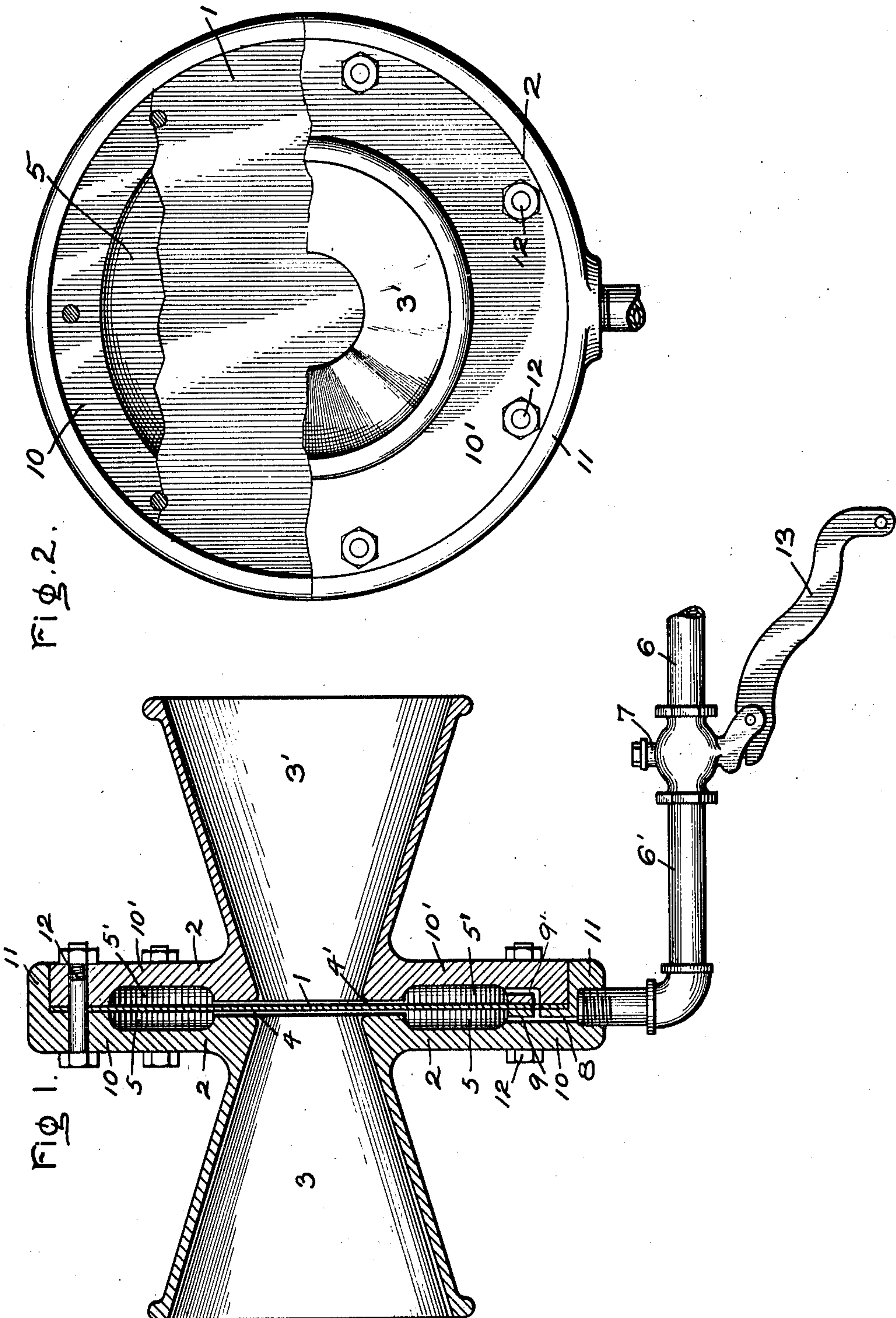


G. MACLOSKIE.
SOUND PRODUCING DEVICE.
APPLICATION FILED JULY 25, 1908.

953,044.

Patented Mar. 29, 1910.



Witnesses:
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J. Ellis Allen.

Inventor:
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Att'y.

UNITED STATES PATENT OFFICE.

GEORGE MACLOSKIE, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SOUND-PRODUCING DEVICE.

953,044.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed July 25, 1908. Serial No. 445,292.

To all whom it may concern:

Be it known that I, GEORGE MACLOSKIE, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Sound-Producing Devices, of which the following is a specification.

My invention relates to a sound producing device and has for its object such a device which is of simple construction and which produces a loud sound with the use of a small amount of fluid under pressure as compared with the amount of fluid used to operate the well-known organ pipe whistle.

