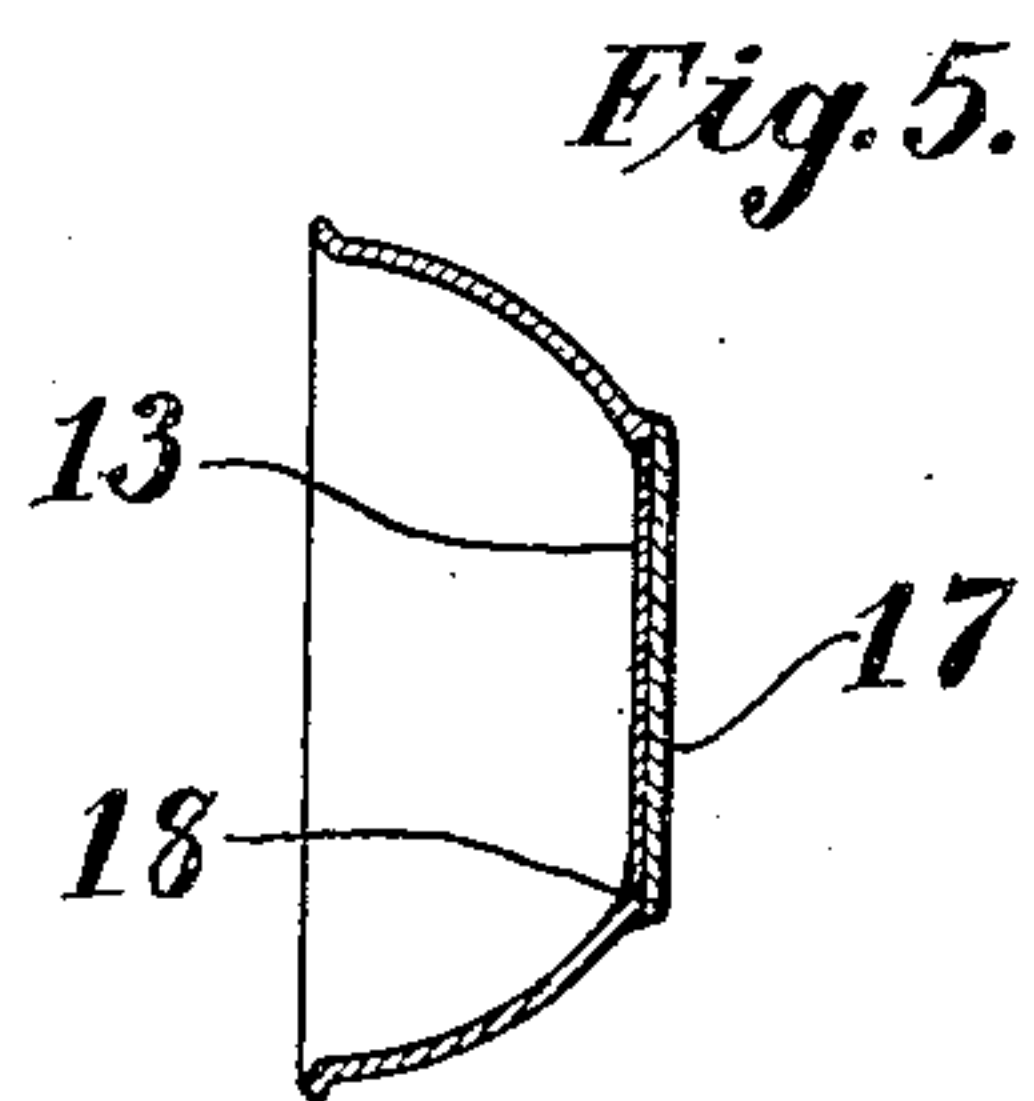
