No. 668,702. Patented Feb. 26, 1901.

D. H. WILSON.

TELEPHONE TRANSMITTER.

(Application filed Apr. 29, 1899.)

(No Model.)

Fig. 1.

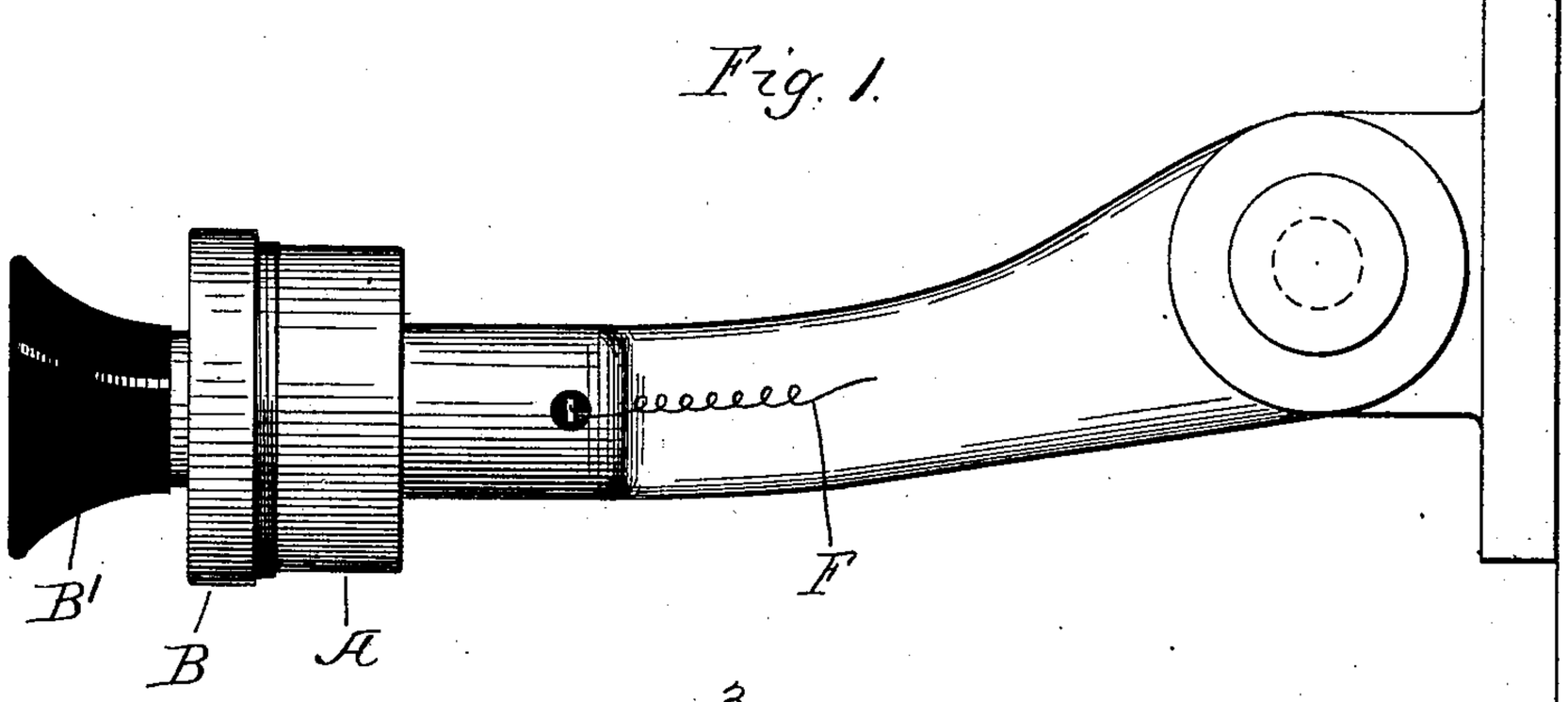


Fig. 2.

