

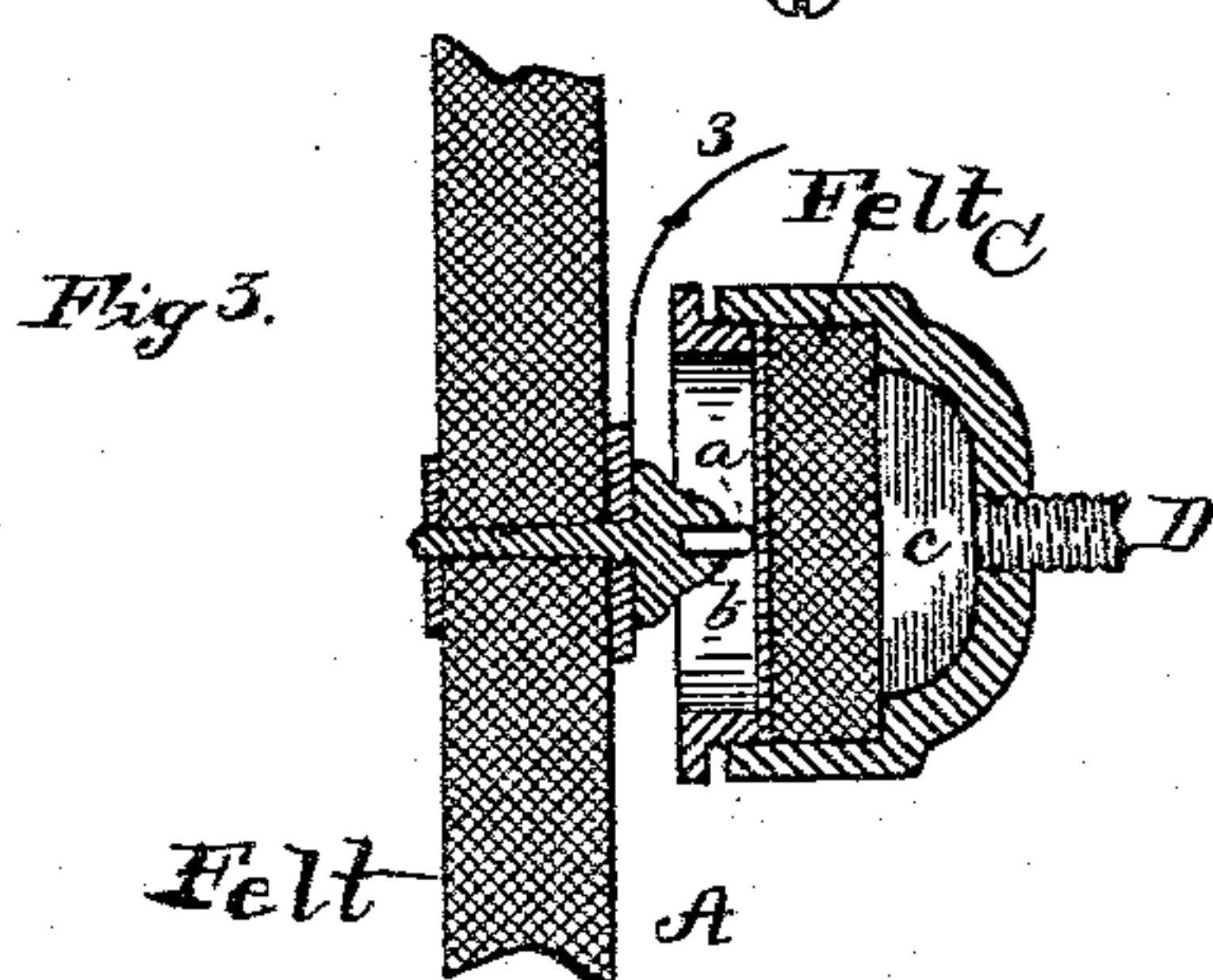