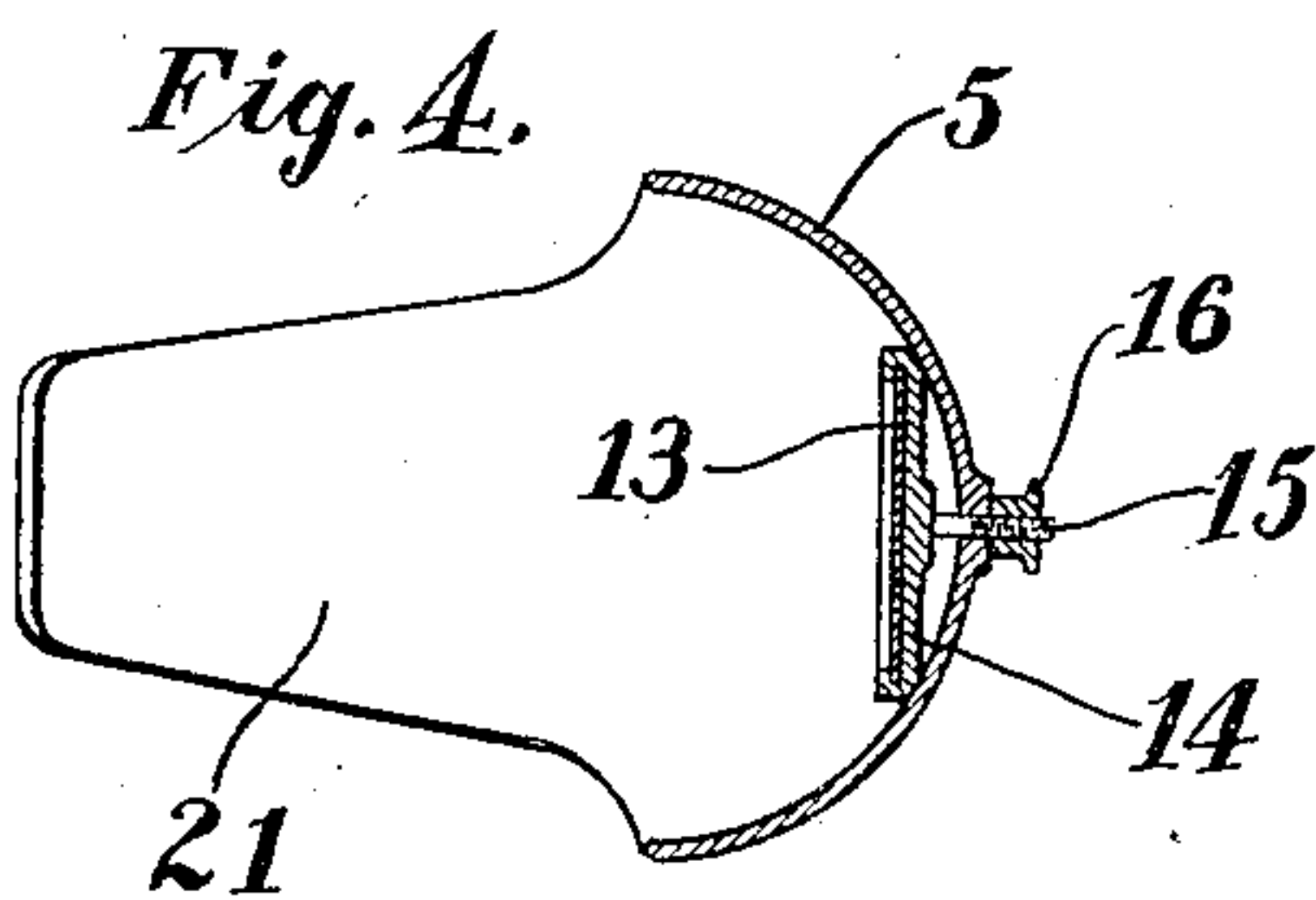
