

(No Model.)

A. STROMBERG & A. CARLSON.  
TELEPHONE TRANSMITTER.

No. 580,434.

Patented Apr. 13, 1897.

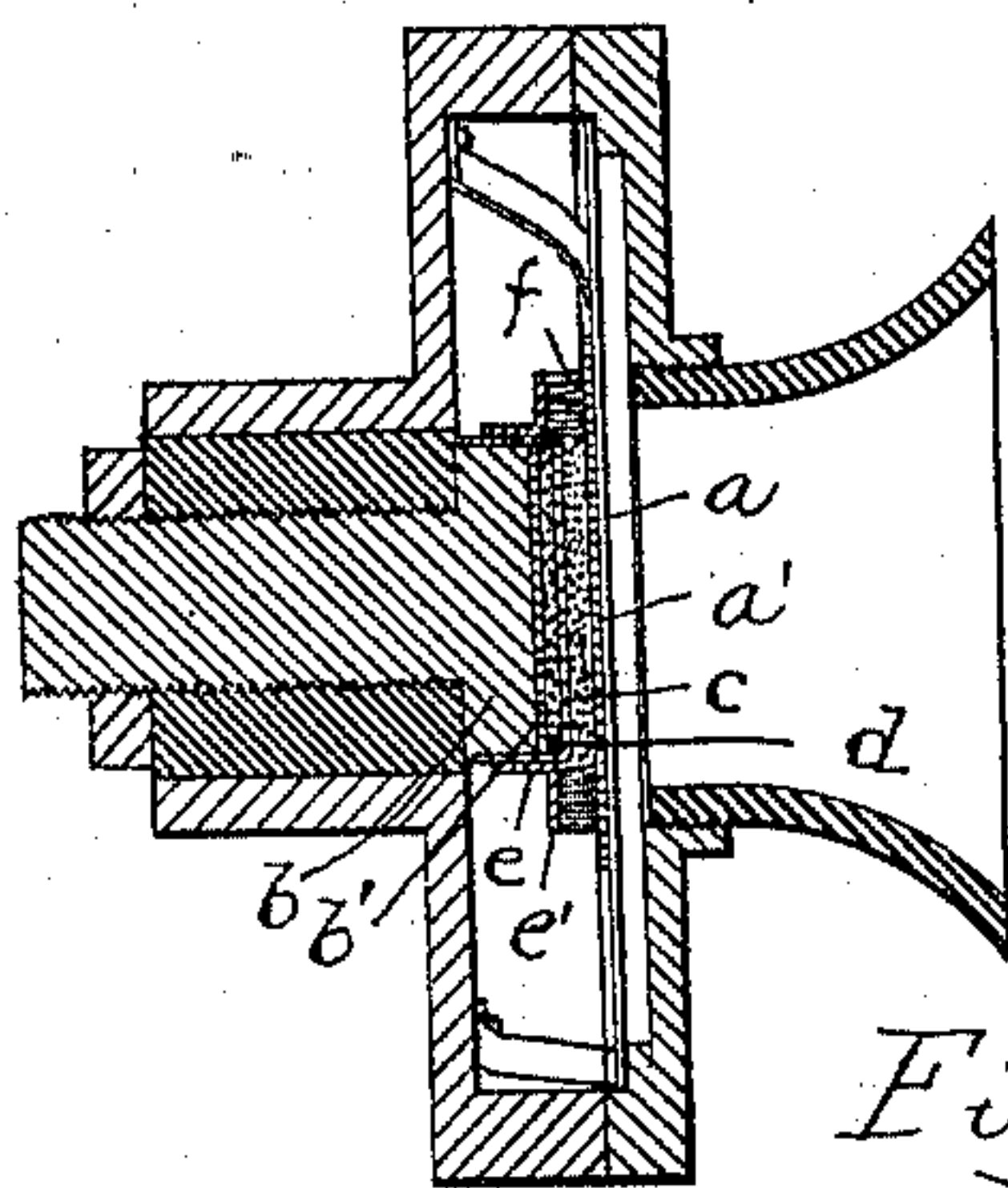


Fig. 1.

