Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2308614 C 2004/05/04

(11)(21) 2 308 614

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(22) Date de dépôt/Filing Date: 2000/05/16

(41) Mise à la disp. pub./Open to Public Insp.: 2001/08/12

(45) Date de délivrance/Issue Date: 2004/05/04

(30) Priorités/Priorities: 2000/02/12 (00-6670) KR; 2000/02/12 (00-6669) KR; 2000/02/12 (00-6667) KR

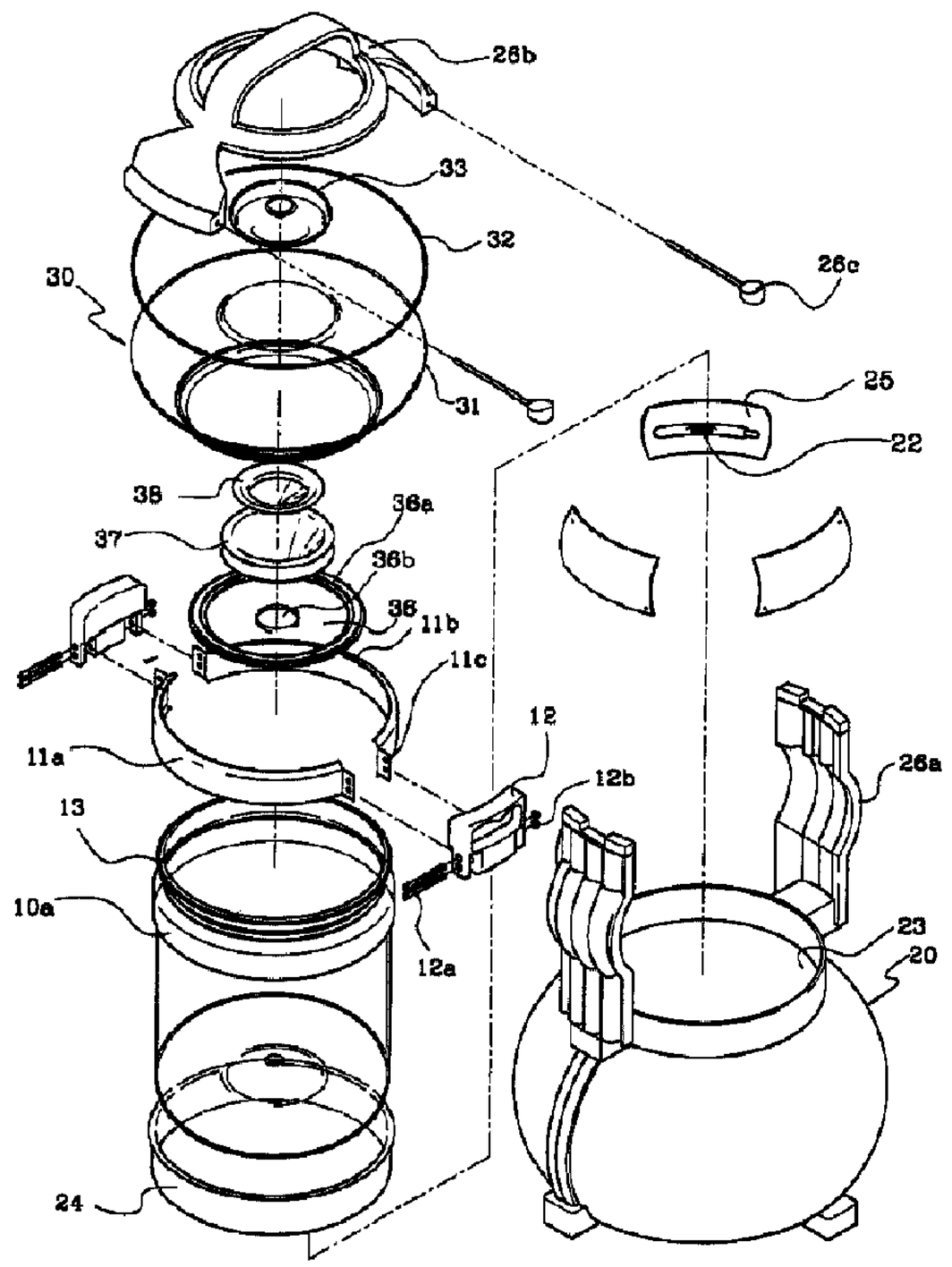
(51) Cl.Int.^{7}/Int.Cl.^{7} B01B 1/08, A47J 31/00

(72) Inventeur/Inventor:
LEE, SANG-JUN, KR

(73) Propriétaire/Owner:
LEE, SANG-JUN, KR

(74) Agent: SMART & BIGGAR

(54) Titre : MARMITE POUR LA DECOCTION D'HERBES CHINOISES
(54) Title: HEATING POT FOR DECOCTING CHINESE HERBS



(57) Abrégé/Abstract:
A heating pot for decocting Chinese herbs, including a container 10 on which Chinese herbs are to be contained; a heater 20 received in the container 10 so as not to contact the container; and a condenser 30 installed on the opening of the container, for condensing important medicinal elements contained in vapor. The heater has a ray generation means 22 for generating high

CA 2308614 C 2004/05/04

(11)(21) 2 308 614

(13) C

(57) Abrégé(suite)/Abstract(continued):
temperature infrared rays toward the container 10, a main reflection means 23 for reflecting the infrared rays to the container, and a follower member 26 which has a lateral follower 26a extending from the side of the heater 20 for shielding the side of the condenser 30 installed in the container 10, and an upper follower 26b coupled to the top of the lateral follower 26a for shielding the upper portion of the condenser 30.

Abstract of the Disclosure

A heating pot for decocting Chinese herbs, including a container 10 on which Chinese herbs are to be contained; a heater 20 received in the container 10 so as not to contact the container; and a condenser 30 installed on the opening of the container, for condensing important medicinal elements contained in vapor. The heater has a ray generation means 22 for generating high temperature infrared rays toward the container 10, a main reflection means 23 for reflecting the infrared rays to the container, and a follower member 26 which has a lateral follower 26a extending from the side of the heater 20 for shielding the side of the condenser 30 installed in the container 10, and an upper follower 26b coupled to the top of the lateral follower 26a for shielding the upper portion of the condenser 30.

