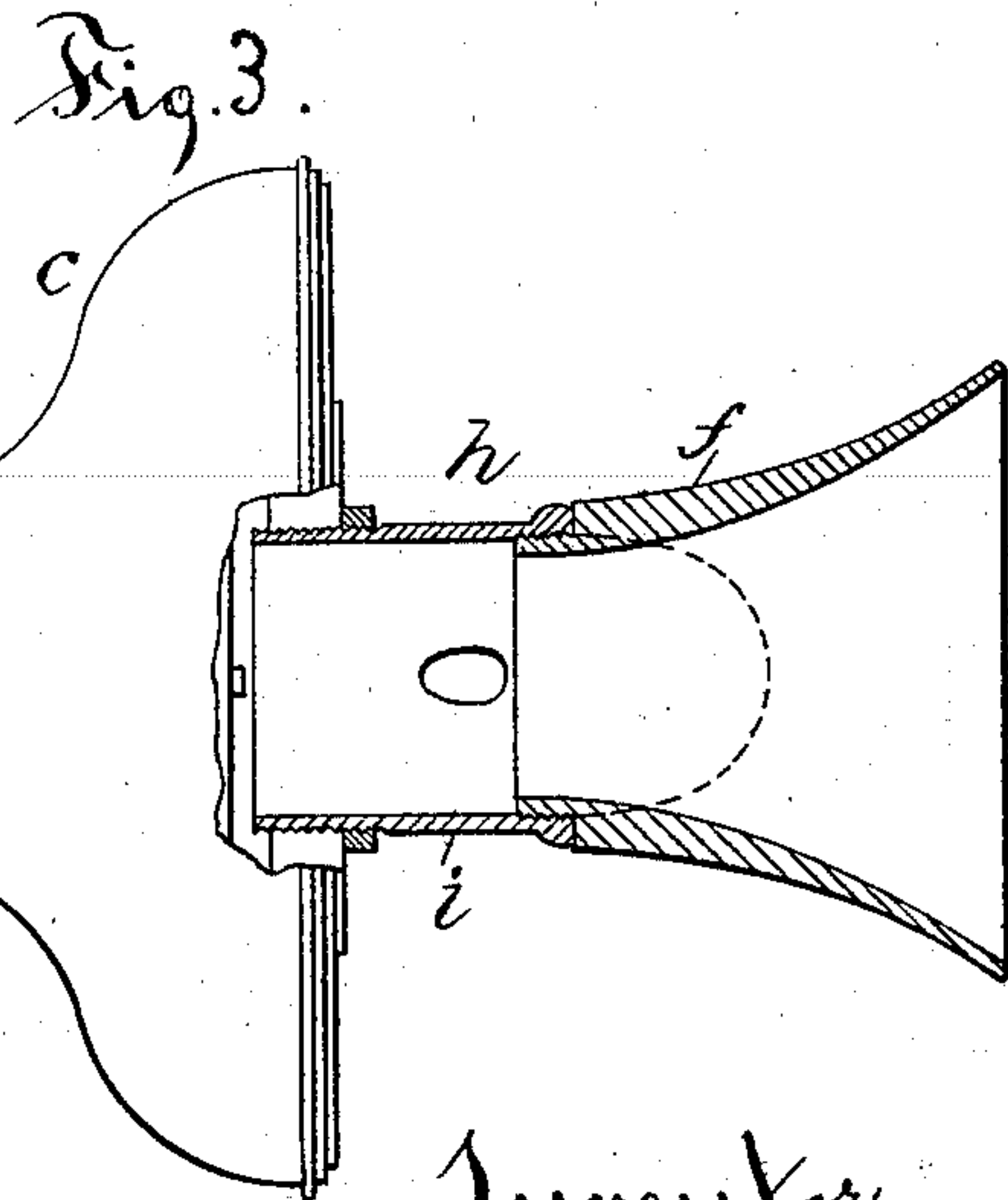