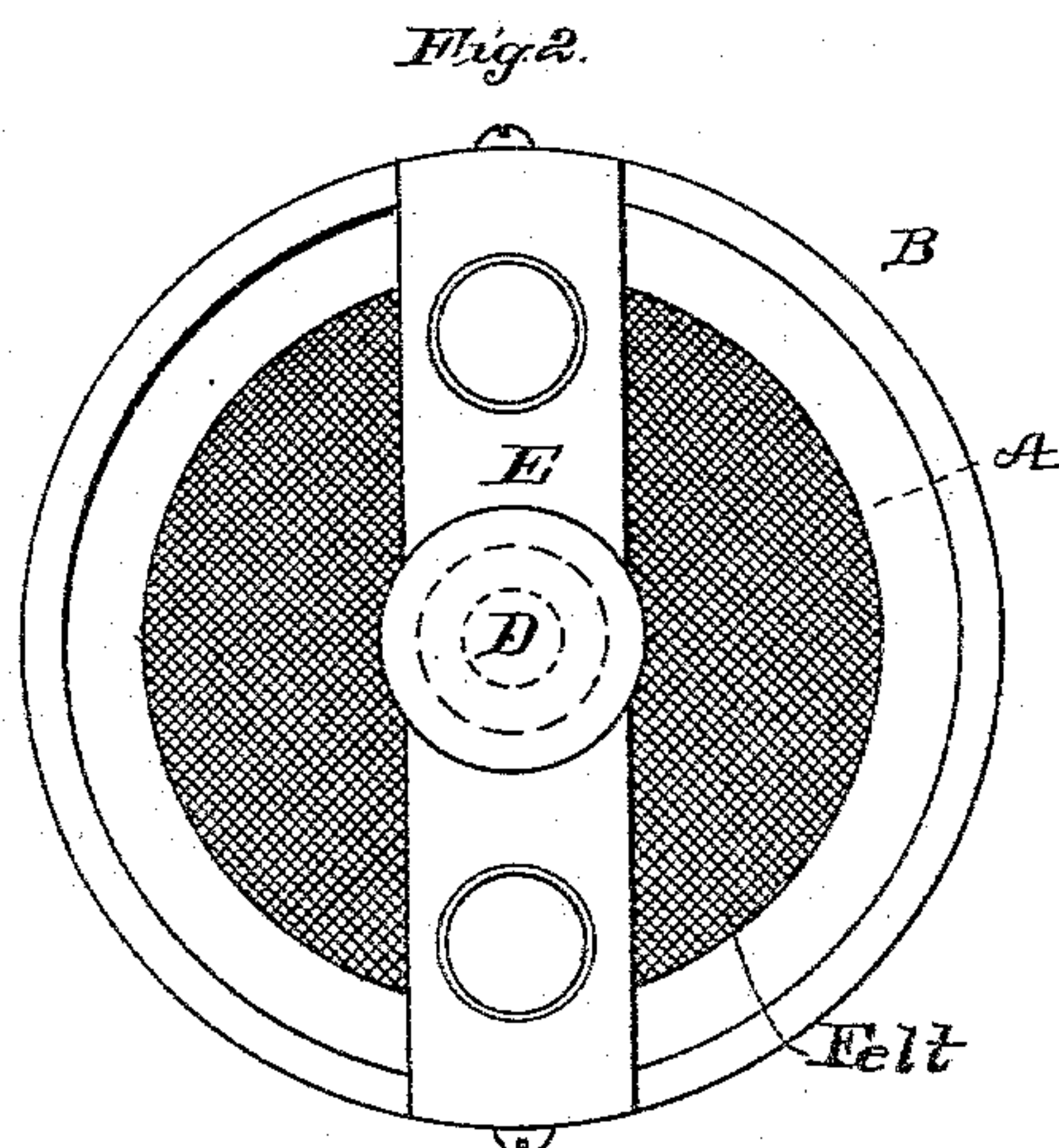
