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(54) **ICE MAKING FOR MAKING SINGLE LAYER AND DOUBLE LAYER ICE BRICK**

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(57) **ABSTRACT**

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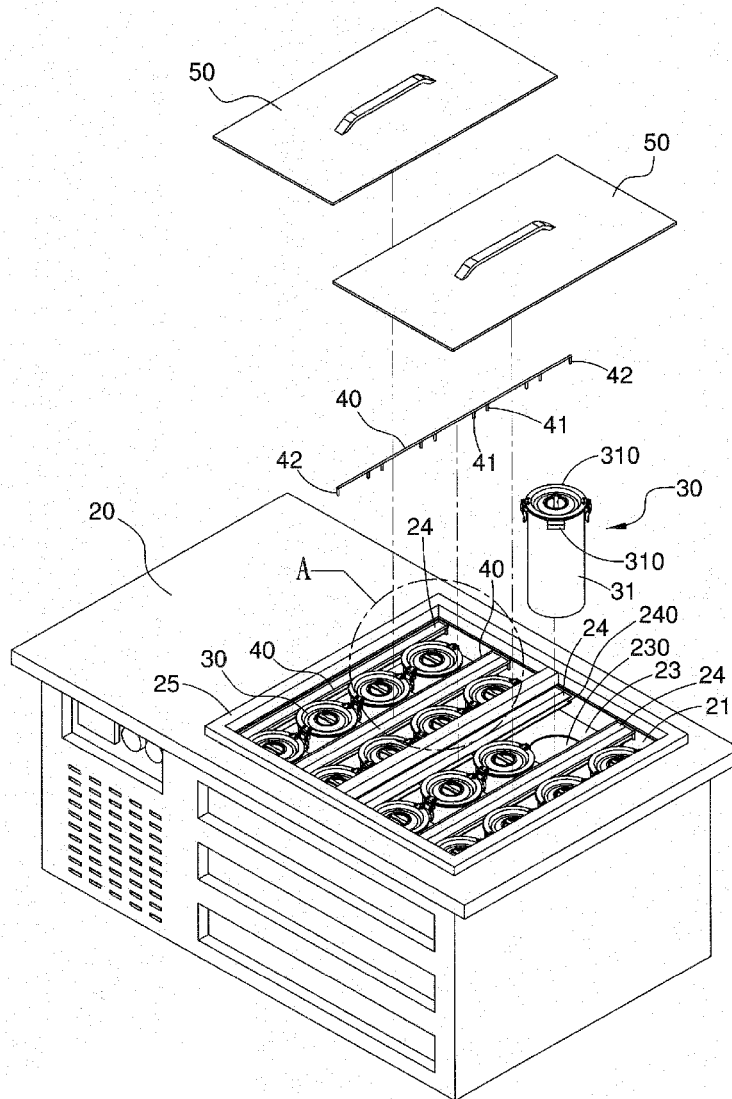
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CPC *F25C 1/04* (2013.01); *F25D 3/04* (2013.01); *F25C 1/22* (2013.01); *F25C 1/18*

An ice making machine has round receiving groove in the isolating plate for receiving the condensing basin, the condensing basin will not move horizontally. By the limiting groove with a plurality of limiting rods which is engaged with the two ears, it is avoided that the condensing basin rotates unwillingly. Especially, a single layer ice brick can be made by using the inner basin with the outer basin. Or the use of the core basin with the outer basin, an inner layer ice brick c is made firstly. Then the use of the inner basin with the outer basin cause an inner ice brick d is made. Therefore, a double layer ice brick is formed with two odors or two colors. By use of the inner basin and the outer tube, the ice brick can be easily taken out.



