Recent oxygen concentration devices are required to satisfy improved noise reduction performance, and there is also a strong demand for downsizing and weight reduction for a portable application. In order to realize these, it is essential to improve performance of the sound muffler itself as well as to downsize the same. Under a circumstance where installation of an intake sound muffler is indispensable for reducing intake noise that is the largest noise source of the compressor, development of various sound mufflers is under way, but to separately install an intake sound muffler for noise reduction is a technical problem contradictory to downsizing of the oxygen concentration device.

The present invention provides a technology to realize noise reduction of the compressor itself, instead of installing a sound muffler, to suppress the intake noise generated by the compressor mounted on the oxygen concentration device.

[Solution to Problem]

The present inventors have found the following inventions related to a compressor as a method to solve such problems.

1. A reciprocating compressor having a piston, a cylinder, a crank part and a motor, converting a rotational motion of the motor into a reciprocating motion of the piston in the cylinder via the crank part housed in a casing, an intake valve provided on the piston introducing air in the casing into the cylinder, comprising:

a first lid part provided with a ~~small hole~~first intake port which forms an intake port of the compressor, the ~~lid part~~casing constituting a portion of a cylindrical casing of the compressor, the lid part being provided at the end of the cylindrical casing;

a cylindrical part; and

a second lid part which forms a small chamber together with the first lid part,

wherein the second lid part is provided with a suction nozzle for sucking air into the ~~small~~ chamber and a filter is installed in the chamber to divide the chamber into a compressor intake port side chamber and the suction nozzle side chamber, the suction nozzle being disposed on the side of the second lid part so that air flow to the suction nozzle has an angle of 90° with respect to air flow to the first intake port.

~~2. The compressor according to paragraph 1, wherein a filter is installed in the small chamber to divide the chamber into a compressor intake port side and the suction nozzle side.~~

~~3~~2. The compressor according to paragraph 1, wherein the suction nozzle has a length of 100 mm or more.

~~4. The compressor according to paragraph 1, wherein the compressor is a reciprocating compressor and the casing is the cylindrical crank case.~~

~~5~~3. An oxygen concentration device comprising:

an adsorption cylinder packed with an adsorbent which selectively adsorbs nitrogen rather than oxygen,

a compressor which supplies compressed air to the adsorption cylinder, and

a flow path switching valve which switches a flow path between the compressor, adsorption cylinder, and a discharge pipe in order to repeat at a fixed timing a sequence of an adsorption step where the adsorption cylinder is pressurized, and adsorbs nitrogen in the compressed air and generates un-adsorbed oxygen; and a desorption step where the adsorption cylinder is evacuated to regenerate the adsorbent,

wherein the compressor according to paragraph 1 is provided as the compressor.

[Advantageous Effects of Invention]

According to the present invention, it is possible to provide a compressor that can maintain muffling performance, and can be downsized and light-weighted.

[CLAIMS]

[Claim 1]

A reciprocating compressor having a piston, a cylinder, a crank part and a motor, converting a rotational motion of the motor into a reciprocating motion of the piston in the cylinder via the crank part housed in a casing, an intake valve provided on the piston introducing air in the casing into the cylinder, comprising:

a first lid part provided with a ~~hole~~ first intake port which forms an intake port of the compressor, the casing constituting a portion of a cylindrical casing of the compressor, the lid part being provided at the end of the cylindrical casing;

a cylindrical part; and

a second lid part which forms a chamber together with the first lid part,

wherein the second lid part is provided with a suction nozzle for sucking air into the chamber and a filter is installed in the chamber to divide the chamber into a compressor intake port side chamber and the suction nozzle side chamber, the suction nozzle being disposed on the side of the second lid part so that air flow to the suction nozzle has an angle of 90° with respect to air flow to the first intake port.

[Claim 2]

The compressor according to claim 1, wherein the suction nozzle has a length of 100 mm or more.

[Claim 3]

An oxygen concentration device comprising:

an adsorption cylinder packed with an adsorbent which selectively adsorbs nitrogen rather than oxygen,

a compressor which supplies compressed air to the adsorption cylinder, and