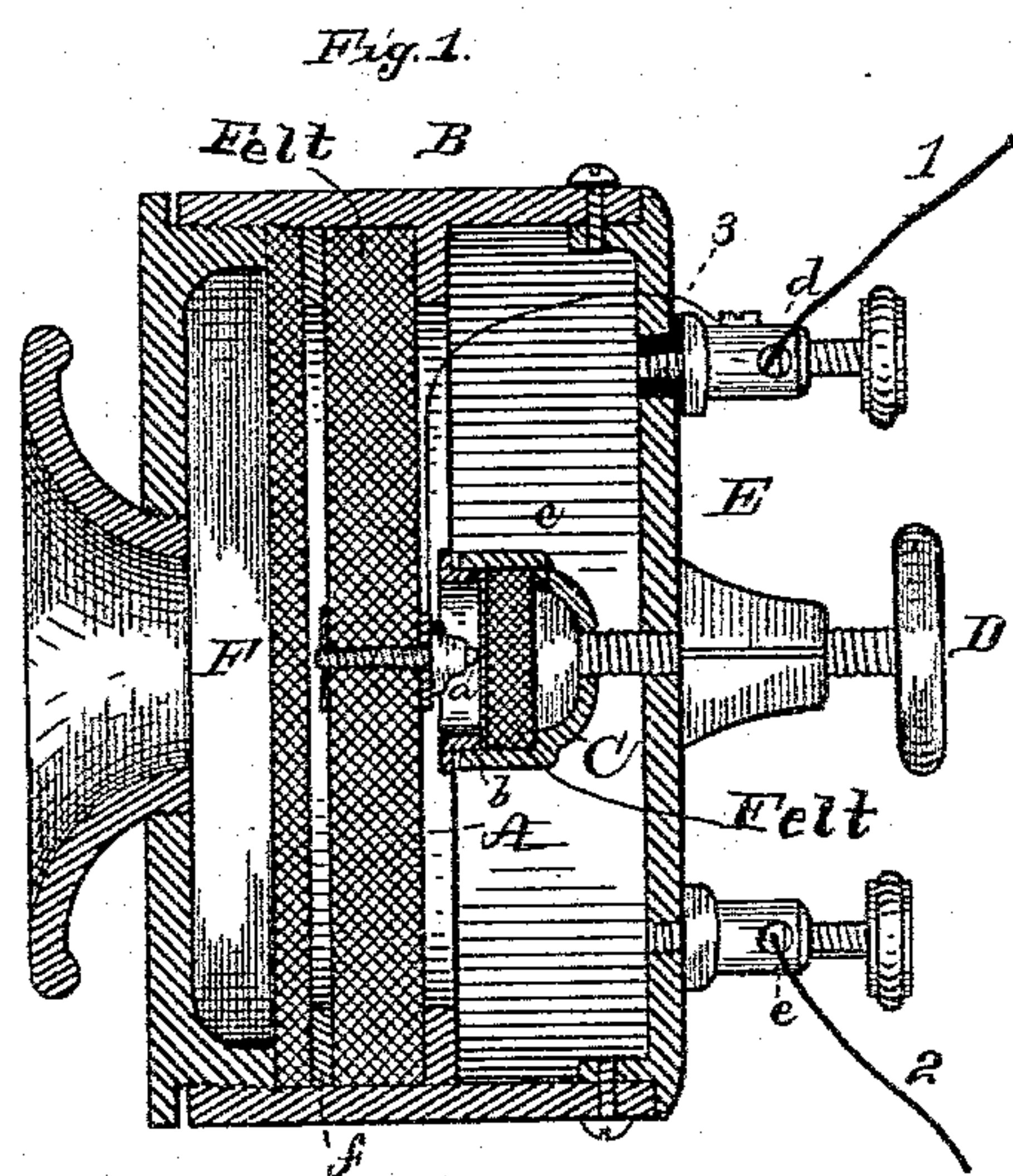
(Model.)