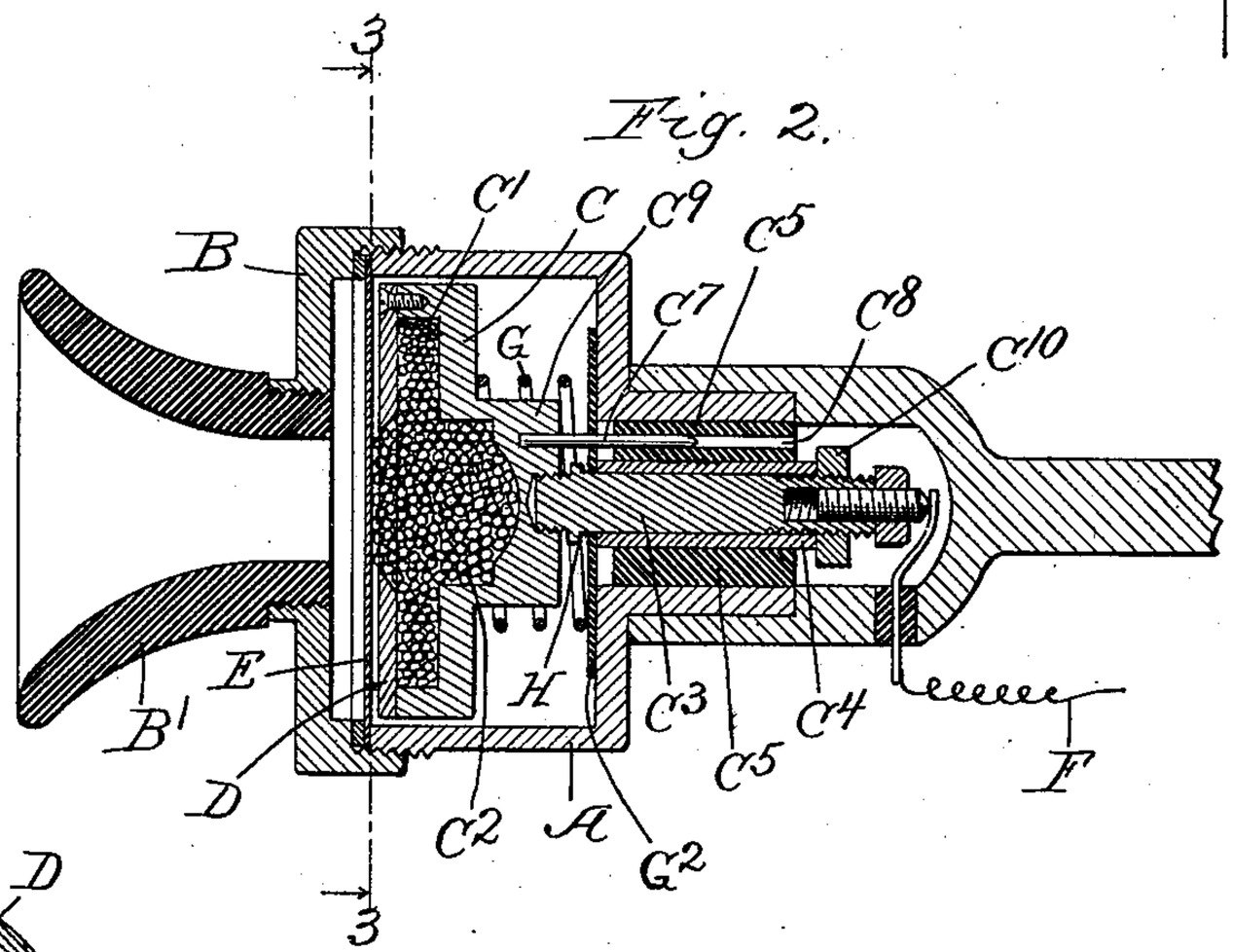
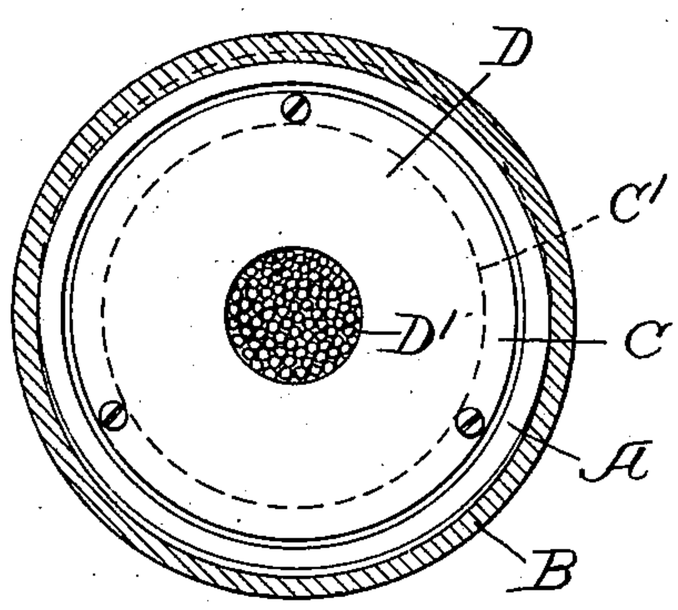


Fig. 3.