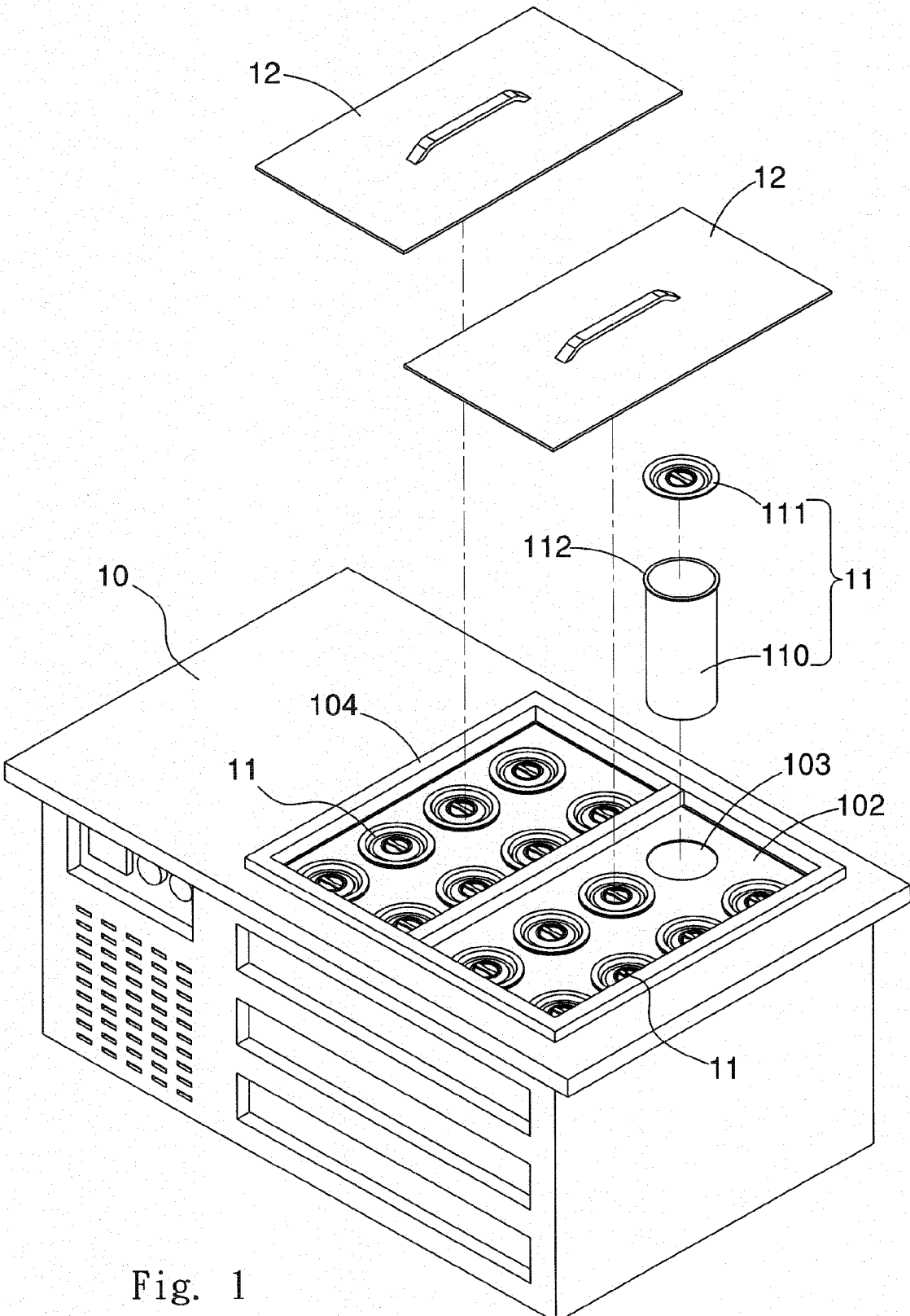


Fig. 1

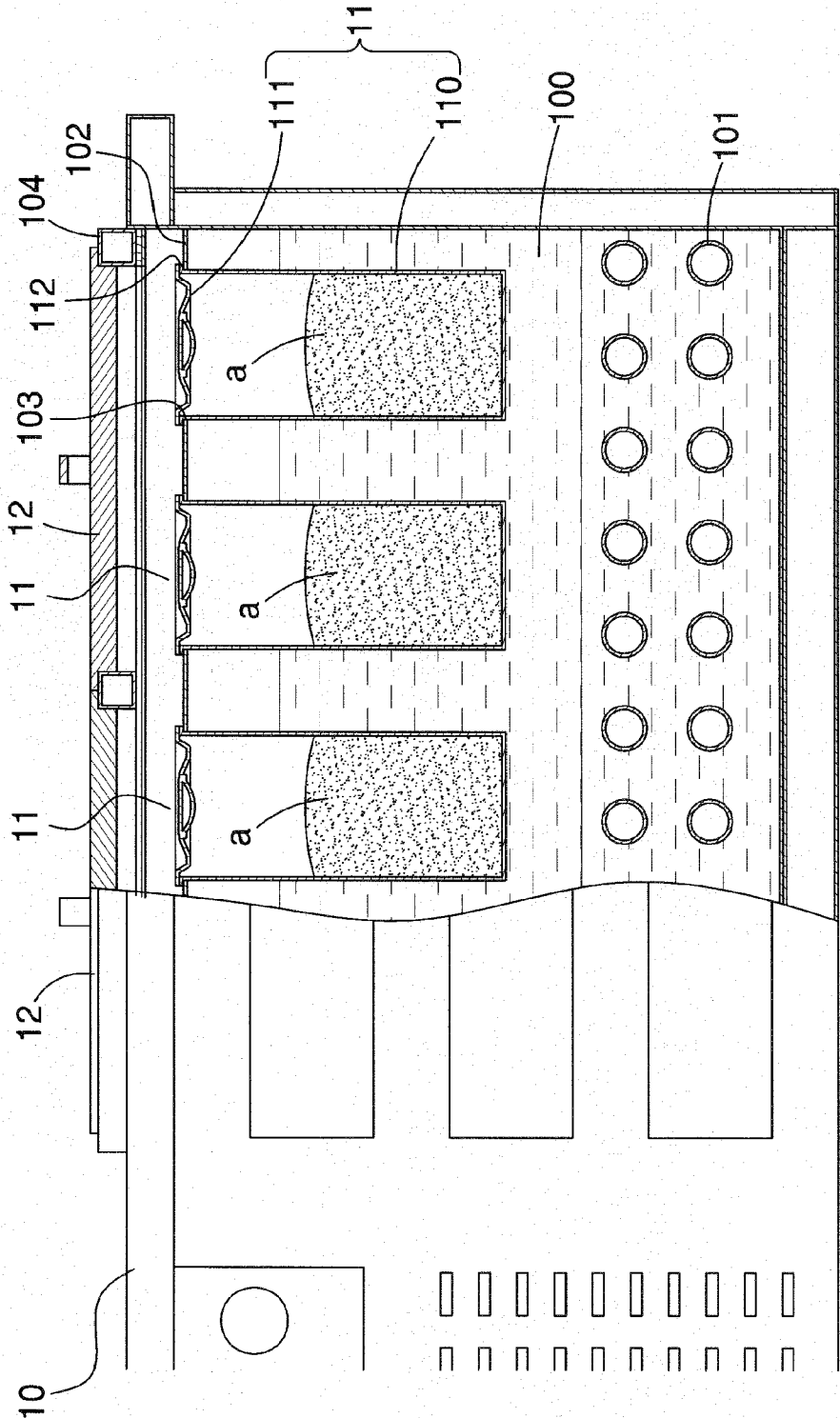


Fig. 2

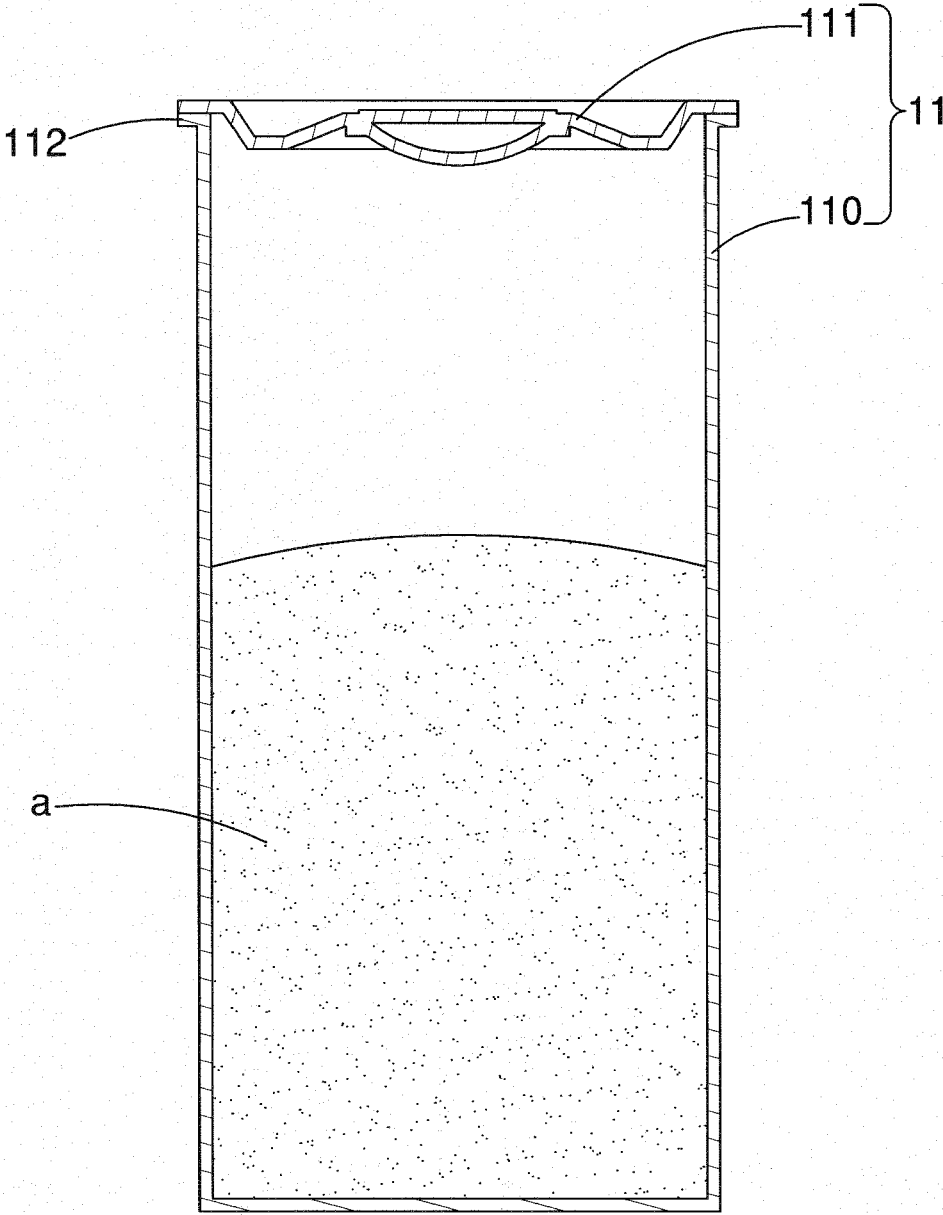


Fig. 3

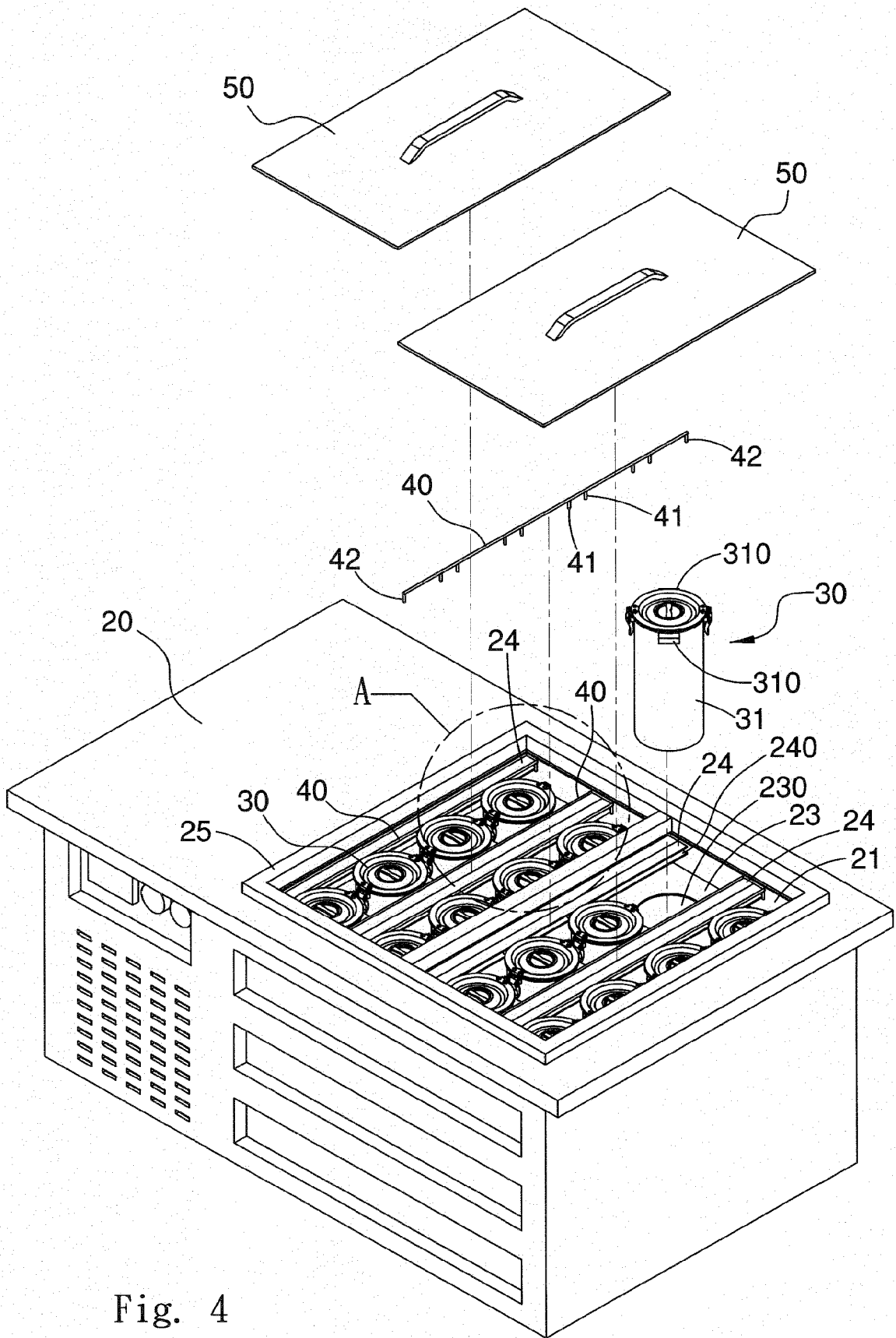


Fig. 4

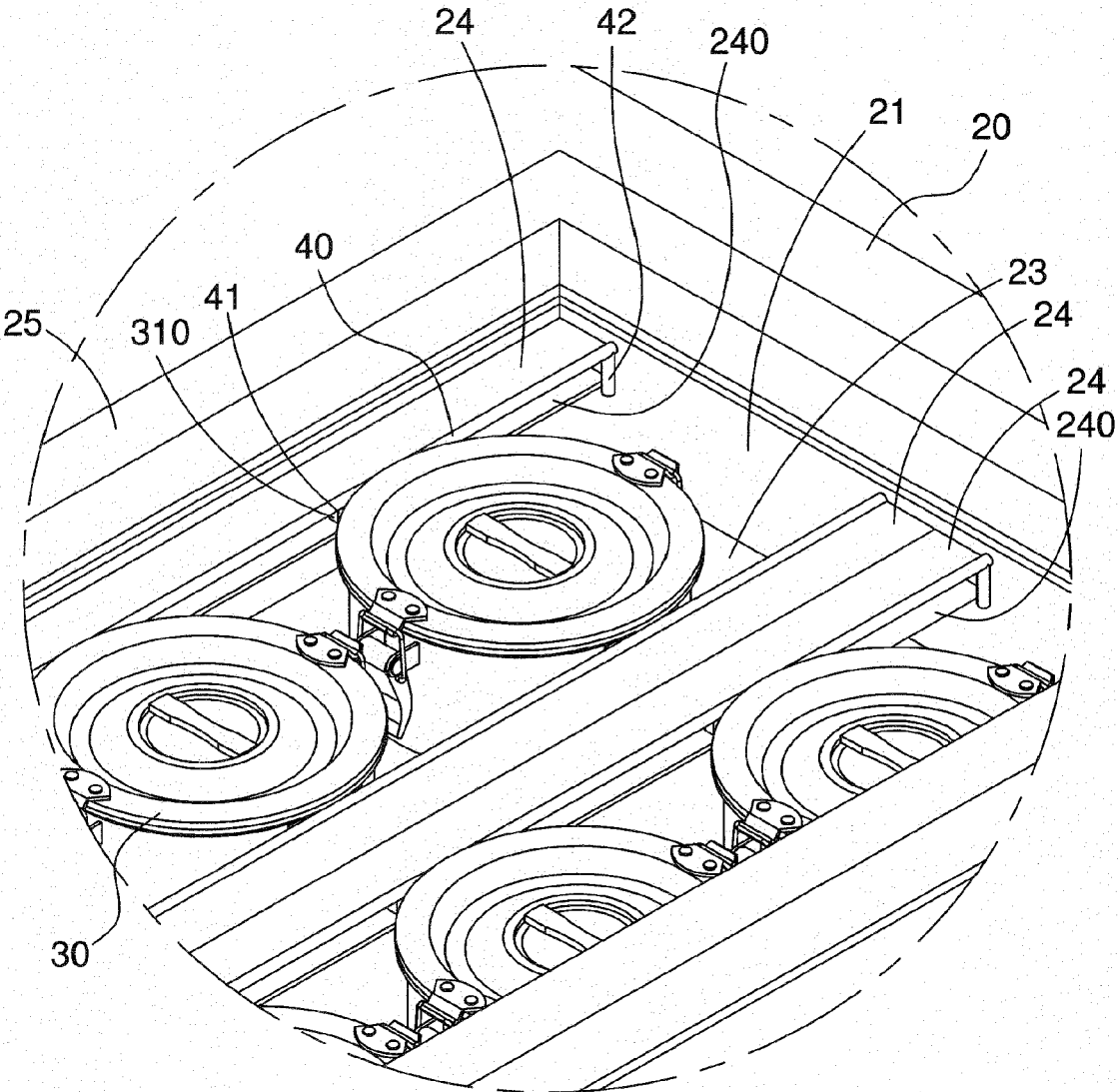


Fig. 5

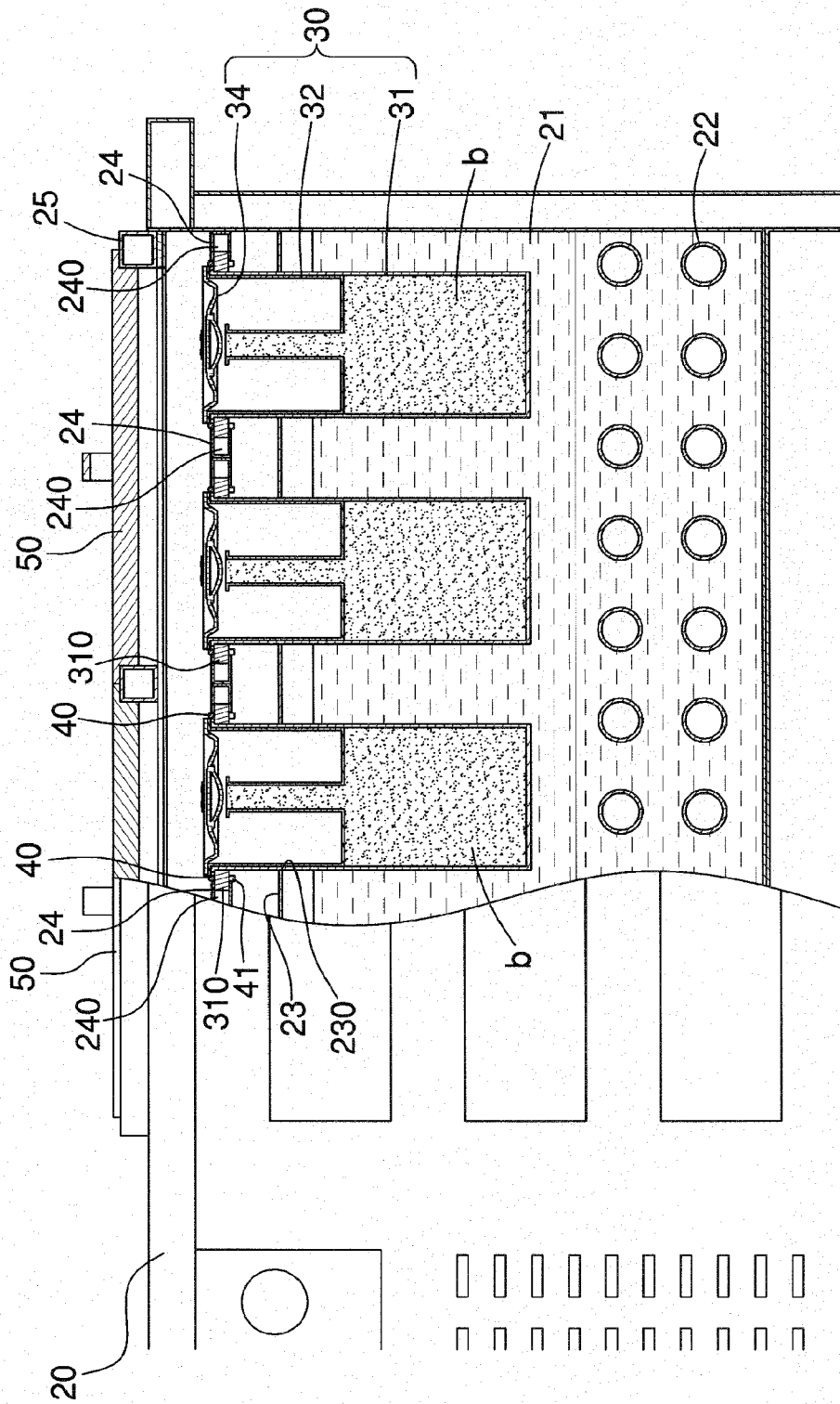


Fig. 6

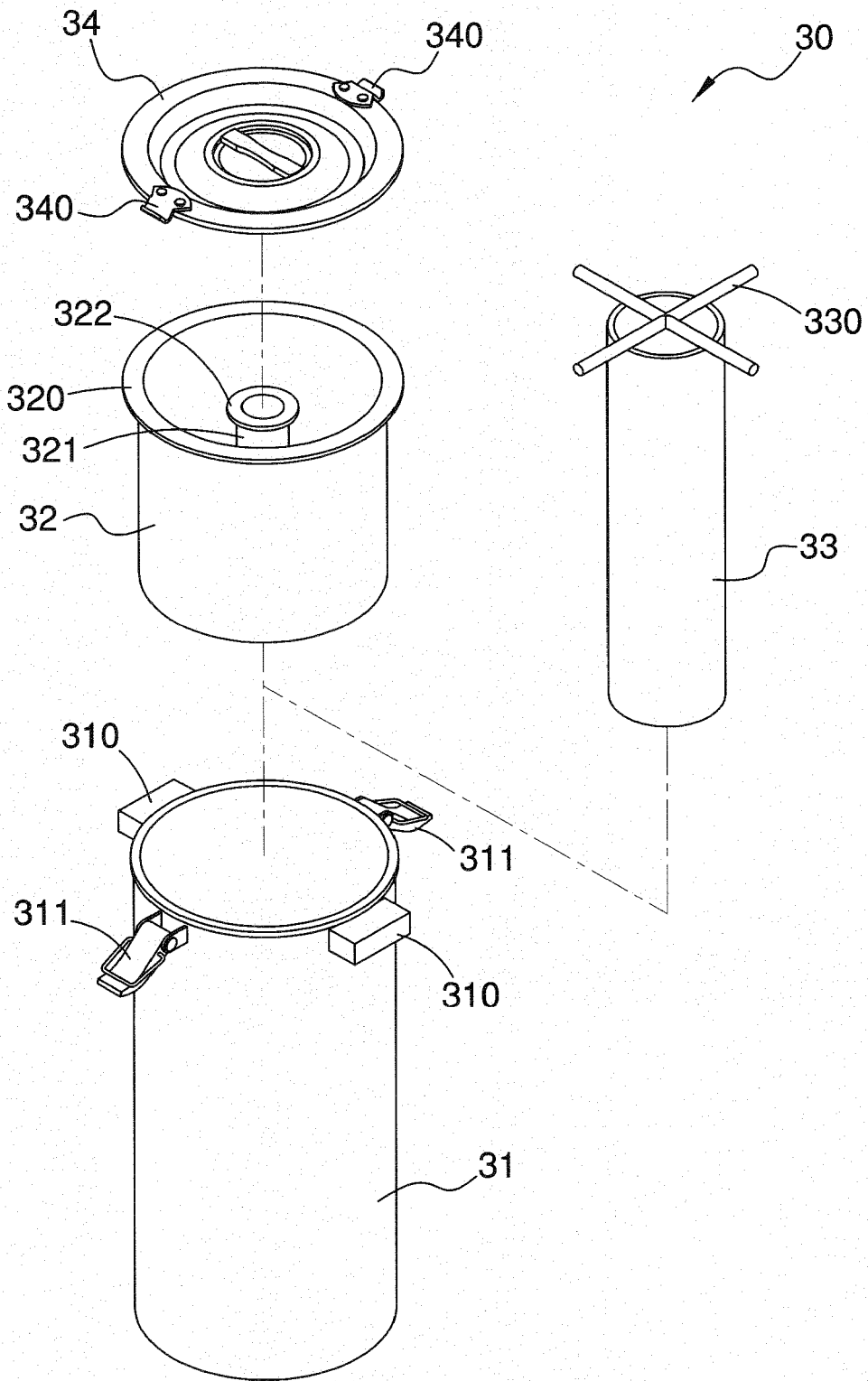


Fig. 7

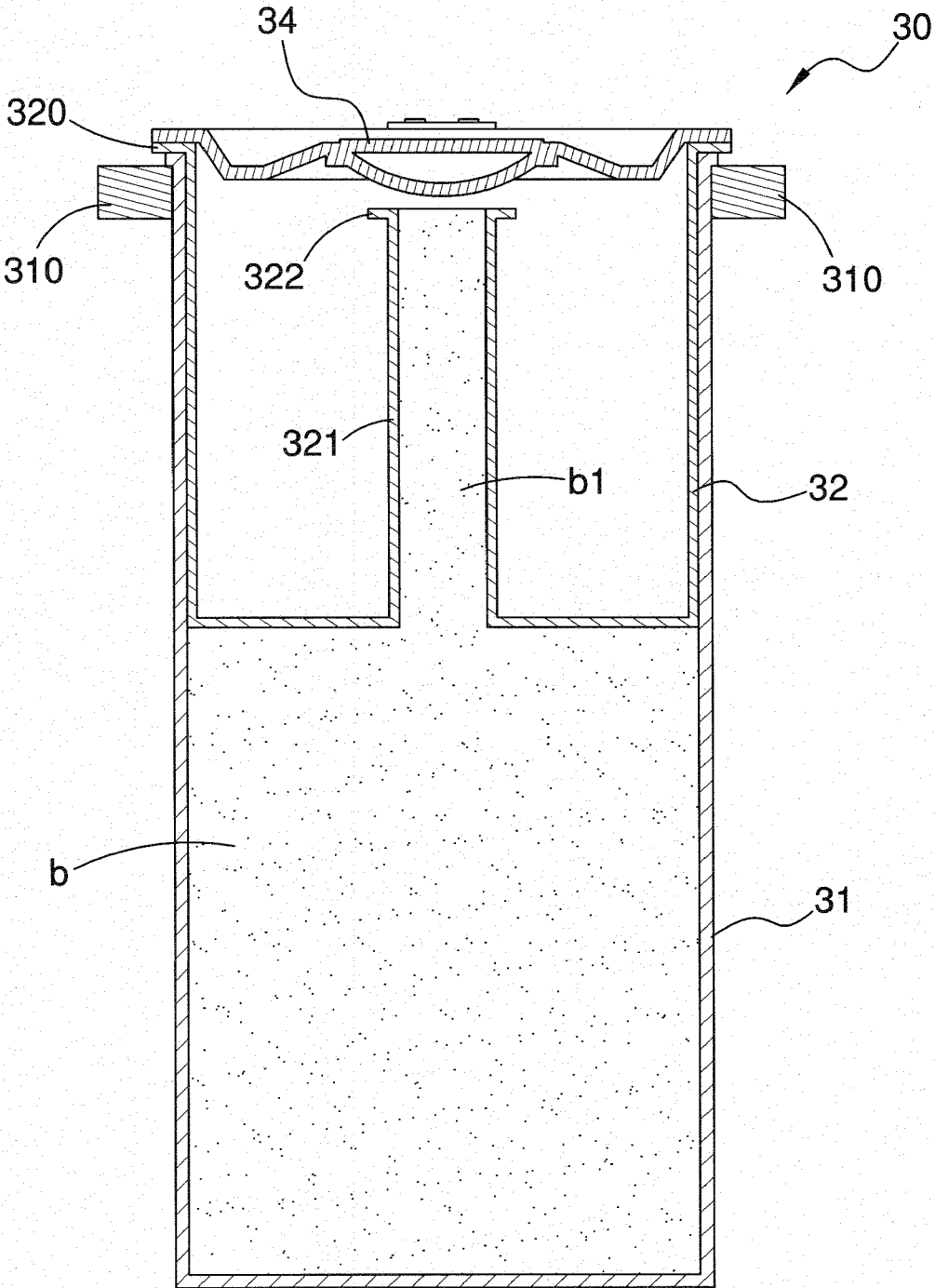


Fig. 8

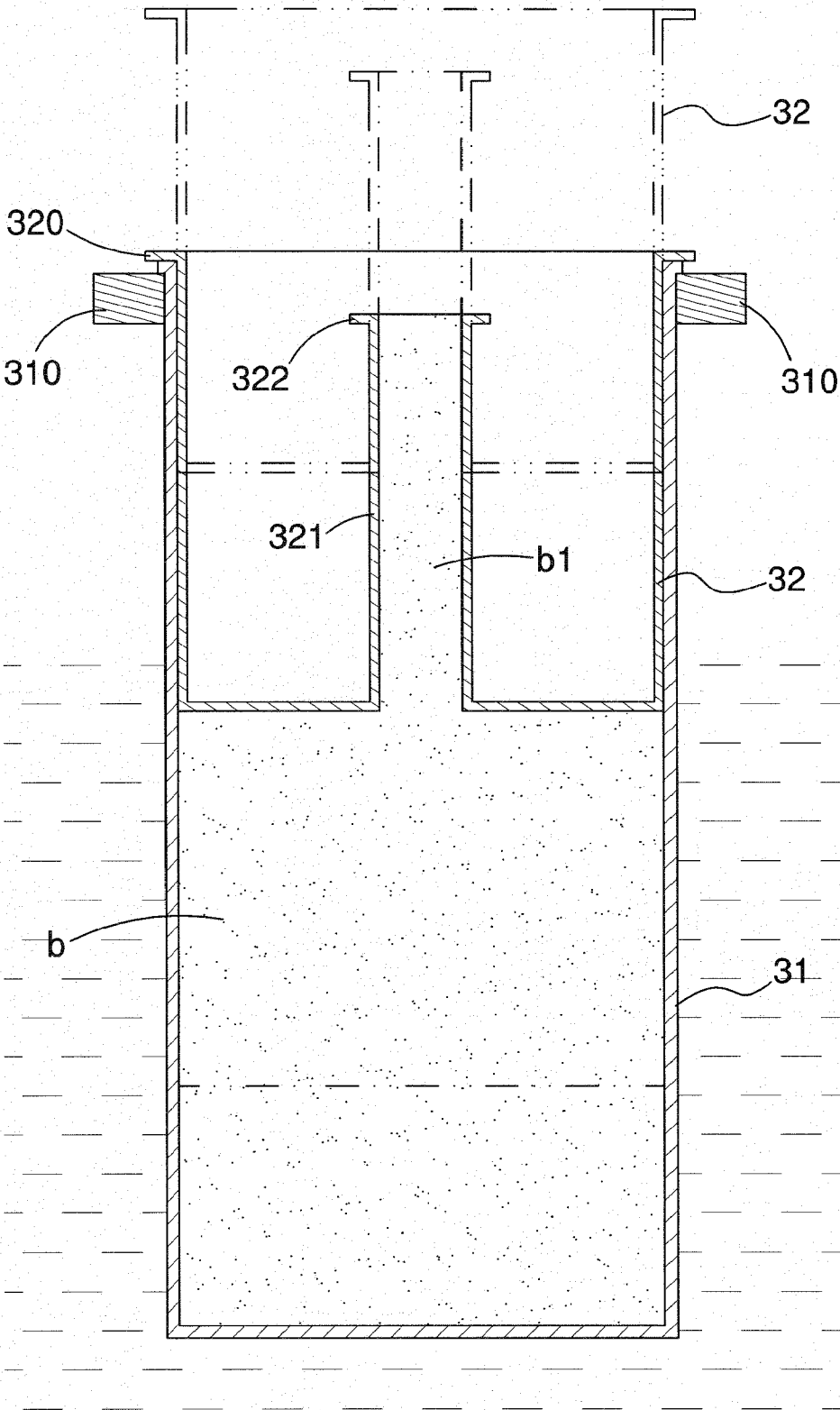


Fig. 9

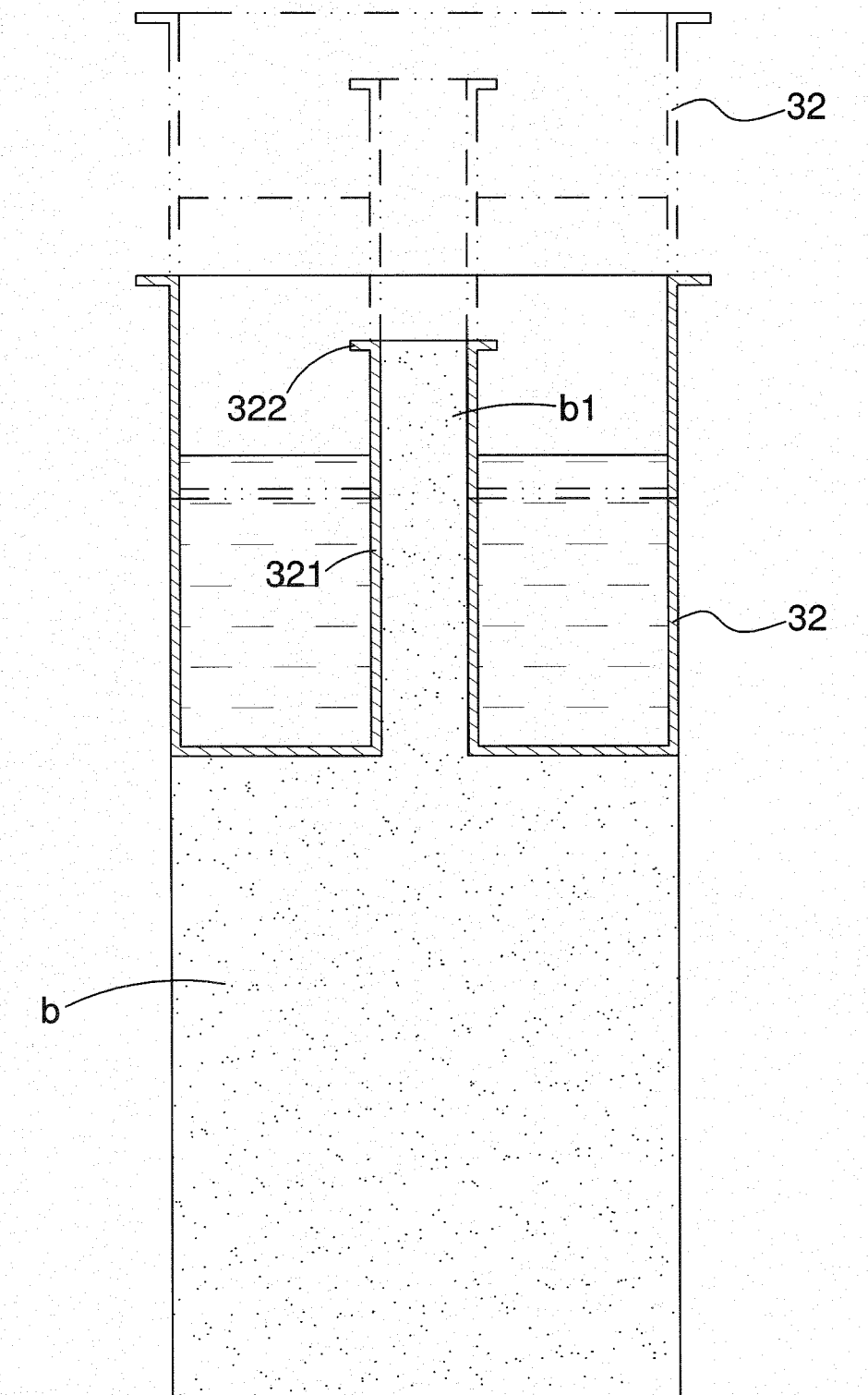


Fig. 10

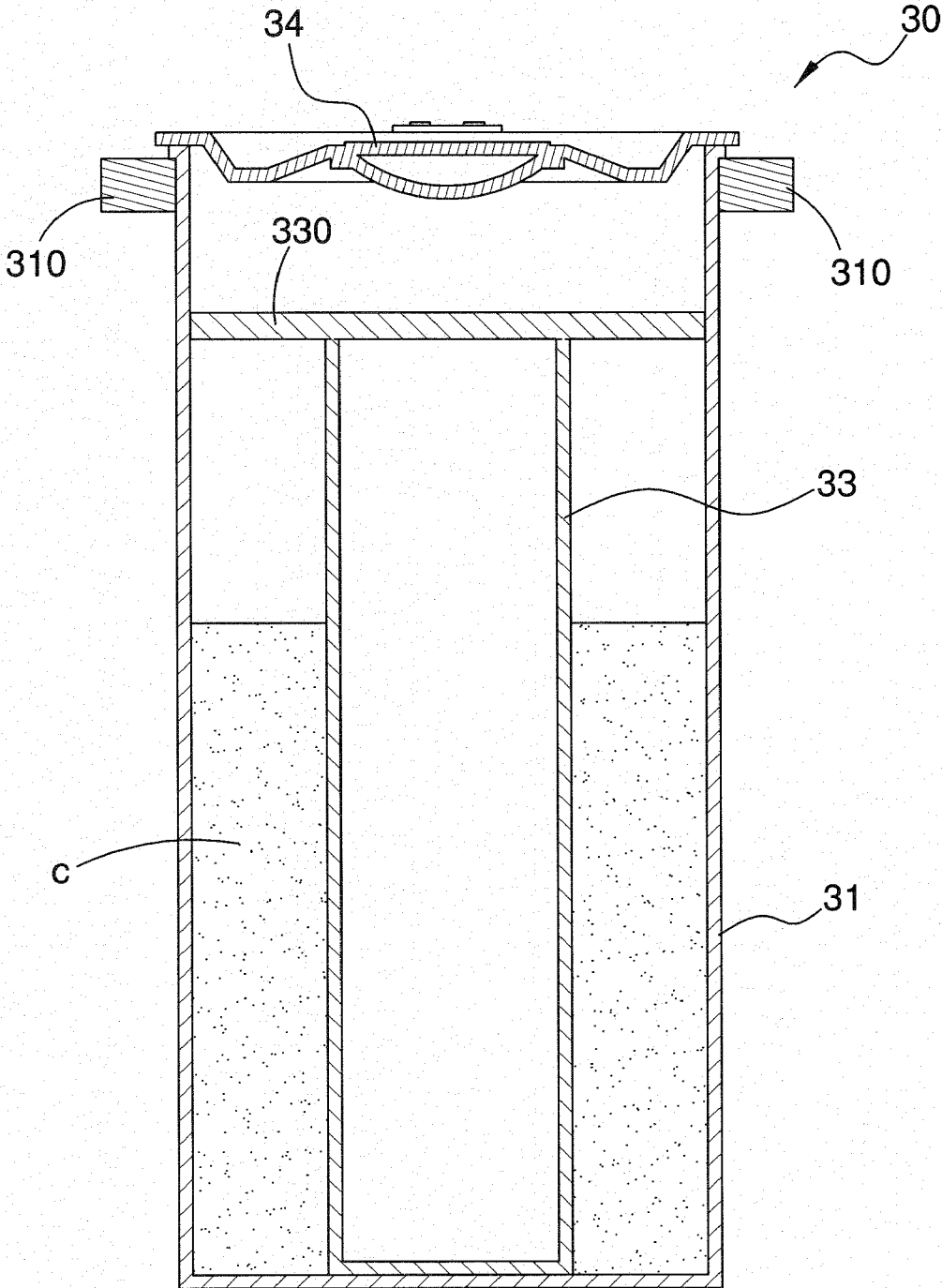


Fig. 11

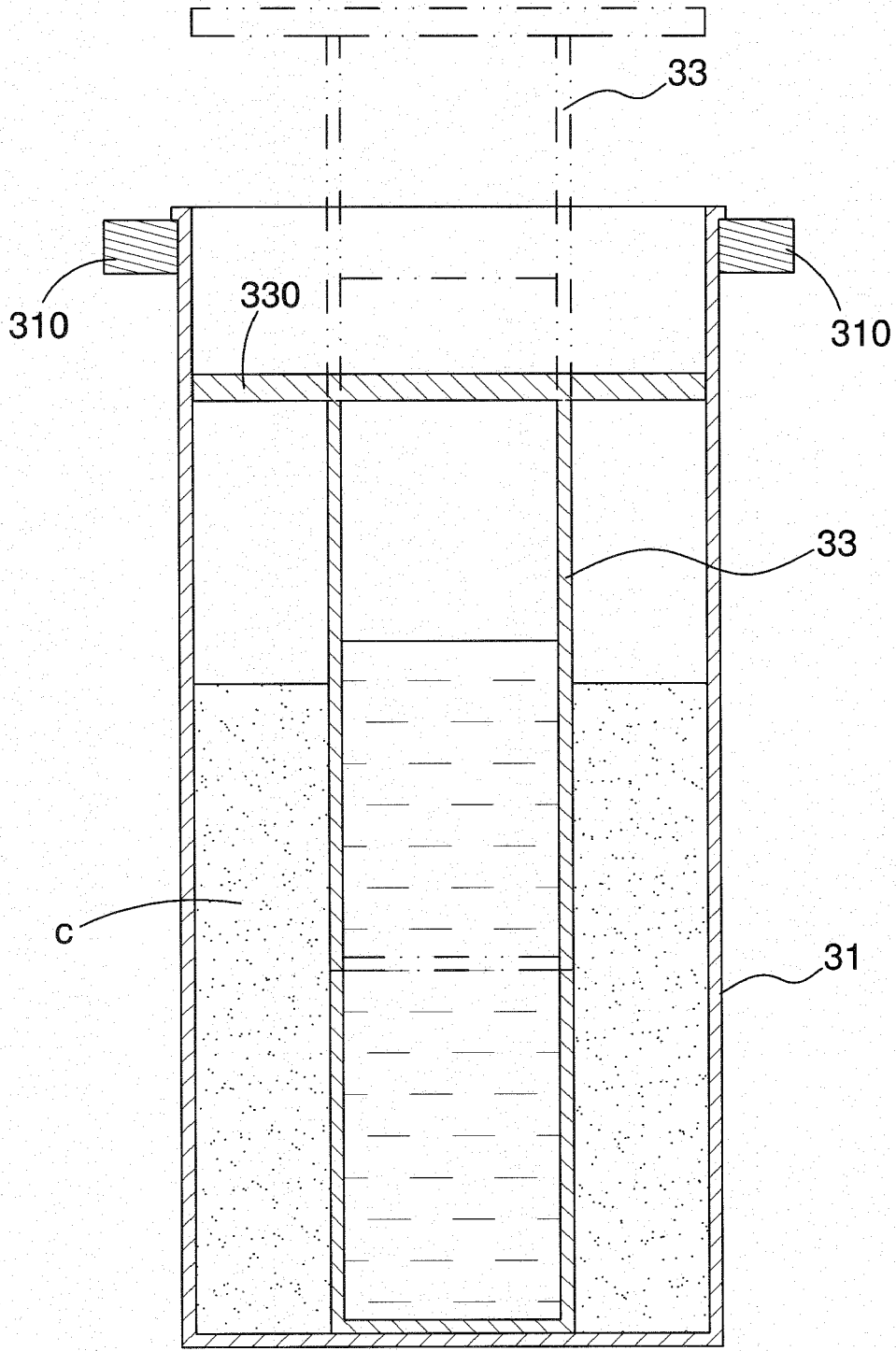


Fig. 12

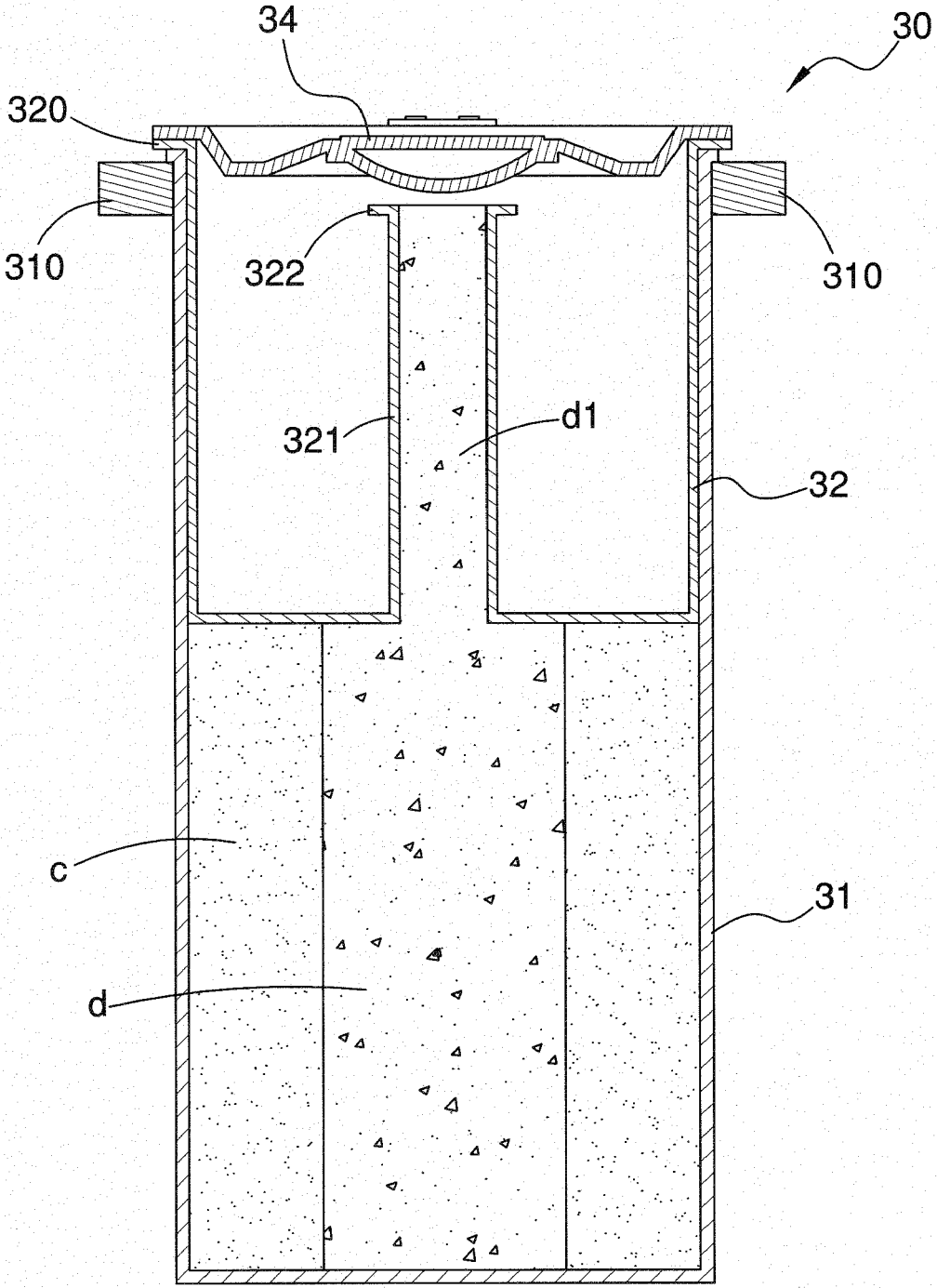


Fig. 13

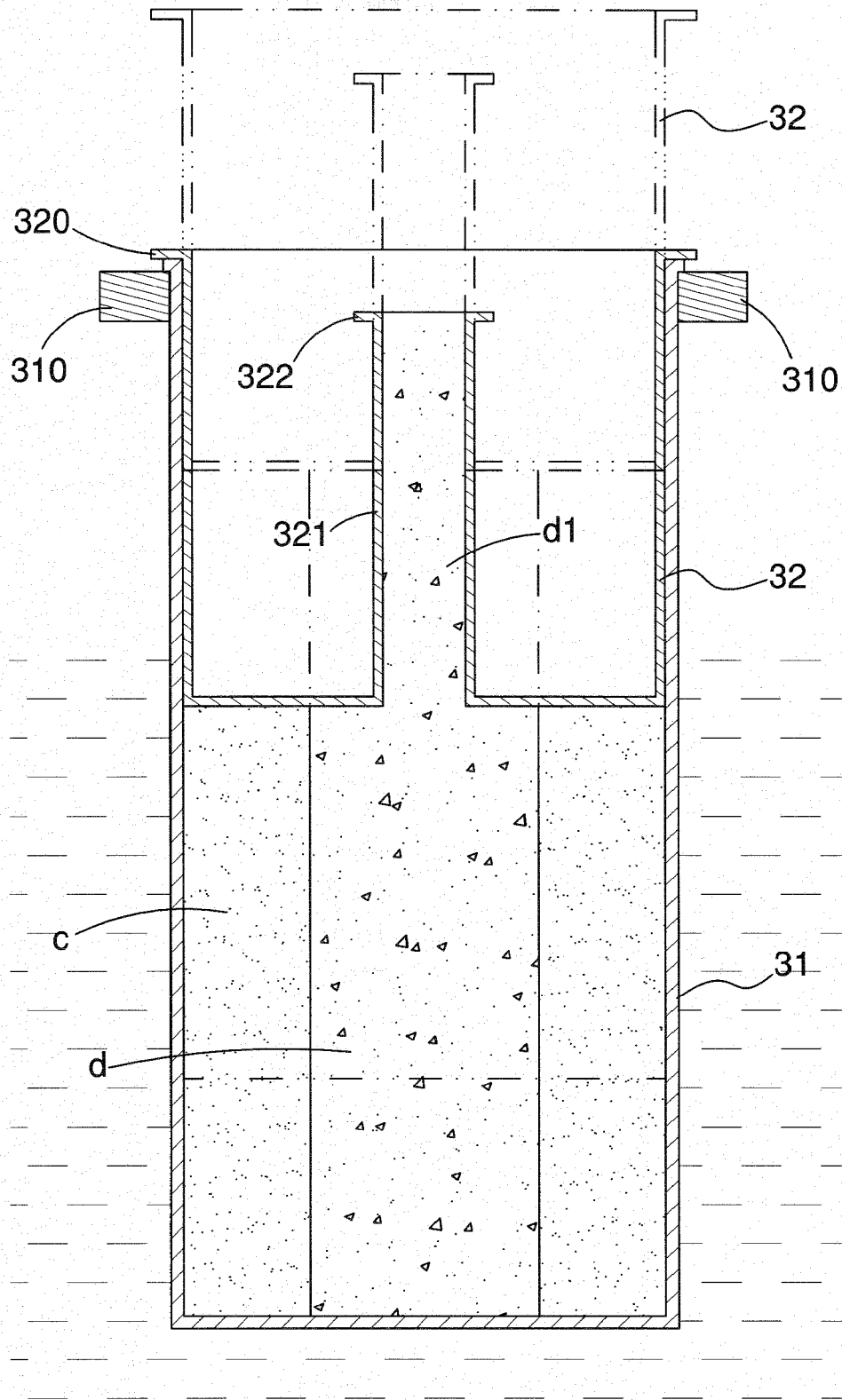


Fig. 14

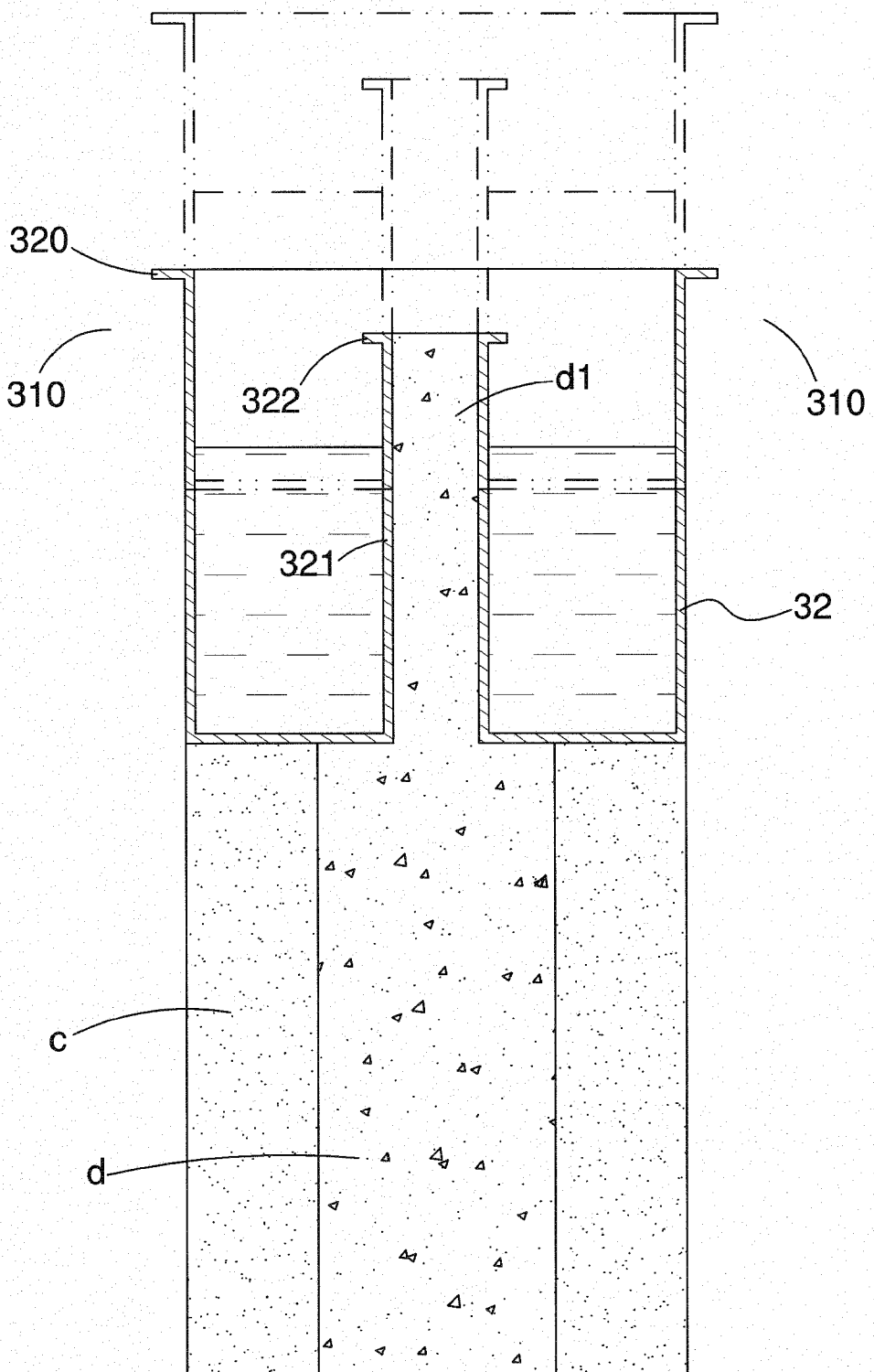


Fig. 15

ICE MAKING FOR MAKING SINGLE LAYER AND DOUBLE LAYER ICE BRICK

FIELD OF THE INVENTION

[0001] The present invention relates to ice making machine for forming ice bricks; and in particular to an ice making machine for making single layer and double layer ice brick.

BACKGROUND OF THE INVENTION

[0002] FIGS. 1 to 3, a prior art ice making machine is illustrated. The ice making machine includes a machine table 10, a plurality of condensing tanks 11 and a plurality of cover plates 12. The machine table 10 has an upward opening and a rectangular condensing groove 100 for receiving condensing liquid. A bottom of the condensing groove 100 has a plurality of condensing tubes 101 near a bottom thereof. Near an opening of the condensing groove 100 has an isolating plate 102 which has a plurality of round receiving holes 103. A cover frame 104 is installed at the opening of the condensing groove 100. The plurality of condensing tanks 11 can be received into the receiving holes 103. Each condensing tank 11 has a tank