R. H. HOOPER.

SPEAKING-TUBE.

No. 170,672. Patented Dec. 7, 1875.

FIG. I.

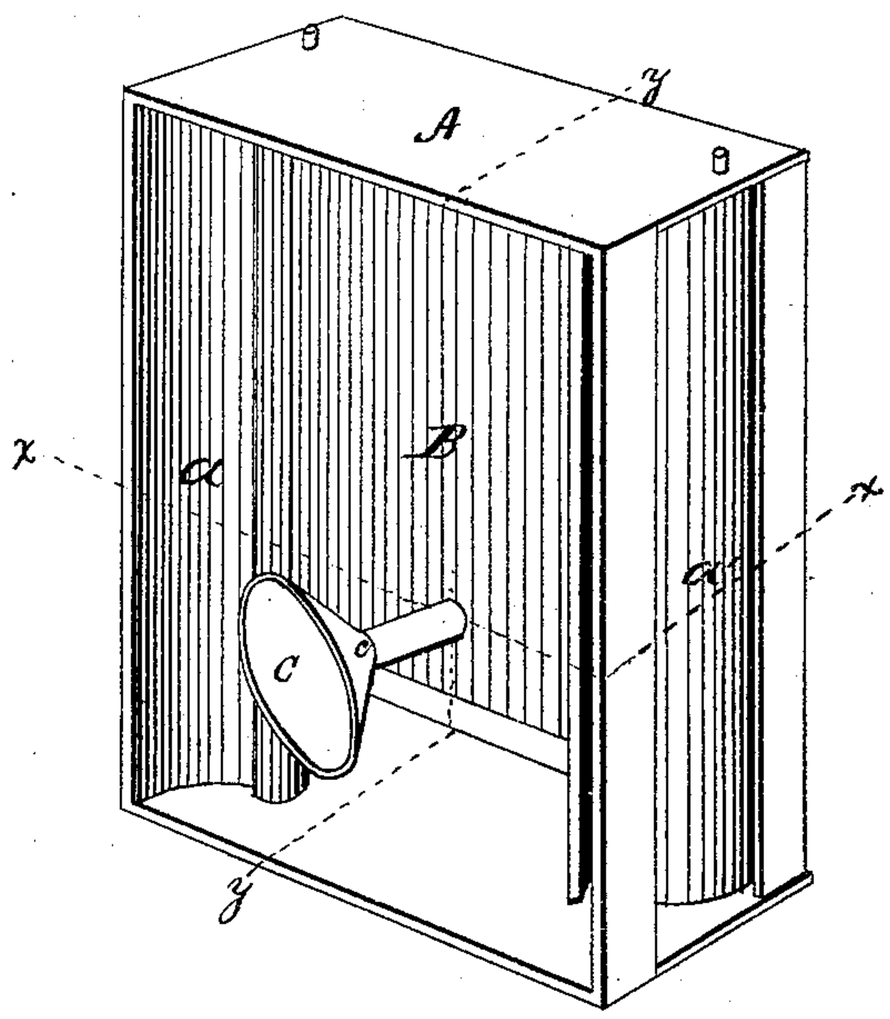


FIG. II.

