



(86) Date de dépôt PCT/PCT Filing Date: 2002/04/04  
(87) Date publication PCT/PCT Publication Date: 2002/10/17  
(45) Date de délivrance/Issue Date: 2007/07/10  
(85) Entrée phase nationale/National Entry: 2003/10/03  
(86) N° demande PCT/PCT Application No.: US 2002/010636  
(87) N° publication PCT/PCT Publication No.: 2002/080743  
(30) Priorités/Priorities: 2001/04/06 (US60/281,954);  
2001/04/17 (US60/284,403); 2002/04/01 (US10/113,187)

(51) Cl.Int./Int.Cl. *A47J 31/40* (2006.01),  
*A47J 31/32* (2006.01), *A47J 31/46* (2006.01),  
*A47J 31/54* (2006.01)

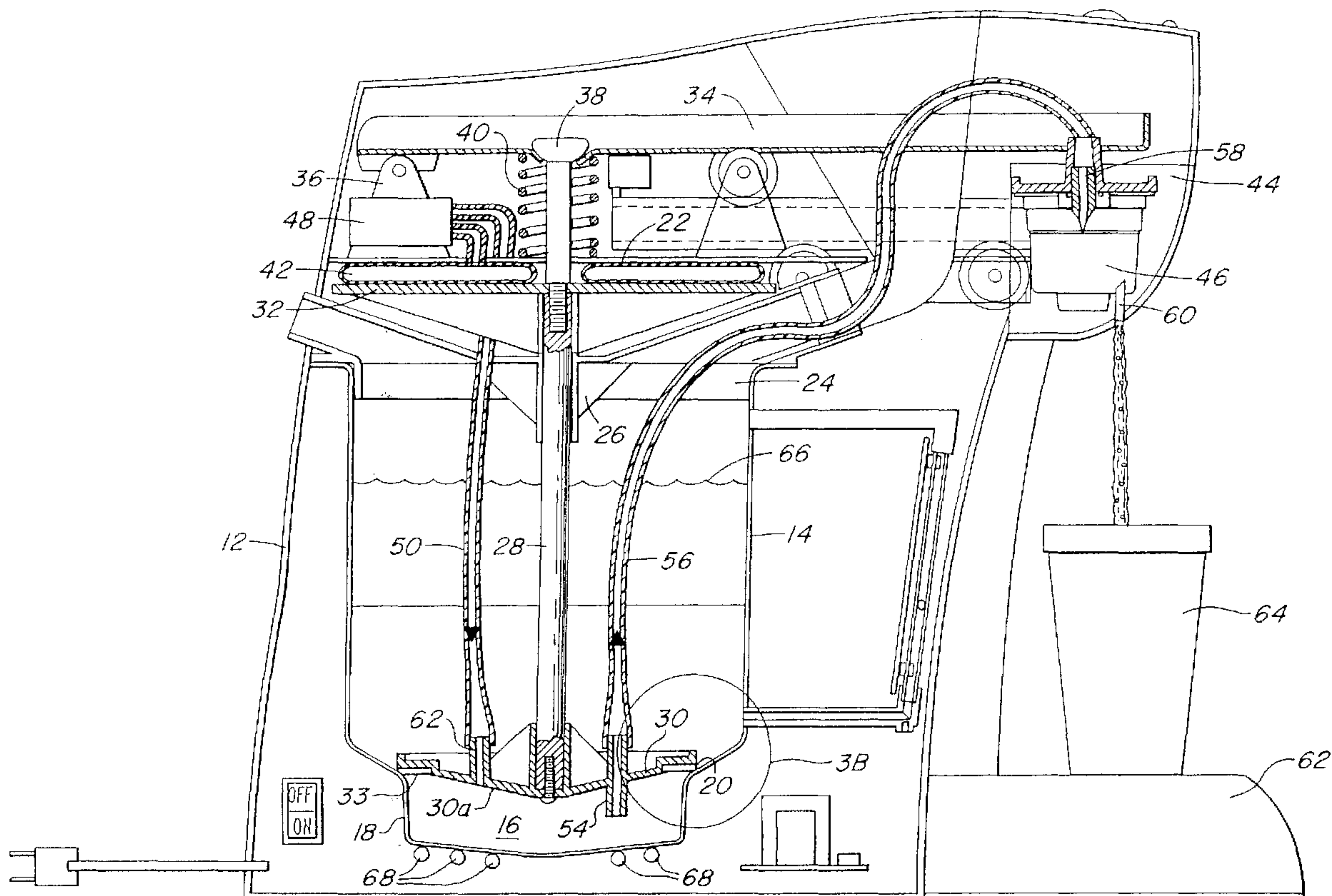
(72) Inventeurs/Inventors:  
TAYLOR, JON, US;  
LIPMAN, JASON F., US

(73) Propriétaire/Owner:  
KEURIG, INCORPORATED, US

(74) Agent: FETHERSTONHAUGH & CO.

(54) Titre : SYSTEME DE CHAUFFAGE ET DE DISTRIBUTION DE LIQUIDE ACTIONNE PAR CHICANE POUR  
MELANGEUR DE BOISSON D'UNE PORTION

(54) Title: BAFFLE OPERATED LIQUID HEATING AND DISPENSING SYSTEM FOR A SINGLE SERVE BEVERAGE  
BREWER



(57) Abrégé/Abstract:

A beverage brewer (10) comprises a storage tank (14) adapted to contain a supply of liquid, and a metering chamber (16) structured and arranged to be filled with a metered amount of liquid received from the storage tank (14) via an inlet in



(57) **Abrégé(suite)/Abstract(continued):**

communication therewith. A brewing chamber (44) is structured and arranged to receive a beverage filter cartridge (46) containing a dry beverage medium. A baffle (30) in the storage tank (14) is shiftable from an open position accommodating liquid flow between the storage tank (14) and the metering chamber (16) via its inlet to a closed position preventing such flow and isolating the metering chamber (16) from the storage tank (14). During a brewing cycle, liquid is delivered from the thus isolated metering chamber (16) to the brewing chamber (44) for combination with the beverage medium contained in the filter cartridge (46). At the conclusion of the brewing cycle, the baffle (30) is returned to its open position, thereby allowing the metering chamber (16) to be refilled with liquid received from the storage tank (14) via its inlet.

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
17 October 2002 (17.10.2002)

PCT

(10) International Publication Number  
**WO 02/080743 A3**(51) International Patent Classification<sup>7</sup>: **A47J 31/40**,  
31/54, 31/46, 31/32

(21) International Application Number: PCT/US02/10636

(22) International Filing Date: 4 April 2002 (04.04.2002)

(25) Filing Language: English

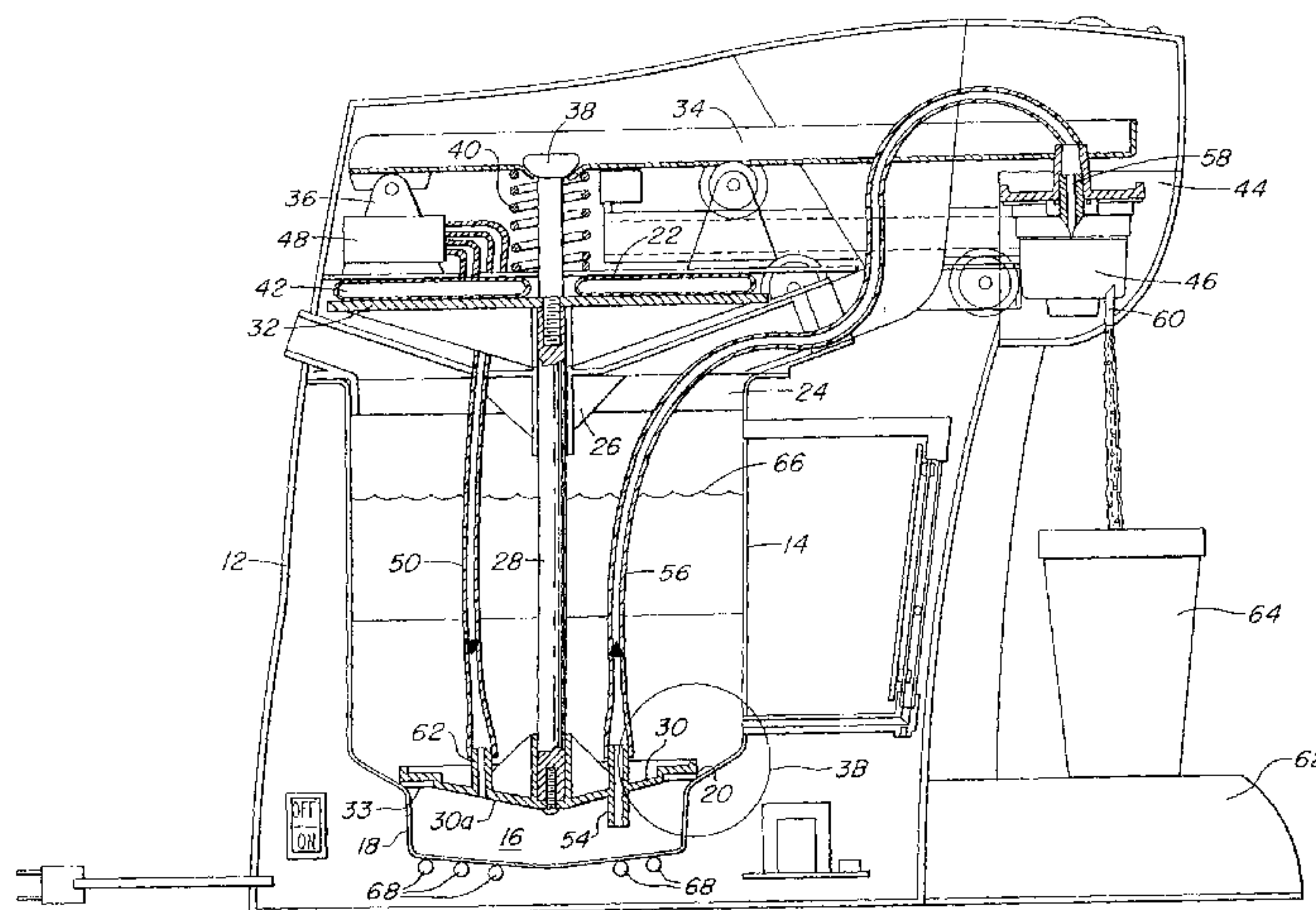
(26) Publication Language: English

(30) Priority Data:  
60/281,954 6 April 2001 (06.04.2001) US  
60/284,403 17 April 2001 (17.04.2001) US  
10/113,187 1 April 2002 (01.04.2002) US(71) Applicant: **KEURIG, INCORPORATED** [US/US]; 101  
Edgewater Drive, Wakefield, MA 01880 (US).(72) Inventors: **TAYLOR, Jon**; 4 Augustine Road, Groton,  
MA 01450 (US). **LIPMAN, Jason, F.**; 92 High Street, Ac-  
ton, MA 01720 (US).(74) Agents: **GAUTHIER, Maurice, E.** et al.; Samuels,  
Gauthier & Stevens, LLP, Suite 3300, 225 Franklin Street,  
Boston, MA 02110 (US).(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,  
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TN, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,  
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent  
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,  
NE, SN, TD, TG).**Published:**

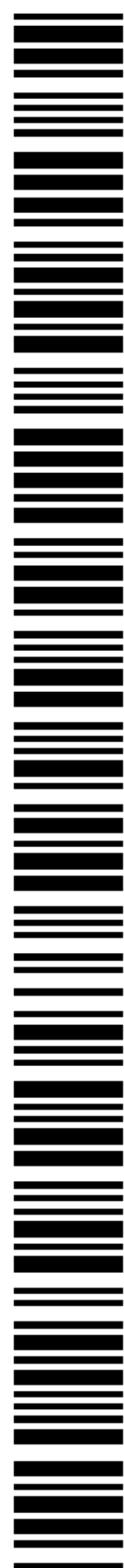
- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(88) Date of publication of the international search report:  
9 January 2003

[Continued on next page]

(54) Title: BAFFLE OPERATED LIQUID HEATING AND DISPENSING SYSTEM FOR A SINGLE SERVE BEVERAGE  
BREWER

(57) **Abstract:** A beverage brewer (10) comprises a storage tank (14) adapted to contain a supply of liquid, and a metering chamber (16) structured and arranged to be filled with a metered amount of liquid received from the storage tank (14) via an inlet in communication therewith. A brewing chamber (44) is structured and arranged to receive a beverage filter cartridge (46) containing a dry beverage medium. A baffle (30) in the storage tank (14) is shiftable from an open position accommodating liquid flow between the storage tank (14) and the metering chamber (16) via its inlet to a closed position preventing such flow and isolating the metering chamber (16) from the storage tank (14). During a brewing cycle, liquid is delivered from the thus isolated metering chamber (16) to the brewing chamber (44) for combination with the beverage medium contained in the filter cartridge (46). At the conclusion of the brewing cycle, the baffle (30) is returned to its open position, thereby allowing the metering chamber (16) to be refilled with liquid received from the storage tank (14) via its inlet.



