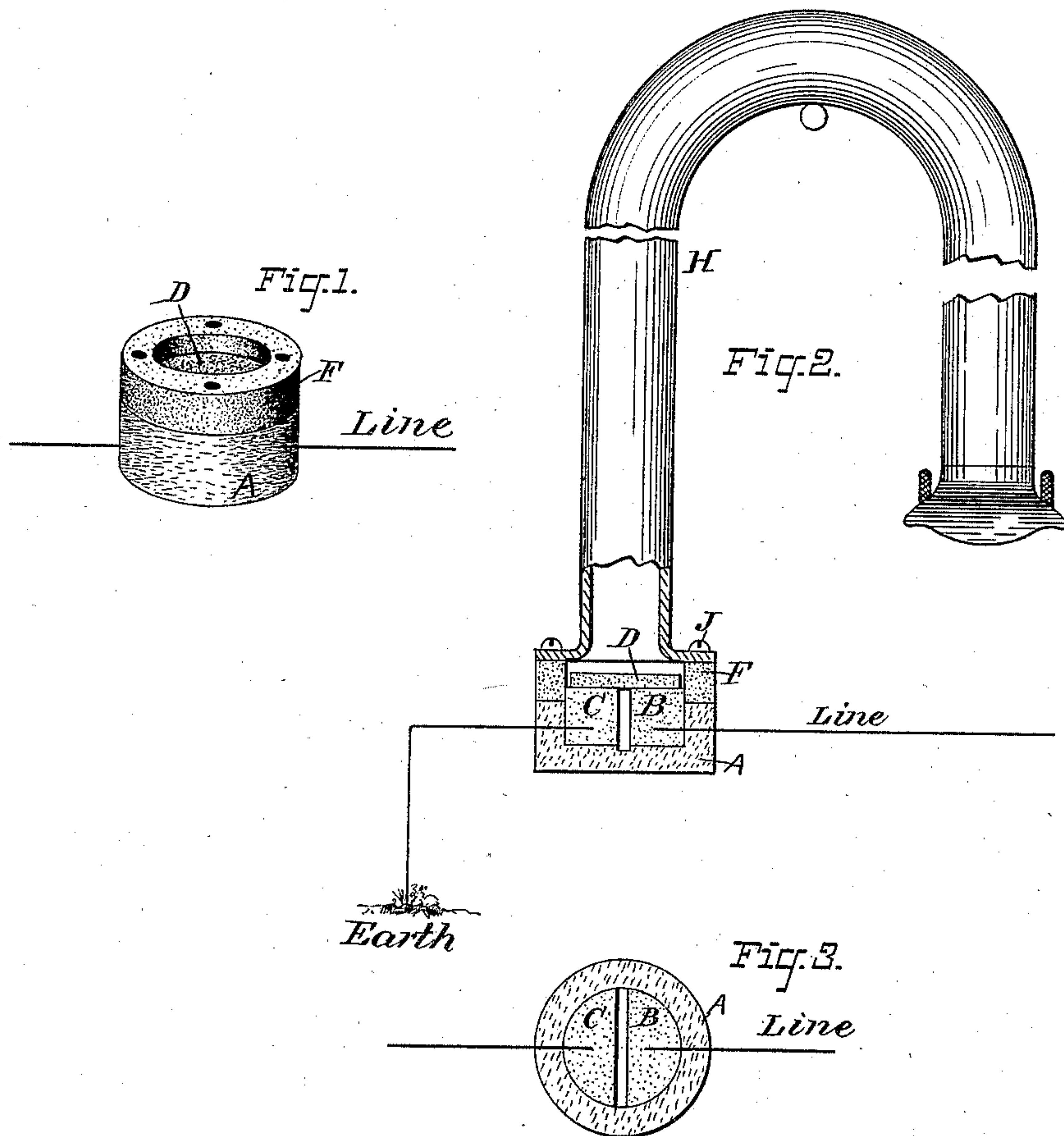
(No Model.)

H. ALABASTER & T. E. GATEHOUSE.

TELEPHONE TRANSMITTER.