body 110 and a cover 111. The tank body 110 has a round shape and is exactly received into a respective one of the receiving holes 103. An opening of the tank body 110 has a buckling edge 112 for resisting against a top of the isolating plate 102 so that a lower half of the tank body 110 is sunk into the condensing liquid.

[0003] The cover 111 is installed on the opening of the tank body 110. The plurality of cover plates 12 are covered on the cover frame 103 for sealing the opening of the condensing groove 100. When the plurality of condensing tanks 21 are filled with proper solutions, and are placed into the condensing groove 100. The condensing tubes 101 reduces the temperature of the condensing liquid in the condensing tube 22 to a predetermined value. By the low temperature condensing liquid, the solution in the plurality of core basins in the condensing tank 21 will condense as ice bricks.

[0004] However, the receiving grooves 103 and the bodies 110 of the plurality of condensing tanks 11 have round shapes. The condensing tanks 11 will rotate within the plurality of receiving grooves 103 as desired. The plurality of condensing tanks 21 are buckled to an upper side of the isolating plate 102 of a buckling edge 112 of the opening of the tank body 110, as a result, the plurality of condensing tanks 21 will move upwards and downwards by the floating force of the condensing liquid. This will affect the condensing efficiency of the ice brick 'a'. Furthermore, the prior art ice making machine only makes single layer ice brick 'a' of single odor or single color. It can be make double layer ice brick of two odors or two colors. In the prior art ice making machine, when the ice brick a is to be taken out, the condensing tank 11 must be taken out from the condensing