



US009943092B1

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

(10) **Patent No.:** **US 9,943,092 B1**
(45) **Date of Patent:** **Apr. 17, 2018**

(54) **LIQUID PROCESSING SYSTEM AND METHOD**

(71) Applicants: **Roy Lee Garrison**, Cantonment, FL (US); **Charles Paul McNemar**, Gulf Breeze, FL (US)

(72) Inventors: **Roy Lee Garrison**, Cantonment, FL (US); **Charles Paul McNemar**, Gulf Breeze, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 178 days.

(21) Appl. No.: **14/979,054**

(22) Filed: **Dec. 22, 2015**

Related U.S. Application Data

(60) Provisional application No. 62/095,122, filed on Dec. 22, 2014.

(51) **Int. Cl.**
F02M 27/04 (2006.01)
A23L 3/00 (2006.01)
C02F 1/48 (2006.01)
A23L 2/70 (2006.01)

(52) **U.S. Cl.**
CPC **A23L 3/001** (2013.01); **A23L 2/70** (2013.01); **C02F 1/481** (2013.01); **A23V 2002/00** (2013.01)

(58) **Field of Classification Search**
CPC F23C 99/001; F23C 6/045; F23C 7/002; F23C 2900/06041; F23D 14/02; F23D 14/62; F23D 11/404; F23D 17/002; A23L 3/001; A23L 2/70; C02F 1/481; A23V 2002/00
USPC 99/275; 431/2, 354; 210/222; 123/295
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,143,496 A *	8/1964	Maretzo	.....	B03C 1/288
				210/222
3,277,631 A *	10/1966	Sunnen	.....	H01J 49/26
				250/293
3,355,609 A *	11/1967	Horn	.....	H02K 44/08
				310/11
3,439,899 A *	4/1969	Hershler	.....	B01J 8/42
				204/155
4,136,016 A *	1/1979	Rosensweig	.....	B01J 8/42
				208/134
4,170,447 A *	10/1979	Goldstein	.....	B03C 1/002
				110/342
4,201,140 A *	5/1980	Robinson	.....	C10G 32/02
				110/218
4,226,720 A *	10/1980	Brigante	.....	B03C 1/02
				210/222
4,238,183 A *	12/1980	Robinson	.....	C10G 32/02
				110/218

(Continued)

Primary Examiner — Eric Stapleton

(74) *Attorney, Agent, or Firm* — J. Nevin Shaffer, Jr.

(57) **ABSTRACT**

An improved liquid processing system including a first catalyst chamber with an inlet and an outlet where the outlet receives liquid to be processed, the liquid passing along the first catalyst chamber and exiting the outlet. Tubes are radially displaced within the first catalyst chamber such that the liquid flows around and over the tubes and where the tubes are filled with at least one magnet. A second catalyst chamber of like configuration is provided. The inlet of the second catalyst chamber is connected with the outlet of the first catalyst chamber. A pump is connected with the liquid processing system such that liquid at the inlet of the first catalyst chamber is sucked into the first catalyst chamber at a first PSI and velocity and pushed into the second catalyst chamber at a second PSI and velocity.

20 Claims, 4 Drawing Sheets

