



(51) International Patent Classification:

A47J 31/44 (2006.01) A47J 43/10 (2006.01)  
A47J 43/046 (2006.01)

(21) International Application Number:

PCT/US2014/065541

(22) International Filing Date:

13 November 2014 (13.11.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/904,281 14 November 2013 (14.11.2013) US

(71) Applicant: CAMELLIA LABS INC. [US/US]; 155  
Bovet Road, San Mateo, California 94402 (US).

(72) Inventor: CHAWLA, Gaurav; 673 Beach Park Blvd,  
Foster City, California 94404 (US).

(74) Agents: GALLIANI, William S. et al.; Cooley LLP, 1299  
Pennsylvania Ave., Suite 700, Washington, District of  
Columbia 20004 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,  
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,  
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,  
KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG,  
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,  
PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,  
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,  
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,  
TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,  
TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,  
DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,  
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,  
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: APPARATUS AND METHOD FOR MAKING TEA LATTE

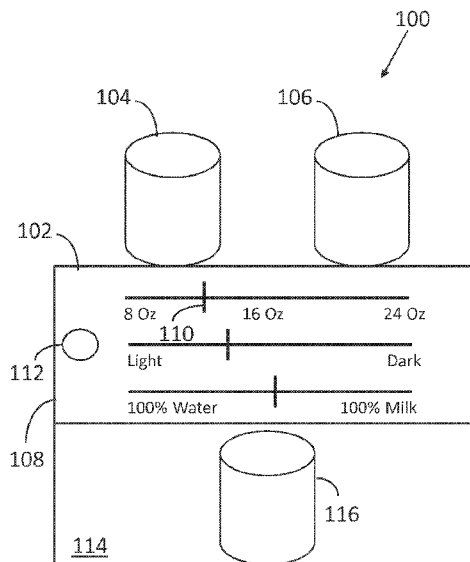


FIG. 1

(57) Abstract: An apparatus includes a body, a first contain-  
er for positioning on the body and a second container for po-  
sitioning on the body. An interface is positioned on the body  
to accept preparation parameters for tea latte. A boiler with-  
in the body receives water from the first container and milk  
from the second container. A heater adjacent to the boiler  
heats the water and the milk in accordance with at least one  
preparation parameter. A filter and a dispensing valve are  
controlled electronically.

## APPARATUS AND METHOD FOR MAKING TEA LATTE

### CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority to U.S. Provisional Patent Application Serial Number 61/904,281, filed November 14, 2013, the contents of which are incorporated herein by  
5 reference.

### FIELD OF THE INVENTION

This invention relates generally to beverage preparation. More particularly, this invention relates to techniques for making tea latte.

### BACKGROUND OF THE INVENTION

10 Tea latte is a combination of tea and milk. Masala chai (Indian spiced chai-tea latte) comprises water, milk, loose tea, various spices and sweetener. Spices used to make chai tea may include ginger, cardamom, pepper, cinnamon, mint, lemon grass, cloves, star anise, fennel seeds, saffron, nutmeg, coriander, basil, licorice, rose, etc.

Tea latte is typically prepared through a manual process. It would be desirable to at  
15 least partially automate the process of preparing tea latte.

### SUMMARY OF THE INVENTION

An apparatus includes a body, a first container for positioning on the body and a second container for positioning on the body. An interface is positioned on the body to accept preparation parameters for tea latte. A boiler within the body receives water from the  
20 first container and milk from the second container. A heater adjacent to the boiler heats the water and the milk in accordance with at least one preparation parameter. A temperature sensor measures the temperature of the liquid inside the boiler. An electronically controlled valve controls the flow of the liquid from the boiler.

### BRIEF DESCRIPTION OF THE FIGURES

25 The invention is more fully appreciated in connection with the following detailed description taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side view of an apparatus configured in accordance with an embodiment of the invention.

FIGURE 2 is an interior view of an apparatus configured in accordance with an embodiment of the invention.

Like reference numerals refer to corresponding parts throughout the several views of the drawings.

5

## DETAILED DESCRIPTION OF THE INVENTION

Figure 1 is a side view of an apparatus 100 for preparing tea latte. The apparatus 100 includes a body 102 that supports a first container 104 holding water and a second container 106 holding milk. Either container may be removable. In the case of the container holding milk, it is desirable to have a removable configuration so that unused milk can be placed in a refrigerator. The base of each container has a movable disc (e.g., spring loaded) for engagement with a valve, as discussed below.