WO 02/080743 A3

## BAFFLE OPERATED LIQUID HEATING AND DISPENSING SYSTEM FOR A SINGLE SERVE BEVERAGE BREWER

### BACKGROUND DISCUSSION

5

#### 1. Field of the Invention

This invention relates generally to single serve beverage brewers, and is concerned in particular with an improved baffle operated system for rapidly heating and repeatedly dispensing the metered amounts of heated liquid required to effect successive brewing  
10 cycles.

#### 2. Description of the Prior Art

U.S. Patent No. 6,082,247 (Beaulieu) discloses a known system for dispensing metered amounts of heated liquid to the brewing chamber of a single serve brewer. In this system, an inlet opening between a storage tank of heated water and a metering chamber is  
15 selectively opened and closed by a ball contained in the metering chamber. The ball is gravitationally seated in a closed position blocking the inlet opening when the metering chamber is pressurized during a brewing cycle. At the conclusion of the brewing cycle, the metering chamber is vented and the ball is hydraulically dislodged from the inlet opening by an inflow of liquid from the storage tank.

20 While this system operates in a generally satisfactory manner, sealing problems have occasionally been encountered due to a build up of mineral deposits and the like on the ball surface or the meter cup sealing surface. In addition, delays are sometimes encountered between successive brew cycles due to the time required to reheat the contents of the storage tank to the temperature required for optimum brewing efficiency.

25

### SUMMARY OF THE INVENTION

It is desirable to avoid or at least significantly minimize the above noted prior art sealing problems by providing an improved baffle operated system for repeatedly dispensing the metered amounts of liquid required to effect successive brew cycles.

30

It is also desirable to provide a more rapid heating of liquid received in the metering chamber, as well as a more gradual and uniform heating of liquid in the storage tank.

According to one aspect of the invention, there is provided a beverage brewer comprising: a storage tank adapted to contain a supply of liquid; a metering chamber

structured and arranged to be filled with a metered amount of the liquid received from the storage tank via an inlet in communication therewith; a brewing chamber structured and arranged to receive a beverage filter cartridge containing a beverage medium; a baffle movably arranged in the storage tank; actuating means operable in a first mode to shift the baffle from an open position accommodating liquid flow between the storage tank and the metering chamber via the inlet, to a closed position preventing the flow and isolating the metering chamber from the storage tank; connecting means for establishing a connection between the metering chamber and the brewing chamber; and dispensing means operable during a brewing cycle to pneumatically pressurize and deliver liquid from the thus isolated metering chamber via the connecting means to the brewing chamber for combination with the beverage medium contained in the filter cartridge, the actuating means being operable in a second mode at the conclusion of the brewing cycle to shift the baffle to the open position, thereby allowing the metering chamber to be refilled with liquid received from the storage tank via the inlet.

According to another aspect of the invention, there is provided a beverage brewer comprising: a storage tank adapted to contain a supply of liquid; a metering chamber structured and arranged to be filled with a metered amount of the liquid received from the storage tank via an inlet in communication therewith; a brewing chamber structured and arranged to receive a beverage filter cartridge containing a beverage medium; a baffle movably arranged in the storage tank; pneumatically actuated means operable in a first mode to shift the baffle from an open position accommodating liquid flow between the storage tank and the metering chamber via the inlet, to a closed position preventing the flow and isolating the metering chamber from the storage tank; connecting means for establishing a connection between the metering chamber and the brewing chamber; dispensing means pneumatically operable during a brewing cycle to deliver liquid from the thus isolated metering chamber via the connecting means to the brewing chamber for combination with the beverage medium contained in the filter cartridge, and; resiliently actuated means operable in a second mode at the conclusion of the brewing cycle to shift the baffle to the open position, thereby allowing the metering chamber to be refilled with liquid received from the storage tank via the inlet.

According to another aspect of the invention, there is provided a beverage brewer comprising: a storage tank adapted to contain a supply of liquid; a metering chamber

structured and arranged to be filled with a metered amount of the liquid received from the storage tank via an inlet in communication therewith, the storage tank and the metering chamber coacting at a juncture therebetween to define a seat; a brewing chamber structured and arranged to receive a beverage filter cartridge containing a beverage medium; a baffle movably arranged in the storage tank the baffle having a downwardly facing conical central area surrounded by a sealing gasket; actuating means operable in a first mode to shift the baffle from an open position accommodating liquid flow between the storage tank and the metering chamber via the inlet, to a closed position urging the gasket against the seat to prevent the flow and to isolate the metering chamber from the storage tank; connecting means for establishing a connection between the metering chamber and the brewing chamber; dispensing means operable during a brewing cycle to deliver liquid from the thus isolated metering chamber via the connecting means to the brewing chamber for combination with the beverage medium contained in the filter cartridge, the actuating means being operable in a second mode at the conclusion of the brewing cycle to shift the baffle to the open position, thereby allowing the metering chamber to be refilled with liquid received from the storage tank via the inlet.

These and other advantageous features of the present invention will now be described in further detail with reference to the accompanying drawings, wherein:

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a vertical sectional view taken through a single serve brewer embodying a liquid dispensing system in accordance with the present invention, with the dispensing system shown in a “ready” state prior to commencement of a brew cycle;

Figure 2 is a view similar to Figure 1 showing the dispensing system in operation during a brew cycle;

Figure 3A and 3B are enlarged views of the circled areas in Figures 1 and 2;

Figure 4 is an enlarged view diagrammatically depicting air being vented from an heated liquid flowing into the metering chamber as the baffle is raised at the conclusion of a brew cycle; and

3a

Figure 5 is a view similar to Figure 4 diagrammatically depicting water circulation after the metering chamber has been refilled.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

5 With reference initially to Figure 1, a single serve brewer 10 includes a housing 12 enclosing a liquid storage tank 14. The tank has a lower metering chamber 16 formed by a reduced diameter cup-shaped bottom 18 integrally joined to the larger diameter tank side wall at a circular sealing surface defining a seat 20.

10 A fixed internal structure includes a horizontal platform 22 and struts 24 supporting a vertically disposed sleeve bearing 26 aligned centrally with respect to the tank 14 and its cup-shaped bottom 18.

A vertically reciprocal shaft 28 extends through the sleeve bearing 26. The shaft carries a circular baffle 30 at its lower end, and a circular plate 32 disposed beneath the platform 22. With additional reference to Figure 3A, it will be seen that the lower surface  
15 of the baffle 30 is configured with a downwardly protruding central conical area 30a surrounded by a flat annular horizontal shelf 30b. A resilient compressible gasket 33 is secured to the shelf at a location overlying the seat 20.

An arm 34 is pivotally mounted on a bracket 36 carried by the platform 22. Arm 34 is connected to the shaft 28 by a pin 38. A coiled spring 40 surrounds the pin 38 between  
20 the arm 34 and the upper surface of platform 22, and an inflatable bladder 42 is positioned between the bottom surface of the platform 22 and the plate 32.

The distal end of arm 34 extends into a brewing chamber 44 designed to accept a single serve beverage filter cartridge 46 of the type described, for example, in U.S. Patent No. 6,645,537.

25 An air pump 48 on platform 22 is connected to the bladder 42, and is also connected via a flexible hose 50 to a port 52 in the baffle 30. A metering tube 54 extends through the baffle 30 into the chamber 16. The metering tube 54 is connected via a second flexible hose 56 to a depending tubular probe 58 carried by the arm 34. A second tubular probe 60 underlies the cartridge 46 and opens downwardly above an exterior shelf 62 configured and  
30 dimensioned to support a cup 64 or other like receptacle.

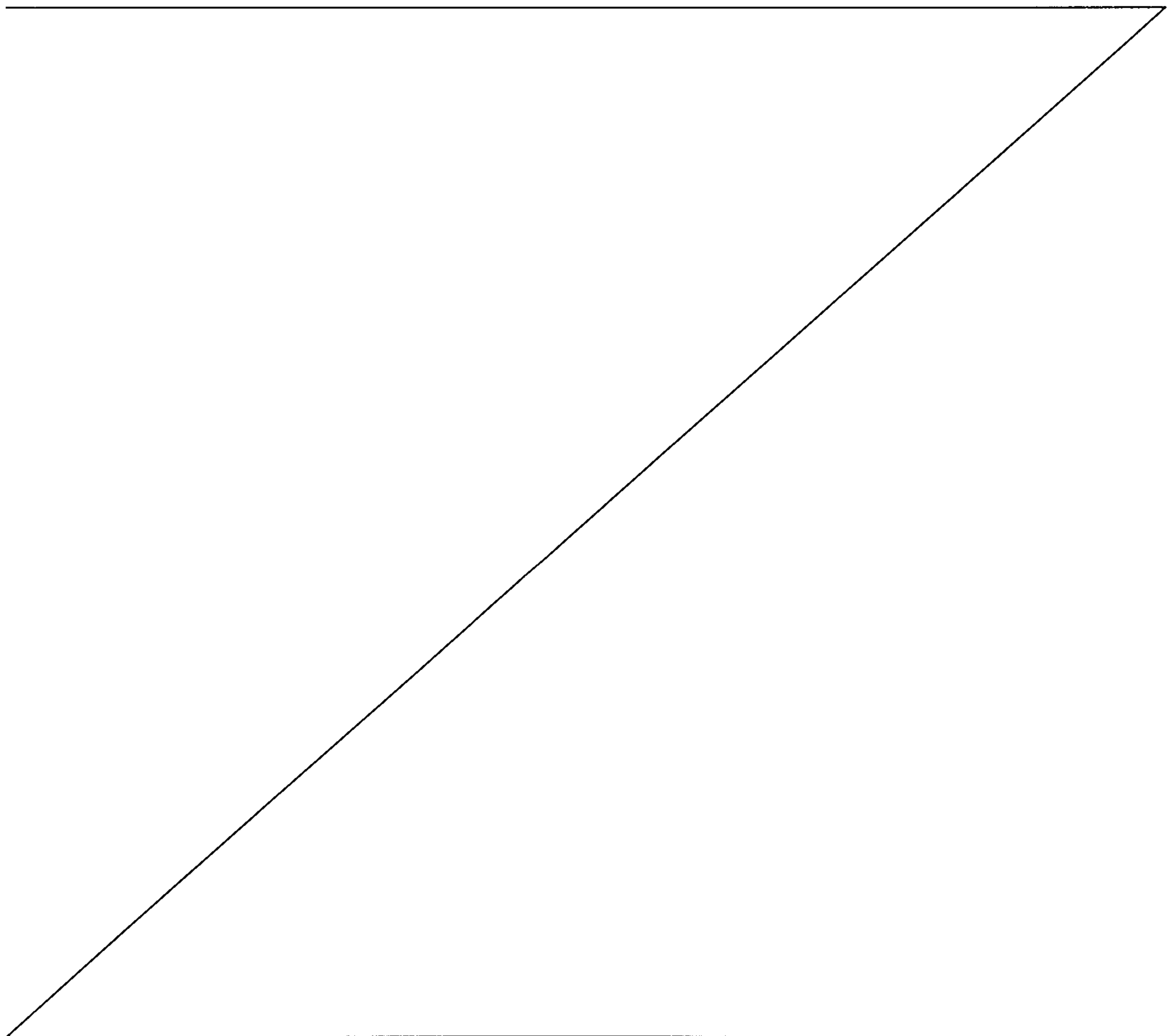
The tank 14 stores a supply of liquid 66 heated by an electrical heating element 68 underlying the cup-shaped bottom 18.