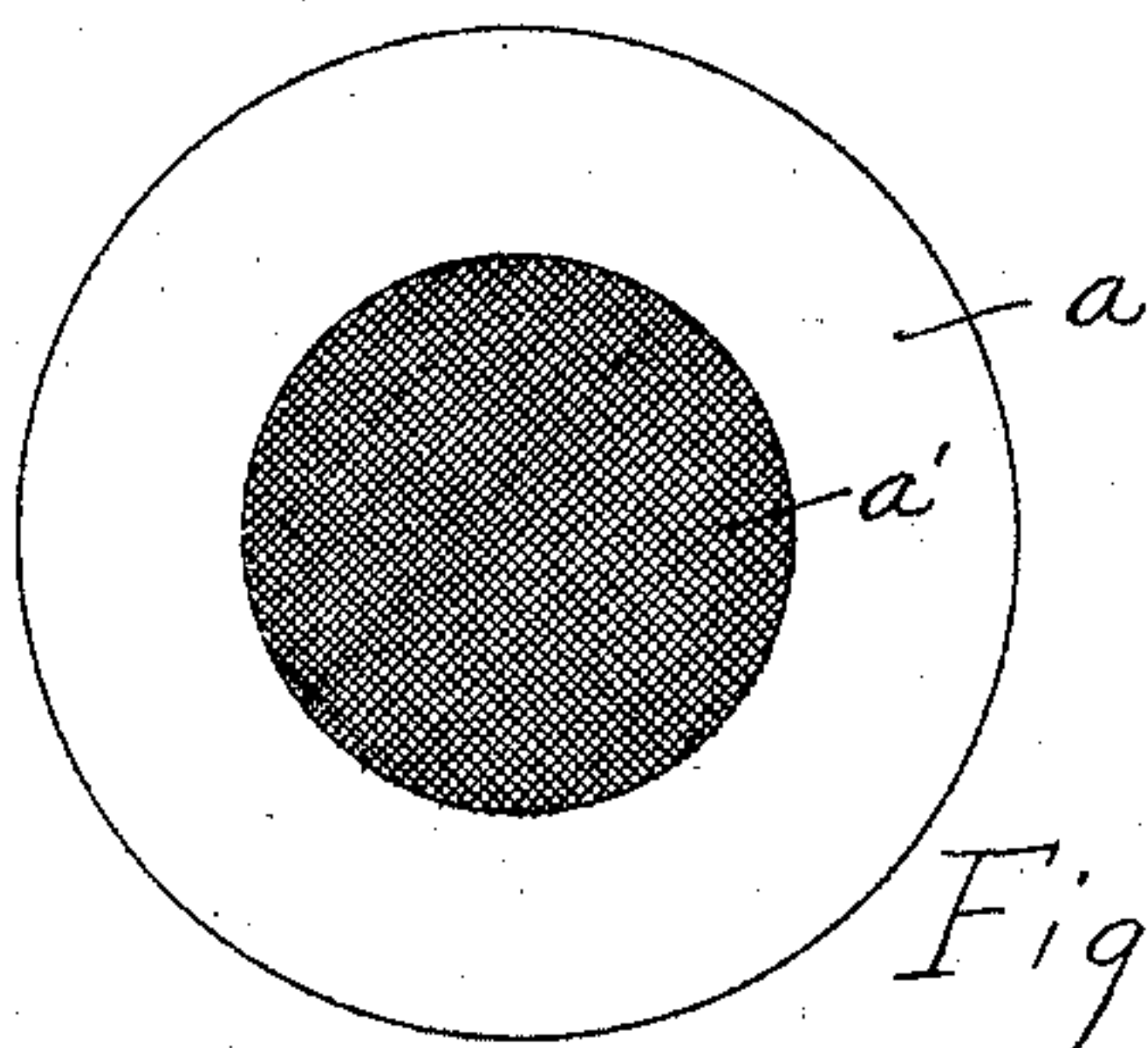
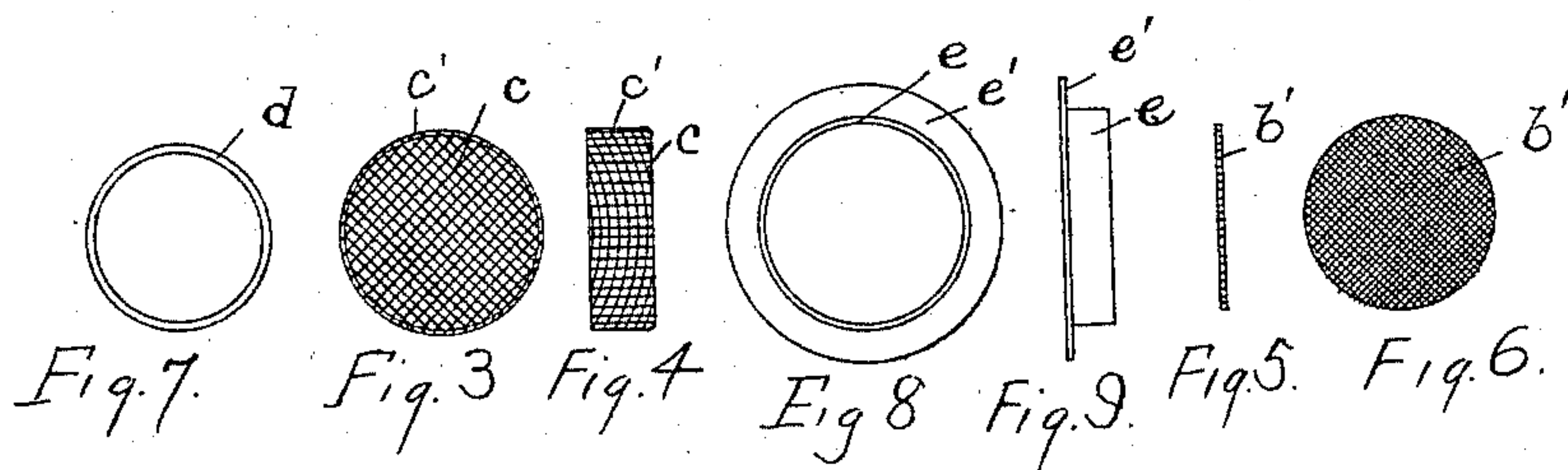