groove 110 of the machine table 10. Then the tank body 110 is sunk into water of room temperature. Then it is tilt to cause the ice brick to separate from the tank body 110. It is uneasy to take out the ice brick 'a'. Moreover, when the tank body 110 is tilt, the water will adhere on the wall of the tank body 110 and thus flows out to mix with and pollute the ice brick 1

SUMMARY OF THE INVENTION

[0005] According to improve the defect in the prior art, the present invention provides an ice making machine, in that in the structure of the present invention, by the round receiving groove of the isolating plate which receives the condensing basin, the condensing basin will not move horizontally. By the limiting groove with a plurality of limiting rods which is engaged with the two ears, it is avoided that the condensing basin rotates unwillingly. Especially, a single layer ice brick can be made by using the inner basin with the outer basin. Or the use of the core basin with the outer basin, an inner layer ice brick c is made firstly. Then the use of the inner basin with the outer basin cause an inner ice brick d is made. Therefore, a double layer ice brick is formed with two odors or two colors. By use of the inner basin and the outer tube, the ice brick can be easily taken out.

[0006] The achieve above mentioned object, the present invention provides an ice making machine, comprising: a machine table having a condensing tank with an upward opening for receiving condensing liquid; a plurality of condensing tubes being installed within the condensing tank and near a bottom of the condensing tank; an isolating plate and a plurality of limiting rods being installed near the opening of the receiving condensing liquid; a plurality of round receiving grooves being arranged