HEATING POT FOR DECOCTING CHINESE HERBS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a Chinese herb decoction heating pot for decocting Chinese herbs with light rays, preferably, with infrared rays.

2. Description of the Related Art

When Chinese herbs are decocted, a pot containing Chinese herbs and water must be heated for a long time. For example, in order to make red ginseng, ginseng and water are placed together in a container and then must be continuously boiled for 48 hours or longer.

As described above, apparatuses for decocting Chinese herbs or those for boiling ginseng to make red ginseng have been disclosed in Korean Patent Application No. 98-21067 filed by the present applicant. The invention in KPAN 98-21067 includes a container for containing Chinese herbs and water, a heater installed so as to protect the container, for generating infrared rays and heating the container with the infrared rays, and a condenser installed at the opening of the container for condensing vapor generated in the container to prevent escape of essential medicinal elements.

However, KPAN 98-21067 has the following problems.

First, the condenser is heated at a very high temperature when Chinese herbs or ginseng is decocted, but this condenser is simply inserted into the upper portion of the container. Thus, when a user moves the heating pot, the condenser is separated from the container or shaken, so the user can get burnt. As described above, it is not easy to move the heating pot to another place.

Second, since delay of vapor evaporation is accomplished in only a reflection lid and a condensing room in a condenser, evaporation suppression is not efficiently performed. Consequently, medicinal elements are evaporated during decocting for a long time, and medicinal fluid in the container is reduced.

73448-5

Third, it is very difficult to securely fix a knob since the container cannot be pierced since it is made of glass. Even if the knob is fixed, it moves in the container with the passing of time.

Fourth, when heated medicinal fluid within the container is poured, it flows along the sidewall of the container due to its surface tension, so it is difficult to pour the medicinal fluid in accurate amounts. Also, the user can get burnt by the flowing medicinal fluid.

SUMMARY OF THE INVENTION

To solve the above problem, an objective of the present invention is to provide a Chinese herb decoction heating pot which can be easily transferred during decocting, suppress as much evaporation of medicinal elements and medicinal fluid as possible even when decocting for a long time, and pour medicinal fluid in accurate amounts.

To achieve the above objective, the present invention provides a heating pot for decocting Chinese herbs, including a container on which Chinese herbs are to be contained; a heater for receiving the container so as not to contact the container, the heater having a ray generation means for generating high temperature infrared rays toward the container and a main reflection means for reflecting the infrared rays to the container; and a condenser installed on the opening of the container, for condensing important medicinal elements contained in vapor, the heating pot characterized in that a retaining member comprises a lateral retainer extending along the side of the heater and the condenser to restrain lateral movement of the side of the

condenser and an upper retainer coupled to the top of the lateral retainer and the condenser to restrain vertical movement of the upper portion of the condenser.

BRIEF DESCRIPTION OF THE DRAWINGS

The above objective and advantage of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings in which:

FIG. 1 is a perspective view of a heating pot according to the present invention;

FIG. 2 is an exploded perspective view of the heating pot of FIG. 1;

FIG. 3 is a partly cut away side elevation view of the heating pot of FIG. 1;

FIG. 4 is a side elevation view of the container of FIG. 2;

FIG. 5 is a side cross-sectional view of the condenser of FIG. 1; and

FIG. 6 is a cross-sectional view taken along line VI-VI of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 through 6, a heating pot for decocting Chinese herbs or making ginseng into red ginseng includes a container 10 for containing Chinese herbs, a heater 20 for receiving the container 10 and heating the received container 10 with light rays, preferably, with infrared rays, and a condenser 30 installed on the container 10 for condensing vapor generated within the container 10.

The container 10 is made of thermotempered glass to transmit infrared rays well. A ring-shaped protrusion 10a protruding in a radial direction is formed on the outer circumferential surface of the upper portion of the container 10. A rim 11 consisting of first and second semi-rims 11a and 11b having a semicircular shape is coupled to the protrusion 10a. Wings are bent at the ends of the first and second semi-rims 11a and 11b, and two holes 11c are formed on each of the wings. The first and second semi-rims 11a and 11b are put on the protrusion 10a so as to surround it, with wings facing each other. In this state, the wings are positioned at both ends of a knob 12, and bolts 12a pass through the knob 12 and the holes 11c of the wings, and are fixed by bolts 12b. In this way, the rim 11 is securely fixed to the protrusion 10a. The rim 11 is put on the opening of an annular rim 24 to be described later to prevent the bottom surface of the container 10 from contacting the bottom of the heater 20 when the container 10 is inserted into the heater 20. Here, the rim 11 has a highly reflective inner surface so as to reflect infrared rays generated within the heater back to the inside of the container. Preferably, the rim 11 is made of a material having a high reflectivity, such as aluminum or stainless steel. If the rim 11 can reflect infrared rays into the container 10, it can provide the effects of the present invention even if it is made of a nonmetallic material.

A flexible rim 13 is installed around the outer circumference of the opening of the container 10. As shown in FIG. 4, installed on the flexible rim 13 is a water flow preventing protrusion 13a protruding in a radial direction. The water flow preventing

protrusion 13a prevents medical fluid contained in the container from flowing out along the wall of the container 10 due to the surface tension of the medical fluid when being poured into the container.

The heater 20 is comprised of a body 21 for protecting the container 10, a ray generation means 22 installed between the body 21 and the container 10 for generating rays, preferably, infrared rays, a main reflection means 23 installed on the inner surface of the body 21 for reflecting infrared rays, and an annular rim 24 installed at the opening of the body 21 to put the rim 11 of the container 10 thereon.

A follower member 26, also known as a retaining member, for shielding or retaining the condenser 30 installed on the container 10 which is installed on the body 21. The follower member 26 consists of a lateral follower or retainer 26a extending upward from the body 21 for shielding the lateral face of the condenser 30, and an upper follower or retainer 26b coupled to the top of the lateral follower 26a for shielding the top of the condenser 30. The upper portion of the lateral follower 26a and the upper follower 26b have locking holes, and the lateral follower 26a and the upper follower 26b can be locked to each other using a locking member 26c. Here, a knob for facilitating movement is formed on the upper portion of the upper follower 26b.

The inside of the body 21 is provided with an insertion space 20a into which the container 10 is to be inserted. Preferably, the body 21 is made of an insulating material, but can be formed of various materials such as phenol resin, polycarbonate, PVC, metal, non-metal, or ceramic.