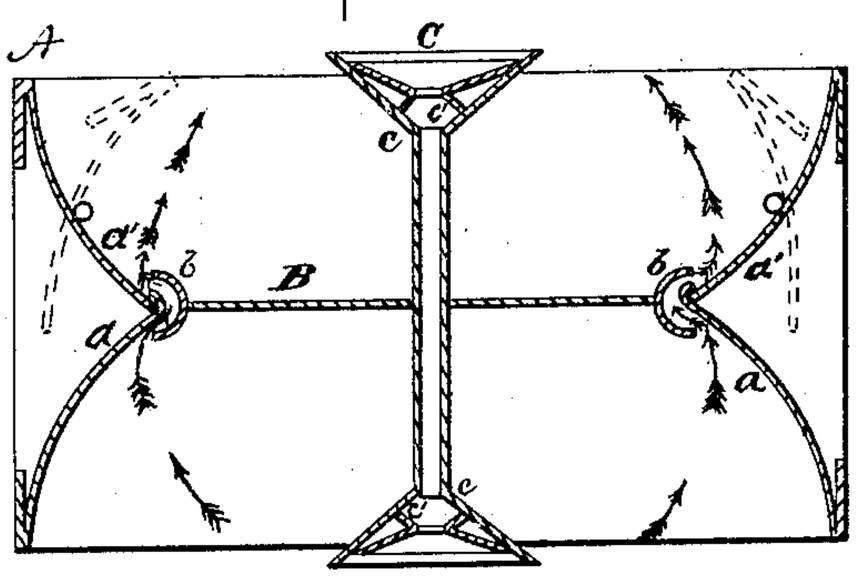
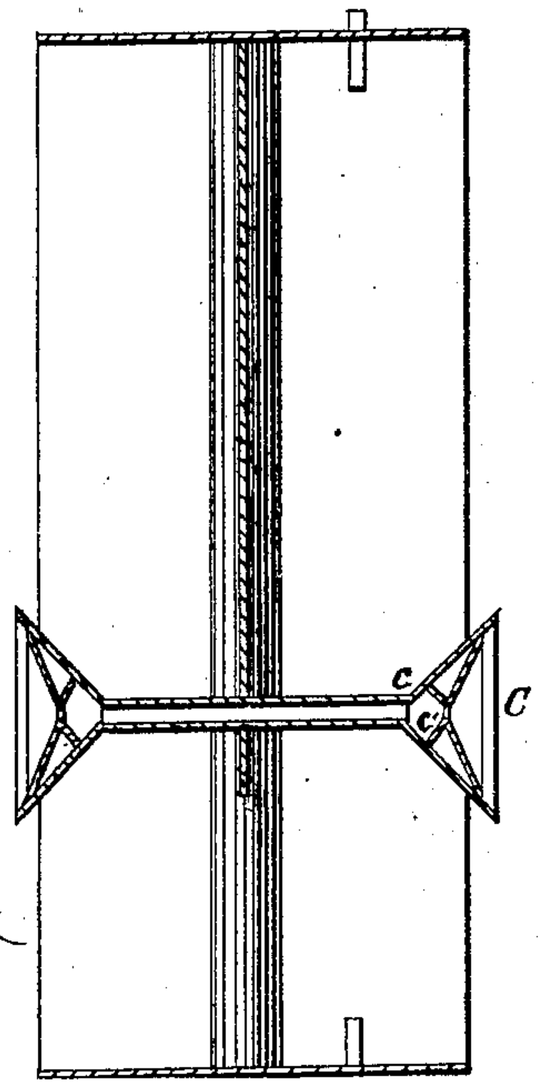


FIG. III.



WITNESSES.

F. B. Townsend

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UNITED STATES PATENT OFFICE.

RICHARD H. HOOPER, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN SPEAKING-TUBES.

Specification forming part of Letters Patent No. **170,672**, dated December 7, 1875; application filed June 9, 1875.

To all whom it may concern:

Be it known that I, RICHARD H. HOOPER, of Washington, District of Columbia, have invented a new and useful Resonator, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a horizontal section through *x x*. Fig. 3 is a vertical section through *y y*.

My invention relates to the conveyance of sound from one room to another, as when a person in one room wishes to communicate with another person in any other room; and it consists in the device hereinafter described for producing the prolongation or increase of the voice.

To enable others skilled in the art to make and use my invention I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents a frame-work, which is made portable, to be temporarily placed in position, or it may be permanently fixed in any door, wall, or window. In this frame are secured the vertical plates *a a'*, curved as shown in Fig. 2, one or more of which plates on either side may be hinged or pivoted so as to change the angle of deflection when desired. The hinged plates also furnish a convenient means for closing the aperture to exclude the dust or cold air from the room. Through the center of the frame A I place the division-plate B, reaching nearly to the curved plates, but leaving space enough on each side to allow a free passage of sound between the curved or angular deflectors and the division-plate. To each side of the division I secure the curved or angular vertical plates *b b*, as shown in cross-section in Fig. 2. The outer edges of these vertical plates overlap the inner edges of the plates *a a'*. Curved plates similar to the plates *a a'* may also be placed at the top and bottom of the frame A, if desired. The whole of the center space may be filled, as described, by the center plate; or a portion in the lower part may be left open for a door through which to pass small packages—an arrangement particularly convenient in post-offices and counting-houses. Through this center plate may also be inserted any ordinary speaking-tube. This tube C may be constructed with the double concave, as shown in Fig. 3, so that any portion of the sound striking the lower edge of the funnel *c*, and rebounding will be again deflected at *c'*, and thrown through the tube in a straight line.

The operation of my resonator is as follows: A person standing in front of the window or door, or other position in which it may be placed, speaks to a person in the rear; the voice of the speaker takes the direction indicated by the arrows in Fig. 2. During the passage of the voice between the curved wall *a a'* and *b b*, vibrations are produced as on the sounding-board of a musical instrument, which causes a great prolongation or increase of the sound, and renders a slight effort of the voice distinctly audible to persons in an adjoining room.

If the device be constructed with care the resonance will be full and complete.

It is evident from the above description that the shape of my device may be varied to suit the taste, or to accommodate it to its position.

The speaking-tube C may be added for ordinary use, but it is not essential to my invention.

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

The resonator constructed as described, and consisting of the plates *a a'*, in combination with the curved or angular deflectors *b b* and division-plate B, all constructed to operate substantially as and for the purpose set forth.

RICHARD H. HOOPER.

Witnesses:

WILL H. MOXON,

FRED. H. CLARKE.