3b

During a brewing cycle, a control system including appropriate valves and circuitry (not shown) operates the air pump 48 to pneumatically effect the following sequence:

a) As shown in Fig. 2, the bladder 42 is inflated, pushing shaft 28 and baffle 30 downwardly, until the gasket 33 is pressed against the seat 20 to seal off the liquid in the metering chamber 16 from the remainder of the tank 14. Downward movement of the shaft 28 also produces downward pivotal movement of arm 34 against the resistance of the spring 40, which in turn results in the lid and bottom of the cartridge 46 in brewing chamber 44 being pierced respectively by probes 58, 60.

b) Compressed air is then fed into the metering chamber 16 via hose 50, causing a metered amount of liquid to be expelled and fed to the cartridge 46 via hose 56 and the tubular probe 58. The resulting heated liquid combines with a beverage medium in the cartridge to produce brewed beverage that exits via the



probe 60 and is received in the underlying cup 64.

- c) At the conclusion of the brew cycle, the pump 46 is deactivated and the system is vented and returned to the condition shown in Figure 1. The bladder 42 is collapsed under the return force of spring 40 causing an upward displacement of the shaft 28. The baffle 30 is thus raised above the seat 20, allowing air in the chamber 16 to be displaced by liquid in the tank 14. The return force of the spring 40 also pivots arm 34 upwardly, which in turn removes the probe 58 from the cartridge 46.

The spent cartridge 46 may then be removed from the brewing chamber, readying the system for the next cycle.

- 10 With reference to Figure 4, it will be seen that the conical area 30a has an angle of taper  $\alpha$  between about 5 to 20°, with the preferred range being between about 8 to 12°.

With this arrangement, as shown in Figure 4, upon elevation of the baffle at the conclusion of a brew cycle, the conical central area 30a assists in uniformly distributing the escaping air (diagrammatically depicted by broken arrows) to and around the entire periphery of the baffle. The escaping air is displaced by a counterflow of water (diagrammatically depicted by solid arrows) which enters the metering chamber around the entire periphery of the baffle.

As shown in Figure 5, when the baffle 30 is in its fully elevated position, it coacts with the seat 20 to define a gap "x" which measures between about 2 to 10% of the baffle diameter "D", and preferably between about 3 to 5% of the baffle diameter. The baffle induces a thermal stratification between the metering chamber 16 and the remainder of the tank. As indicated diagrammatically by the solid arrows, the gap "x" serves to control convective flow and heat transfer between the metering chamber and the remainder of the tank, while encouraging a recirculating convective flow within the metering chamber. This insures both a rapid heating of water received in the metering chamber and a more gradual and uniform heating of water in the remainder of the tank.

Various modifications may be made to the embodiment herein disclosed. For example, the shaft 28 may be vertically reciprocated by other means, e.g., a motor-driven gear drive, or manual operation of the arm 34. The metering chamber 16 and seat 20 may be formed on a separate cup-shaped insert received in the tank, rather than being formed integrally with the tank.

Internal rather than external heating elements could be employed to heat the liquid in the storage tank. Other tank shapes with for example square or rectangular cross sections could employ comparably shaped baffles. Multiple air pumps could be employed to inflate the bladder 42 and to pressurize the metering chamber 16.

5

It is our intention to cover these and any other changes and modifications that do not depart from the spirit and scope of the invention as defined by the appended claims.

We claim:

1 WHAT IS CLAIMED IS:

2

3 1. A beverage brewer comprising:

4 a storage tank adapted to contain a supply of liquid;

5 a metering chamber structured and arranged to be filled with a metered amount of  
6 said liquid received from said storage tank via an inlet in communication therewith;

7 a brewing chamber structured and arranged to receive a beverage filter cartridge  
8 containing a beverage medium;

9 a baffle movably arranged in said storage tank;

10 actuating means operable in a first mode to shift said baffle from an open position  
11 accommodating liquid flow between said storage tank and said metering chamber via said  
12 inlet, to a closed position preventing said flow and isolating said metering chamber from  
13 said storage tank;

14 connecting means for establishing a connection between said metering chamber and  
15 said brewing chamber; and

16 dispensing means operable during a brewing cycle to pneumatically pressurize and  
17 deliver liquid from the thus isolated metering chamber via said connecting means to said  
18 brewing chamber for combination with the beverage medium contained in said filter  
19 cartridge, said actuating means being operable in a second mode at the conclusion of said  
20 brewing cycle to shift said baffle to said open position, thereby allowing said metering  
21 chamber to be refilled with liquid received from said storage tank via said inlet.

1 2. The beverage brewer of claim 1 wherein said storage tank has a cylindrical  
2 side wall, and said metering chamber is formed as a reduced diameter cup-shaped bottom of  
3 said storage tank.

1 3. The beverage brewer of claim 2 wherein said cup-shaped bottom is joined to  
2 said cylindrical side wall by a circular sealing surface surrounding said inlet.

1 4. The beverage brewer of claim 1 wherein said actuating means is  
2 pneumatically driven in said first mode.

1 5. The beverage brewer of claim 1 or claim 4 wherein said actuating means is  
2 resiliently driven in said second mode.

1 6. The beverage brewer of claim 1 wherein said connecting means  
2 communicates with said metering chamber via a port extending through said baffle.

1           7.       The beverage brewer of claim 1 wherein said baffle is carried on a shaft  
2 supported for vertical reciprocal movement between said open and closed positions.

1           8.       The beverage brewer of claim 7 further comprising a horizontal platform  
2 overlying and fixed with respect to said storage tank, said vertical shaft extending through  
3 and being vertically reciprocal with respect to said platform, and a plate secured to said  
4 shaft beneath said platform, said actuating means including a bladder interposed between  
5 said platform and said plate, said bladder being pneumatically inflatable in said first mode  
6 to axially lower said shaft with an accompanying shifting of said baffle from said open to  
7 said closed position.

1           9.       The beverage brewer of claim 8 further comprising an arm arranged above  
2 said platform, said arm being pivotally supported on said platform and having a distal end  
3 extending into said brewing chamber, a tubular inlet probe carried by the distal end of said  
4 arm, and means for connecting said arm to said shaft, whereby an axial lowering of said  
5 shaft is accompanied by a pivotal lowering of the distal end of said arm, causing said inlet  
6 probe to pierce a beverage filter cartridge received in said brewing chamber, the said  
7 dispensing means being operable via said probe to deliver liquid to the interior of the thus  
8 pierced beverage cartridge.

1           10.      The beverage brewer of claim 1 wherein a circular lower surface of said  
2 baffle includes a central downwardly protruding conical area surrounded by a horizontal  
3 annular ledge.

1           11.      The beverage brewer of claim 10 wherein said conical area has an angle of  
2 taper of between about 5-20°.

1           12.      The beverage brewer of claim 10 wherein said conical area has an angle of  
2 taper of between about 8-12°.

1           13.      The beverage brewer of claim 10 wherein a circular seat is defined at a  
2 juncture between said storage tank and said metering chamber, and a gasket is provided on  
3 said annular ledge, said gasket being structured and dimensioned to coact in a sealing  
4 relationship with said seat when said baffle is in said closed position.

1           14.      The beverage brewer of claim 13 wherein when said baffle is in said open  
2 position, said gasket is spaced from said circular seat by a gap measuring between about 2-  
3 10% of the diameter of said baffle.

1           15.     The beverage brewer of claim 14 wherein said gap measures between about  
2     3-5% of the diameter of said baffle.

1           16.     A beverage brewer comprising:  
2           a storage tank adapted to contain a supply of liquid;  
3           a metering chamber structured and arranged to be filled with a metered amount of  
4     said liquid received from said storage tank via an inlet in communication therewith;  
5           a brewing chamber structured and arranged to receive a beverage filter cartridge  
6     containing a beverage medium;  
7           a baffle movably arranged in said storage tank;  
8           pneumatically actuated means operable in a first mode to shift said baffle from an  
9     open position accommodating liquid flow between said storage tank and said metering  
10    chamber via said inlet, to a closed position preventing said flow and isolating said metering  
11    chamber from said storage tank;  
12           connecting means for establishing a connection between said metering chamber and  
13    said brewing chamber;  
14           dispensing means pneumatically operable during a brewing cycle to deliver liquid  
15    from the thus isolated metering chamber via said connecting means to said brewing  
16    chamber for combination with the beverage medium contained in said filter cartridge, and;  
17           resiliently actuated means operable in a second mode at the conclusion of said  
18    brewing cycle to shift said baffle to said open position, thereby allowing said metering  
19    chamber to be refilled with liquid received from said storage tank via said inlet.

1           17.     A beverage brewer comprising:  
2           a storage tank adapted to contain a supply of liquid;  
3           a metering chamber structured and arranged to be filled with a metered amount of  
4     said liquid received from said storage tank via an inlet in communication therewith, said  
5     storage tank and said metering chamber coacting at a juncture therebetween to define a seat;  
6           a brewing chamber structured and arranged to receive a beverage filter cartridge  
7     containing a beverage medium;  
8           a baffle movably arranged in said storage tank said baffle having a downwardly  
9     facing conical central area surrounded by a sealing gasket;  
10           actuating means operable in a first mode to shift said baffle from an open position  
11    accommodating liquid flow between said storage tank and said metering chamber via said

12 inlet, to a closed position urging said gasket against said seat to prevent said flow and to  
13 isolate said metering chamber from said storage tank;  
14 connecting means for establishing a connection between said metering chamber and  
15 said brewing chamber;  
16 dispensing means operable during a brewing cycle to deliver liquid from the thus  
17 isolated metering chamber via said connecting means to said brewing chamber for  
18 combination with the beverage medium contained in said filter cartridge, said actuating  
19 means being operable in a second mode at the conclusion of said brewing cycle to shift said  
20 baffle to said open position, thereby allowing said metering chamber to be refilled with  
21 liquid received from said storage tank via said inlet.