Witnesses.
Edward T. Wray.
Donald M. Carter.

Inventor.
David H. Wilson

UNITED STATES PATENT OFFICE.

DAVID H. WILSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAY MORTON, OF SAME PLACE.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 668,702, dated February 26, 1901.

Application filed April 29, 1899. Serial No. 714,940. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. WILSON, a citizen 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 specification.

My invention relates to telephone-transmitters, and has for its object to provide a new and improved transmitter of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of a transmitter embodying my invention, the transmitter being attached to a movable arm. Fig. 2 is a section through the transmitter. Fig. 3 is a section on line 3 3, Fig. 2.

Like letters refer to like parts throughout the several figures.

Referring now to the drawings, a suitable outer cup or holder A is provided with a cap B, to which is attached the mouthpiece B′. Contained within the outer holder is a carbon-holder C, filled with granulated carbon. This carbon-holder has an enlarged opening C′ for receiving the carbon, the holder being recessed at C^2, so as to make the carbon-opening deeper at this point. The carbon-holder is provided with the projecting part C^3, which projects through the holder A, as shown, said projecting part working in the guide C^4, said guide being insulated from the holder A by the bushing C^5. The carbon-holder is also provided with means for preventing the rotation of the part C^3 in the guide C^4. In case the part C^3 is circular, some exterior means for this purpose must be used—as, for example, the pin C^7, attached to the carbon-holder and working in the opening C^8 in the insulating-bushing. Instead of leaving the carbon-cup open I provide a guard D therefor, which is attached to the cup in any desired manner and which is provided with a central opening D′. This opening is beveled, as shown in Fig. 2. Between the mouthpiece B′ and the guard D of the carbon-cup is a diaphragm E, of any desired conducting material—such as metal, carbon, and the like. I prefer to use a carbon diaphragm. This diaphragm does not make contact with the whole surface of the carbon granules in the cup, but only makes contact with those exposed through the opening D′ in the guard D. This contact with the carbon granules connects the diaphragm through the carbon-holder and the projecting part C^3 with the terminal F. The diaphragm is also in contact with the outer holder A, which forms the other terminal, by means of which the transmitter is connected in circuit. The carbon cup or holder C is not rigidly mounted in the part A, but is elastically mounted therein. This result is obtained by forming the parts so that the projecting part C^3 is free to reciprocate in the guide C^4. I provide the spring G, the rear portion of the carbon-holder being formed with a projection C^9, about which the spring G is coiled. An insulating-washer G^2 receives the lower end of the spring, so as to prevent said spring from making contact with the outer holder A. Some suitable means is provided for adjusting the carbon-holder with relation to the diaphragm. As herein shown, the projecting part C^3 is threaded at its end and is provided with the nut C^{10}, which engages the guide C^4. By rotating this nut in one direction the carbon-cup can be moved backward against the pressure of the spring G, while by rotating the nut in the other direction the spring pushes the carbon-cup forward.

It will thus be seen that any desired adjustment of the parts can be obtained and that during this adjustment there is no rotation of either the carbon-cup or the diaphragm, the adjustment being entirely produced by a reciprocation of the carbon-cup. This prevents the granules from becoming crushed or powdered, and thus obviates the many evil results due to the powdered carbon—such, for example, as the packing of the granules and the short-circuiting of the carbon-holder and the outer cup by the powdered carbon. The fact that the carbon-holder is elastically suspended also reduces the tendency of the carbon granules to pack and enables me to produce much better results than can be produced with the ordinary transmitter.

I have described in detail a particular construction embodying my invention; but it is of course evident that the parts may be varied

in form, construction, and arrangement without departing from the spirit of my invention, and I therefore do not wish to be limited to the construction shown.