E. H. JOHNSON.

TELEPHONE.

No. 356,688.

Patented Jan. 25, 1887.



ATTEST:

E. C. Rowland
H. W. Lacey

INVENTOR:

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UNITED STATES PATENT OFFICE.

EDWARD H. JOHNSON, OF NEW YORK, N. Y.

TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 356,688, dated January 25, 1887.

Application filed November 15, 1883. Serial No. 111,817. (Model.)

To all whom it may concern:

Be it known that I, EDWARD H. JOHNSON, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in Telephones, of which the following is a specification.

The object I have in view is to produce a telephone by which articulate speech can be transmitted practically and successfully by means of electrodes of platinum or other metals.

In carrying out my invention I make use of a diaphragm composed of felt or an equivalent material, which controls the movement of one of the electrodes, and, having but little capability of vibration, prevents such electrode from ever moving so far as to so separate the electrodes that they cannot quickly return to their normal position of contact, so that all the sound-vibrations are responded to from the normal position of the electrodes.

My invention consists, principally, in the use of such a diaphragm for the sound-receiving device of a telephone-transmitter. One contact of the telephone is carried by the peculiar diaphragm, while the other I have found it best to mount upon a yielding surface of the same nature as the diaphragm. This back contact or electrode is made adjustable by means of a screw or otherwise, and by reason of its peculiar nature the limits of adjustment of the instrument are greatly increased. The back contact is preferably a piece of platinum foil carried by the yielding surface; but it may be a hard point of platinum secured to the foil or placed directly on the yielding support. To prevent bad effects from the "air-rushes" produced in talking, I employ a second or auxiliary diaphragm, like the first or main diaphragm, but separated from it by an air-space. These specific features also form part of the invention.

In the accompanying drawings, forming a part hereof, Figure 1 is a sectional view of a telephone embodying my invention; Fig. 2, an elevation from the rear of the same, and Fig. 3 an enlarged sectional view of the contacts or electrodes of the telephone and the parts carrying them.

Like letters denote corresponding parts in all three figures.

A is a diaphragm of felt or equivalent material—such as a number of thicknesses of some textile fabric secured together. This diaphragm is clamped at its periphery in a suitable case or shell, B. It carries a contact-point or electrode, *a*, secured to its center, and this bears upon a back contact, *b*, which is a disk of yielding platinum foil clamped against a small diaphragm, *c*, of felt or equivalent material, secured in a cup, C. This cup is carried by the end of a screw, D, passing through a bridge-piece, E, and by adjusting the screw the adjustment of the instrument is accomplished.

The bridge-piece E carries two binding-posts, *d e*, the post *d* being insulated, and the circuit-connections 1 2 run to these posts.

A fine-wire connection, 3, is made from the contact *a* on the diaphragm A to the insulated binding-post *d*.

An auxiliary diaphragm, F, is preferably employed. This is also of felt or equivalent material, and is separated from the diaphragm A by an air-space formed by the separating-ring *f*. This auxiliary diaphragm, as before stated, is used to prevent bad effect from the air-rushes produced in speaking into the instrument.

I am aware that it has been proposed to use a felt diaphragm in an acoustic telephone; but such a telephone having no electrodes, the peculiar advantages hereinbefore stated arising from the combination of such a diaphragm with electrodes is not attained.

What I claim is—

1. In an electric-telephone transmitter, a sound-receiving device or diaphragm composed of felt or equivalent material, in combination with an electrode or contact-point controlled thereby, substantially as set forth.

2. In a telephone-transmitter, the combination, with a diaphragm or sound-receiver and an electrode carried thereby, of another electrode separately supported upon a backing of felt or equivalent material, substantially as set forth.

3. In a telephone-transmitter, the combination, with the diaphragm of felt or equivalent material and the front electrode carried thereby, of the back electrode supported by felt or equivalent material, substantially as set forth.

4. In a telephone, the combination, with a diaphragm of felt or equivalent material, of an auxiliary diaphragm, substantially as set forth.
- 5 5. In a telephone, the combination of main and auxiliary diaphragms, both of felt or equivalent material, substantially as set forth.

This specification signed and witnessed this 13th day of November, 1883.

EDWARD H. JOHNSON.

Witnesses:

WM. H. MEADOWCROFT,
H. W. SEELY.