

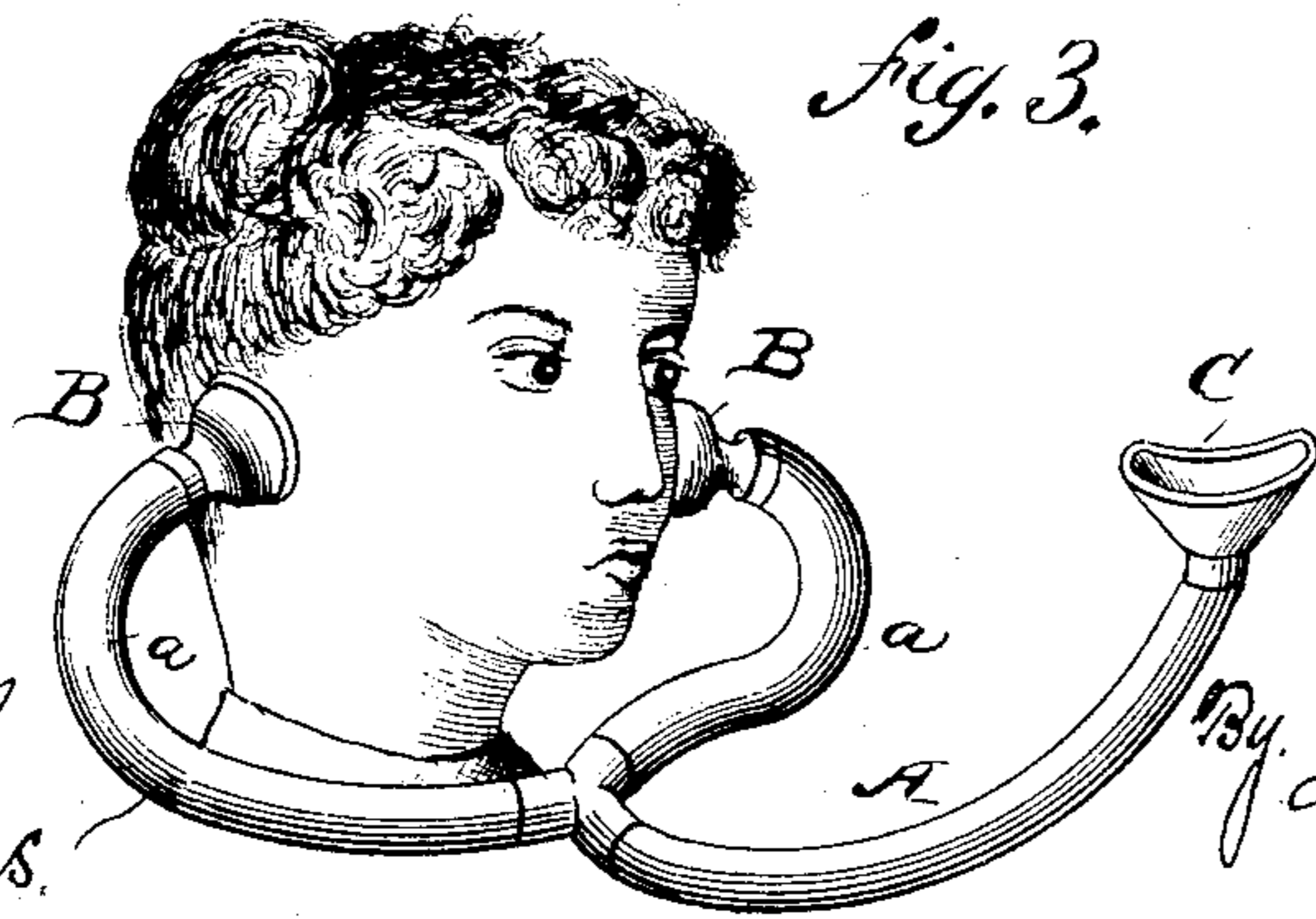
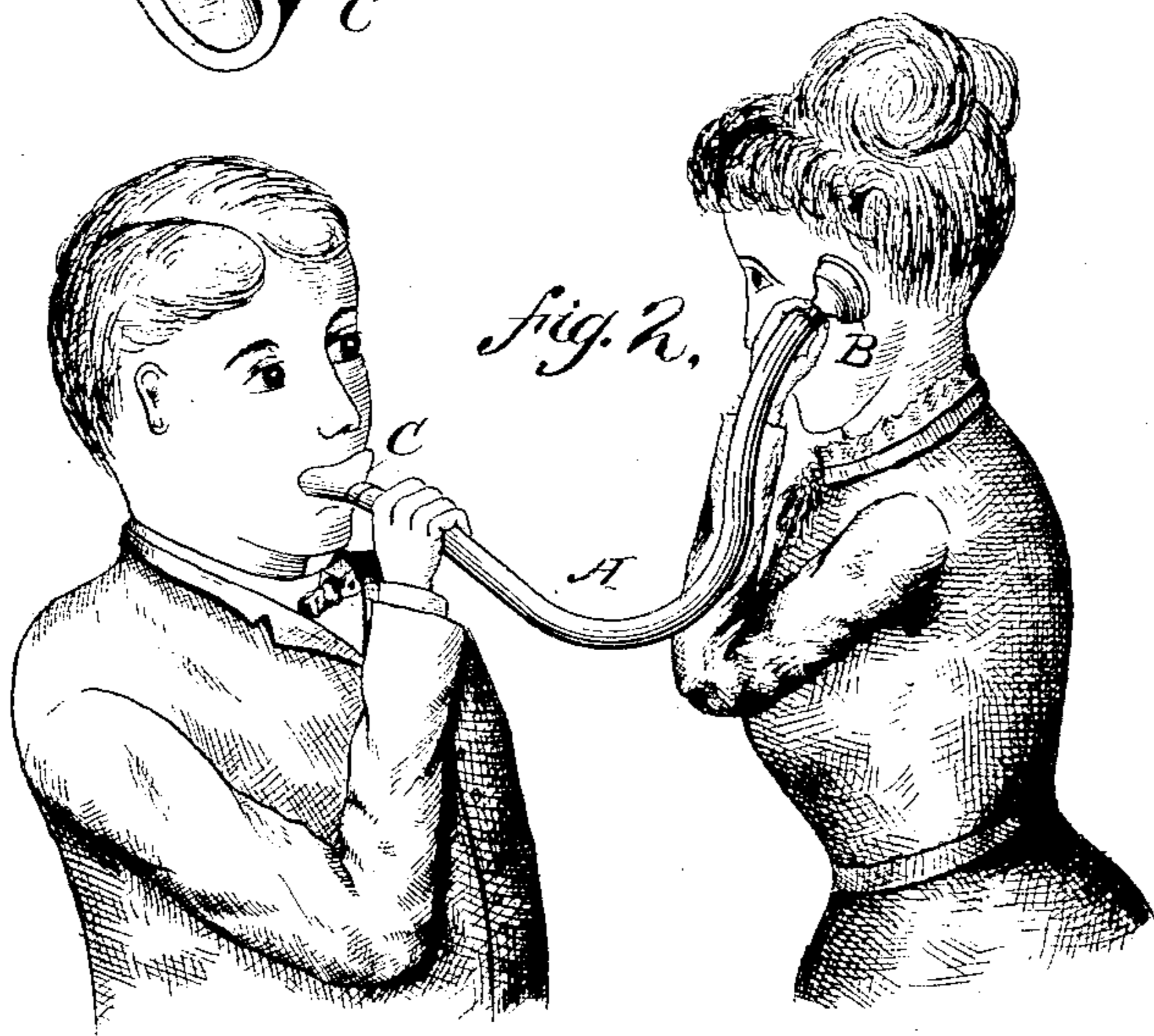