with equally space and being formed on the isolating plate; a plurality of limiting rods being formed at an upper end of the isolating plate and being parallel arranged in the condensing tank; each two of the plurality of limiting rods being arranged as one set; and each set of the limiting rods being spaced by a set to set base; between two limiting rods of the same set being formed with a limiting groove; a plurality of condensing basins passing through each set of limiting rods and then received into the receiving grooves; each condensing basin including an outer basin, an inner basin, a core basin and a cover; the outer basin having a round shape and being exactly received into the receiving groove; an outer upper edge of the outer basin being formed with two ears; by rotating the outer basin; the two ears can be embedded into the limiting grooves of the limiting rods so as to limit the upward and downward movement of the outer basin; an opening of the inner basin being faced upward; a depth of the inner basin being smaller than that of the outer basin and can be received into the outer basin; an upper end of the inner basin being formed with a flange which serves to locate on an upper edge of the opening of the outer basin; a bottom of the inner basin being extended upwards with a tube; a length of the tube being smaller than the depth of the inner basin; an opening of the core basin facing upwards and a depth thereof being smaller than that of the outer basin; an outer diameter of the core basin being smaller than an inner diameter of the outer basin so that it can be received into the outer basin; the opening of the core basin being formed with a resisting portion for being carried by a user and for resisting against an inner wall of the outer basin so