The main reflection means 23 on the inner surface of the body 21 is designed so as to completely shield the container 10, and made of a material which can reflect infrared rays without being absorbed, for example, a metal such as stainless steel or a metal-coated material. However, the main reflection means can be formed of a non-metallic material only if it can reflect infrared rays.

Preferably, an auxiliary reflection means 25 for reflecting infrared rays to the container is installed between the ray generation means 22 and the main reflection means 23. The auxiliary reflection means 25 is installed adjacent to the ray generation means 22, so that it can effectively reflect infrared rays which are not heading for the container 10. The auxiliary reflection means is also made of a metal such as stainless steel, or a metal-coated material, and can be made of a non-metallic material only if it can reflect infrared rays.

The ray generation means 22 can be realized in several ways. In the present embodiment, three 300 W halogen lamps are adopted as the ray generation means 22. As shown in FIG. 6, the halogen lamps are bent like a bow so as to keep a constant distance from the circumference of the container 10, and connected to each other in series. The constant interval between the halogen lamp and the container allows infrared rays to be transmitted to the container 10 at a constant intensity, so that uniform heating is possible and thermal efficiency is increased. Also, the serial connection between halogen lamps can reduce applied loads, whereby the durability of the halogen lamps can be increased. However, the ray generation means 22 can be realized with an argon lamp, an infrared lamp, a ceramic heater, a seize heater or the like.

The annular rim 24, on which the rim 11 of the container 10 is put, has an extending portion 24a which protrudes downward from the opening of the main reflection means 23, as shown in FIG. 3. The extending portion 24a is used to drop water down the bottom of the heater 20 when water produced by an external factor or during decocting Chinese herbs flows toward the heater 20. Hence, water is prevented from flowing directly into the ray generation means 22, thus preventing electrical shorts.

The condenser 30, as shown in FIG. 5, is made of glass and installed on the opening of the container 10. The condenser 30 includes first and second condensing rooms 31 and 32 for condensing vapor produced in the container 10, a third condensing room 33 which is formed on the top of the second condensing room 32, acts as a knob, and has a small air hole 33a formed therethrough, and a connection portion 34 which is formed on the bottom of the first condensing room 31 and inserted into the opening of the container 10.

As shown in FIGS. 2 and 5, installed within the connection portion 34 is a turn-around member 36, also known as a third vapor flow delay member, which has a hole 36b formed on its center and a sealing member 36a made of a flexible material such as silicon installed around its periphery. Since the position of the hole 36b is lower than the periphery of the turn-around member 36, the turn-around member 36 has a roughly plate or dish shape. The turn-around member 36 delays the movement of vapor from the container 10 to the first condensing room 31, and turns medical fluid, which has been condensed and fluidized in the first condensing room 31, around into the container 10. Here, since the position of the hole 36b is lower than the

periphery, the condensed medical fluid easily flows into the container 10. Also, the turn-around member 36 reflects infrared rays generated from the heater 20 back into the container 10, thus preventing emission of thermal energies to outside.

Also, as shown in FIG. 5, installed within the connection portion 34 is a sealing member 35 which prevents overflow of medical fluid and escape of vapor while the medical fluid is being decocted. An annular flap 35a is formed on the periphery of the sealing member 35 to more securely seal the sealing member to the opening of the container. The sealing member 35 is made of a flexible material.

A main vapor efflux or flow delay member 37 having a funnel shape is installed between the first and second condensing rooms 31 and 32 to delay the flow of vapor, which has passed through the turn-around member 36, into the second condensing room 32. A small hole 37a is formed at the center of the main vapor efflux delay member 37. The main vapor efflux delay member 37 delays evaporation of vapor into the second condensing room 32 and allows the vapor to be condensed in the first condensing room 31, thereby delaying evaporation of efficacious medicinal elements contained in vapor. The main vapor efflux delay member 37 is made of a flexible material.

An auxiliary vapor efflux delay member 38, also known as a second vapor flow delay member, having a funnel shape is installed between the second and third condensing rooms 32 and 33 to delay vapor which has passed through the first condensing room 31 from flowing into the third condensing room 33. A small hole 38a is formed at the center of the auxiliary vapor efflux delay member 38. The

auxiliary vapor efflux delay member 38 delays evaporation of vapor into the third condensing room 33 and allows the vapor to be condensed in the second condensing room 32, thereby delaying evaporation of efficacious medicinal elements contained in vapor. The auxiliary vapor efflux delay member 38 is made of a flexible material.

An important role of the condenser 30 is to collect efficacious medicinal elements escaping being contained in vapor and put the efficacious medicinal

elements back into the container 10. For example, when ginseng (e.g., fresh ginseng, white ginseng, or dried ginseng) is decocted, phytoncide, which is the most important efficacious element, is evaporated together with vapor, the condenser 30 condenses vapor and puts it into the container 10. Also, the condenser 30 prevents the outflow of thermal energies contained in vapor by preventing as much as possible discharge of vapor to outside, thus increasing the efficiency of energies.

The heating pot according to the present invention including the above-described components decocts Chinese herbs as follows.

Some of the infrared rays generated by the ray generation means 22 proceed directly to the container 10, while the rest is reflected by the main reflection means 23 and the auxiliary reflection means 25 and then proceed to the container 10. The infrared rays proceeds directly and indirectly to the container, thereby three-dimensionally heating the Chinese herbs and the medicinal fluid. Thus, the Chinese herbs and the medicinal fluid can be decocted without being scorched or burnt. At this time, some of the infrared rays are reflected back into the container 10 by the turn-around member 36 to prevent discharge of heat to the outside.

Heated vapor produced during decoction is condensed by the turn-around member 36, the main vapor efflux delay member 37 and the auxiliary vapor efflux delay member 38 of the condenser 30, and collected back into the container 10 via the hole 36b of the turn-around member 36. In this way, discharge of heat to the outside is prevented simultaneously with collection of efficacious medicinal elements, thus increasing energy efficiency.

When the medicinal fluid is completely decocted, the upper follower 26b is separated from the lateral follower 26a, and the condenser 30 is separated from the container 10, and then the container 10 is separated from the heater 20 using the knob 12.

Thereafter, when the medicinal fluid is poured into another vessel, it flows directly into the vessel without flowing along the sidewall of the container 10, by virtue of the water flow prevention protrusion 13a on the flexible rim 13.

