Claims

1. A pressure swing adsorption-type oxygen concentrator including:

at least one adsorption bed filled with an adsorbent capable of selectively adsorbing nitrogen relative to oxygen,

an air supply device to supply compressed air to the adsorption bed,

a flow channel switching device set up between the air supply device and the adsorption bed, to repeat at a predetermined timing an adsorption step to supply air from the air supply device to the adsorption bed to isolate concentrated oxygen and a desorption step to depressurize the adsorption bed to regenerate the adsorbent therein, ~~and~~

a flow rate setting device ~~to set~~ for setting ~~a volume~~ the volume flow rate of concentrated oxygen supplied to a user, ~~comprising~~ and

a control device for controlling the volume flow rate of compressed air supplied from the air supply device to be at a certain lower operation limit value to allow stable operation of the air supply device and a volume flow rate of compressed air released to an exhaust side through the flow channel switching device, each when the flow rate setting device is equal to or below a given setting value, and otherwise for controlling the volume flow rate of compressed air supplied from the air supply device based on the setting of the flow rate setting device, ~~to control~~ by controlling a switching timing of the flow channel switching device that determines a release volume of compressed air immediately before completion of an adsorption step, based on a predetermined value in the flow rate setting device, and to release a part of compressed air that is to be supplied to the adsorption bed immediately before the completion of the adsorption step.

2. The oxygen concentrator according to claim 1, wherein the flow channel switching device comprises:

a first two-way electromagnetic valve installed on a compressed air supply pipe connecting the air supply device and the adsorption bed,

a branch pipe channel between the adsorption bed and an exhaust side installed in a downstream side of the first two-way electromagnetic valve, and

a second two-way electro magnetic valve installed on the branch pipe channel in the release side.

3. The oxygen concentrator according to claim 1, wherein the adsorption bed is composed of two adsorption beds, and the flow channel switching device comprises:

a branch pipe channel connecting the air supply device and each adsorption bed to supply compressed air,