(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 129 593 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
09.12.2015 Bulletin 2015/50

(21) Application number: **08723031.4**

(22) Date of filing: **20.02.2008**

(51) Int Cl.:
B65D 25/08 *(2006.01)*

(86) International application number:
PCT/KR2008/000993

(87) International publication number:
WO 2008/102981 (28.08.2008 Gazette 2008/35)

(54) CAP ASSEMBLY HAVING STORAGE CHAMBER FOR SECONDARY MATERIAL WITH MOVABLE WORKING MEMBER

KAPPENANORDNUNG MIT LAGERUNGSKAMMER FÜR SEKUNDÄRMATERIAL MIT BEWEGLICHEM ARBEITSGLIED

ASSEMBLAGE FORMANT BOUCHON COMPRENANT UN ÉLÉMENT FONCTIONNEL MOBILE ET UN COMPARTIMENT DE STOCKAGE DESTINÉ À UNE MATIÈRE SECONDAIRE

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

(30) Priority: **20.02.2007 KR 20070018212**
21.02.2007 KR 20070018879
23.02.2007 KR 20070019424
24.02.2007 KR 20070019421
26.02.2007 KR 20070021751
26.02.2007 KR 20070021750
27.02.2007 KR 20070021822

(43) Date of publication of application:
09.12.2009 Bulletin 2009/50

(73) Proprietors:
- **Lee, Jeong-Min**
  Seoul 139-837 (KR)
- **Lee, Seong-Jae**
  Jongno-Gu, Seoul 135-080 (KR)

(72) Inventors:
- **Lee, Jeong-Min**
  Seoul 139-837 (KR)
- **Lee, Seong-Jae**
  Jongno-Gu, Seoul 135-080 (KR)

(74) Representative: **Pfenning, Meinig & Partner GbR**
Patent- und Rechtsanwälte
Theresienhöhe 11a
80339 München (DE)

(56) References cited:
EP-A2- 1 270 435
WO-A1-01/51367
GB-A- 821 914
JP-A- 2003 002 350
KR-A- 20060 015 685
US-A- 4 524 078
US-A- 6 045 254
US-A1- 2001 001 196
EP-A2- 1 270 435
WO-A1-01/51367
GB-A- 821 914
KR-A- 20050 091 686
US-A- 4 203 517
US-A- 4 524 078
US-A1- 2001 001 196

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 129 593 B1

Description

TECHNICAL FIELD

[0001] This invention is on the storage chamber for secondary material. In detail, this invention is on the structure of storage chamber required for effectively mixing the concentrate and water or concentrate and general beverage or granule and water or powder and water and so on.

[0002] This invention is on the formed pressure by mixing secondary material which leads to generating inside pressure such as carbonic acid or air pressure, which shall be treated effectively.

Background Technologies

[0003] Additional space is required in the container for mixing the powder or concentrate with the liquid beverage stored in the container.

[0004] The structures intended to mix other materials in these containers have been invented through the US Patent No. 6,962,254, US Patent No. 6,230,884 and US Patent No. 6,854,595.

[0005] However, this structure has not been popularized because it shows some problems in terms of function, mixing efficiency, barrier of storage chamber, adaptability to production line and use convenience.

[0006] The technology (PCT/EP2002/004523:2002. 01. 17) invented or developed by a joint venture organized among an American company, German company and Austrian company and another technology invented or developed by a Japanese company are highlighted in the global market. However, the technology invented or developed by a Japanese company is commercialized for the first time in the world.

[0007] However, the technology (JP-P-2001-00185428: 2001.06.19.) invented or developed by a Japanese company shows a problem. In other words, the part forming a part of opening section drops in the container and children may swallow this dropped part, so the container neck of new form focused on preventing the separation of exhaust device is developed. However, this neck is inapplicable to the existing container, so this new container neck has some problem as well.

[0008] This invention is directly related to the invention (US Patent No. 6,620,444 and US 2001/0001196) invented or developed by an American company. In other words, secondary material is in the container and when the closure is opened, it is forced to be mixed by the inside pressure. In order to prevent the above storage chamber of secondary material from coming out of the container, additional preventing measure is required. Technologically, can container is appropriate to be used, which is a problem.

[0009] The US Patent No. 6,620,444 have some difficulties to put into the storage chamber and control it. Occasionally, the technology to fix the chamber on the bottom of the container is used.

Detailed Descriptions of Invention

Technical Problems

[0010] The basic purpose of this invention is to effectively mix contents pressured in the container and secondary material.

[0011] Another purpose of this invention is to prevent users from swallowing storage chamber of secondary material which is separated from the container at the same time when the closure is opened and secondary material is mixed in the container.

How to Technically Solve the Problems

[0012] Storage chamber for secondary material, invented or developed by this invention under the intention of accomplishing above goals, consists of a storage chamber according to the appended claims 1 and 2. The content stored in the receiving section of this storage chamber is opened when the operating section moves up and down and then is dropped and mixed with contents stored in the container.

