

United
States
of
America



To Promote the Progress

of Science and Useful Arts

The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Katherine Kelly Vidal

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



US011407575B2

(12) **United States Patent**
Tarnava et al.

(10) **Patent No.:** **US 11,407,575 B2**
(45) **Date of Patent:** **Aug. 9, 2022**

(54) **CONTAINERS FOR PRESSURIZING A LIQUID AND METHODS OF USE THEREOF**

(2022.01); **B01F 35/754251** (2022.01); **B65D 81/3255** (2013.01); **B65D 85/72** (2013.01);

(Continued)

(71) Applicant: **H2 Water Technologies Ltd.,**
Vancouver (CA)

(58) **Field of Classification Search**

CPC A23L 2/40; A23L 2/54; A23V 2002/00;
B01F 3/04099; B01F 3/04787; B01F 3/12; B01F 13/02; B01F 15/02; B01F 15/0279; B01F 2003/04822; B01F 2003/04843; B01F 2003/04914; B01F 23/23; B01F 23/50; B01F 33/40; B01F 35/754251; B65D 81/20; B65D 81/2053; B65D 81/32;

(Continued)

(72) Inventors: **Alexander Tarnava, Coquitlam (CA);**
Bradley Humble, Burnaby (CA)

(73) Assignee: **H2 Water Technologies Ltd.,**
Vancouver (CA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 102 days.

(21) Appl. No.: **16/642,944**

(56) **References Cited**

(22) PCT Filed: **Sep. 4, 2018**

U.S. PATENT DOCUMENTS

(86) PCT No.: **PCT/CA2018/051061**

6,994,227 B2 2/2006 Kwon
9,144,581 B2 9/2015 Miljkovic

§ 371 (c)(1),

(2) Date: **Feb. 28, 2020**

(Continued)

(87) PCT Pub. No.: **WO2019/041052**

PCT Pub. Date: **Mar. 7, 2019**

OTHER PUBLICATIONS

International Search Report and Written Opinion for International Application No. PCT/CA2018/051061, dated Nov. 30, 2018 (9 pages).

(65) **Prior Publication Data**

US 2020/0346836 A1 Nov. 5, 2020

Related U.S. Application Data

Primary Examiner — Bryon P Gehman

(74) *Attorney, Agent, or Firm* — Clark & Elbing LLP

(60) Provisional application No. 62/553,404, filed on Sep. 1, 2017.

(57) **ABSTRACT**

(51) **Int. Cl.**
B65D 81/20 (2006.01)
A23L 2/54 (2006.01)

(Continued)

The invention provides containers for pressuring an aqueous liquid with a gas to increase the concentration of the gas in the aqueous liquid. The container employs one or more moveable sections to reduce the accessible volume of the container, e.g., allowing gases such as H2 to become supersaturated within an aqueous liquid. *

(52) **U.S. Cl.**
CPC **B65D 81/2053** (2013.01); **A23L 2/40** (2013.01); **A23L 2/54** (2013.01); **B01F 23/23** (2022.01); **B01F 23/50** (2022.01); **B01F 33/40**

15 Claims, 5 Drawing Sheets