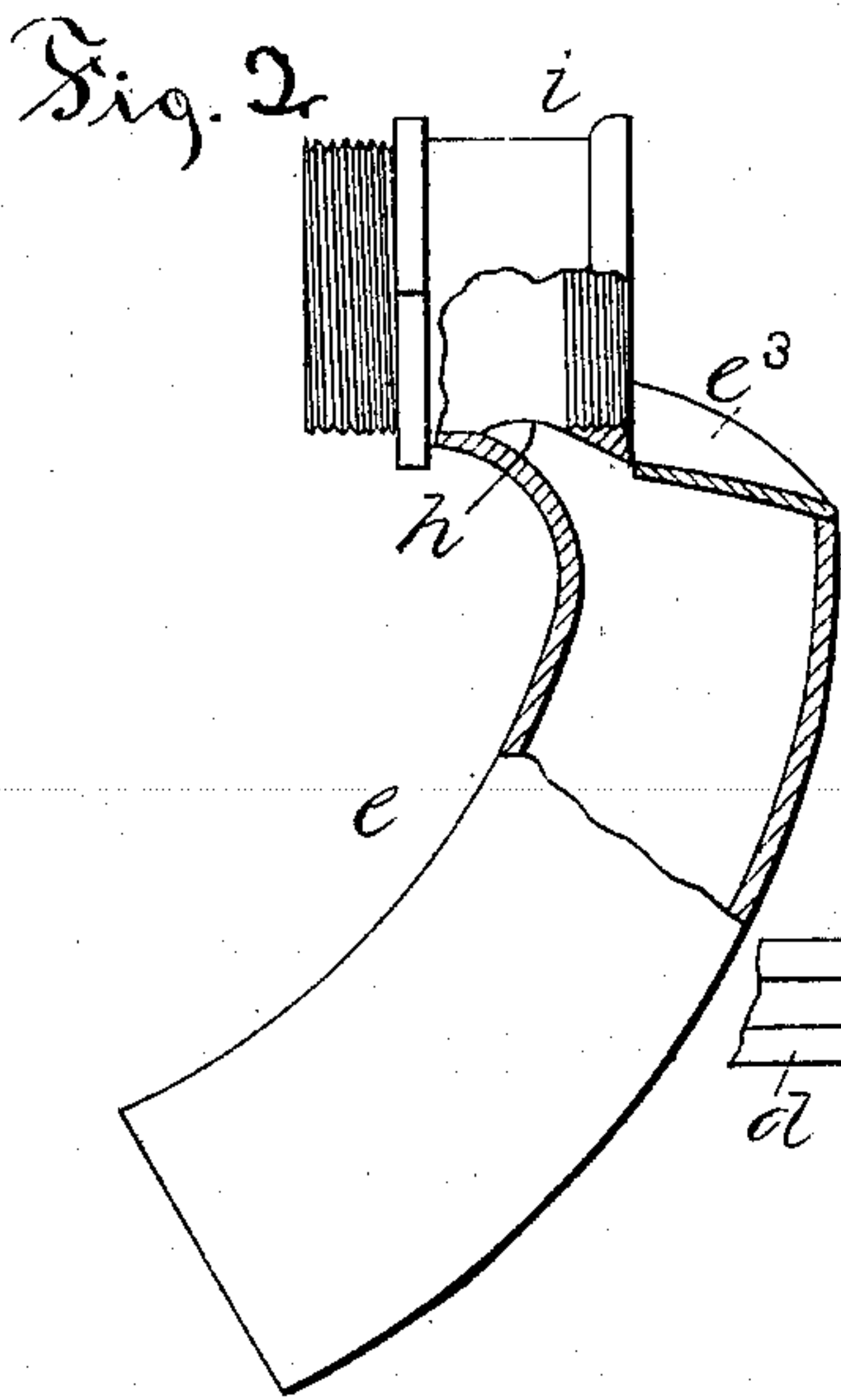