In adjusting the transmitter it is very desirable to provide a construction which prevents the carbon-holder from being withdrawn far enough from the diaphragm during the adjustment to permit the carbon granules to escape from the carbon-holder, so as to fall between the diaphragm and the carbon-holder or the carbon-holder and the outer holder, thus short-circuiting the instrument. Any desired construction for this purpose may be used, and, as herein shown, I have provided a stop or limiting device H, attached to the projecting part C^3, said stop or limiting device engaging the insulating-washer G^2, so as to stop the backward movement of the carbon-holder before the space between the guard D and the diaphragm E is sufficient to permit the escape of the granules.

I claim—

1. A transmitter, comprising a carbon-holder formed with an opening of greater depth at the center than at the edges, a diaphragm mounted in proximity thereto, a guard between the carbon in the holder and the diaphragm, said guard provided with a central opening, through which the carbon is exposed so as to make contact with the diaphragm, said opening beveled from the face inwardly so as to vary in cross-section and being located opposite the deep part of the carbon-holder.

2. A transmitter, comprising a suitable diaphragm adapted to be set in vibration by the action of the voice, a carbon-holder mounted in proximity to said diaphragm, the parts so arranged that the resistance between the diaphragm and the carbon in said carbon-holder is varied as the diaphragm vibrates, said carbon-holder elastically mounted so as to be normally forced toward the diaphragm, a suitable stationary guide in which said carbon-holder is mounted and adapted to reciprocate, and means for reciprocating said carbon-holder so as to adjust the transmitter.

3. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, a spring normally tending to force said carbon-holder toward the diaphragm, and means for moving said carbon-holder with relation to said diaphragm to adjust the transmitter.

4. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, a spring normally tending to force said carbon-holder toward the diaphragm, a device for holding said carbon-holder so as to prevent rotation of the same, and means for reciprocating said carbon-holder so as to vary its position with relation to the diaphragm.

5. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, a spring normally tending to force said carbon-holder toward the diaphragm, means for moving said carbon-holder with relation to said diaphragm to adjust the transmitter, a guide by which said carbon-holder is supported, said guide connected with said outer holder, but insulated therefrom, a nut connected with said carbon-holder and adapted to bear against said guide so that the tension of the spring may be varied and the parts adjusted by rotating said nut.

6. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, said carbon-holder provided at its rear with a projection smaller in diameter than the main part of the holder, a spring interposed between the carbon-holder and the outer holder, said spring surrounding said projection, a projecting part connected with the carbon-holder, a guide connected with the outer holder, through which said projecting part extends, and means for reciprocating said projecting part so as to move the carbon-holder with relation to the diaphragm.

7. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, said carbon-holder provided at its rear with a projection smaller in diameter than the main part of the holder, a spring interposed between the carbon-holder and the outer holder, said spring surrounding said projection, a projecting part connected with the carbon-holder, a guide connected with the outer holder, through which said projecting part extends, means for reciprocating said projecting part so as to move the carbon-holder with relation to the diaphragm, and a device for preventing rotation of the carbon-holder while it is being moved.

8. A transmitter, comprising a carbon-holder, a diaphragm mounted in proximity thereto so as to engage the surface of the carbon in the carbon-holder, means for moving said carbon-holder and diaphragm with relation to each other so as to adjust the instrument, and a stop for limiting the relative movement between them before they are separated a sufficient amount to permit the escape of the carbon from the carbon-holder.

9. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder movably mounted in the outer holder and in proximity to the diaphragm, a guard associated with said carbon-holder and provided with a central opening through which the carbon is exposed and makes contact with the diaphragm, a spring normally tending to force the carbon-holder toward the diaphragm, and means for stopping the backward movement of the carbon-holder before said carbon-holder becomes separated from the dia-

phragm a sufficient amount to permit the carbon to pass between the diaphragm and the guard.

10. A transmitter, comprising an outer holder, a diaphragm mounted therein, a carbon-holder within said outer holder and in proximity to said diaphragm, a guard removably attached to the face of said carbon-holder and provided with a central opening, a spring associated with said carbon-holder and tending to force it bodily toward said diaphragm, and means for moving said carbon-holder against the pressure of said spring, substantially as described.

DAVID H. WILSON.

Witnesses:
DONALD M. CARTER,
HOMER L. KRAFT.