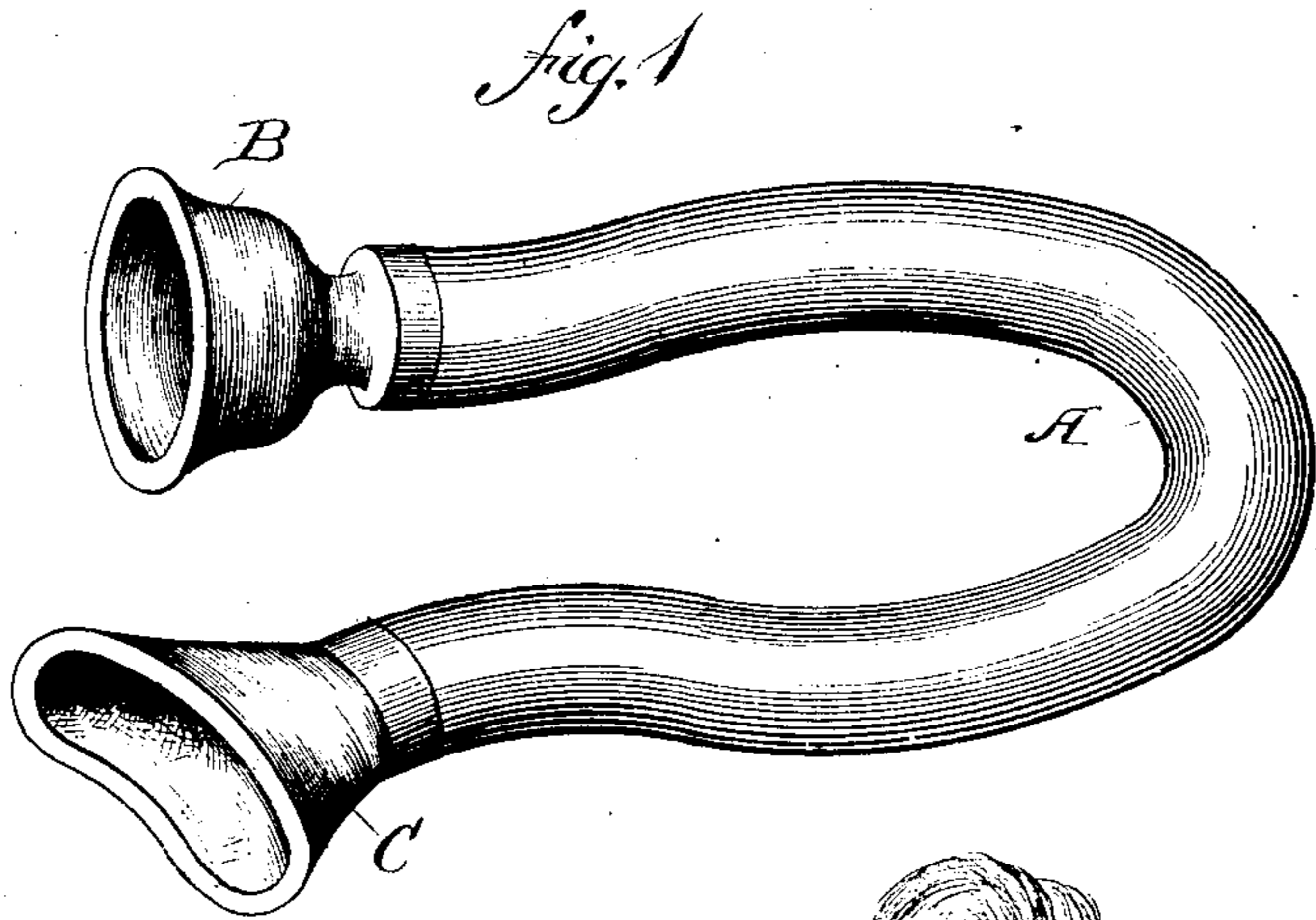
(No Model.)