The body 102 supports a display 108. The display 108 accepts preparation parameters for tea latte. For example a slider 110 may be used to specify a tea latte serving size. Other sliders may be used to specify the strength of the tea latte (ranging from a light to dark scale). Another slider may be used to specify fluid mixture percentage (ranging from 100% water to 100% milk). The sliders may be mechanical devices. Alternately, display 108 may be a touch display responsive to physical gestures. The display also includes a start button 112. The start button 112 may present process information, such as heating, brewing, ready and the like.

The body 102 defines an aperture 114. A cup 116 may be placed in the aperture to receive brewed tea latte.

Figure 2 is an interior view of the apparatus of Figure 1. The interior view is not to scale. The body includes a first valve 200 to interface with the first container and a second valve 202 to interface with the second container. Fluid from each valve drips into boiler 204. Alternatively, pumps may be used to transport the fluids. Boiler 204 has an associated heater 206. The boiler has a third valve 208 to dispense brewed tea latte. A filter may be positioned between the boiler 204 and valve 208 to trap residue. In one embodiment, the filter is removable.

A microprocessor 210 is connected to a memory 211. The memory 211 stores instructions to control the brewing process. A mix module 212 includes instructions executed by the microprocessor 210 to process a preparation parameter related to percentage of water and milk. The mix module 212 may also include instructions to process a preparation parameter related to serving size.

A heat module 214 includes instructions executed by the microprocessor 210 to control the heater 206 and therefore the brewing process. A dispense module 216 includes instructions executed by the microprocessor 210 to control valves 200, 202 and 208. Thus, the dispense module 216 controls fluid intake to the boiler 204 and the dispensation of tea  
5 latte to a cup. An actuator 218 may be controlled by the microprocessor 210 to move a tea cartridge 220 into the boiler 204.

Preferably, the apparatus is configured for some manual operations. For example, the first container and the second container need not be used. Rather, the boiler 204 may be removed from the body 108. A milk, water and tea combination may be prepared in the  
10 boiler 204 while outside the body 108. The boiler may then be placed within the body 108. A user may then specify tea latte strength on the interface 108 and push the start button 112.

An embodiment of the present invention relates to a computer storage product with a non-transitory computer readable storage medium having computer code thereon for performing various computer-implemented operations. The media and computer code may  
15 be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts. Examples of computer-readable media include, but are not limited to: magnetic media, optical media, magneto-optical media and hardware devices that are specially configured to store and execute program code, such as application-specific integrated circuits ("ASICs"),  
20 programmable logic devices ("PLDs") and ROM and RAM devices. Examples of computer code include machine code, such as produced by a compiler, and files containing higher-level code that are executed by a computer using an interpreter. For example, an embodiment of the invention may be implemented using JAVA®, C++, or other object-oriented  
programming language and development tools. Another embodiment of the invention may be  
25 implemented in hardwired circuitry in place of, or in combination with, machine-executable software instructions.

The foregoing description, for purposes of explanation, used specific nomenclature to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that specific details are not required in order to practice the invention. Thus,  
30 the foregoing descriptions of specific embodiments of the invention are presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed; obviously, many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, they thereby

enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated. It is intended that the following claims and their equivalents define the scope of the invention.

**In the claims:**

1. An apparatus, comprising:
  - a body;
  - a first container for positioning on the body;
  - 5 a second container for positioning on the body;
  - an interface positioned on the body to accept preparation parameters for tea latte;
  - a boiler within the body to receive water from the first container and milk from the second container; and
  - a heater adjacent to the boiler to heat the water and the milk in accordance with at
  - 10 least one preparation parameter.
2. The apparatus of claim 1 wherein the interface is configured to accept a tea latte size preparation parameter.
3. The apparatus of claim 1 wherein the interface is configured to accept a tea latte strength preparation parameter.
- 15 4. The apparatus of claim 1 wherein the interface is configured to accept a water and milk percentage preparation parameter.
5. The apparatus of claim 1 further comprising a first valve for releasing water from the first container into the boiler.
6. The apparatus of claim 1 further comprising a second valve for releasing milk from
- 20 the second container into the boiler.
7. The apparatus of claim 1 further comprising a third valve for releasing tea latte from the boiler.
8. The apparatus of claim 1 further comprising an actuator to move a tea cartridge into the boiler.