that the core basin being at a predetermined position of the outer basin; the cover being cover the outer basin or the inner basin as desired; the core basin serving to form a double layer ice brick; a plurality of positioning rods each being installed at one side of a respective one of the limiting rod facing to the opening condensing tank; each positioning rod being installed with a plurality of clamping rods; two clamping rods being parallel and deemed as one set for clamping a respective one of the ear for confining rotation of

the condensing basin; two ends of each positioning rod being installed with a respective resisting rod which resists against a lateral side of the condensing tank; and a plurality of covering plates for covering one of the covering frame for sealing the opening of the condensing tank.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is an exploded schematic view of a prior art ice making machine.

[0008] FIG. 2 is an enlarged schematic view of the prior art ice making machine.

[0009] FIG. 3 is an enlarged schematic view of a prior art condensing tank.

[0010] FIG. 4 is an exploded schematic view of the present invention.

[0011] FIG. 5 is an enlarged schematic view of the part shown in FIG. 4.

[0012] FIG. 6 is an enlarged schematic view of the present invention.

[0013] FIG. 7 is an enlarged schematic view of the condensing tank of the present invention.

[0014] FIG. 8 is a schematic view showing process of making a single layer ice brick.

[0015] FIG. 9 is a schematic view showing the process of pulling up the single layer ice brick.

[0016] FIG. 10 is a schematic view showing the operation of taking out of the single layer ice brick.

[0017] FIG. 11 is a schematic view showing the process of making a double layer ice brick.

