

W. S. COBB.
SOUND DISTRIBUTING HORN.
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986,908.

Patented Mar. 14, 1911.

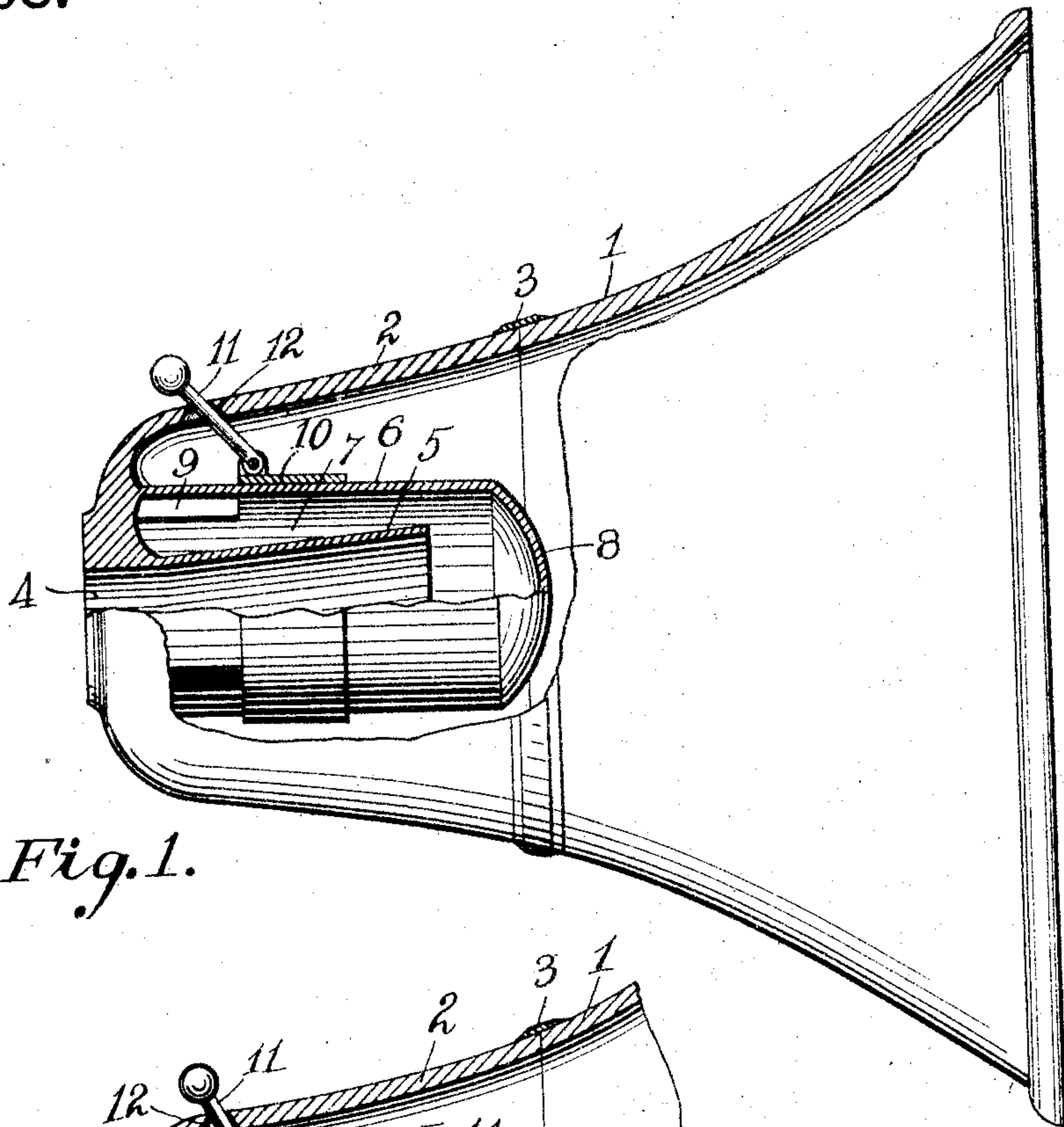


Fig. 1.