My invention consists in a sound producing device comprising a member, a diaphragm fastened in said member, said member having a passage communicating with both sides of said diaphragm and other passages alternately opened and closed by the vibration of said diaphragm.

In another aspect, my invention consists in a sound producing device comprising two resonators, a member, a diaphragm fastened in said member and arranged to vibrate between said resonators, said member having passages for admitting fluid alternately into said resonators.

Other features of my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of my invention, however, reference may be had to the following description taken in connection with the accompanying drawing, in which—

Figure 1 is a sectional view of a sound producing device embodying my invention, and Fig. 2 is an end view of the same with parts broken away to show the interior construction.

Referring to the drawing, the diaphragm 1 is fastened in the member 2, between the bells or resonators 3 and 3'. The passages 4 and 4' connect the resonators to the chambers 5 and 5', situated on either side of the diaphragm. The pipe 6 is connected to one side of the valve 7, while the pipe 6' is connected to the other side. Communication from the pipe 6' to the chambers 5 and 5' is had by means of the passage 8 and the passages 9 and 9'.

The member 2 is made up of two parts

10 and 10', and each of the resonators may be made integral with one of these parts, as shown. The part 10 has a flange portion 11, inside of which the diaphragm and part 10' are placed. In this way the part 10' clamps the diaphragm, which is preferably circular in shape, against the part 10 and holds its outer edge firmly in place against vibration. The parts 10 and 10' with the diaphragm in place may be clamped together by any suitable means, such as the bolts 12. The middle portion of the diaphragm is unsupported, and as the diaphragm is made of flexible material, such as leather, it may vibrate back and forth between the resonators 3 and 3'. The chambers 5 and 5' are preferably annular in shape and concentric with the diaphragm.

In the operation of my sound producing device, fluid under pressure, such as steam or compressed air, is admitted to the pipe 6 from a suitable source, such as a boiler or a motor-driven air compressor. By pulling on the lever 13 the valve 7 is opened, the fluid is admitted into the pipe 6', passes through the passages 8 and 9 into the chamber 5, causing a pressure upon the diaphragm and the closing of the passage 4', the fluid in the chamber 5 escaping through the passage 4 into the resonator 3. The closing of the passage 4' causes the pressure of the fluid in chamber 5' to exceed that in chamber 5. This excess of pressure will be sufficient to move the diaphragm in the opposite direction and close the passage 4, the fluid meanwhile escaping from the chamber 5' into the resonator 3'. In this way the diaphragm will move back and forth alternately closing and opening the passages 4 and 4', and short puffs of steam or air are sent out of the resonators, the column of air in the resonators being thrown into rapid vibration. This vibration produces a musical note, the pitch of which depends upon the length of the resonators, and its loudness a great deal upon the megaphone arrangement of the resonators, that is, upon the divergence of their sides.

I desire it to be understood that my invention is not limited to the particular construction shown and described, and I aim in the appended claims to cover all modifications which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. A sound producing device comprising a member, a diaphragm fastened in said member, said member having a passage communicating with both sides of said diaphragm and other passages alternately opened and closed by the vibration of said diaphragm.

2. A sound producing device comprising a member, a diaphragm fastened in said member, said member having chambers on both sides of said diaphragm, a passage communicating with said chambers and other passages on both sides of said diaphragm alternately opened and closed by the vibration of said diaphragm.

3. A sound producing device comprising two resonators, a member, a diaphragm fastened in said member and arranged to vibrate between said resonators, said member having passages for admitting fluid alternately into said resonators.

4. A sound producing device comprising two resonators, a member, a diaphragm fastened in said member and arranged to vibrate between said resonators, said member having chambers on both sides of said diaphragm, a passage communicating with said chambers and other passages for admitting fluid alternately into said resonators.

5. A sound producing device comprising

two resonators, a diaphragm arranged to vibrate between said resonators, and a member having passages for admitting fluid to both sides of said diaphragm, and other passages communicating with said resonators.

6. A sound producing device comprising two resonators, a member, a diaphragm fastened in said member, said member having chambers on both sides of said diaphragm, a passage communicating with said chambers and other passages on both sides of said diaphragm alternately opened and closed by the vibration of said diaphragm and communicating with said resonators.

7. A sound producing device comprising two resonators, a member, a diaphragm fastened in said member and arranged to vibrate between said resonators, said member having annular chambers on both sides of said diaphragm, a passage communicating with said chambers and other passages on both sides of said diaphragm alternately opened and closed by the vibration of said diaphragm and communicating with said resonators.

In witness whereof, I have hereunto set my hand this 23rd day of July, 1908.

GEORGE MACLOSKIE.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.