[0018] FIG. 12 is a schematic view showing the operation of the taking out of the two layer ice brick from a core basin.

[0019] FIG. 13 is a schematic view showing the condensing mechanism of the double layer ice brick.

[0020] FIG. 14 is a schematic view showing the operation of the pulling of the double layer ice brick.

[0021] FIG. 15 is a schematic view showing the operation of taking out of the double layer ice brick.

BRIEF DESCRIPTION OF THE INVENTION

[0022] In order that those skilled in the art can further understand the present invention, a description will be provided in the following in details.

[0023] However, these descriptions and the appended drawings are only used to cause those skilled in the art to understand the objects, features, and characteristics of the present invention, but not to be used to confine the scope and spirit of the present invention defined in the appended claims.

[0024] With reference to FIGS. 4 to 6, the ice making machine of the present invention is illustrated. The present invention includes the following elements.

[0025] A machine table 20 has a condensing tank 21 with an upward opening for receiving condensing liquid. A plurality of condensing tubes 22 are installed within the bottom of the condensing tank 21. An isolating plate 23 and a plurality of limiting rods 24 are installed in the condensing tank 21 within the opening. A plurality of receiving grooves 230 are formed on the isolating plate 23, which are arranged equally spaced. The plurality of limiting rods 24 are installed above the isolating plate 23 and are parallel installed within the condensing tank 21 and near an opening thereof. Each two of the plurality of limiting rods 24 are deemed as one set and these set of the limiting rods 24 are arranged spaced.

