(No Model.)

D. A. FLEMING.

TELEPHONE TRANSMITTER.

No. 596,808. Patented Jan. 4, 1898.

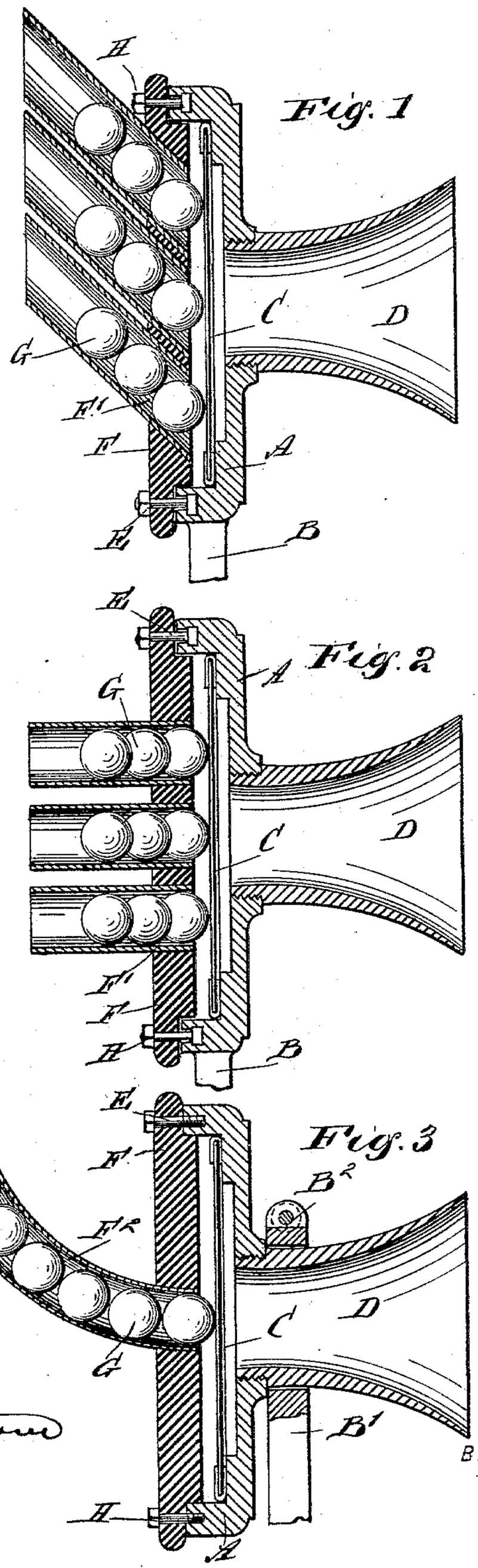

Fig. 1

Fig. 2

Fig. 3

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TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 596,808, dated January 4, 1898.

Application filed April 12, 1897. Serial No. 631,722. (No model.)

To all whom it may concern:

Be it known that I, DAVID A. FLEMING, of Indiana, in the county of Indiana and State of Pennsylvania, have invented new and useful Improvements in Telephone-Transmitters, of which the following is a full, clear, and exact description.

My invention relates to telephone-transmitters, and has for its object to provide a construction in which the pressure upon the diaphragm and the distinctness of transmission may be readily regulated with great nicety.

To this end I combine with the transmitter and its diaphragm a particular novel pressure device or tension device, the construction of which will be fully described hereinafter. The novel features of the invention will be pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of a telephone-transmitter constructed according to my invention. Fig. 2 is a like view of the same, showing the parts in a different position to produce a different tension; and Fig. 3 is a view corresponding to Fig. 1 of another construction embodying my improvements.

As illustrated in Figs. 1 and 2, the stationary portion of the transmitter consists of the shell A, which is secured to the casing or other fixed support B and contains the diaphragm C. The shell A also carries the mouthpiece D. These parts may be constructed substantially like those in ordinary transmitters.

The shell A has a circular groove in which are adapted to move the heads of screws E or the like, it being understood that the outer portion of said groove, which receives the shanks of the screws, is narrower than the inner portion, so that the screws cannot become separated from the shell A. The screws carry a rotatable back F, which may be made of carbon, and is provided with channels F′, inclined relatively to the axis of rotation. The inclined channels F′ may be formed directly in the back plate F, or separate inclined tubes may be used, as shown, said tubes being preferably made of copper or the like, and when such tubes are used the back plate need not be made of conducting material. The inclined channels F′ contain carbon balls G, adapted to engage the diaphragm C. Nuts H serve to secure the back plate F after it has been turned to the position with which the best results are obtained.