The heating pot according to the present invention can be easily transferred by grabbing a follower member with a human hand, even while medicinal fluid is being decocted.

Also, a turn-around member, a main vapor efflux delay member, and an auxiliary vapor efflux delay member are installed on a condenser, such that efficacious medicinal elements contained in vapor can be securely collected, and discharge of thermal energies to the outside is prevented. Therefore, energy efficiency can be increased.

A protrusion is formed at the top of a container and surrounded by a semi rim, and then a knob can be fixed to the container by nuts and bolts. As a result, the knob can be easily coupled to a glass container.

Even after a medicinal fluid is completely decocted, the container can be easily transported, and the medicinal fluid can be prevented from flowing along the sidewall of the container. Thus, an accurate amount of medicinal fluid can be poured.

A hot medicinal fluid is prevented from flowing along the sidewall of the container, so that a user is protected from being burnt.

73448-5

CLAIMS:

1. A heating pot for decocting Chinese herbs, including a container (10) on which Chinese herbs are to be contained; a heater (20) for receiving the container (10) so as not to contact the container, the heater having a ray generation means (22) for generating high temperature infrared rays toward the container (10) and a main reflection means (23) for reflecting the infrared rays to the container; and a condenser (30) installed on the opening of the container, for condensing important medicinal elements contained in vapor, the heating pot characterized in that a retaining member (26) comprises a lateral retainer (26a) extending along the side of the heater (20) and the condenser (30) to restrain lateral movement of the side of the condenser (30) and an upper retainer (26b) coupled to the top of the lateral retainer (26a) and the condenser (30) to restrain vertical movement of the upper portion of the condenser (30).

2. The heating pot for decocting Chinese herbs of claim 1, wherein the condenser comprises:

first and second condensing rooms (31 and 32);

a third condensing room (33) which is formed on top of the second condensing room (32) acts as a knob, and has an air hole (33a) formed therein; and

a main vapor flow delay member (37) installed between the first and second condensing rooms (31) and (32) thereby delaying the flow of vapor from the first condensing room (31) into the second condensing room (32).

3. The heating pot for decocting Chinese herbs of claim 2, wherein the condenser (30) further comprises a

73448-5

second vapour flow delay member (38) installed between the second and third condensing rooms (32 and 33) thereby delaying the flow of vapor from the second condensing room (32) into the third condensing room (33).

4. The heating pot for decocting Chinese herbs of claim 3, wherein the second vapor flow delay member (38) has a funnel shape, and has a hole (38a) formed on its apex.

5. The heating pot for decocting Chinese herbs of claim 2, wherein the condenser (30) further comprises a third vapor flow delay member (36) installed within the first condensing room, which has a hole (36b) formed on the center, and a sealing member (36a) which is made of a flexible material installed around its periphery, the third vapor flow delay member is dish shaped wherein the position of the hole (36b) is lower than the periphery.

6. The heating pot for decoding Chinese herbs of claim 1, further comprising:

a rim (11) for shielding a protrusion (10a) protruding in a radial direction on the upper portion of the container (10); and

a knob (12) installed on the rim (11).

7. The heating pot for decocting Chinese herbs of claim 6, wherein the rim (11) has first and second semi rims (11a) and (11b), each having wings which are bent at both ends, placed at both sides of the knob (12), and have through holes (11c) formed therethrough, the first and second semi rims (11a) and (11b) for shielding the protrusion (10a).

8. The heating pot for decocting Chinese herbs of claim 6, further comprising a flexible rim (13) which is

73448-5

installed around the outer circumference of the opening of the container (10), and provided with a water flow prevention protrusion (13a) for preventing a medicinal fluid from flowing along the sidewall of the container when being poured out of the container.

9. The heating pot for decocting Chinese herbs of claim 1, further comprising an annular rim (24) which is installed at the opening of the heater 20, and has an extending portion (24a) protruding downward from the opening of the main reflection means (23).

10. The heating pot for decocting Chinese herbs of claim 1, wherein the ray generation means is at least two halogen lamps which are rounded to maintain a regular distance from the container (10) and connected to each other in series.

11. The heating pot for decocting Chinese herbs of any one of claims 2 to 4, wherein the main vapor flow delay member (37) has a funnel shape, and has a hole (37a) formed on its apex.