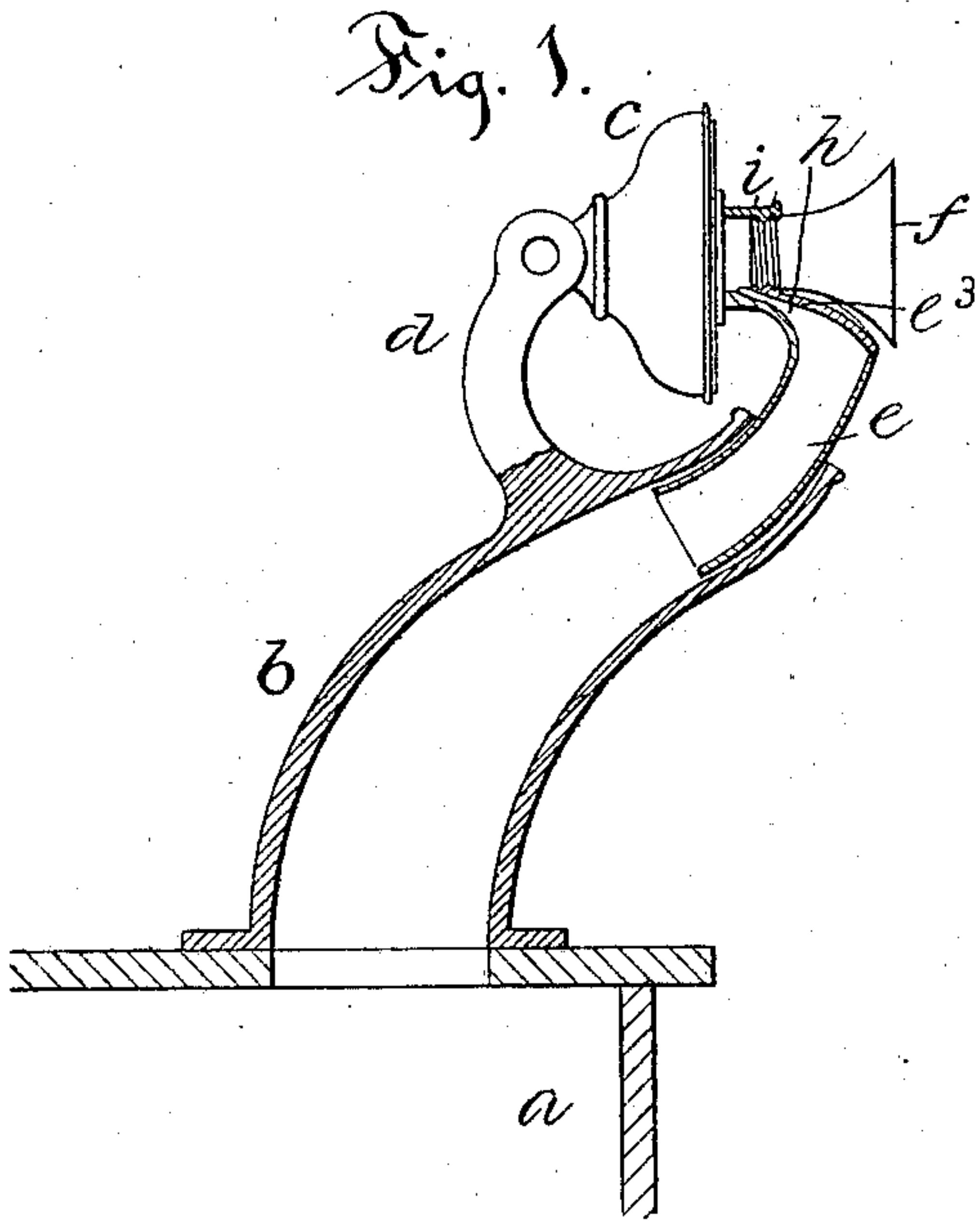