Each limiting rod 24 has a limiting groove 240 faced to another limiting rod 24 of the same set. The opening of the condensing tank 21 is installed with a cover frame 25.

[0026] A plurality of condensing basins 30 each is a round cylindrical tank. Each condensing basin 30 penetrates through a respective one of the limiting rod 24 longitudinally and then placed into a respective receiving groove 230. Each condensing basin 30 is formed with a left and a right ear 310. By rotating the condensing basin 30, the two ears 310 can be embedded into respective limiting groove 240 for limiting the upward and downward movement of the condensing basin 30.

[0027] A plurality of positioning rods 40 each is installed at one side of a respective one of the limiting rod 24 facing to the opening condensing tank 21. Each positioning rod 40 is installed with a plurality of clamping rods 41. Two clamping rods 41 are parallel and deemed as one set for clamping a respective one of the ear 310 for confining rotation of the condensing basin 30. Two ends of each positioning rod 40 are installed with a respective resisting rod 42 which resists against a lateral side of the condensing tank 21.

[0028] A plurality of covering plates 50 serves for covering one of the covering frame 25 for sealing the opening of the condensing tank 21.

[0029] With reference to FIGS. 7, 8 and 11, it is illustrated that the condensing basin 30 of the present invention contains an outer basin 31, an inner basin 32, a core basin 33 and a basin cover 34.

[0030] The outer basin 31 is a round cylindrical shape and has an opening facing upwards. An upper outer edge of the outer basin 31 is formed with two oppositely arranged ears 310 which can be held by hands. Two opposite sides have two buckles 311.

[0031] The inner basin 32 has an upward opening. The depth of the inner basin 32 is smaller than that of the outer basin 31 and can be received into the outer basin 31. A flange 320 protrudes from an upper edge of the inner basin 32 for positioning upon an upper edge of the opening of the outer basin 31. A tube 321 extends from and penetrates through a bottom of the inner basin 32. A height of the tube 321 is smaller than the depth of the inner basin 32. The flange 322 protrudes from an upper end of the tube 321.

[0032] The core basin 33 has an upward opening and has a depth smaller than that of the outer basin 31. The outer diameter of the core basin 33 is smaller than the inner diameter of the outer basin 31 for being received in the outer basin 31. The opening of the core basin 33 is installed with a cruciform resisting portion 330 for being pulled by the user and resisting against the inner wall of the outer basin 31 so as to position the core basin 33 within the outer basin 31, for example, causing that the core basin 33 is coaxial to or shifts to the outer basin 31. The resisting portion 330 has a straight form, a pentagonal form, a ring form, and other forms.

[0033] The cover 34 may cover the outer basin 31 or the inner basin 32. An upper side of the cover 34 is installed with two hooks 340 for buckling with the buckles 311 so as to have the effect for enhancing the engagement of the cover.

[0034] In the present invention, the outer basin 31, inner basin 32, core basin 33 and the cover 34 are made of stainless steel.

[0035] With reference to FIGS. 8 to 10, a schematic view about the action of single layer ice brick is illustrated. In FIG. 8, a proper solution is placed into the outer basin 31 and

then the inner basin **32** is placed into the outer basin **31**. The cover **34** is covered. Then the structure is placed into the condensing tank **21** of the machine table **20** for condensing through a time period (referring to FIGS. **4** to **5**). The condensing solution will condense in the outer basin **31** as ice brick b. The liquid generated in the condensing process will increase the thickness of the brick b so that a top surface of the brick b adheres to the bottom of the inner basin **32**, which an ice post b1 condenses in the tube **321**.

[0036] With reference to FIG. **9**, it is illustrated that after the outer basin **31** is placed in room temperature, when the inner basin **32** is taken out from the outer basin **31**, the brick b will be taken out from the outer basin **31**.

[0037] See FIG. **10**, water of room temperature is placed into the inner basin **32** for a time period, the inner basin **32** is pulled out by the tube **321**, the brick b can be easily separated from the inner basin **32** so as to get a single layer ice brick b of single odor or color. The operation of taking out the ice brick b is very easy and it is not mixed with other liquid.

[0038] With reference to FIGS. **11** to **15**, a schematic view showing the manufacturing of two layer ice bricks. In FIG. **11**, a first solution is placed into the outer basin **31**. Then the core basin **33** is placed thereinto and the cover **34** is covered. Then the structure is placed into the condensing tank **21** of the machine table **20** for condensing through a time period (referring to FIGS. **4** and **5**). An outer layer ice brick c is condensed in the outer basin **31** by the first solution.

[0039] Referring to FIG. **12**, when water of room temperature is placed into the core basin **33**, the core basin **33** is pulled out so that the core basin **33** is easily separated from the outer layer ice brick c which is left in the outer basin **31**.

[0040] With reference to FIG. **13**, a second solution is placed into a central space of the annular outer layer ice brick c. Then it is placed into the inner basin **32** and the cover **34** is covered. Then the structure is placed into the condensing tank **21** of the machine table **20** for condensing for a time period (see FIGS. **4** and **5**). The second solution will condense into an inner ice brick c in the outer ice brick c. In the condensing process, the liquid generated will rise up along the tube **321** so that a top of the condensing ice brick d resists against the bottom of the inner basin **32** so that the ice post d is condensed from the tube **321**.

[0041] With reference to FIG. **14**, when the outer basin **31** is sink in water of room temperature for a time period. By using the tube **321**, the inner basin **32** will be taken out from the outer basin **31**. The condensed outer ice brick d and the inner layer ice brick d are taken out with the inner basin **32** from the outer basin **31**.

[0042] With reference to FIG. **15**, the water of room temperature is filled into the inner basin **32** from a time period, by using the tube **321**, the inner basin **32** is pulled out. Then the inner basin **32** is easily separated from the outer layer ice brick c and the inner layer ice brick d so as to have a two layer ice bricks of two odors or two colors. The operation is easy and is not mixed with other liquid.

[0043] In the structure of the present invention, by the round receiving groove **230** of the isolating plate **23** which receives the condensing basin **30**, the condensing basin **30** will not move horizontally. By the limiting groove **240** with a plurality of limiting rods **24** which is engaged with the two ears **310**, it is avoided that the condensing basin **30** rotates unwillingly.

[0044] Especially, a single layer ice brick can be made by using the inner basin **32** with the outer basin **31**. Or the use of the core basin **33** with the outer basin **31**, an inner layer ice brick c is made firstly. Then the use of the inner basin **32** with the outer basin **31** cause an inner ice brick d is made. Therefore, a double layer ice brick is formed with two odors or two colors. By use of the inner basin **32** and the outer tube **321**, the ice brick can be easily taken out.

[0045] The present invention is thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

What is claimed is:

1. An ice making machine, comprising:

a machine table having a condensing tank with an upward opening for receiving condensing liquid; a plurality of condensing tubes being installed within the condensing tank and near a bottom of the condensing tank; an isolating plate and a plurality of limiting rods being installed near the opening of the receiving condensing liquid; a plurality of round receiving grooves being arranged with equally space and being formed on the isolating plate; a plurality of limiting rods being formed at an upper end of the isolating plate and being parallel arranged in the condensing tank; each two of the plurality of limiting rods being arranged as one set; and each set of the limiting rods being spaced by a set to set base; between two limiting rods of the same set being formed with a limiting groove;

a plurality of condensing basins passing through each set of limiting rods and then received into the receiving grooves; each condensing basin including an outer basin, an inner basin, a core basin and a cover; the outer basin having a round shape and being exactly received into the receiving groove; an outer upper edge of the outer basin being formed with two ears; by rotating the outer basin; the two ears can be embedded into the limiting grooves of the limiting rods so as to limit the upward and downward movement of the outer basin; an opening of the inner basin being faced upward; a depth of the inner basin being smaller than that of the outer basin and can be received into the outer basin; an upper end of the inner basin being formed with a flange which serves to locate on an upper edge of the opening of the outer basin; a bottom of the inner basin being extended upwards with a tube; a length of the tube being smaller than the depth of the inner basin; an opening of the core basin facing upwards and a depth thereof being smaller than that of the outer basin; an outer diameter of the core basin being smaller than an inner diameter of the outer basin so that it can be received into the outer basin; the opening of the core basin being formed with a resisting portion for being carried by a user and for resisting against an inner wall of the outer basin so that the core basin being at a predetermined position of the outer basin; the cover being cover the outer basin or the inner basin as desired; the core basin serving to form a double layer ice brick;

a plurality of positioning rods each being installed at one side of a respective one of the limiting rod facing to the opening condensing tank; each positioning rod being

- installed with a plurality of clamping rods; two clamping rods being parallel and deemed as one set for clamping a respective one of the ear for confining rotation of the condensing basin; two ends of each positioning rod being installed with a respective resisting rod which resists against a lateral side of the condensing tank; and
- a plurality of covering plates for covering one of the covering frame for sealing the opening of the condensing tank.
2. The ice making machine as claimed in claim 1, wherein the opening of the condensing tank is installed with a cover frame; a plurality of covering plates serves for covering the covering frames for sealing the opening of the condensing tank.
3. The ice making machine as claimed in claim 1, wherein an upper edge of the outer basin is formed with two buckles

at two opposite sides; and an upper side of the cover is installed with two hooks for buckling with the buckles.

4. The ice making machine as claimed in claim 1, wherein an upper end of the tube is formed with a flange for being pulled by a user.
5. The ice making machine as claimed in claim 1, wherein the resisting portion has a cruciform.
6. The ice making machine as claimed in claim 1, wherein the resisting portion has a straight form.
7. The ice making machine as claimed in claim 1, wherein the resisting portion resists against an inner wall of the outer basin so that the inner basin is coaxial with the outer basin.
8. The mobile smart massage device as claimed in claim 1, wherein two ends of each positioning rod are vertically formed with two resisting rods for resisting against two opposite wall of the condensing tank.

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