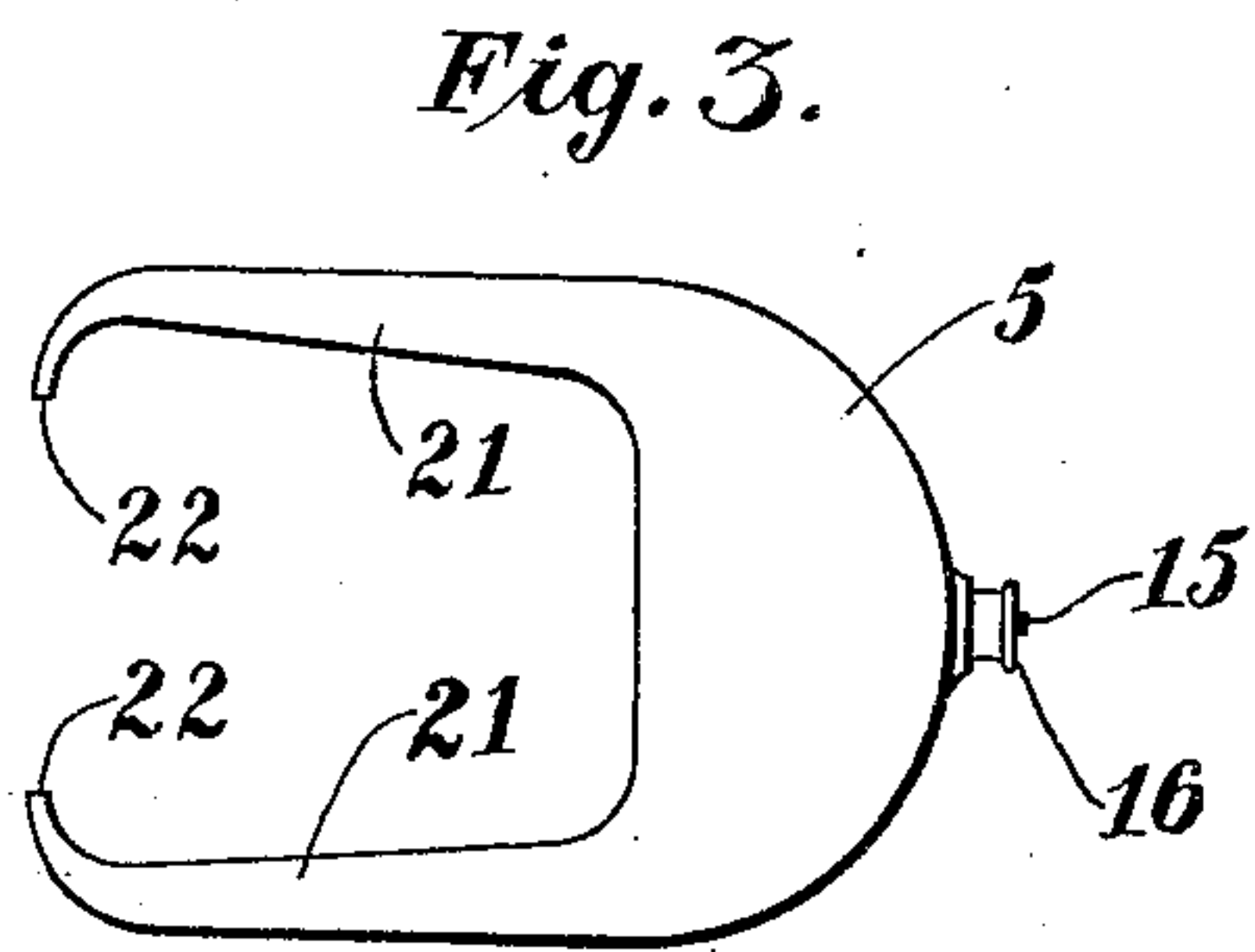