(No Model.)

W. GRAY.
TELEPHONE.

No. 596,496.

Patented Jan. 4, 1898.



Witnesses.
Harry E. Hart.
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by
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UNITED STATES PATENT OFFICE.

WILLIAM GRAY, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE GRAY
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TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 596,496, dated January 4, 1898.

Application filed April 20, 1896. Serial No. 588,213. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GRAY, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Telephones, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates more particularly to the deflector and the part immediately connected to a transmitter in the class of apparatus used in connection with a telephone-toll signal apparatus such as is shown in prior patent granted to me February 23, 1892, No. 469,649, and design patent dated November 27, 1894, No. 23,825; and the object of my invention is to produce a device by the use of which there shall be less interference with vocal sounds and their reception by the transmitter and a clearer transmission of the signals than is possible with the prior devices of this class.

To this end my invention consists in the details of the several parts making up the deflector-tube and its connections to the transmitter and in the combination of such parts, as hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a view in side elevation of part of a signal-box and a hollow deflector-post supporting a transmitter, with parts broken away to show construction. Fig. 2 is a view in side elevation, on enlarged scale, of the connecting deflector-tube, with part broken away to show construction. Fig. 3 is a detail top or plan view of mouthpiece and transmitter, showing the arrangement of the inlet from the deflector-tube.

In the accompanying drawings the letter *a* denotes a signal-box, in which any preferred form of signal-sounding device may be located; *b*, a deflector-tube secured to the signal-box and registering with an opening through its wall, so that the sound of the signal may pass freely through the tube. A transmitter *c* is pivoted to a standard *d*, and the connecting-tube *e* extends from the mouthpiece of the transmitter into the open end of the deflector-tube, parts being shaped and adapted to per-

mit the angular position of the transmitter to be changed without wholly disconnecting the telescoping parts of deflector-tube and connecting-tube.

In prior devices of this class the connecting-tube between the union or mouthpiece and the deflector is T-shaped in general outline, one end of the T being screw-threaded to fit into the front part of the transmitter-case and the other end screw-threaded to receive the mouthpiece. This construction of the parts formed what may be called a "cylindrical" chamber, with one end opening toward the mouthpiece and the other and inner end communicating with the diaphragm of the transmitter and having a large lateral opening through the side wall, where the connecting-tube unites to the T. The result of this construction was that vocal sounds caused by speaking into the mouthpiece would be apt to take the direction of least resistance—that is, toward the mouthpiece and away from the diaphragm—and their effect on the diaphragm of the transmitter weakened. This defect is particularly noticeable over long-distance connections and on trunk-lines; and it further compelled the placing of the mouthpiece at too great a distance from the diaphragm of the transmitter to secure the best results. In order to obviate these defects, in my improved form, Figs. 1, 2, and 3, the upper end of the connecting-tube *e* is practically closed by a cap *e*³, forming a deflector, the outer surface or edge of which is flush with the wall of the sound-passage. A lateral opening *h* is formed in the side wall of the union *i*, which is screw-threaded on one end to fit into the transmitter and has a threaded socket at the other end to receive the mouthpiece *f*. This construction of parts brings the mouthpiece much closer to the transmitter-diaphragm. It practically closes the opening through the side wall of the T or union in which the upper end of the connecting-tube terminates and so diminishes the opening in the wall of the T as to practically obviate any interference with the sound-waves directed through the mouthpiece upon the diaphragm. At the same time an increased intensity of the sounds of the bells and like signals from the signal-box is obtained. A thorough test of the de-

vice has shown that it obviates many of the defects of old forms of structures.

The improvement in its within-described form is applied to the special form of transmitter-support in which the deflector-tube and connecting-piece are curved and telescoped together to permit of the swinging movement of the transmitter-arm on its pivot; but the same idea is applicable to other constructions of deflector-tubes, the upper end of which is connected to a transmitter-case of the form and style in common use and as herein illustrated.

The above-described construction enables the production of a device in which the passage conducting the signals extends in a direction toward the transmitter, and the opening in the wall of the T is so close to the diaphragm that the sound-signals are projected from the passage directly against the transmitter. This construction forms practically a separate passage for the sound-signals and also a separate passage for the vocal sounds, both of which are thrown directly against the transmitter.

I claim as my invention—

1. In combination with a transmitter, a

sound-passage to the transmitter-diaphragm, a signal-box, and a tubular connection between the signal-box and transmitter-case forming a signal-passage having a deflector located outside of and with its outer surface flush with the wall of the sound-passage. 30

2. In combination with a transmitter, a sound-passage to the transmitter-diaphragm, a signal-box, and a tubular connection between the signal-box and transmitter-case forming a signal-passage having a deflector located outside of and with its outer surface flush with the wall of the sound-passage, and located close to the diaphragm. 40

3. In combination with a transmitter borne on a pivoted arm, a sound-passage extending to the transmitter, a signal-box, and a telescopic tube connecting the signal-box and transmitter-case, and forming a signal-passage having a deflector located outside of and with its outer surface flush with the wall of the sound-passage. 45

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Witnesses:

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