The operation of my improved transmitter will be substantially the same as that of other transmitters in which balls of carbon or like material are used. It has, however, the advantage of ready adjustment, as will be obvious from the following explanation: Assuming that the channels F′ are inclined at an angle of forty-five degrees to the axis of rotation and that said axis is horizontal, as shown, it will be obvious that the balls G will exert the greatest pressure upon the diaphragm C when the back F is turned, so as to bring the channels into the position shown in Fig. 1, where they assume the greatest possible inclination relatively to a horizontal plane—viz., forty-five degrees. By turning the back F one-quarter revolution either way the channels will be brought to a horizontal position, as shown in Fig. 2, in which case the pressure of the balls G upon the diaphragm C will be reduced to naught. It will be obvious that by adjusting the channels to an intermediate position any degree of pressure between the above-mentioned maximum and minimum can be obtained. The advantage of this construction will be obvious. After adjustment the back F is clamped in position by means of the screws E and the nuts H. It will be obvious from the above explanation that it is not necessary to provide for a complete rotation of the back F about its axis, as one-quarter revolution will yield the same variety of adjustments. Where a smaller range of adjustment is considered sufficient, even less than one-fourth of a revolution will do. The groove receiving the heads of the screws E therefore need not be continuous, but may extend only through the arc of a circle.

One inclined ball-holding channel, preferably registering with the center of the diaphragm C, may be sufficient to obtain good results. In Fig. 3 I have shown such a central channel F^2, consisting of a curved copper tube inclined relatively to its axis of ro-

tation. The adjustment might be made by simply turning the tube in its socket with identical results to those hereinbefore described, or, as shown, the tube F^2, back F, shell A, with diaphragm C, and mouthpiece D may be constructed to turn in unison in the support B′, which may be provided with a clamp B^2 to hold the parts stationary after adjustment.

It will be seen that the common feature of all the constructions described is the tube or channel mounted to turn and inclined relatively to the axis about which it turns. By "tube" I do not necessarily mean an elongated body with comparatively thin walls, since, as above described, the inclined channels may be provided directly in the back F.

Instead of using only carbon balls G, I may employ a ball of metal or other heavy material as the last of the series of balls, so that the same pressure on the diaphragm may be obtained with a smaller number of balls.

It will be understood that the diaphragm-fastening is entirely independent of the rotary ball tube or channel, so that the turning of said tube does not in any way tighten or loosen the diaphragm, and thus the ball-channel can be adjusted without affecting the fastening of the diaphragm.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A telephone-transmitter, having a diaphragm, a tube or channel mounted to turn adjacent to the diaphragm and inclined relatively to the axis of rotation, the tube being mounted to turn without affecting the fastening of the diaphragm, and loose conducting material, such as balls, in said channel and engaging the diaphragm, substantially as described.

2. A telephone-transmitter having a diaphragm, a fastening device for the diaphragm, a tube or channel mounted to turn adjacent to the diaphragm without affecting the relation of the fastening device to the diaphragm, said channel being inclined relatively to its axis of rotation, and loose conducting material, such as balls, located in said channel and engaging the diaphragm, substantially as described.

3. A telephone-transmitter, provided with a stationary part forming a bearing, a movable part mounted to turn in said bearing, the movable part having a channel inclined relatively to the axis of rotation and arranged adjacent to the diaphragm, balls or the like in said channel and a clamping device for holding the movable part stationary in any one of the several positions it can take relatively to said bearing, substantially as described.

4. A telephone-transmitter provided with a curved tube or channel open toward the diaphragm and mounted to turn, balls or the like, arranged in said channel, the latter being inclined relatively to the axis of rotation, substantially as described.

5. A telephone-transmitter, provided with a stationary support forming a bearing, and a movable part mounted to turn in said bearing, the said movable part comprising the mouthpiece, shell, diaphragm, a back provided with a channel open to the diaphragm and inclined relatively to the axis of rotation, and loose conducting material, such as balls, located in said channel, substantially as described.

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