Fig. 2.

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# UNITED STATES PATENT OFFICE.

ALFRED STROMBERG AND ANDROV CARLSON, OF CHICAGO, ILLINOIS.

## TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 580,434, dated April 13, 1897.

Application filed November 9, 1896. Serial No. 611,482. (No model.)

*To all whom it may concern:*

Be it known that we, ALFRED STROMBERG and ANDROV CARLSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Telephone-Transmitters, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to a telephone-transmitter, our object being to provide an improved form of transmitter of the granular-carbon type which can be manufactured at small cost and which will effectively maintain the granular carbon in a separated and sensitive condition.

In accordance with our invention we mount upon the rear face of the diaphragm a sheet containing fine openings or meshes, preferably wire-gauze, against which the granular carbon rests and by means of which it is separated and kept in a divided condition. Likewise upon the stationary electrode is provided a sheet of gauze against which the granular carbon rests. In an intermediate position between the two sheets of gauze above mentioned is placed a gauze sheet the openings in which are quite coarse, permitting the passage of the granules of carbon, thus constantly agitating the granules as the diaphragm vibrates to prevent packing and to maintain the granules in a separated and highly-sensitive condition.

We have illustrated our invention in the accompanying drawings, in which—

Figure 1 is a sectional view of the transmitter. Fig. 2 is a view of the diaphragm. Figs. 3 and 4 are views of the coarse-mesh gauze. Figs. 5 and 6 are views of the sheet of gauze mounted upon the stationary electrode. Fig. 7 is a view of the separating-ring. Figs. 8 and 9 are views of the ring which holds the gauze in place.