SMART & BIGGAR

OTTAWA, CANADA

PATENT AGENTS

FIG.1

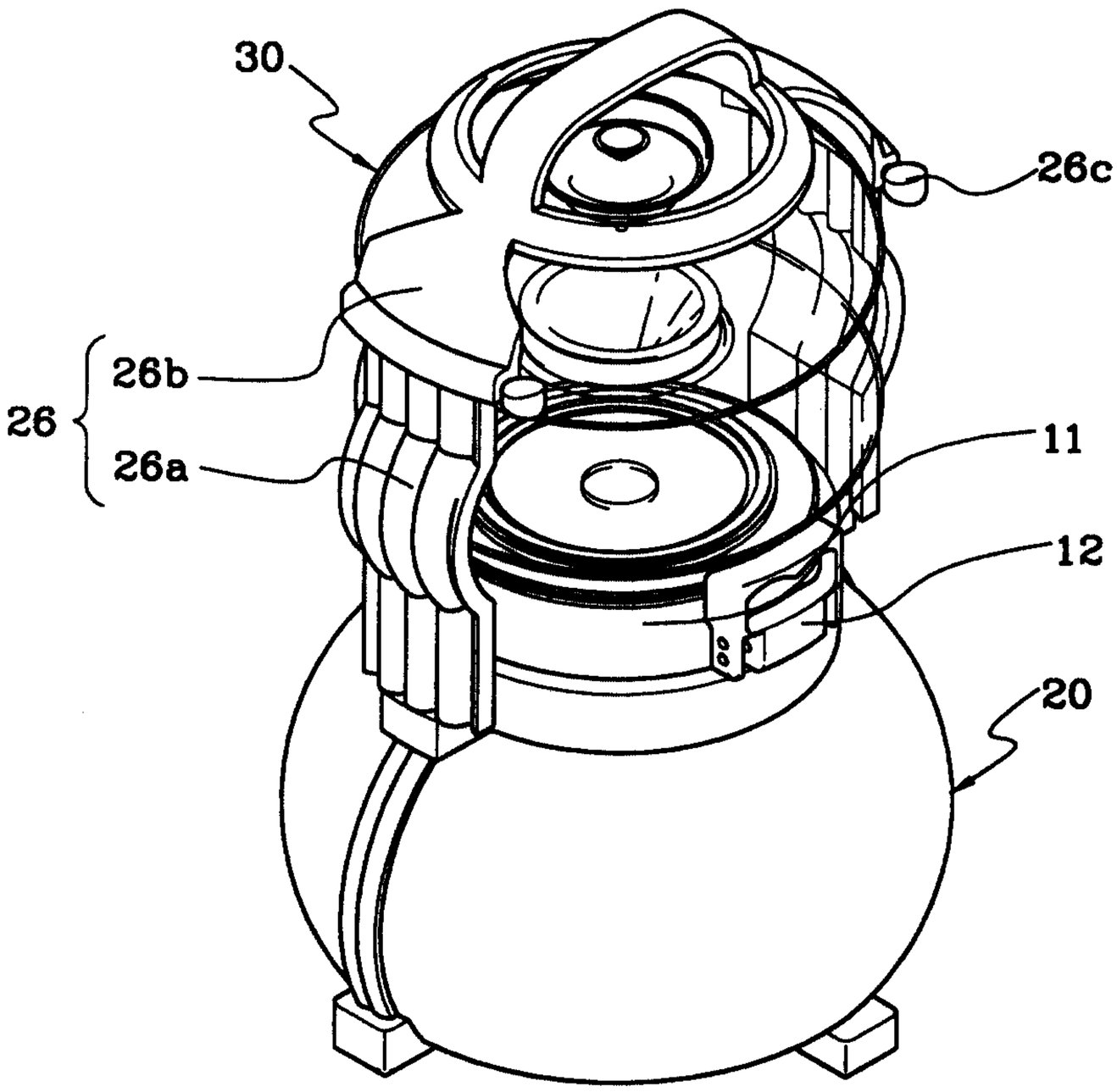


FIG.2

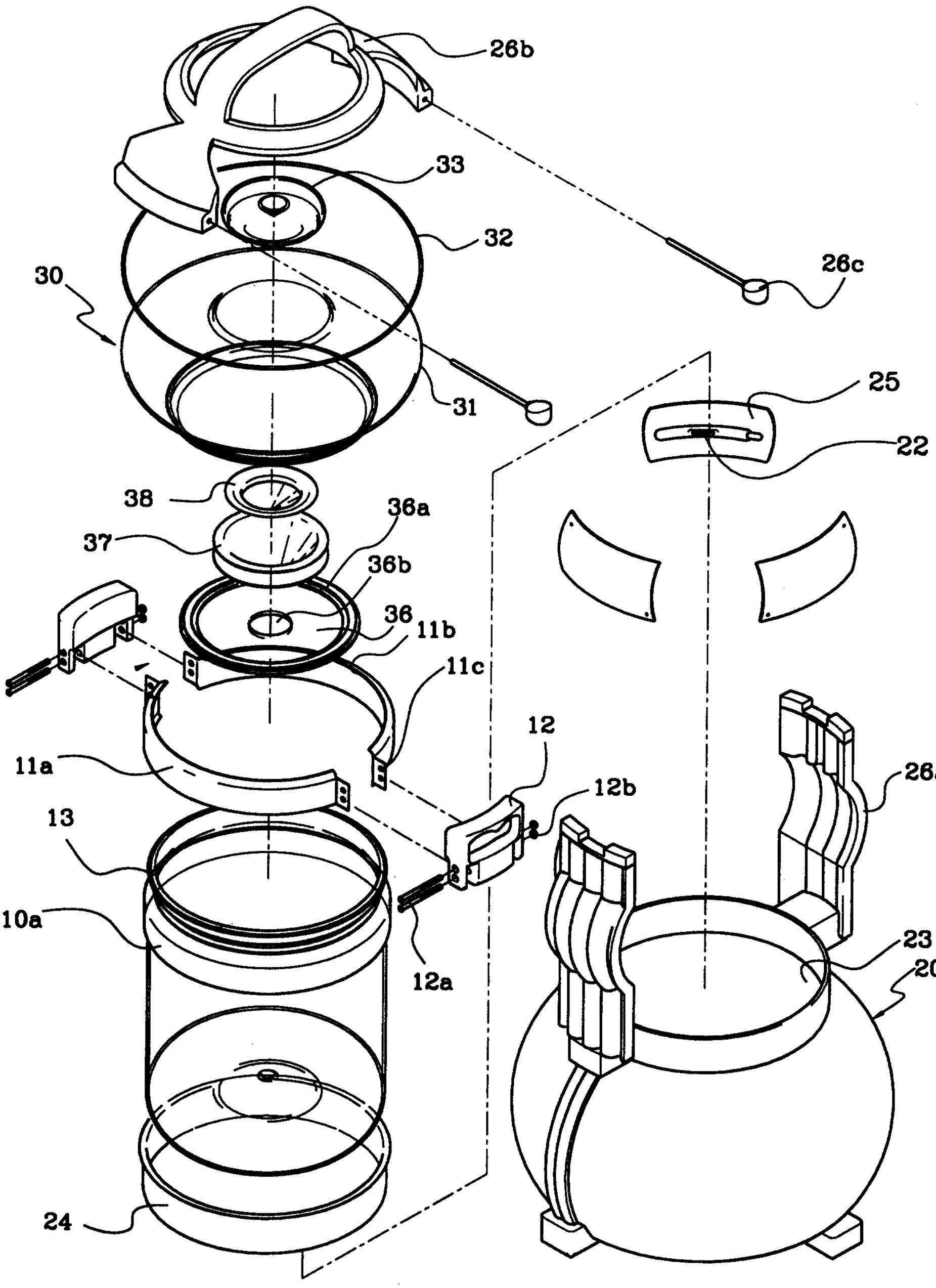

26b
33
32
26c
30
31
25
22
38
36a
37
36b
36
11b
11c
12
11a
12b
26a
13
10a
23
20
12a
24

