a plurality of sound mufflers by partitioning frequency bands of the noise, or using an expansion-chamber muffler having a large shape.

Means for Solving the Problems

The present inventors have found a sound muffler described below as a solution to such problems. That is, in an aspect, the present ~~invention~~ disclosure provides an expansion-chamber muffler, wherein the expansion-chamber muffler is installed in the midway of a tube through which a gas is supplied or evacuated, has an expansion chamber having a larger spatial cross-sectional area than the tube, is equipped with a tube (B) extending from the expansion-chamber muffler on the opposite side of a tube (A) connecting a noise source and the expansion-chamber muffler, and has at least two or more ports for inflow or outflow of a gas on the lateral side of the tube (B).

The present ~~invention~~ disclosure also provides the expansion-chamber muffler, characterized in that the end face of the tube (B) is closed.

The present ~~invention~~ disclosure also provides the expansion-chamber muffler, characterized in that a plurality of the ports provided on the lateral side of the tube (B) in the longitudinal direction each have different hole diameters, wherein the plurality of the ports provided on the lateral side of the tube (B) in the longitudinal direction are arranged in such a way that the hole diameter increases from the proximity of the expansion chamber.

Further, the present ~~invention~~ disclosure provides the expansion-chamber muffler, characterized in that the tube (B) extending from the expansion chamber is bent into a U-shape in the midway.

The present ~~invention~~ disclosure also provides the expansion-chamber muffler, which is a suction sound muffler installed on a suction tube of an air compression means for compressing and supplying air.

In another aspect, the present disclosure provides an oxygen concentration device for supplying an oxygen-enriched air by separating oxygen from the air, comprising an adsorption cylinder filled with an adsorbent which preferentially adsorbs nitrogen rather than oxygen and an air compression means for supplying compressed air to the adsorption cylinder, wherein the expansion-chamber muffler as disclosed herein is provided at the suction port of the air compression means. Further, the present ~~invention~~ disclosure provides an oxygen concentration device for providing an oxygen-enriched air by separating air from the atmosphere, comprising:

an adsorption cylinder filled with an adsorbent which preferentially adsorbs nitrogen rather than oxygen;

an air compression means for supplying compressed air to the adsorption cylinder; and

an expansion-chamber muffler disposed at a suction port of the air compression means, wherein the expansion-chamber muffler is equipped with an air suction filter having a filter for collecting dust in the air and a case housing the filter, and the tube (B) is a member integrally molded with the case part of the suction filter.

Further the present ~~invention~~ disclosure provides the oxygen concentration device equipped with a humidifier for humidifying the oxygen-enriched air, wherein the humidifier which is unified with the filter case utilizes a hollow fiber moisture permeable membrane, wherein air from the atmosphere is supplied to the outside of the hollow fiber, subsequently humidifies the oxygen-enriched air which is fed to the inside of the hollow fiber, and is passed through the filter to serve as the raw material air for the oxygen concentration device.

Advantageous Effects of Invention

Provided by the present invention is a sound muffler as a downsized and weight-reduced sound muffler which preserves a sound reducing function, as well as an oxygen concentration device that uses the sound muffler.