US009155319B1

(12) **United States Patent**
Perlman

(10) **Patent No.: US 9,155,319 B1**
(45) **Date of Patent: Oct. 13, 2015**

(54) **TRUNCATED GAUSSIAN DISTRIBUTION OF COFFEE PARTICLES, CARTRIDGE ASSEMBLIES, AND USES THEREOF**

(71) Applicant: **Brandeis University**, Waltham, MA (US)

(72) Inventor: **Daniel Perlman**, Arlington, MA (US)

(73) Assignee: **Brandeis University**, Waltham, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/459,613**

(22) Filed: **Aug. 14, 2014**

(51) **Int. Cl.**
A23F 5/08 (2006.01)
B65D 85/804 (2006.01)
A23F 5/26 (2006.01)

(52) **U.S. Cl.**
CPC . ***A23F 5/08*** (2013.01); ***A23F 5/262*** (2013.01); ***B65D 85/8043*** (2013.01)

(58) **Field of Classification Search**
CPC . A47J 31/0668; A47J 31/002; A47J 31/3623; A23F 5/00; A23F 5/26; A23F 5/267
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,187,324	A	2/1980	Shirbroun	
4,267,200	A	5/1981	Klien et al.	
4,331,696	A	5/1982	Bruce, III	
4,591,508	A	5/1986	Pultinas, Jr.	
4,594,256	A	6/1986	Zemelman et al.	
4,594,257	A	6/1986	Leblanc et al.	
5,064,676	A	11/1991	Gore	
5,082,676	A *	1/1992	Love	B65D 85/8043 426/112
5,325,765	A	7/1994	Sylvan et al.	
5,433,962	A	7/1995	Stipp	
5,725,898	A	3/1998	Murphy et al.	
5,741,538	A	4/1998	Stipp et al.	
5,783,246	A	7/1998	Wong et al.	
5,853,788	A	12/1998	Murphy et al.	
5,922,385	A	7/1999	Stipp et al.	
6,142,063	A	11/2000	Beaulieu et al.	
6,672,200	B2	1/2004	Duffy et al.	
2005/0183578	A1 *	8/2005	Mandralis	A47J 31/0673 99/279

OTHER PUBLICATIONS

Repanich J., "Single-Serve Coffeemaker Showdown: 8 Brewers Put to the Test," Popular Mechanics, retrieved at http://www.popularmechanics.com/technology/gadgets/reviews/single-serve-coffeemaker-showd, on Jul. 14, 2014, 7 pages.
KitchenBoy, "Single Serve Coffee Machine Primer," retrieved at http://kitchenboy.net/blog/single-serve-coffee-machine-primer/, on Jul. 14, 2014, 12 pages.
"A Truly Refreshing Offer!," Keurig Single cup Coffee & Brewers, retrieved at http://www.keurig.com, on Jul. 14, 2014, 2 pages.
Prince, M., "Baratza Grinders," Baratza Grinders Technical Paper, retrieved at http://www.coffeegeek.com/pdfs/Baratza%20Grinders%20%20SM.pdf, on Jul. 14, 2014, 18 pages.
Coffeechemistry.com, "Grinding Fundamentals," retrieved at http://www.coffeechemistry.com/grinding/grinding-fundamentals.html, 8 pages, on Jul. 14, 2014.
RapidCoffee, "Titan Grinder Project: Particle Size Distributions of Ground Coffee," retrieved at http://www.home-barista.com/reviews/titan-grinder-project-particle-size-distributions-of-ground-coffee-t4203.html (Jun. 7, 2007), 9 pages.
"Solofill K3 Chrome," Solofill Cup, Reusable K-Cup, Refillable K-Cup for Keurig Brewers, retrieved at http://www.solofill.com/, on Jul. 14, 2014, 3 pages.

* cited by examiner

Primary Examiner — Anthony Weier
(74) *Attorney, Agent, or Firm* — LeClairRyan, a Professional Corporation

(57) **ABSTRACT**

The present technology relates to compositions, assemblies, and methods for the brewing of ground coffee bean particles, where the ground coffee bean particles have been separated on the basis of size to provide a truncated Gaussian distribution of particle sizes of coffee particles.

30 Claims, 2 Drawing Sheets