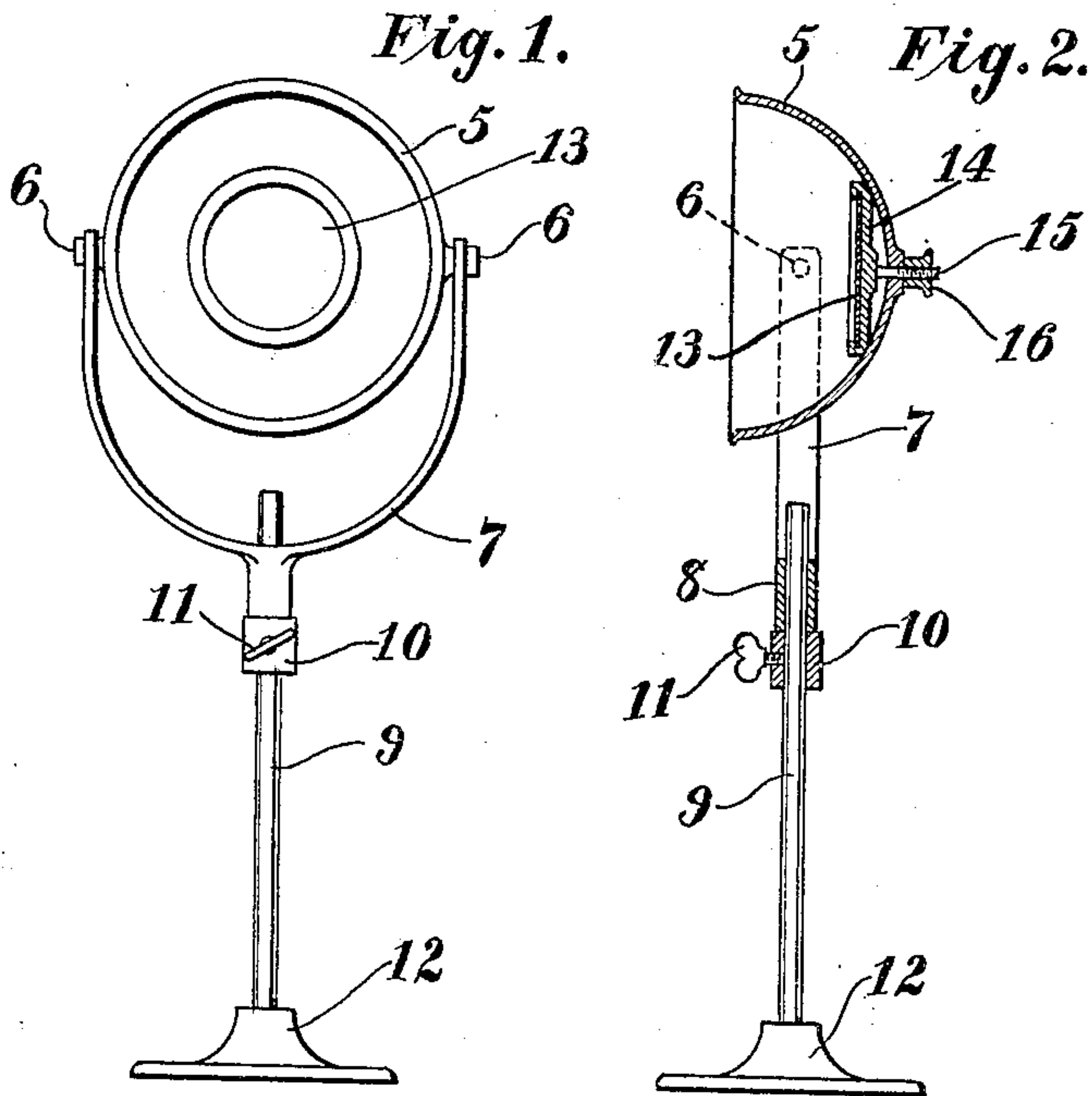