FIG.3

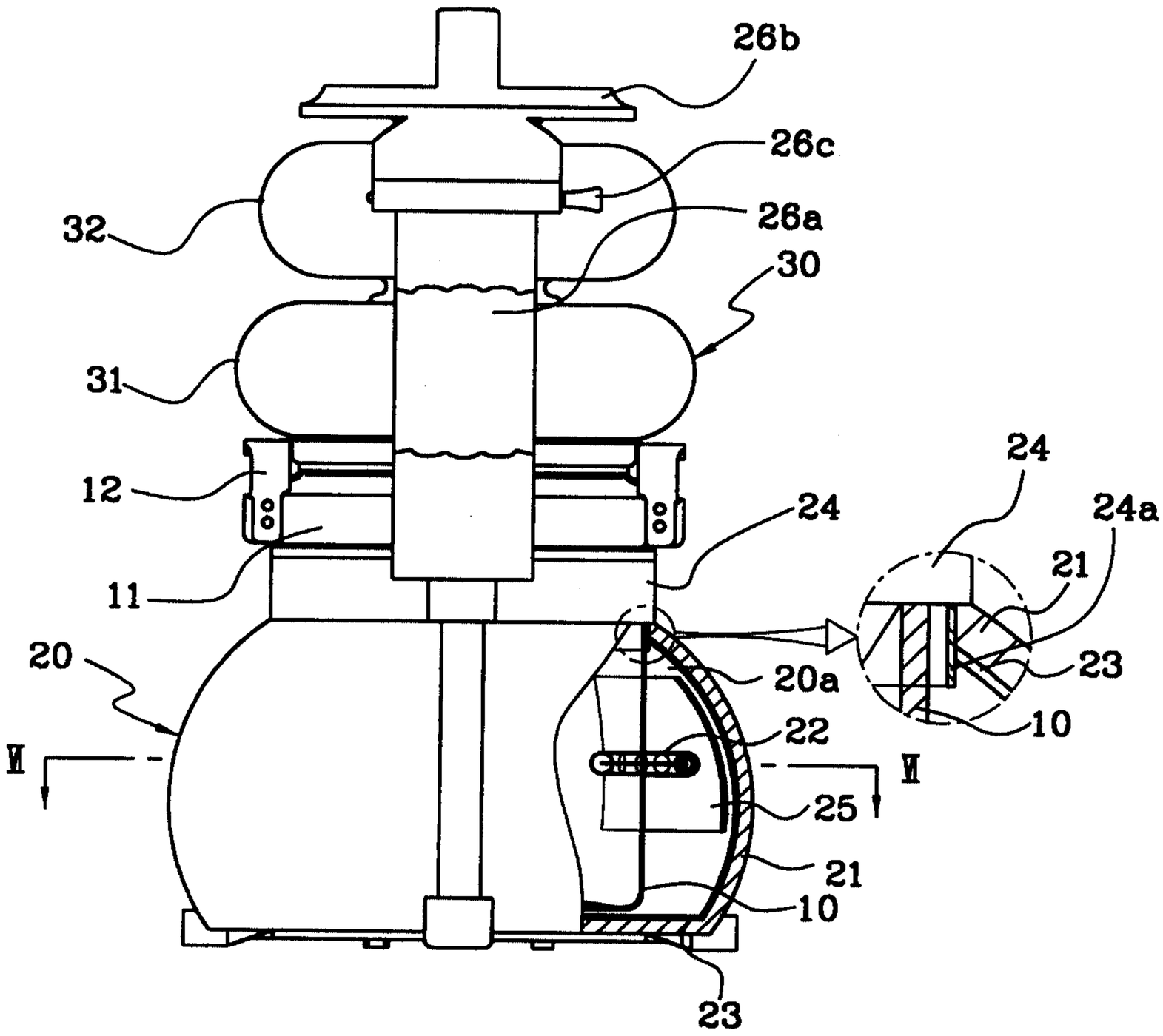

26b
26c
32
26a
30
31
12
24
24
24a
11
21
20
23
20a
10
22
VI
VI
25
21
10
23

FIG.4

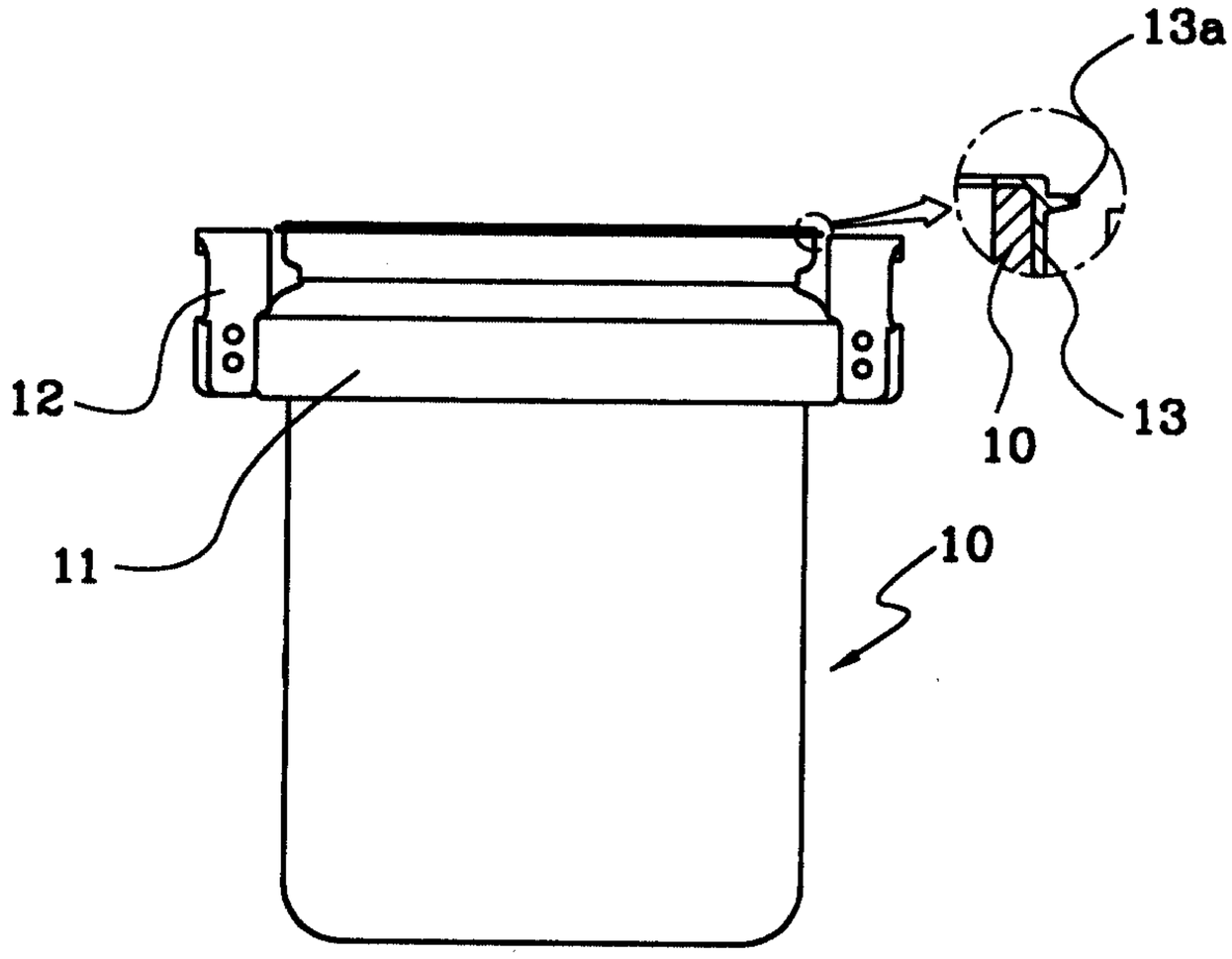