1/6

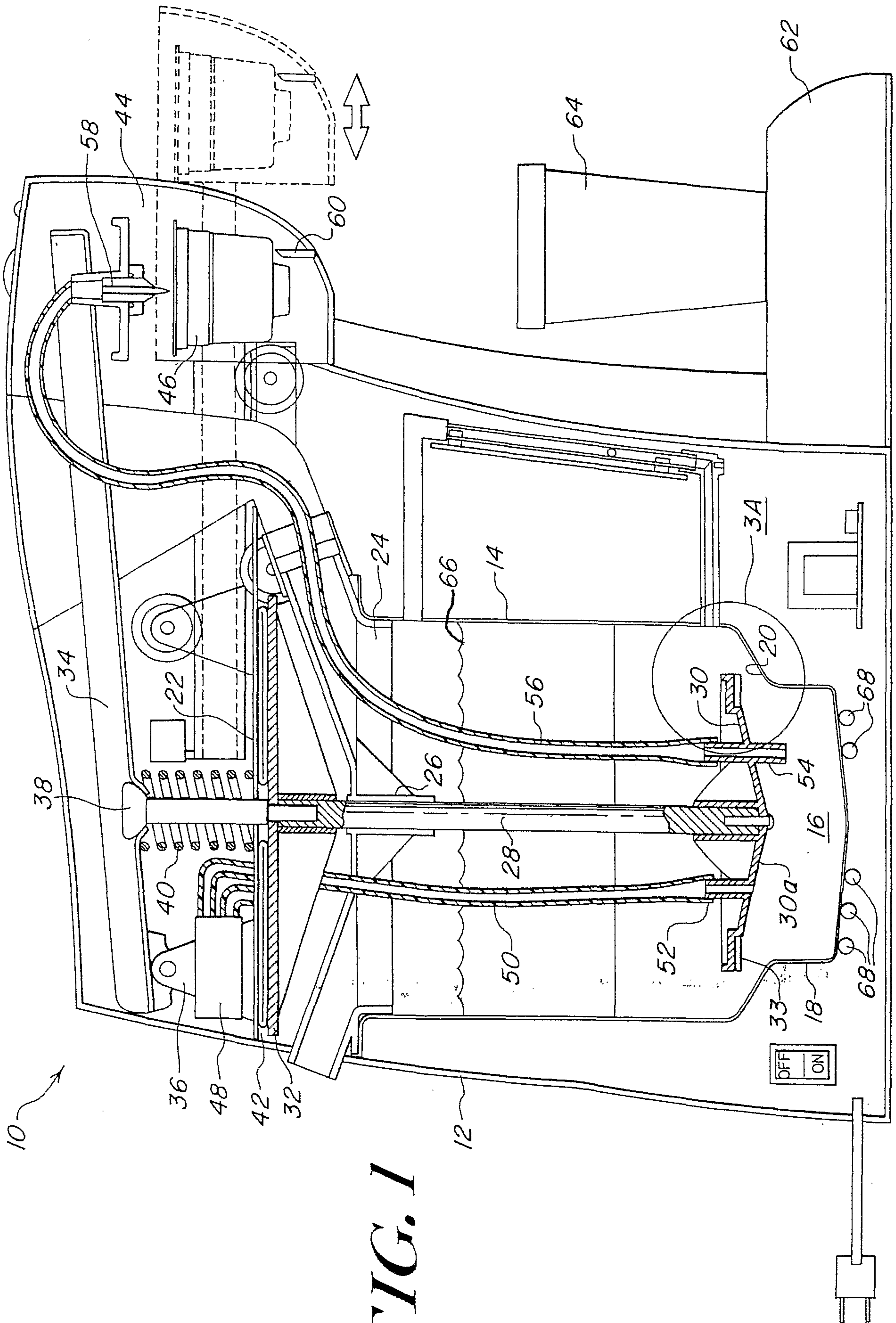
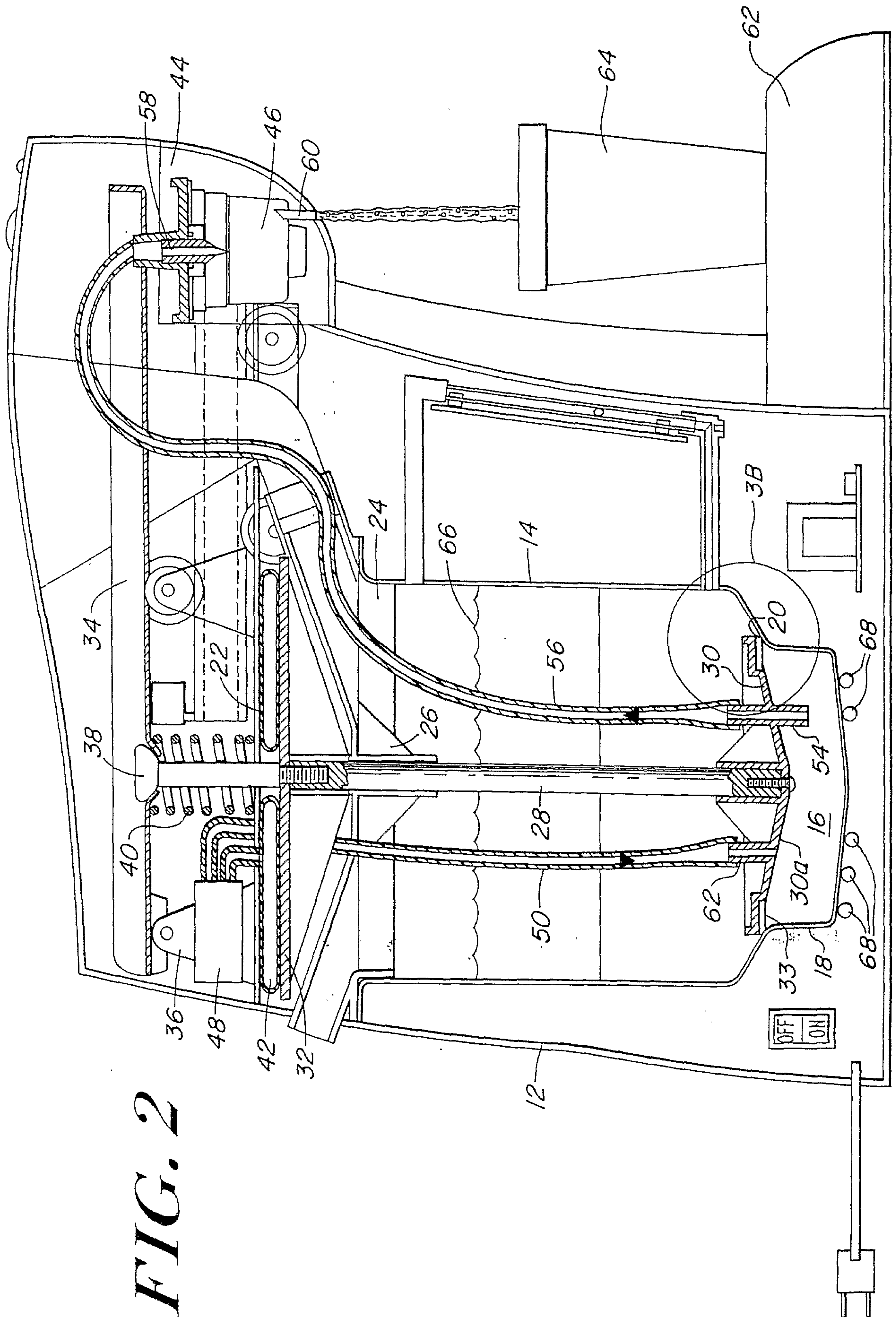
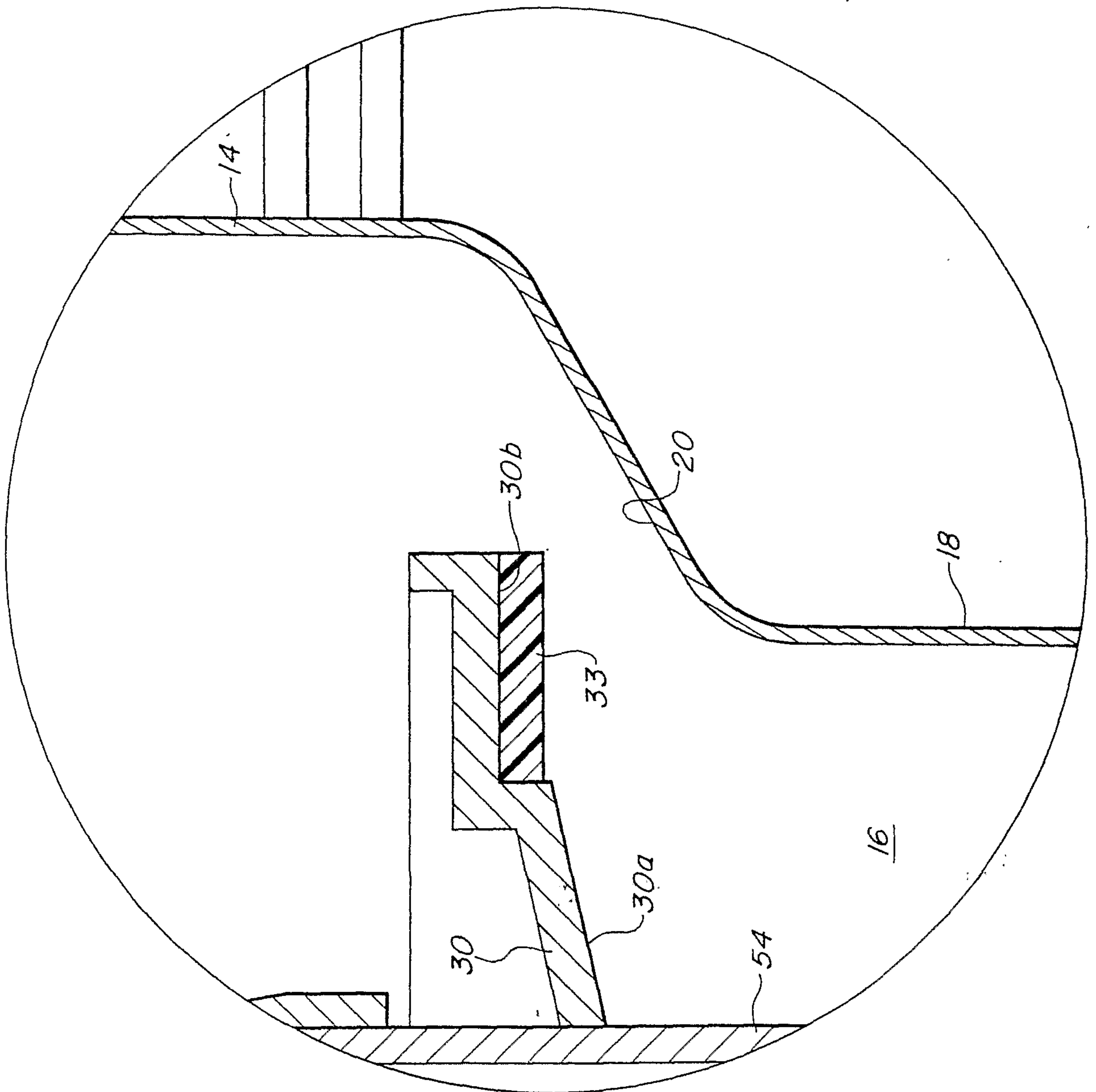