9. The apparatus of claim 1 further comprising a microprocessor positioned within the body to process preparation parameters.
10. The apparatus of claim 1 further comprising a filter to collect tea residue.

1 / 2

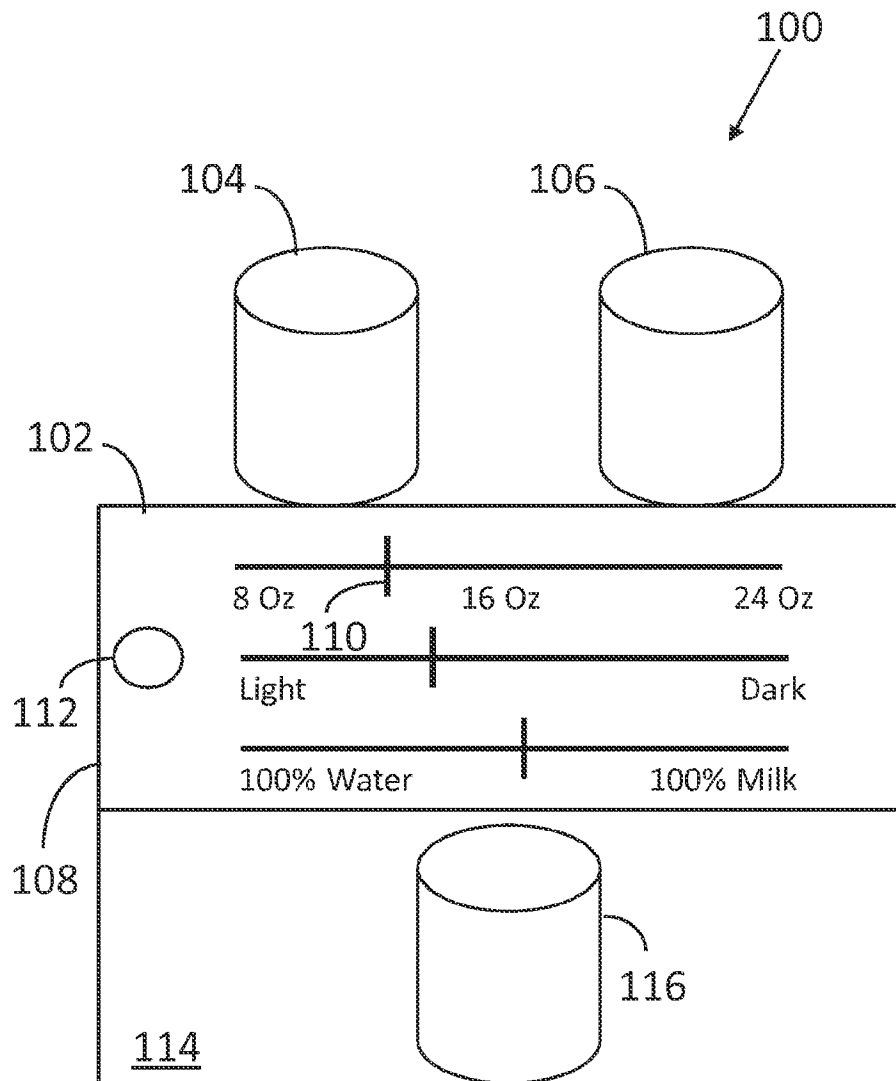


FIG. 1



2 / 2

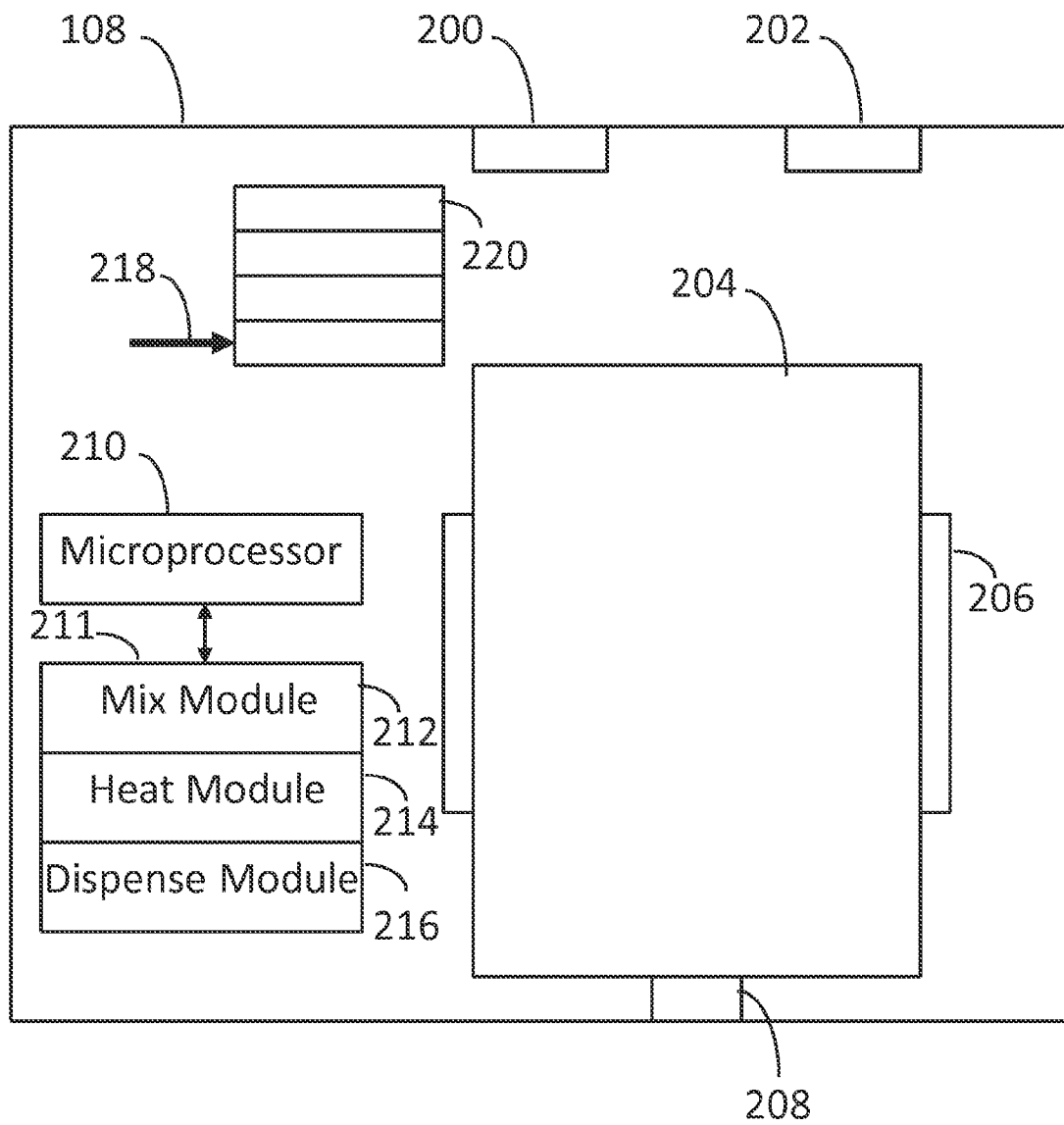


FIG. 2

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/65541

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A47J 31/44, 43/046, 43/10 (2015.01)

CPC - A47J 43/046, 43/1081

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) Classification(s): A47J 31/44, 43/046, 43/10 (2015.01)

CPC Classification(s): A47J 43/046, 43/1081; USPC Classification(s): 99/280, 286, 290

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatSeer (US, EP, WO, JP, DE, GB, CN, FR, KR, ES, AU, IN, CA, INPADOC Data): tea latte, milk, water, foam, froth, boil, heat, steam, valve, parameter, input, settings, size, temperature, filter, processor, computer, interface, cartridge, espresso, coffee, mocha, machine, device, apparatus

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages           | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | US 2009/0158937 A1 (STEARNS W. R. et al.) June 25, 2009; figure 2; paragraphs [0031], [0041] | 1-7                   |
| X         | US 2005/0193890 A1 (FUKUSHIMA N. et al.) September 08, 2005; figure 1; paragraph [0061]      | 1, 8-10               |
| A         | US 5,207,148 A (ANDERSON K. T. et al.) May 04, 1993; entire document                         | 1-10                  |
| A         | US 5,473,909 A (KATEMAN P. et al.) December 12, 1995; entire document                        | 1-10                  |
| A         | US 6,019,032 A (ARKSEY M. T.) February 01, 2000; entire document                             | 1-10                  |
| A         | US 6,158,328 A (CAI E. Z.) December 12, 2000; entire document                                | 1-10                  |

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

14 January 2015 (14.01.2015)

Date of mailing of the international search report

11 FEB 2015

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Shane Thomas

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774