13a
12
10
13
11
10

FIG.5

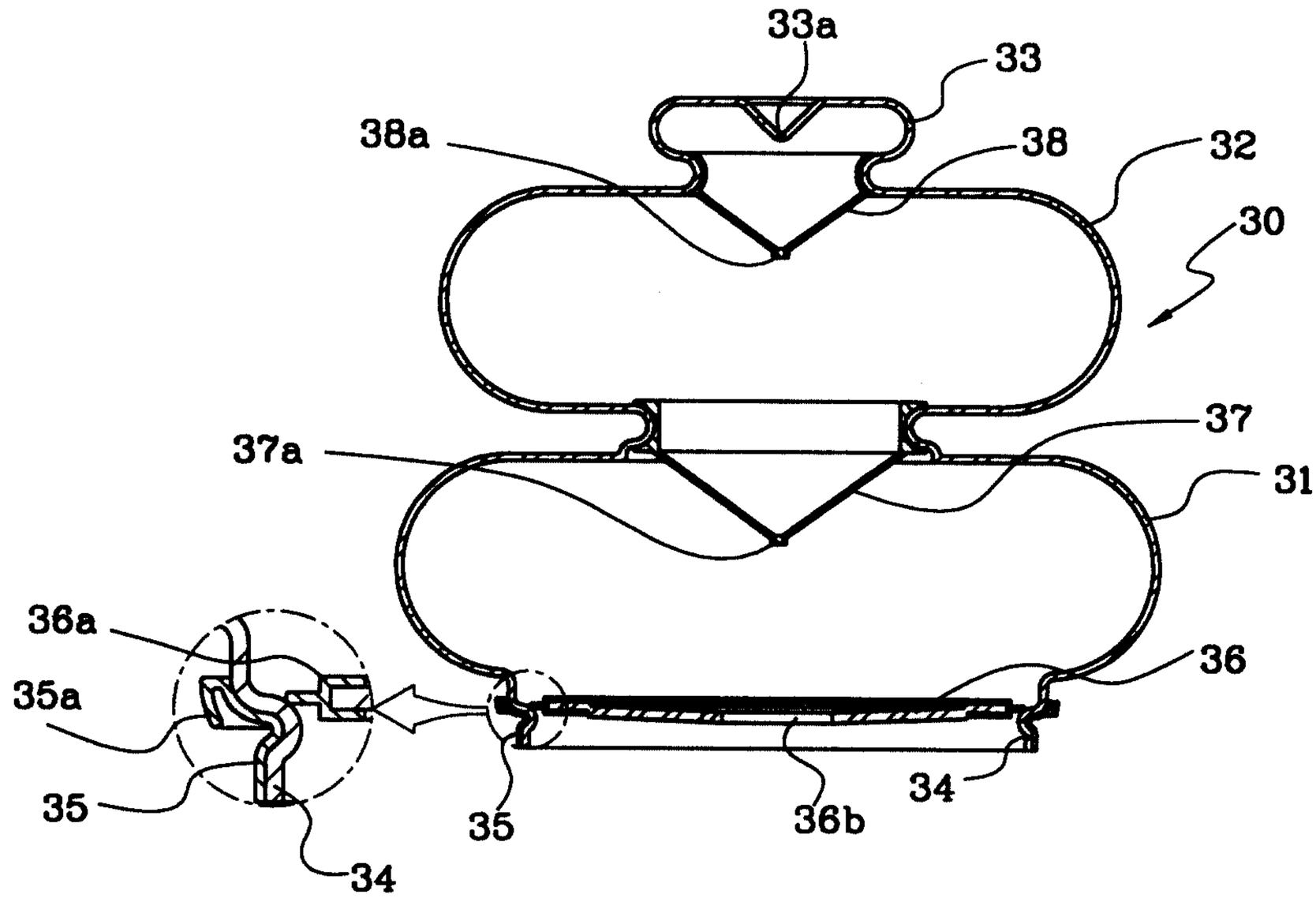
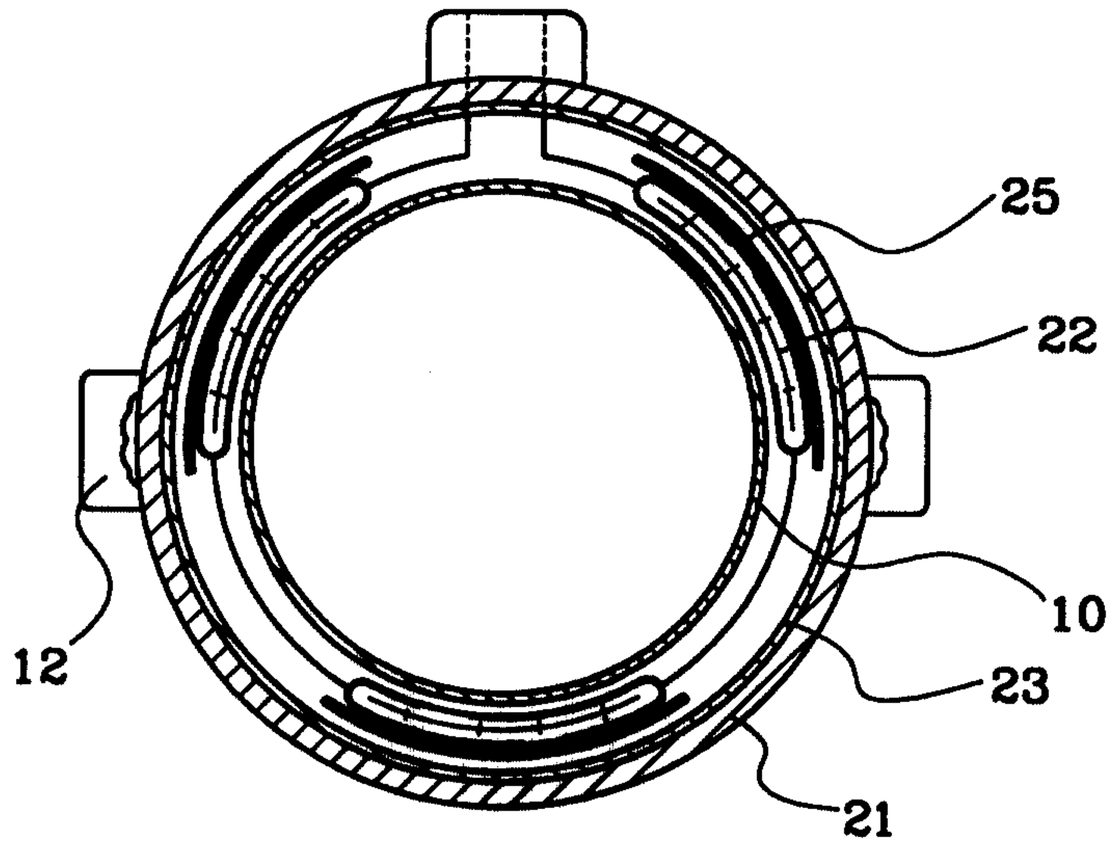
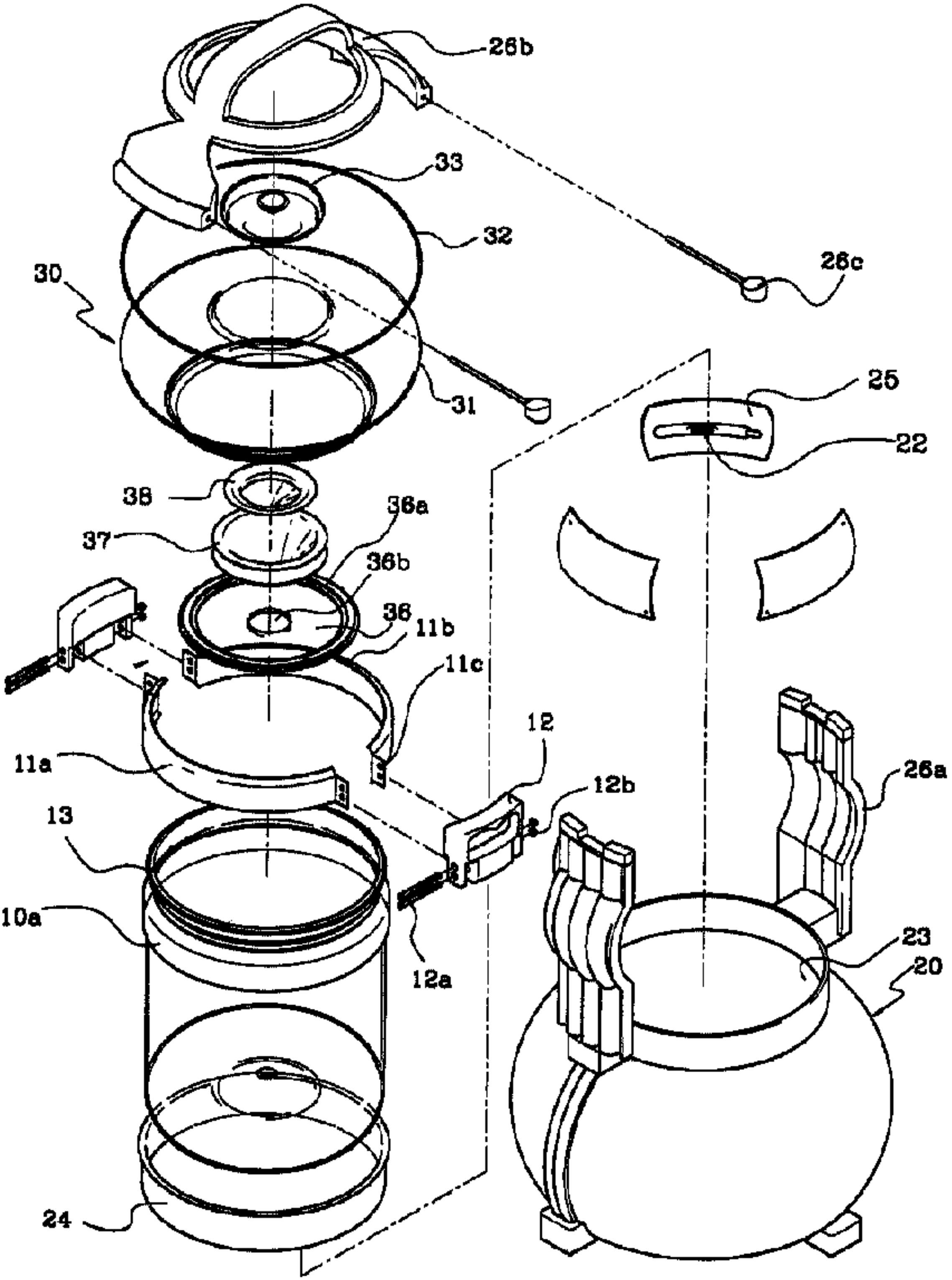

33a
33
38a
38
32
30
37
37a
31
36a
35a
36
35
35
36b
34
34

FIG.6


25
22
10
12
23
21


26b
33
32
30
26c
31
25
22
38
36a
37
36b
36
11b
11c
12
12b
11a
26a
13
10a
23
20
12a
24