No. 335,791.

Patented Feb. 9, 1886.



ATTEST:

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UNITED STATES PATENT OFFICE.

HENRY ALABASTER AND TOM ERNEST GATEHOUSE, OF LONDON,
ENGLAND.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 335,791, dated February 9, 1886.

Application filed May 14, 1885. Serial No. 165,427. (No model.) Patented in England January 11, 1883, No. 179, and in France July 10, 1883, No. 156,510.

To all whom it may concern:

Be it known that we, HENRY ALABASTER and TOM ERNEST GATEHOUSE, subjects of the Queen of Great Britain, and residents of London, England, have invented certain new and useful Improvements in Telephone-Transmitters, (patented also in England January 11, 1883, No. 179, and in France July 10, 1883, No. 156,510,) of which the following is a specification.

Our invention relates to improvements in telephone-transmitters, but more particularly to that part of the transmitter which has come to be called the "tension-regulator."

The object of the invention is to provide a tension-regulator for telephone-transmitters which is more sensitive to the vibrations of acoustic impulses than those heretofore invented.

Heretofore tension-regulators in telephone-transmitters have consisted of two or more pieces of carbon in contact with one another. The surfaces of contact have been made smooth, in order to increase the efficiency. In order to maintain the electrodes in contact, they have been so arranged that one will bear upon the other by its own weight, or by a spring, or by a brace or prop, or by levers and springs. When subjected to the influence of air-vibrations, or to any form of acoustic impulses, the resistance of the circuit is increased and diminished alternately in such a manner as to produce an undulatory current. This undulatory current should be as nearly as possible in unison as regards the number and amplitude of vibrations with the acoustic impulses. It is evident that the production of the undulatory current depends upon the nature of the tension-regulator. More than this, it depends more particularly upon the nature of the contact-surfaces of the carbon electrodes.

Our invention consists in such a construction that the surfaces of the electrodes are held in the proper position in a superior manner.

In order that our invention may be clearly and practically understood, the accompanying drawings are added in order to show the

transmitter which is best adapted to embody the present invention.

Figure 1 is a general outside view of the transmitter. Figs. 2 and 3 are sectional views, with a mouth-piece attached in Fig. 2.

A is an insulating-base, preferably of hardened plaster, into which are buried the two electrodes B and C, of carbon, whose upper surfaces are preferably smooth to the point of polish. The upper surfaces of C and B, or those surfaces in contact with D, are also smooth to the point of polish.

An annular piece, F, is attached to the upper part of A by means of cement or otherwise, so that the carbon disk D, being little smaller in diameter than the inner diameter of the annulus F, rests upon the electrodes B and C with a force greater than its own weight, the extra force being that of cohesion. The piece F is of insulating material, preferably of hard rubber. To the top surface of the annulus F is secured the mouth-piece H by screws J.

The operation is as follows: The current passes through the two electrodes by way of the contact-surfaces between the carbon disk D and the said electrodes. When the tube H conveys acoustic impulses or vibrations, the disk D is pressed alternately with a strong and a weak force against the electrodes, and yet it is always in contact with the electrodes at each point, because there is not a layer of air between them, as would be the case if the force of cohesion were not perceptible.

The force of cohesion varies inversely as the square of the distance, and within limits which may be defined thus: between actual contact of the surfaces at theoretically every point and contact of the surfaces at practically every point. Within these limits the force of cohesion acts, and within these limits the vibrations due to acoustic impulses occur.

We claim—

In a telephone-transmitter, the combination of the following elements: the two carbon electrodes B and C, buried in the insulating substance A, the carbon bridge D, rest-

ing upon both electrodes, the surfaces of contact between the electrodes and bridge being plane and smooth to the point of polish, and the ring F, secured to A, and surrounding the
5 bridge D, substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in

presence of two witnesses, this 18th day of March, 1885.

HENRY ALABASTER.

TOM ERNEST GATEHOUSE.

Witnesses:

SAM P. WILDING,

JOHN C. FALL.