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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DOUGLAS ADAM WHITCHER,
BRADLEY STEWART KOEPPEL,
BERNHARD LEWIS HABERLAND, and
JEREMY WEBSTER BLAIR

Appeal 2019-000746
Application 14/343,395[1]
Technology Center 3700

Before PHILIP J. HOFFMANN, CYNTHIA L. MURPHY, and TARA L. HUTCHINGS, *Administrative Patent Judges*.

HOFFMANN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellants appeal from the Examiner's rejection of claims 1–3, 5, 9–11, 13, and 16–18. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] "The real party in interest is KONINKLIJKE PHILIPS N.V." Appeal Br. 2.

According to Appellants, their invention relates to "a portable apparatus for concentrating oxygen by adsorption from air[,] and methods for using such apparatus." Spec. ¶ 2. Claims 1, 9, and 16 are the independent claims on appeal. Below, we reproduce claim 1 as illustrative of the appealed claims.

> 1. A portable oxygen concentrator configured to operate in two or more modes of operation, the two or more modes of operation including a first mode of operation and a second mode of operation, wherein the first mode of operation includes pulse delivery of oxygen-enriched gas, and wherein the second mode of operation includes continuous delivery of oxygen-enriched gas, comprising:
>
> a plurality of sieve beds configured to absorb nitrogen from air, wherein the plurality of sieve beds includes a first sieve bed and a second sieve bed, wherein the first sieve bed includes a first upstream port and a first downstream port, wherein the second sieve bed includes a second upstream port and a second downstream port;
>
> an oxygen side balance valve coupled to the first downstream port and the second downstream port, the oxygen side balance valve configured to balance bed pressure in the first and second sieve beds;
>
> at least one reservoir, communicating with the first downstream port and the second downstream port, configured to store oxygen-enriched gas exiting from the first downstream port and the second downstream port;
>
> a compressor configured to deliver air at one or more desired pressures to the first upstream port and the second upstream port;
>
> a proportional oxygen delivery valve communicating with the reservoir via a delivery line to deliver the oxygen-enriched gas;

a mass flow sensor configured to generate a signal conveying a flow measurement of a mass flow rate of the oxygen-enriched gas through the delivery line;

an oxygen sensor configured to generate an oxygen signal conveying a measurement of oxygen-concentration in the delivery line; and

a controller configured to control a degree of opening and closing of the proportional oxygen delivery valve to deliver the oxygen-enriched gas from the reservoir to the user, based on the mass flow measurement and the oxygen-concentration measurement, at a constant mass of oxygen,

wherein the controller is further configured to control the degree of opening and closing of the proportional oxygen delivery valve to deliver the oxygen-enriched gas from the reservoir to the user at a constant volume of oxygen-enriched gas based on the mass flow measurement and based on ambient pressure, and

wherein the controller is further configured such that, while the portable oxygen concentrator operates in the first mode of operation, the oxygen-enriched gas is delivered through the proportional oxygen delivery valve in pulses timed to respiratory activity of the user, and while the portable oxygen concentrator operates in the second mode of operation, the oxygen-enriched gas is delivered continuously through the proportional oxygen delivery valve, and wherein the controller is configured to increase a target reservoir pressure responsive to the measured oxygen-concentration being below a concentration threshold value.

REJECTIONS AND PRIOR ART[2]

The Examiner rejects the claims as follows:

I. Claims 1–3, 9–11, 16, and 18 under 35 U.S.C. § 103(a) as unpatentable over Sward et al. (US 2009/0145428 A1, pub.

[2] *See, e.g.*, Answer 2.

June 11, 2009) ("Sward") and Bliss et al. (WO 2007/118055 A2, pub. Oct. 18, 2007) ("Bliss"); and

II. Claims 5, 13, and 17 under 35 U.S.C. § 103(a) as unpatentable over Sward, Bliss, and McFarland, Jr. (US 6,729,327 B2, iss. May 4, 2004) ("McFarland").

ANALYSIS

Rejection I

As set forth above, independent claim 1 recites, in relevant part,

> a **mass flow sensor** configured to generate a signal conveying a flow measurement of a mass flow rate of the oxygen-enriched gas through the delivery line; . . . and
>
> a controller configured to control a degree of opening and closing of the proportional oxygen delivery valve to deliver the oxygen-enriched gas from the reservoir to the user, **based on the mass flow measurement** and the oxygen-concentration measurement, at a constant mass of oxygen.

Appeal Br., Claims App. (emphasis added). The Examiner's determination of obviousness relies upon a finding that Sward teaches the mass flow sensor and the controller configuration required by independent claim 1. *See* Final Action 4–5.

In response to Appellants' Appeal Brief, the Examiner agrees with Appellants that Sward does not expressly describe a mass flow rate sensor, as claimed. *See, e.g.*, Answer 3. However, according to the Examiner, Sward's sensor 140 provides a flow measurement that "is easily convertible to mass flow rate" (*see* Final Action 5; *see also* Answer 3), and Sward's control unit 190 delivers oxygen-enriched gas based on this flow measurement (*see* Final Action 4).

Appellants argue that Sward's control unit 190 "does not control delivery of the oxygen gas based on the [mass] flow measurements required by the claims." Appeal Br. 13. Appellants persuade us by this argument. Even if Sward's flow measurement could be "easily convertible to mass flow rate" (Answer 5), the Examiner does not establish why one of ordinary skill would configure Sward's control unit 190 to do such a conversion, when Sward "does not indicate any need for control based on mass flow." Reply Br. 2.

Thus, based on the foregoing, we do not sustain the Examiner's obviousness rejection of independent claim 1. We also do not sustain the Examiner's rejection of independent claims 9 and 16 that the Examiner rejects with, and which include recitations similar to those discussed above with respect to, independent claim 1. Further, we do not sustain the Examiner's rejection of claims 2, 3, 10, 11, and 18 that depend from, and which the Examiner rejects with, the independent claims.

Rejection II

The Examiner does not rely on McFarland to disclose anything that would remedy the above-discussed deficiency in the independent claims' rejection. Thus, we do not sustain the Examiner's obviousness rejection of dependent claims 5, 13, and 17.

DECISION

We REVERSE the Examiner's obviousness rejections of claims 1–3, 5, 9–11, 13, and 16–18.

REVERSED