FIG. 1

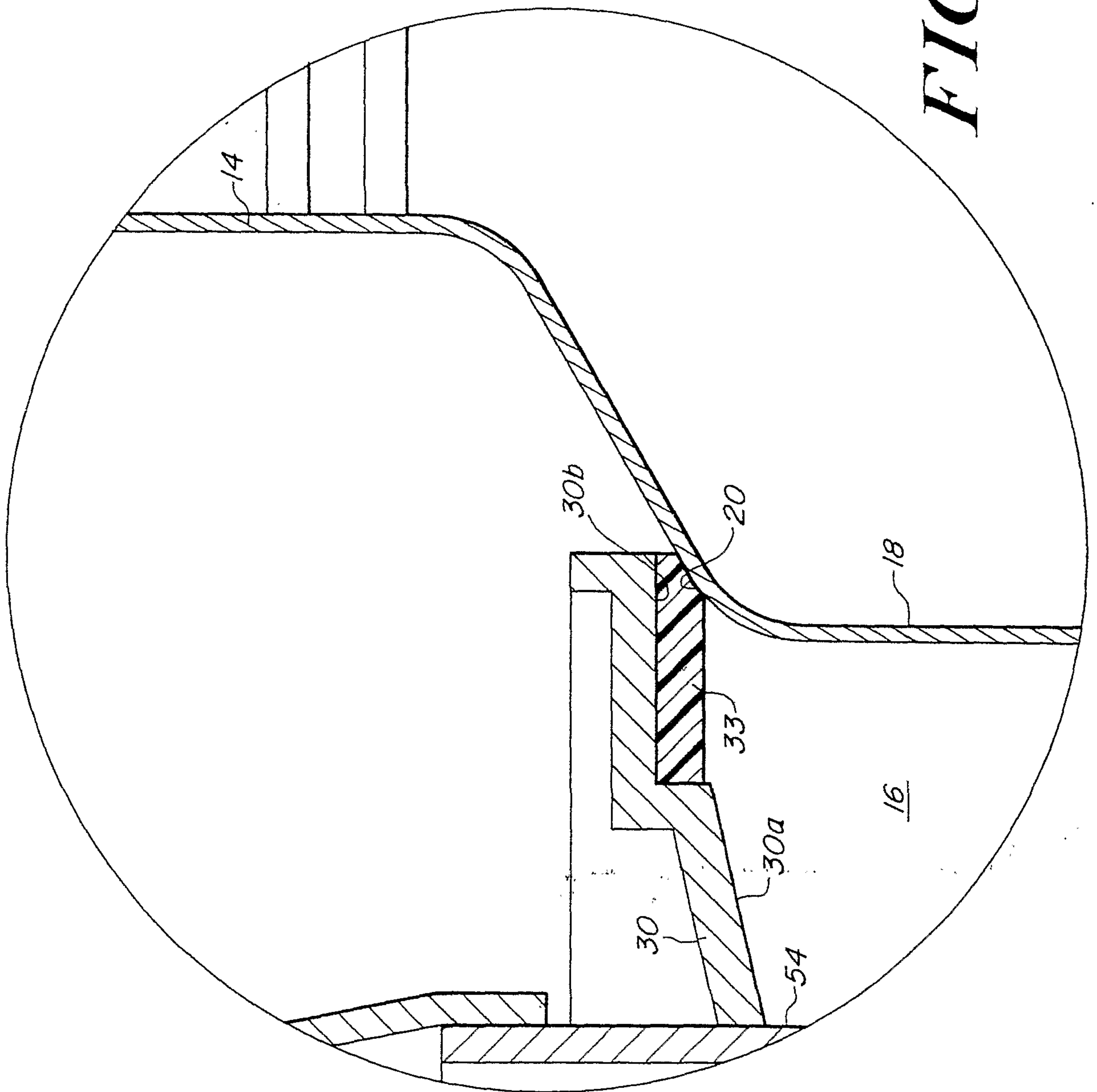
2/6



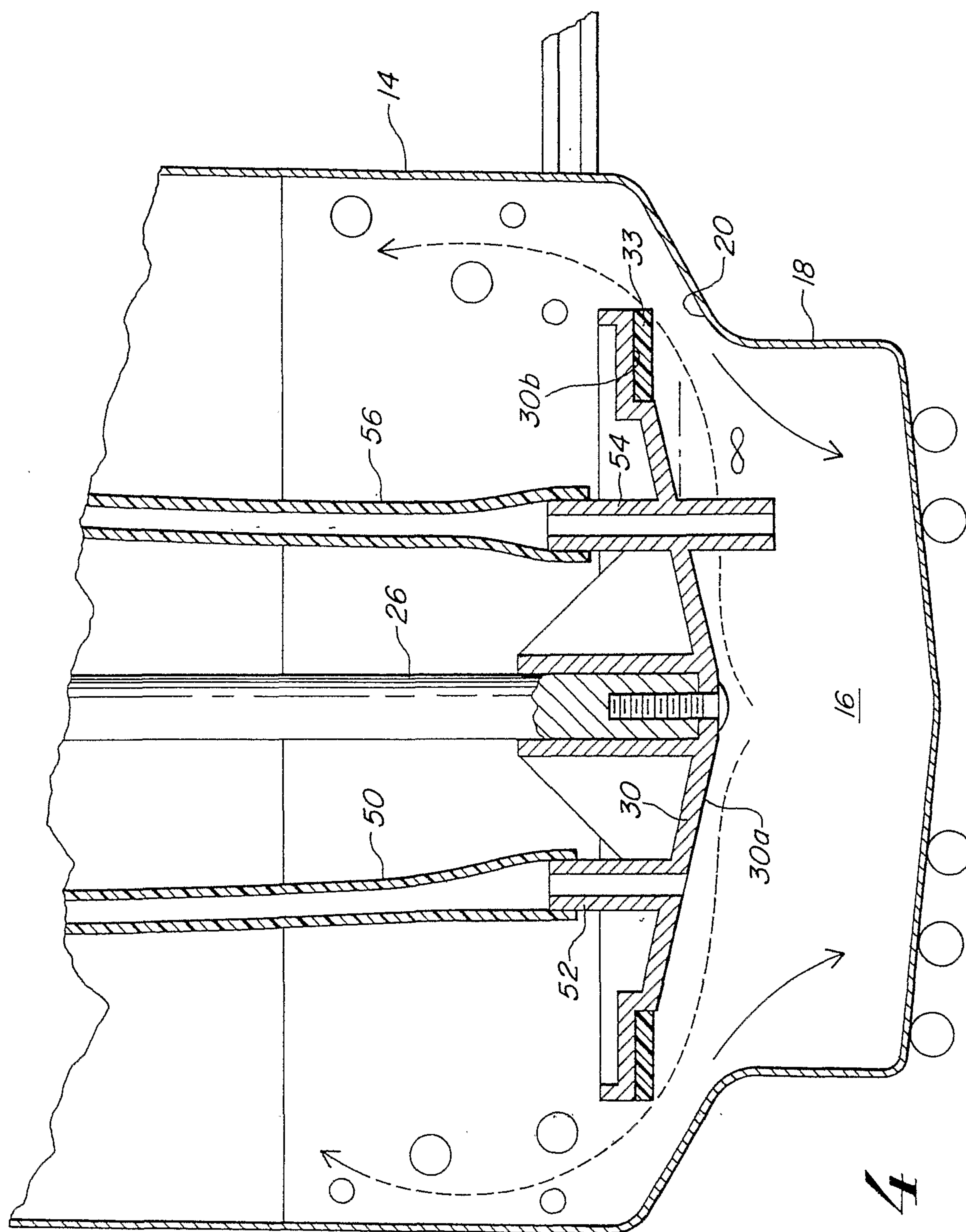
3/6

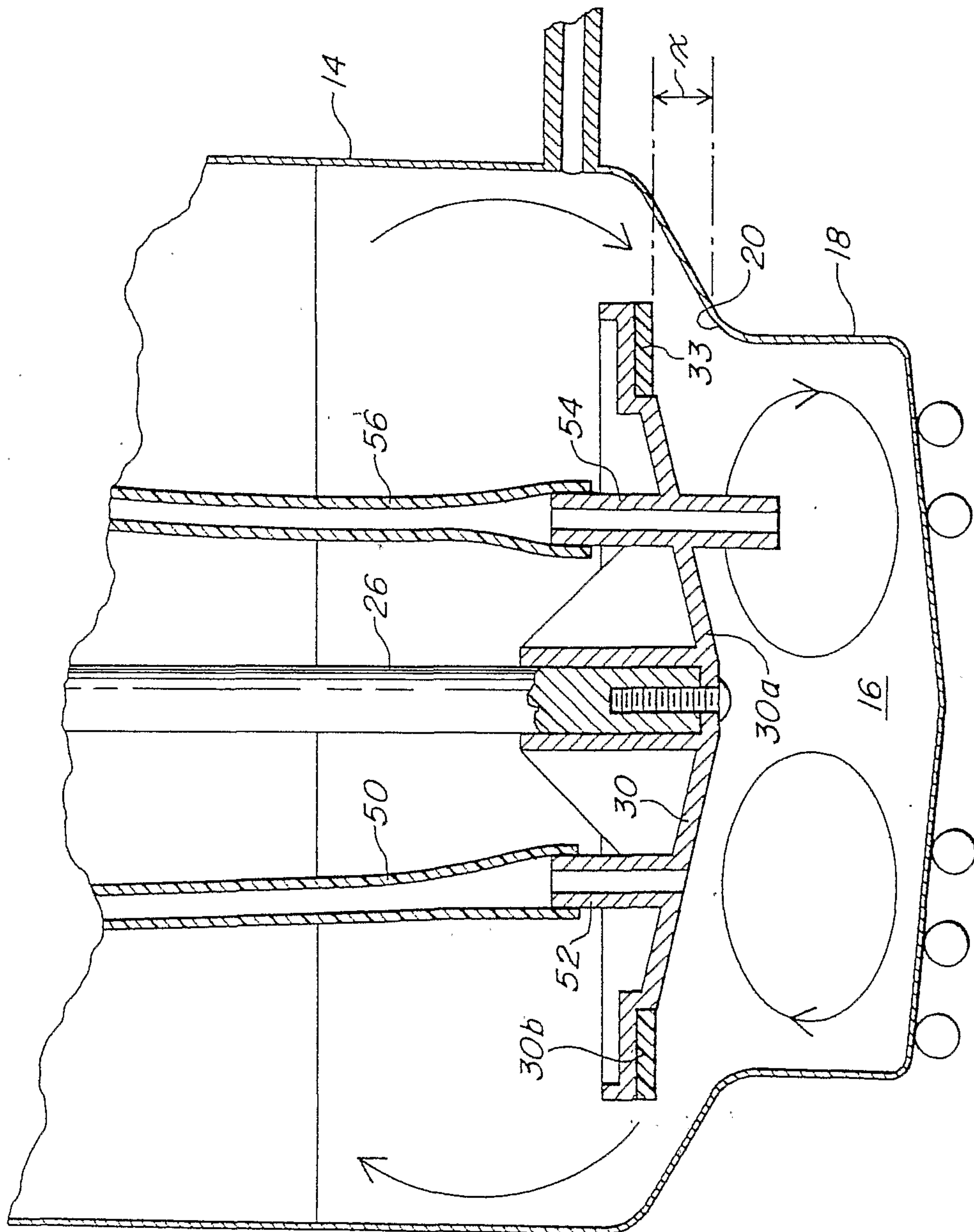
*FIG. 3A*

4/6

*FIG. 3B*

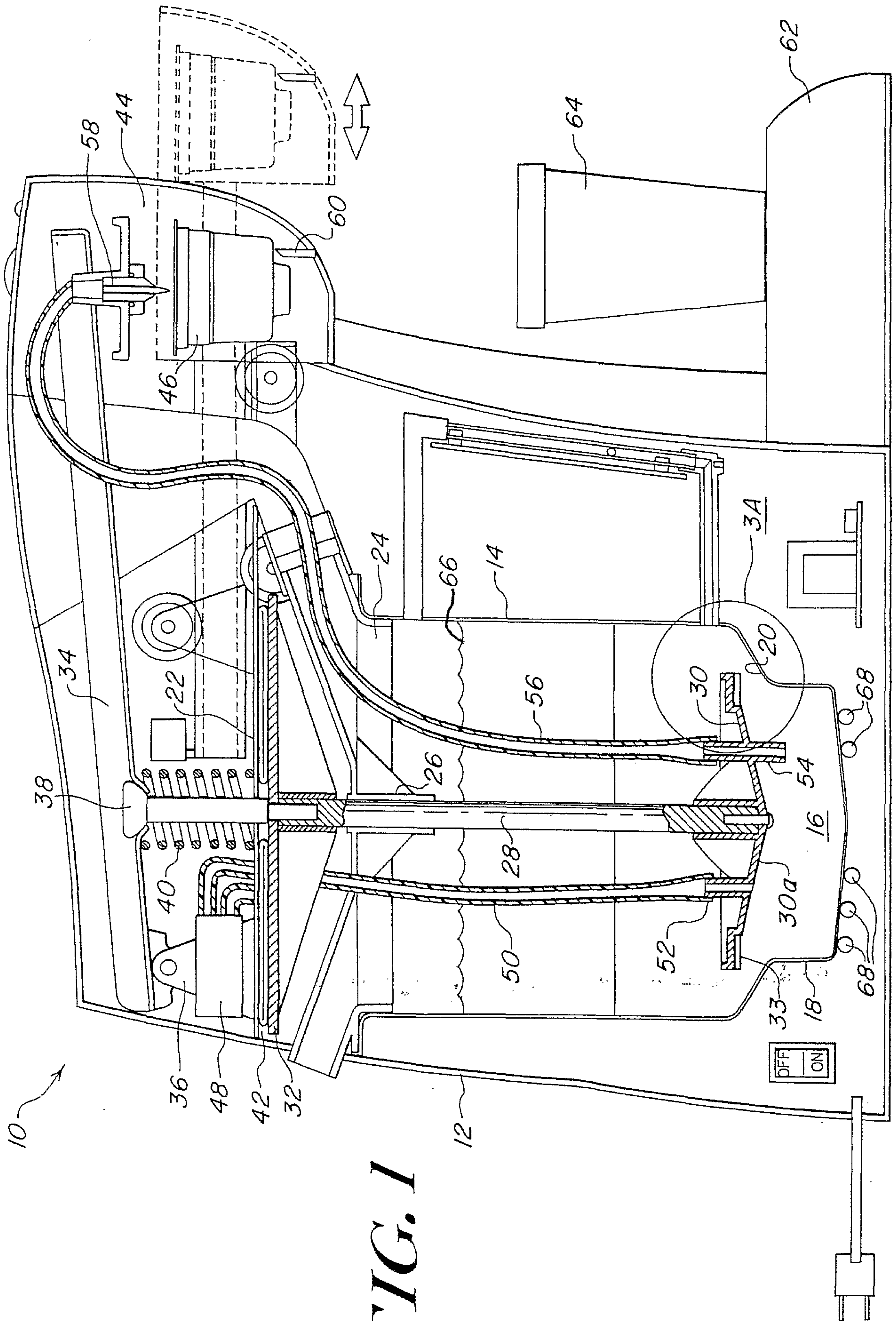
5/6

**FIG. 4**

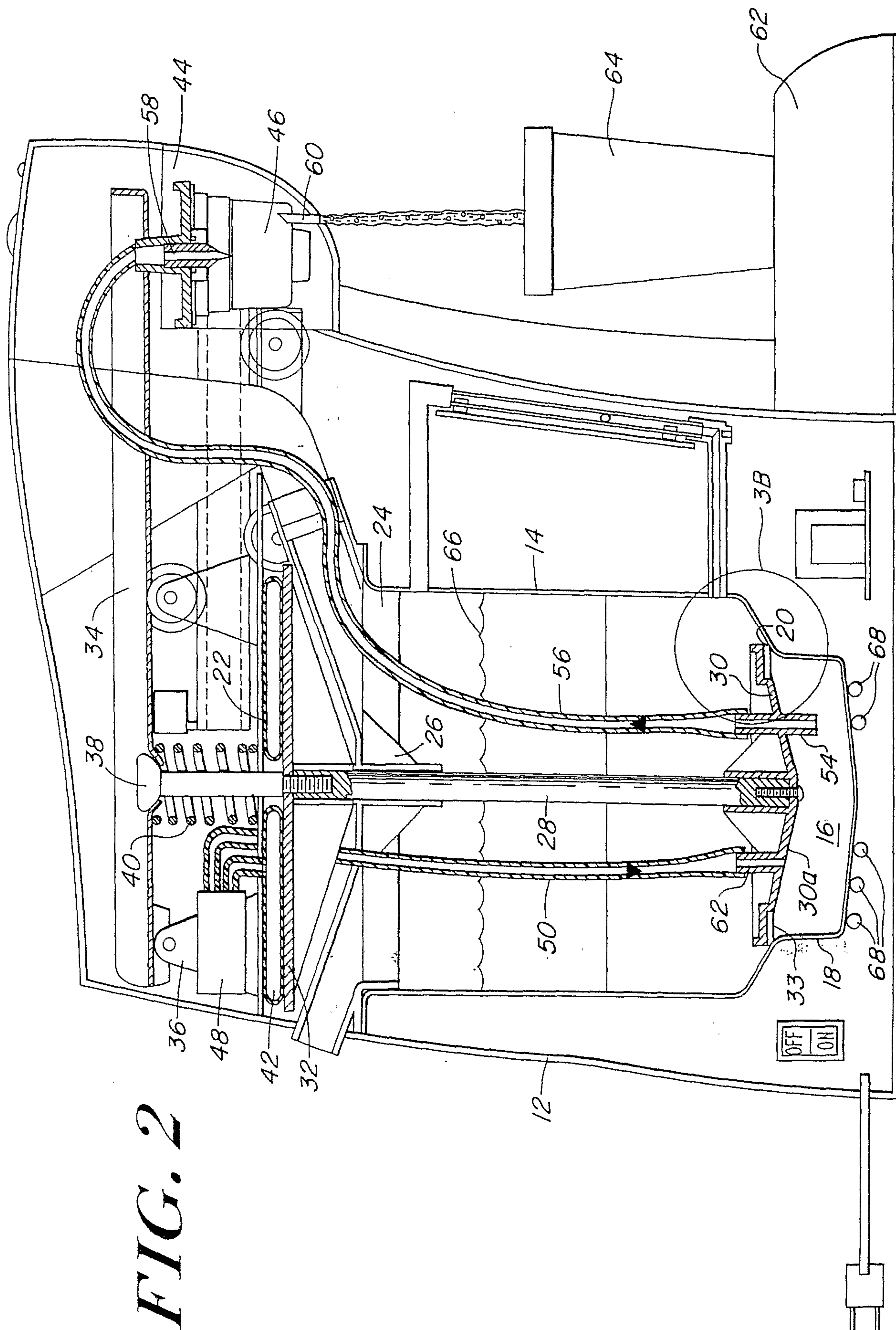


**FIG. 5**

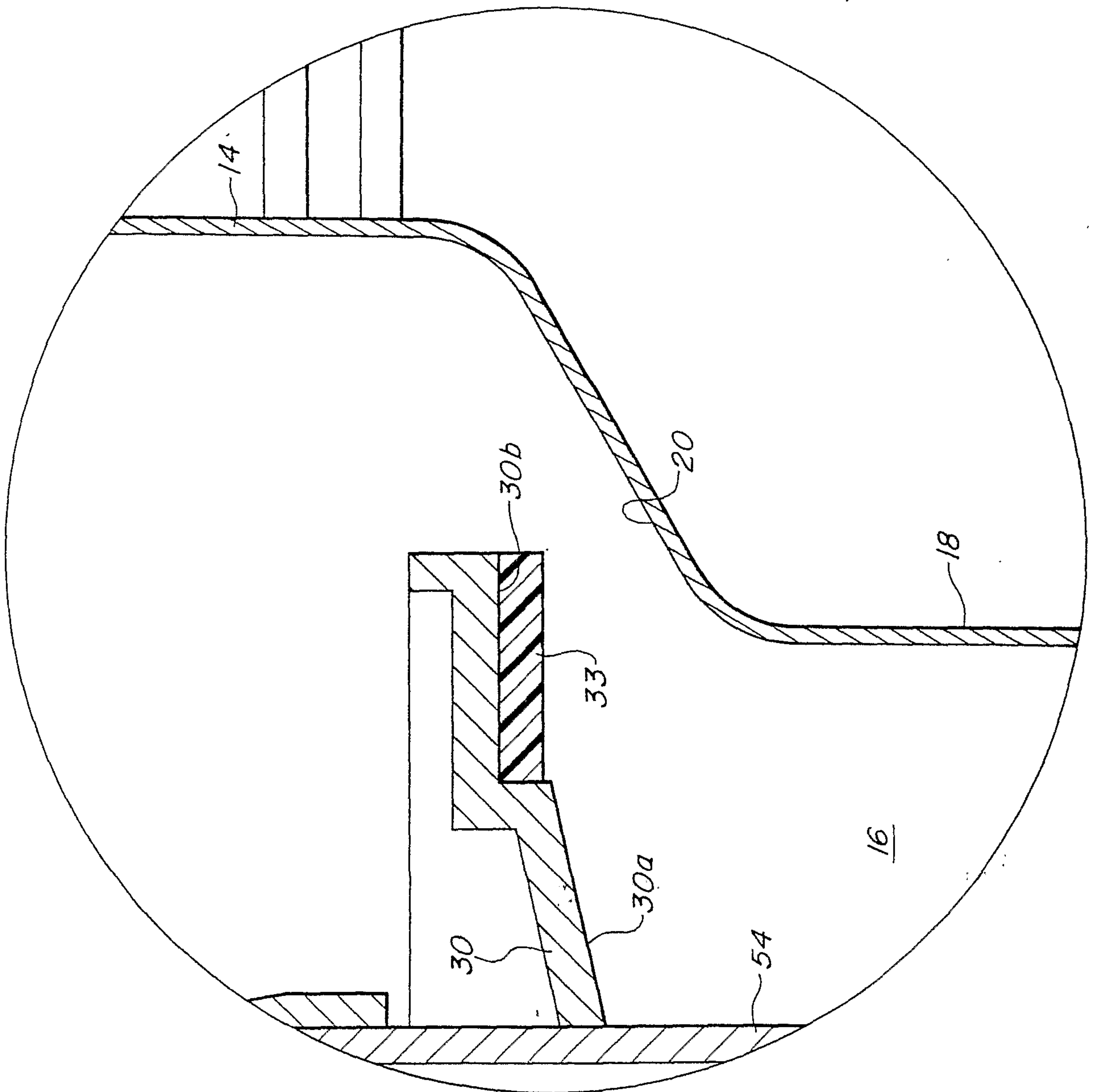
1/6



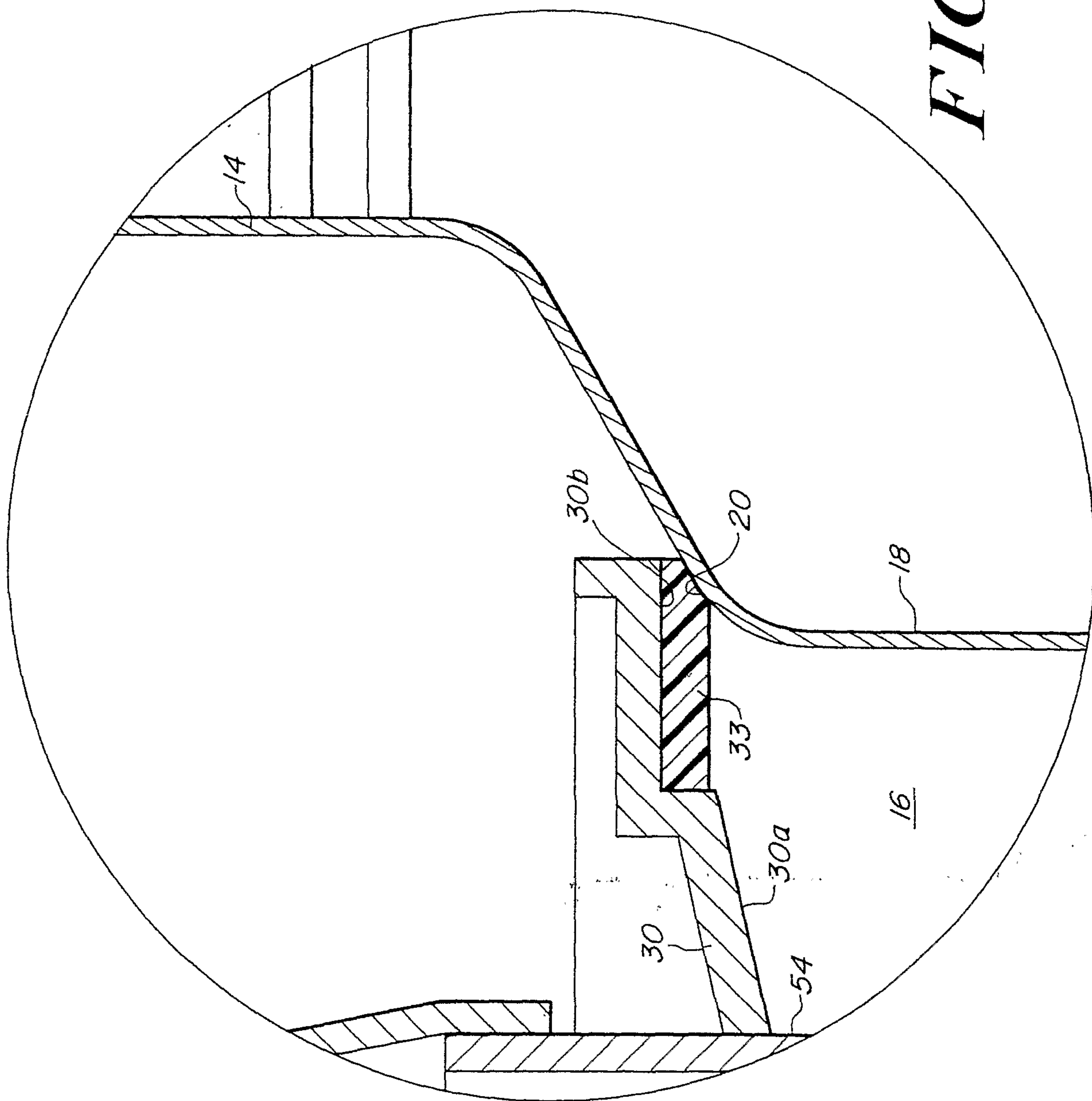
2/6



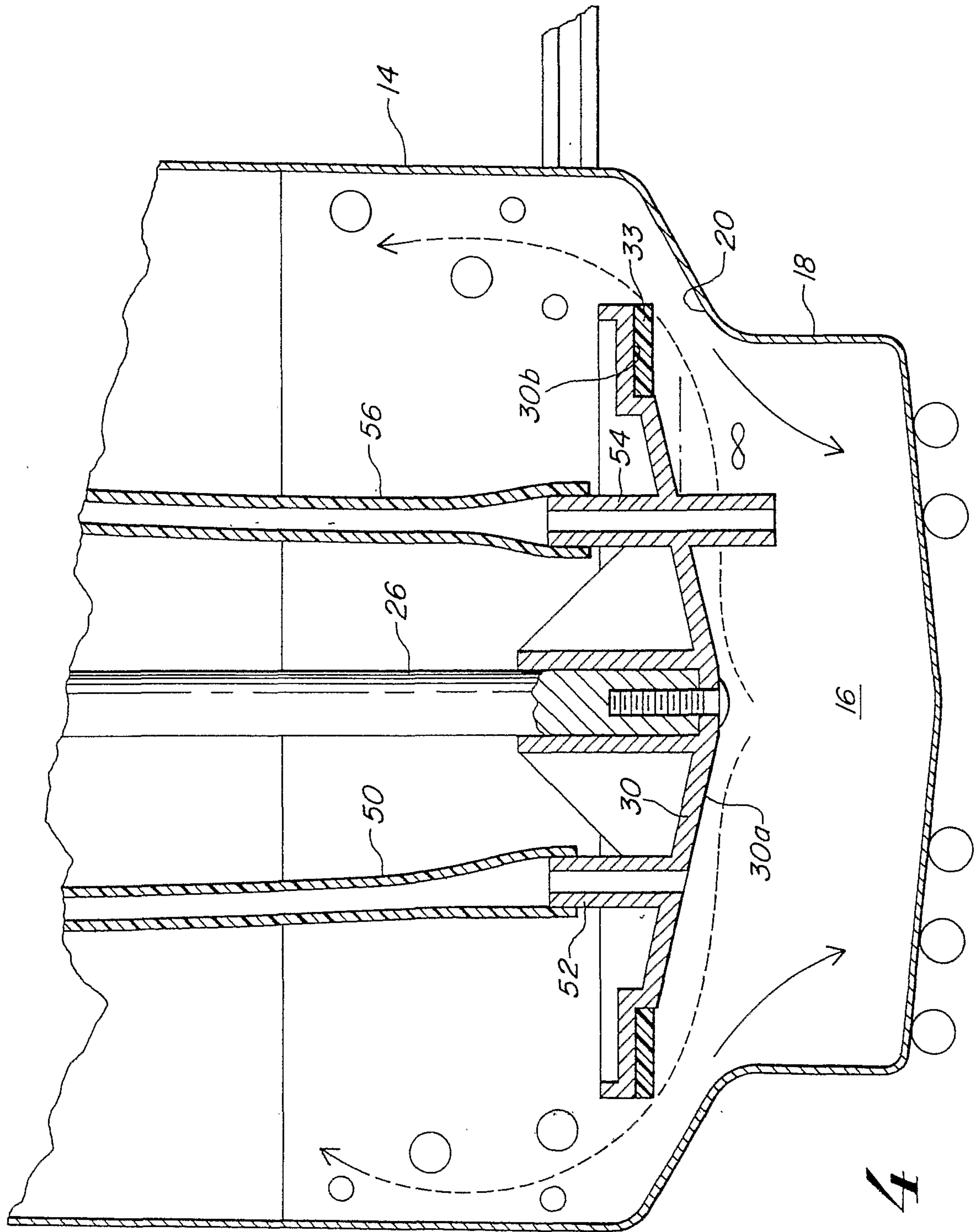
3/6

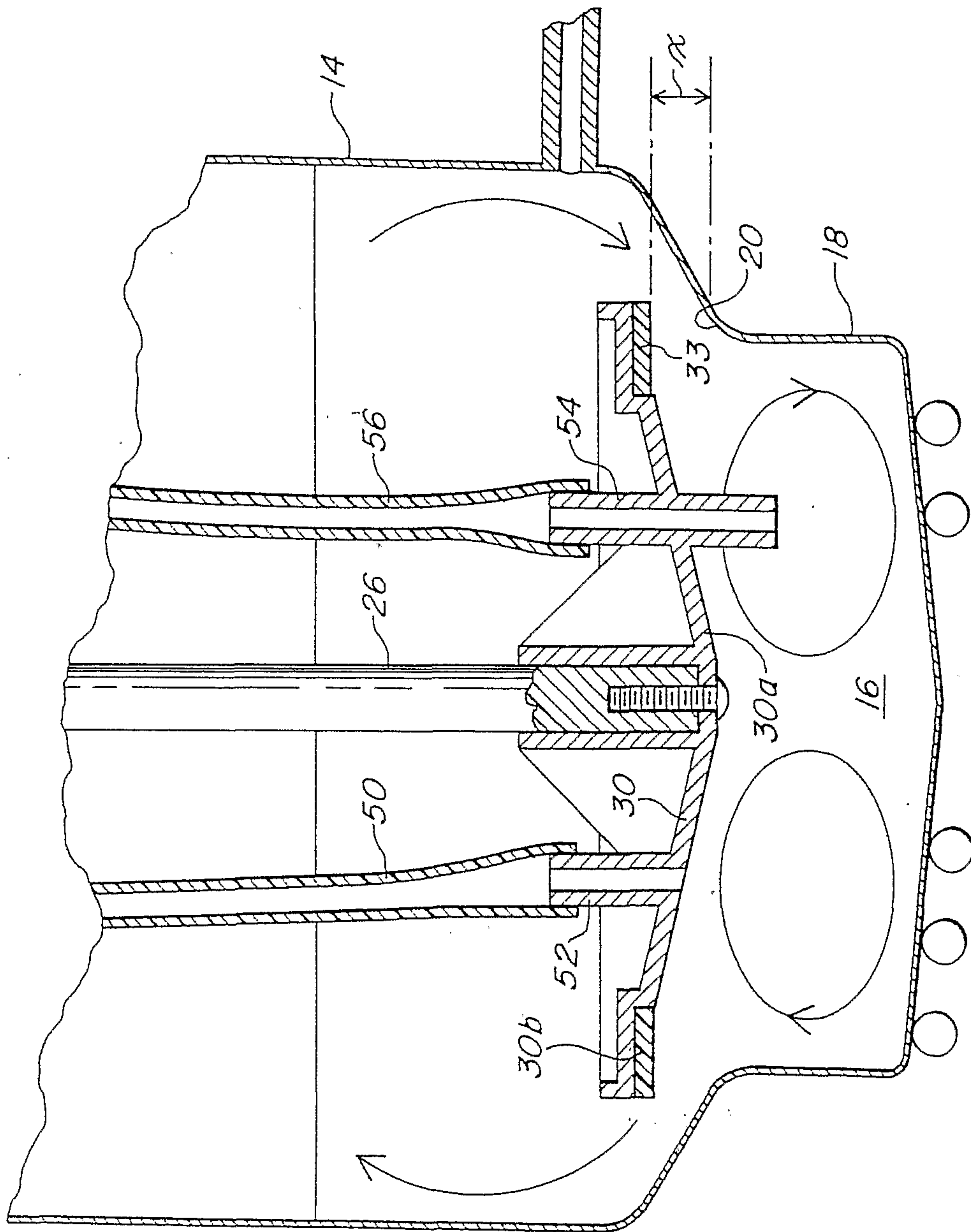
*FIG. 3A*

4/6

*FIG. 3B*

5/6

**FIG. 4**



**FIG. 5**

**PCT****FETHERSTONHAUGH***Patent & Trade-mark Agents*

438 University Avenue  
 Suite 1500, Box 111  
 Toronto, Canada M5G 2K8

Industry Industry  
 Canada Canada



CIPO