Like letters refer to like parts in the several figures.

Upon the rear face of the diaphragm *a* is mounted the sheet *a'* of wire-gauze or similar material provided with fine meshes or openings. Against the face of the stationary electrode *b* rests a sheet *b'* of wire-gauze having fine meshes, and in front of the sheet *b'*

rests the sheet *c* of wire-gauze having meshes of considerable size to permit the passage of the granules of carbon through the openings. Between the sheets *b'* and *c* is interposed a ring *d*, and the sheet *c* is provided with a rim *c'*, which fits over the electrode *b* and is surrounded by a ring *e*, which clamps the rim of the sheet *c* in position. The ring *e* carries a flange *e'*, upon which is mounted a ring *f* of plush, the soft fibers of which rest against the sheet of gauze *a'* upon the diaphragm and prevent the escape of the carbon granules. The carbon granules rest against the sheets of fine gauze upon the diaphragm and the stationary electrode, and the irregularities of the surfaces agitate the granules as the diaphragm is vibrated, thus preventing the granules from packing and maintaining the same in a highly-sensitive condition. As the diaphragm vibrates the granules are caused to pass through the coarse openings of the sheet *c*, thus further assisting in dividing the granules and preventing packing. The sheets *a'* and *c* are electrically connected with the stationary electrode, while the sheet *b'* is electrically connected with the diaphragm, and as the granules are forced against the gauze sheets a more perfect electrical contact is secured than when pressed against a flat surface.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a telephone-transmitter, the combination with the diaphragm, of the sheet of gauze mounted upon the rear face thereof the stationary electrode, the sheet of gauze mounted upon the face thereof, the sheet of coarse gauze, the ring separating the same from the sheet mounted upon the electrode, said sheet of coarse gauze having a rim encircling said electrode, a ring clamping said rim to the electrode and provided with a flange, and a ring of plush, or similar material between said flange and the diaphragm, substantially as described.

2. In a telephone-transmitter, the combination with a diaphragm, of a sheet of wire-gauze mounted upon the rear face thereof, and granular carbon resting in contact with said gauze whereby the granules engaging the meshes of the gauze effect a good electrical



contact, and the gauze agitates the granules to prevent packing, substantially as described.

3. In a telephone-transmitter, the combination with a diaphragm of a sheet of wire-gauze mounted upon the rear face thereof, a sheet of wire-gauze mounted opposite the sheet of gauze upon said diaphragm, and granular carbon between said sheets of gauze, substantially as described.

4. In a telephone-transmitter, the combination with a diaphragm, of a sheet of wire-gauze mounted upon the rear face thereof, a stationary sheet of wire-gauze, granular carbon between said sheets, and a sheet of wire-gauze having coarse meshes and situated between said first-mentioned sheets, substantially as and for the purpose set forth.

5. In a telephone-transmitter, the combination with a diaphragm, of a sheet of conducting material provided with fine openings or meshes mounted upon the rear face thereof, and granular carbon resting in contact with said sheet whereby the granules engage the meshes of the sheet to effect a good electric contact and the granules are agitated to prevent packing, substantially as described.

6. In a telephone-transmitter, the combi-

nation with a diaphragm, of a sheet of conducting material provided with fine openings or meshes mounted upon the rear face thereof, a sheet of conducting material provided with fine openings or meshes mounted opposite the sheet upon said diaphragm, and granular carbon between said sheets, whereby the granules are agitated to prevent packing, substantially as described.

7. In a telephone-transmitter, the combination with a diaphragm, of a sheet of conducting material provided with fine openings or meshes mounted upon the rear face thereof, a stationary sheet of conducting material provided with fine openings or meshes, granular carbon between said sheets, and a sheet of material having openings or meshes and situated between said first-mentioned sheets, substantially as described.

In witness whereof we have hereunto subscribed our names in the presence of two witnesses.

ALFRED STROMBERG.  
ANDROV CARLSON.

Witnesses:

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