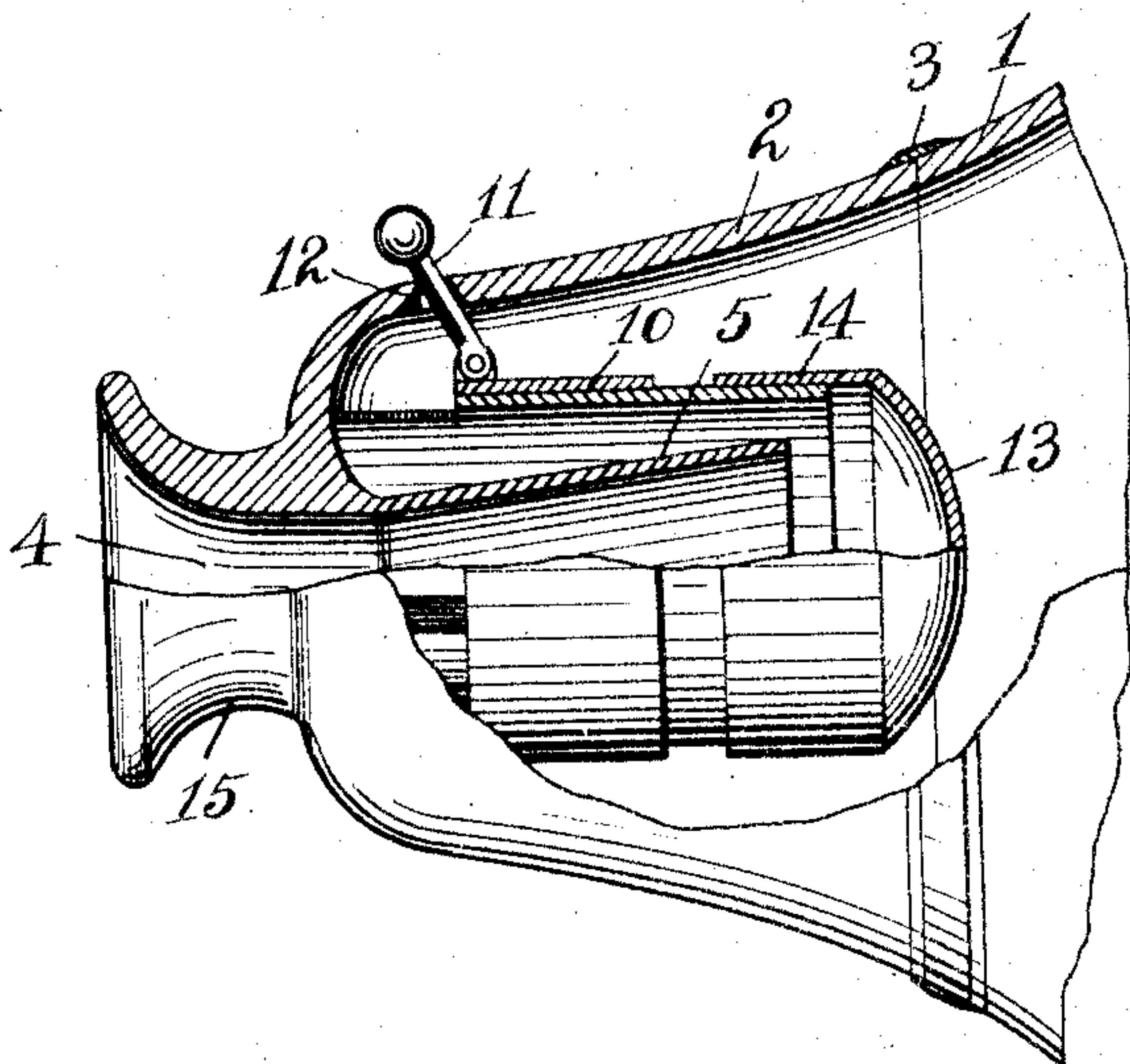


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SOUND-DISTRIBUTING HORN.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM S. COBB, a citizen of the United States, residing at Flushing, in the county of Queens and State of New York, have invented new and useful Improvements in Sound-Distributing Horns, of which the following is a specification.

The invention relates to an improvement in sound regulators, being more particularly directed to the construction of a sound intensifying horn whereby such sound is rendered more distinctive and the tone thereof materially improved.

The main object of the present invention is the provision of a sound regulator formed to provide a plurality of interior sound passages through which the sound waves are arranged to travel in succession, the construction and control of such passages providing for the rapid and uniform expansion of the sound volume in traveling from one passage to the next whereby to intensify and improve the tone of such sound.