H. E. WAITE.

EAR TUBE.

No. 312,308.

Patented Feb. 17, 1885.



Witnesses:
John G. Hinkel,
Wm. J. Gayles.

Henry E. Waite.
Inventor:
By Foster & Freeman
attys.

UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEW YORK, N. Y.

EAR-TUBE.

SPECIFICATION forming part of Letters Patent No. 312,308, dated February 17, 1885.

Application filed November 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WAITE, a citizen of the United States, and a resident of the city, county, and State of New York, have
5 invented certain new and useful Improvements in Ear-Tubes, of which the following is a specification.

My invention relates to that class of auricular instruments in which a flexible tube is provided with receiving and transmitting devices; and my invention consists of such a tube constructed substantially as hereinafter described.

In the drawings, Figure 1 is a perspective view, showing an ear-tube provided with my improved receiver and adapted for application to one ear. Fig. 2 is a perspective view illustrating the manner in which the instrument is used. Fig. 3 is a perspective view
20 showing the instrument as constructed for application to both ears.

The tube A is of any suitable construction and material. It is represented in the drawings as consisting of flexible material, and is
25 provided at one end with a receiver, B, and at the other with a transmitter, C. The transmitter C is a mouth-piece of the usual construction—that is, it is flaring, somewhat flattened, and curved at the edge, so as to conform to the shape of the mouth as nearly as
30 may be, and is suitably connected to the tube A in any suitable manner.

Heretofore the ear-pieces in this class of instruments have consisted of short hollow
35 nozzles or tubes adapted to be inserted in the ear, and are objectionable, not only because of their liability to injure the tender membranes of the ear, but also because they are apt to become foul, and, further, because they
40 very inefficiently transmit the sound. To overcome these objections, I make the ear-piece or transmitter B in the shape of a cup of such size and form as to receive the main portion of the ear, the front edge being upon
45 a flat plane, so that when applied to the ear it will practically close the latter against the admission of external vibrations. I have found that by the use of a receiver of this character it is possible to transmit slight

sounds which would not be discerned by the use of the ordinary receiving-tube, while the liability to injury which results from the use of the latter is wholly avoided, and the condition of the instrument does not become in the least impaired from long or continuous use. 50

The receiver and transmitter may be made of rubber, metal, wood, or any suitable material, the one being shaped to conform to the mouth, while the other is shaped to receive and inclose the ear, forming, as nearly as possible, a closed chamber outside the drum of the ear, having its only communication with the tube A. 55

In Fig. 3 I have shown a form of instrument especially adapted for extremely deaf persons, in which the tube A is bifurcated, and a receiver, B, is connected to the end of each branch *a*, while the transmitter C is attached to the end of the main portion of the tube. 60

It is not necessary in all cases that the transmitter should conform to the shape of the mouth. For instance, where the device is to be used for the purpose of hearing public speakers or music, the transmitter may consist of a large flaring funnel-like device, which is held in the direction of the source from which the sounds proceed. 65

Without limiting myself to the precise construction and arrangement of parts shown, I claim— 70

The combination, with the flexible tube A, of flexible branches *a*, receivers B B, each of a cup shape, and adapted to fit to and inclose the main portion of the ear, and each secured to one of the branches *a*, a transmitter, C, connected to the end of the main body of the tube, and a three-way joint connecting the tube A and flexible branches, substantially as set forth. 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 80

HENRY E. WAITE.

Witnesses:

CHARLES E. FOSTER,
W. C. DUVALL.