OPIC

**B000114506**

2003/10/03

279- 03

**October 3, 2003**

The Commissioner of Patents  
 Ottawa-Gatineau, Canada

Dear Sir:

We enclose the necessary papers in connection with the application noted below, together with a remittance to cover the filing fees.

**PCT INFORMATION**International PCT Application No.: **PCT/US2002/010636**Filed: **April 4, 2002**

Request for Entry:

**Yes**

Voluntary Amendment Enclosed:

**No**

Translation of Specification Enclosed:

**No****Included is the payment of the Maintenance Fee:****No****Examination Requested under Section 35(1) of the Patent Act:****Yes****Title Document(s) enclosed: 1****Yes**File No. **1871-418**Application by **KEURIG, INCORPORATED**Filing Fee **\$300.00**Title Document Fee **\$100.00**Examination Fee **\$400.00**

Maintenance Fee

Late Filing Fee

**TOTAL Fees \$800.00**

The above fees should be charged to our firm's deposit account number 6098.

The applicant hereby appoints **FETHERSTONHAUGH & CO.**, of 438 University Avenue, Suite 1500, Toronto, Ontario M5G 2K8, Tel. (416) 598-4209, Fax (416) 591-1690, whose full post office address for mailing purposes is 438 University Avenue, Suite 1500, Box 111, Toronto, Ontario M5G 2K8, Canada, as

- (a) its representative in Canada pursuant to Section 29 of the Patent Act; and
- (b) its patent agent.

Yours very truly,  
**FETHERSTONHAUGH & CO**

YK/mgt  
 Encl.