The invention in its preferred details of construction will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in elevation, partly in section, of the improved horn. Fig. 2 is a similar view broken away, showing a slightly different construction.

Referring particularly to Fig. 1 of the accompanying drawing, the improved horn may be said to comprise a tube or body section 1 and a mouth section 2, which sections are removably connected at 3 in any appropriate or preferred manner, whereby they may be assembled in horn-forming relation or disconnected for close packing in storage or transportation. Arranged within the mouth section and communicating with the sound inlet opening 4 therethrough is an inner sound tube 5, which tube extends within the mouth section of the horn an appropriate distance, is of gradually increased diameter from the inlet to the outlet end and is open at the inner end. Secured within the mouth section 2 and encircling the tube 5 is what I term an outer tube 6. This tube is preferably of uniform diameter throughout its length and secured so that it is disposed in spaced relation throughout its length with the inner tube 5, whereby the chamber 7 is arranged between the tubes. By reason of the gradually increasing diam-

eter of the tube 5 from the inlet to the outlet, and the uniform diameter of the tube 6, it will be noted that the chamber 7 gradually increases in area from the end thereof adjacent the free ends of the tubes 5 and 6 toward the end adjacent the connected ends of said tubes 5 and 6. In other words, the space within the tube 5 gradually increases toward the outlet end of said tube while the space within the chamber 7 gradually increases in area in the opposite direction.

The tube 6 is preferably closed at the forward or free end, as at 8, and formed adjacent the opposite end with a series of openings 9. These openings may be of any contour or size being preferably, however, arranged in a concentric row. The openings 9 serve to establish communication between the chamber 7 and the horn proper, or that space surrounding the tube 6 within the mouth section of the horn. To provide for regulating these openings and thereby governing the volume of sound passing there-through, I arrange what I term a valve 10 including an annular strip slidably mounted on the outer surface of the tube 6 and operated through the medium of a finger lever 11 projecting from an opening 12 formed in the mouth section. By proper manipulation of the finger lever, the slide valve 10 may be arranged to vary the size of the openings 9 in accordance with the volume of sound desired, as will be clearly obvious from the drawings.

In Fig. 2, the construction is identical with that just described except that the tube 6 is provided with a removable cap 13, which cap, in addition to its removability and by reason of an extended edge flange 14, is capable of adjustment longitudinally on the tube 6 so as to dispose the transverse wall of the cap at varying distances with respect to the free end of the tube 5, whereby the chamber, immediately in advance of said tube may be varied in size to control the volume of sound passing from the tube 5 to the chamber 7. In this form of the device, I have also shown a mouthpiece 15 connected with the structure though it is to be understood that such forms no material part of the invention and may be omitted or used as desired.

In the use of the improvement several advantageous results follow. For example, a distinctly improved tone is imparted to the sound issuing from the horn as compared

with the usual horn structure by reason of spreading waves at the end of the inner tube and again at the end of the outer tube. In this result the adjustability of the cap 13 to vary the size of the chamber at the end of the inner tube provides for regulating the increase in volume at this point, as desired. Again, the inner tube diverges toward its outlet providing for the gradual spreading of the sound waves, which gradual spreading is also maintained in the chamber 7. Furthermore, the adjustability of the valve 10 controlling the outlet from the chamber 7 to the horn proper provides a further means for manually regulating the volume of sound.

It is of course to be understood that while the improved horn is designed primarily for use with reproducing machines, as gramophones and the like, it is to be understood that its use is contemplated with any and all devices in which sound volume is to be increased, such as megaphones, horns of any type and the like.

Having thus described the invention, what I claim as new, is:—

1. A horn, an inner tube arranged therein, an outer tube encircling the inner tube and communicating therewith, means for vary-

ing the space at the point of communication, and means for adjustably controlling the communication between the outer tube and the horn proper.

2. A horn, an inner tube arranged therein, an outer tube encircling the inner tube and communicating therewith, and means for varying the space at the point of communication, said outer tube being formed with openings establishing communication between the same and the horn proper and manually operable means for varying the size of the openings.

3. A horn, an inner tube arranged therein, an outer tube encircling the inner tube and communicating therewith, means for varying the space at the point of communication, said outer tube being formed with openings to establish communication between said tube and the horn proper, and a manually operable valve for simultaneously controlling the size of said opening.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM S. COBB.

Witnesses:

LESTER S. PARMENTER,
JOHN J. KLEIN.