A. CARBONE.  
VOICE REFLECTOR.  
APPLICATION FILED SEPT. 1, 1908.

924,888.

Patented June 15, 1909.



Witnesses:

Chas. W. La Rue  
Daisy V. Riggs

Inventor:  
Agostino Carbone  
by Wilbur M. Stone  
Attorney.

# UNITED STATES PATENT OFFICE.

AGOSTINO CARBONE, OF NEW YORK, N. Y.

## VOICE-REFLECTOR.

No. 924,888.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed September 1, 1908. Serial No. 451,262.

*To all whom it may concern:*

Be it known that I, AGOSTINO CARBONE, a subject of the King of Italy, residing in New York, county and State of New York, have invented certain new and useful Improvements in Voice-Reflectors, of which the following is a specification.

This invention relates to devices for reflecting the voice of a singer or speaker so that the sound is returned in approximately its original volume and intensity to the ears of the user, while affording means for enabling the user to see a reflection of himself at the same time.

The object of the present improvements is to enable the user to so fully and clearly hear his own voice and to so observe his facial expression and the action of the vocal mechanism of his mouth and throat during the operation as to form a substantial basis for self-criticism.

With these ends in view my improved apparatus comprises means illustrated in the accompanying drawing, wherein—

Figure 1 is a front elevation of the preferred embodiment of my improvements. Fig. 2 is a side elevation partly in section of the showing of Fig. 1. Figs. 3 and 4 are a plan and side sectional view respectively of a modified form of my reflector. Fig. 5 is a sectional elevation of another modification of my improvements.

Referring now in detail to Figs. 1 and 2, 5 represents a dish shaped member made of sheet metal or other suitable material and having trunnions 6, 6 thereon. Said trunnions are supported in the upstanding arms of a yoke shaped member 7 the lower portion of which is pierced by a hole 8. Said hole is engaged by an upright 9 and yoke 7 is adjustably held thereon by clamp collar 9 having clamp screw 11 therein. Means are thus provided for universal adjustment of dish shaped member 5 and all carried thereby. Upright 9 is fixed in base 12 which latter is preferably made of sufficient weight to give stability to the device.

Dish shaped reflector 5 may have an inner surface of any desired contour such as hemispherical as shown in Figs. 1 and 2. Also said inner surface may be smooth as shown in Figs. 1, 2 and 4 for instance or may be provided with other suitable detail surface contour.

For reflecting the image of the user I provide a mirror 13, preferably located within and at the back of dish shaped member 5 and secured therein by suitable means such as frame 14 clamp screw 15 and nut 16. Or said mirror may have its frame made integral with the dish shaped member as shown in Fig. 5. In this case I dispense with the curved portion of said dish shaped member behind the mirror and supply a flat back-plate 17, and curve the inner portion of the dish shaped member at 18 to flow outwardly slightly onto the mirror face 13.

In Figs. 3 and 4 I have illustrated a modification including side plates 21, 21 having curved ear pieces 22, 22 respectively the whole constituting wings for conserving the sound and transmitting it to the ears. Said sides are shown as prolongations of the sides of dish shaped member 5 but it is obvious that they may be made separately and attached by suitable means.

The operation of my improved device is as follows: The user, placing himself in front of and facing the dish shaped member, proceeds to sing or speak. The sound waves impinge upon mirror 13 and flow outwardly therefrom in all directions against the walls of dish shaped member 5 and are thence reflected back therefrom in substantially full volume to the ears of the user. At the same time said mirror 13 reflects the face, mouth and throat of the user, enabling him to criticise the quality and volume of sound produced in conjunction with the mechanical operation of his vocal members in the production thereof.

A further modification of my improvements comprises the use of a thin metallic diaphragm with the outward face thereof polished, for mirror 13, whereby the voice is reflected in increased intensity.

I claim:

A dish shaped sound reflector provided in the bottom thereof with a mirror constituting a vibratory acoustic diaphragm as described.

Signed in the Park Row Building this 31st day of August, 1908, before two subscribing witnesses.

AGOSTINO CARBONE.

Witnesses:

WILBUR M. STONE,  
JOHN J. MCBRIDE.