2003/10/03

279- 03

CIPO

OPIC

**B000114507****1871-418**

## IN THE PATENT OFFICE OF CANADA

***REQUEST FOR ENTRY INTO NATIONAL PHASE UNDER ARTICLES 22 OR 39  
OF THE PATENT COOPERATION TREATY***

## IN THE MATTER OF PCT INTERNATIONAL APPLICATION

# **PCT/US2002/010636** filed on **April 4, 2002** in the name of**KEURIG, INCORPORATED**

1. The above-identified applicant, whose full post office address is **101 Edgewater Drive, Wakefield, MA 01880 (US)** owns the entire right in Canada to an invention entitled **BAFFLE OPERATED LIQUID HEATING AND DISPENSING SYSTEM FOR A SINGLE SERVE BEVERAGE BREWER** made by

**TAYLOR, Jon****4 Augustine Road, Groton, MA 01450 (US)****LIPMAN, Jason, F.****92 High Street, Acton, MA 01720 (US)**

as described and claimed in the said international application and any amendments thereto.

2. The applicant requests priority in respect of the application on the basis of the following previously regularly filed application:

| COUNTRY | DATE OF FILING        | SERIAL NO.:       |
|---------|-----------------------|-------------------|
| US      | <b>April 6, 2001</b>  | <b>60/281,954</b> |
| US      | <b>April 17, 2001</b> | <b>60/284,403</b> |
| US      | <b>April 1, 2002</b>  | <b>10/113,187</b> |

3. The applicant hereby appoints **FETHERSTONHAUGH & CO.**, of 438 University Avenue, Suite 1500, Toronto, Ontario, M5G 2K8, Tel. (416) 598-4209, Fax (416) 591-1690, whose full post office address for mailing purposes is 438 University Avenue, Suite 1500, Box 111, Toronto, Ontario, M5G 2K8, Canada, as

- (a) its representative in Canada pursuant to Section 29 of the Patent Act; and
- (b) its patent agent.

4. The applicant accordingly hereby requests commencement of national phase procedures consequent to the designation of Canada in such international application and requests that Letters Patent of Canada for such invention be granted to it.

**YK/mgt**



JUNE 05, 2002

PTAS  
SAMUELS, GAUTHIER & STEVENS, LLP  
ARLENE J. POWERS  
225 FRANKLIN STREET, SUITE 3300  
BOSTON, MA 02110

Commissioner for Trademarks  
Arlington, VA 22202-3513  
www.uspto.gov



\*102048870A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 04/01/2002

REEL/FRAME: 012765/0260  
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:  
TAYLOR, JON

DOC DATE: 03/27/2002

ASSIGNOR:  
LIPMAN, JASON F.

DOC DATE: 03/27/2002

ASSIGNEE:  
KEURIG, INCORPORATED  
101 EDGEWATER DRIVE  
WAKEFIELD, MASSACHUSETTS 01880

SERIAL NUMBER: 10113187  
PATENT NUMBER:

FILING DATE: 04/01/2002  
ISSUE DATE:

SHARON LATIMER, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

HONORABLE COMMISSIONER OF  
PATENTS AND TRADEMARKS  
WASHINGTON, D.C. 20231

SIR:

PLEASE RECORD THE ATTACHED ORIGINAL DOCUMENT(S) OR COPY(IES) THEREOF.

## 1. NAME OF CONVEYING PARTY(IES)

Jon Taylor  
Jason F. Lipman

Additional name(s) of conveying party(ies) attached? No

## 2. NAME(S) AND ADDRESS(ES) OF RECEIVING PARTY(IES)

Keurig, Incorporated  
101 Edgewater Drive  
Wakefield, Massachusetts 01880

Additional name(s) of receiving party(ies) attached? No

## 3. NATURE OF CONVEYANCE

- ☒ Assignment  
☐ Security Agreement  
☐ Merger  
☐ Change of Name  
☐ Other

Execution Date: March 27, 2002

## 4. APPLICATION NUMBER(S) OR PATENT NUMBER(S)

If this document is being filed together with a new application, the execution date of the application is: March 27, 2002

A. Patent Application No(s): \_\_\_\_\_

B. Patent No(s): \_\_\_\_\_

C. Issue Batch No.: \_\_\_\_\_

D. Issue Date: \_\_\_\_\_

Additional numbers attached? No.

5. NAME AND ADDRESS OF PARTY TO WHOM  
CORRESPONDENCE CONCERNING DOCUMENT  
SHOULD BE DIRECTED:

Arlene J. Powers  
Samuels, Gauthier & Stevens LLP  
225 Franklin Street, Suite 3300  
Boston, Massachusetts 02110  
(617) 426-9180, Extension 110

6. TOTAL NUMBER OF APPLICATIONS  
AND PATENTS INVOLVED: 1

## 7. TOTAL FEE DUE: \$40.00 (Enclosed)

If any additional fee(s) are due, the Commissioner is hereby authorized to charge the Deposit Order Account noted in item 8.

## 8. DEPOSIT ACCOUNT NUMBER: 19-0079

## 9. STATEMENT AND SIGNATURE

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Arlene J. Powers  
Name of Person Signing

Signature

Date

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EV033959339US addressed to the Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231..

Date: 4/1/02

Signature

04/08/2002 DBYRNE 00000061 10113187

01 FC:581

40.00 0P

**ASSIGNMENT**

Know all men by these presents

WHEREAS we, Jon Taylor  
4 Augustine Road  
Groton, MA 01450

and

Jason F. Lipman  
92 High Street  
Acton, MA 01720

have made an invention for

**BAFFLE OPERATED LIQUID HEATING AND DISPENSING  
SYSTEM FOR A SINGLE SERVE BEVERAGE BREWER**

described in an application executed on even date herewith and about to be filed in the United States Patent Office, which claims priority under 35 USC §119(e) from United States Provisional Patent Application Serial No. 60/281,954 filed on April 6, 2001, and United States Provisional Patent Application Serial No. 60/284,403 filed on April 17, 2001, and

WHEREAS Keurig, Incorporated, a corporation duly organized and existing under the laws of the State of Delaware and having a place of business at 101 Edgewater Drive, Wakefield, Massachusetts 01880, for the benefit of itself, its successors and assigns, all inclusively hereinafter referred to as the Assignee, is desirous of acquiring the entire right, title and interest in and to the said invention, the said Provisional patent application, all inventions disclosed in said Provisional patent application, and in any subsequently filed utility patent applications describing said invention, and any and all Letters Patent of the United States and of all other countries which may be granted for the said invention or inventions, or any of them;

NOW, THEREFORE, for good and valuable consideration provided by said Assignee, the receipt whereof is hereby acknowledged, we do hereby sell, assign and transfer to the said Assignee the entire right, title and interest in and to the said invention, inventions and applications, including all priority rights arising therefrom, all inventions disclosed in said applications, and any and all Letters Patent of the United States, and of all other countries, together with the right to apply for such Letters Patent, which may be granted for the said invention, inventions or any of them,

TO HAVE, HOLD AND ENJOY the said invention, the said application, and the said Letters Patent, to said

**KEURIG, INCORPORATED**

its successors and assigns, to its and their own use and behoove to the full end of the term or terms for which the said Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by me had this assignment and sale not been made.

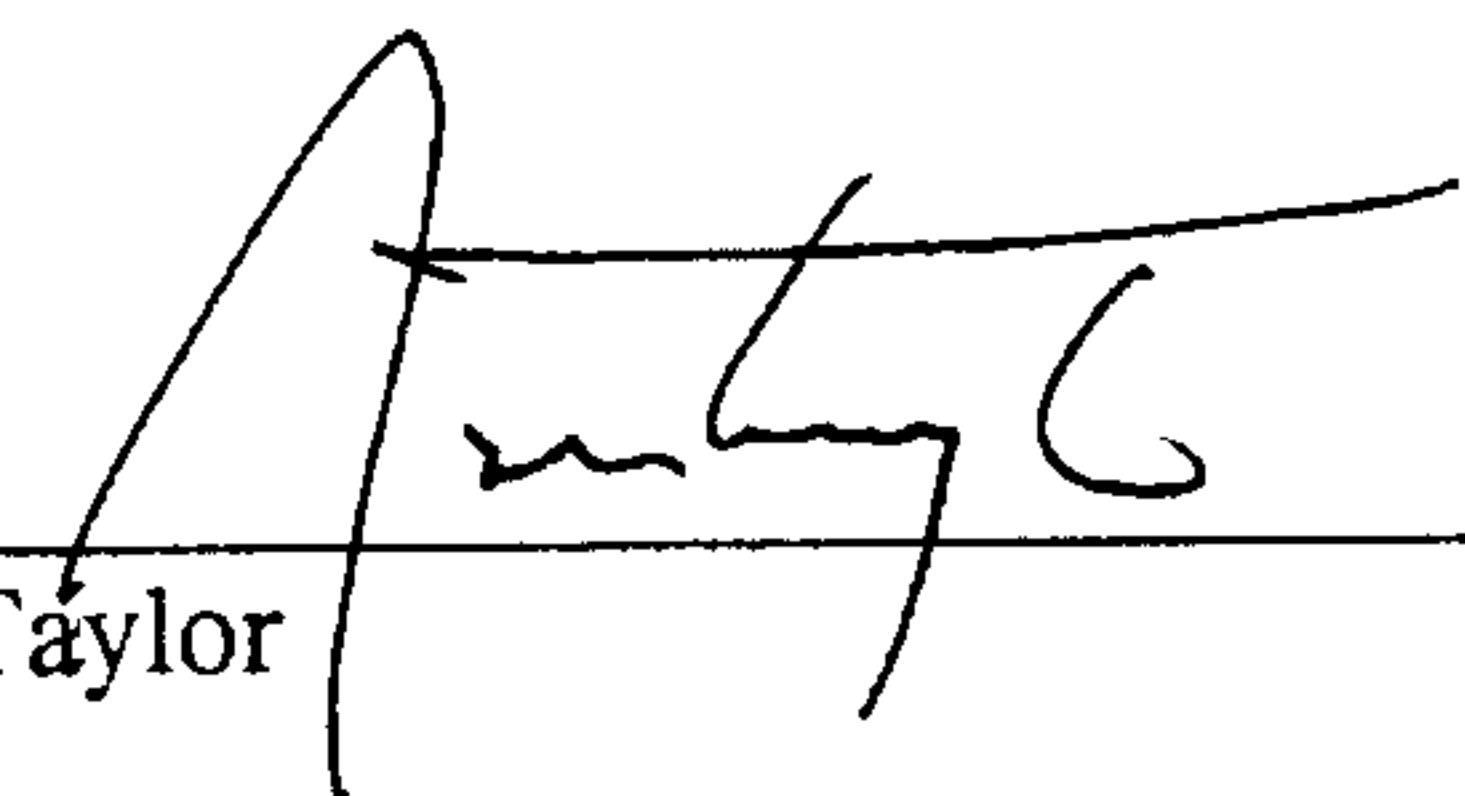
AND we hereby authorize and request the Commissioner of Patents of the United States and the appropriate officers of all foreign patent offices to issue any and all Letters Patent which may be granted on the said application or applications above referred to, or for the said invention, or any of them, to the said Assignee in accordance with the terms of this instrument.

AND we hereby agree to execute and sign without further consideration any other legal document and any other assignments and any divisional, continuing, renewal, reissue or other application in and for all patents that may be appropriate and may be deemed necessary by the Assignee fully to secure to said Assignee its interests as aforesaid in and to the said invention or any part thereof and in and to the said patents or any of them.

AND we further covenant and agree that we will at any time upon request communicate to the said Assignee, its successors, assigns or other legal representatives, any facts known to us relating to the said invention and any patent that may be granted thereon, and will testify as to the same in any interference or litigation when requested to do so.

AND we hereby covenant for ourselves and our legal representatives that we have not hitherto assigned or granted any license to make, use or sell said invention, and that we will not henceforth purport to assign, license or execute any instrument to that effect in conflict with this assignment.

● 3/27/02  
Date

●   
Jon Taylor

● 3/27/02  
Date

●   
Jason F. Lipman