[0013] The structure for mixing the secondary materials developed or invented by this invention is adapted to be assembled to a container. Above storage for mixing the secondary materials consists of receiving section with storing space or body with receiving section and operating section to drop and mix the contents stored in the storage space mounted on the bottom of receiving section.

[0014] Above operating section is separated or distanced to some extent in the storage chamber of secondary material to mix secondary materials. The operating section or some part of receiving section is equipped with check valve.

[0015] Above storage chamber is combined to the container in which pressure is generated and then the inside pressure in the container instantly moves to the storage space of receiving section. Check valve is required to be formed to the one direction or two-way direction to maintain regular pressure both in the container and the chamber.

Effects

[0016] This invention forms additional storage space separated from the main contents stored in the container. Additional storage space is required to store powder, granules, or concentrate. And then the pressure by simple operation to open the chamber makes the pressure in the storage chamber of secondary material moderated. In the process, the operating section is opened to mix secondary material which is easy and convenient.

[0017] Also, this invention in which receiving section is combined to the body is characterized by preventing

children from swallowing the chamber parts such as operating section or the body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018]

The figure 1 shows the first operation of this invention.
The figure 2 and 3 show another operation of this invention.
The figure 4 thru 6 show another operation of this invention.
The figure 7 and 8 show another operation of this invention.
The figure 9 and 10 show another operation of this invention.
The figure 11 shows another operation of this invention.
The figure 12 thru 15 show another operation of this invention.
The figure 16 and 17 show another operation of this invention.
The figure 18, 19 and 21 show the other operation of this invention whereas 20 and 22 thru 27 show a related technology.

BEST MODE FOR CARRYING OUT THE INVENTION

[0019] The operation examples of this invention recommended according to enclosed drawings or figures are as follows.

[0020] The figure 1 shows a recommended operation example of this invention. The storage chamber of this invention (1) is recommended to be assembled to the container by the screws or one-touch method or adhesives. The screws are more desirable for the safety.

[0021] Above storage chamber of secondary material (1) is assembled to the neck of the container (100). Inside the container (100), carbonic acid gas or air pressure is desirable to be enough to generate swelling pressure.

[0022] When the chamber (1) is combined to above container (100), the pressure in the container (100) (desirably pressured air) moves to storing space (4) of the receiving section (3) in the chamber (1), and at the same time the pressure in the container (100) and that in the storing space (4) keeps balance which suspend the movement of pressured air.

[0023] Above chamber of this invention (1) comprises check valve (6) to seek the method for the pressure in the storing space (4) to move. Above check valve (6) may be formed in the operating section (5) closing the storing space (4), or in the arbitrary point of the receiving section (3).

[0024] Explaining the figure as a reference based on those above, the receiving section (3) which has storing space (4) inside the body (2) is formed, and secondary material is put into above storing space (4) and the operating section (5), that is, airtight closure assembles the bottom part of above receiving section (3).

[0025] Also, above operating section (5) is structured to be separated or distanced to some extent from the receiving section (3) by pressure at which the contents in the storing space (4) can be dropped inside the container (100).

[0026] In the above storing space (4), check valve (6) to enable air to move is attached to the some arbitrary part of operating section (5) or receiving section (3) as well as the protection cover (7) with dropping space for secondary material is formed to prevent above operating section (5) from falling in the container (100) after separation.

[0027] The chamber of this invention (1), as shown in the figure 1, has both the container (100) and storing space (4) injected with pressured air. In this state, when the chamber (1) is opened, the inside pressure of the container (100) is removed at the moment. And then the operating section (5) cannot help but be opened not withstanding the pressure in the storing space (4) because of the remove of the counter-pressure of the pressured air in the storing space (4).

[0028] In the above process, secondary material in the storing space (4) is dropped and mixed in the container (100) but the operating section (5) is still attached to the body (2) thanks to the bottom protection cover (7).

[0029] In the process to open the chamber (1), the pressure in the container (100) is removed at the moment so that the pressured air in the storing space (4) separates the operating section (5) regardless of the operation of check valve (6).

[0030] Therefore, it is desirable for the slow movement of the pressured air amount to storing space (4) along check valve (6) to be designed, as well as for the operating section (5) and check valve (6) to be united.

[0031] As well, if the operating section (5) is made of silicon, check valve (6) is desirable to be cut on its certain part or be holed by a sharp metal with needle shape and to be expanded instantly in order to move the air.

[0032] As another operating example, the figure 2 and 3 show the variation of the shape of receiving section (3) and operating section (5) but the process of the invention is one and the same. The structure to receive protection cover (7) outside the receiving section (3) differs as well as it is possible to change the design of the position of check valve (6).

[0033] The receiving section (3) and the body (2) can be separated in one and the figure 2 shows the various assembling examples of protection cover (7).

[0034] As another operating example, the figure 4 thru 6 show that the receiving section (3) is possibly to be attached to the lower side of soft packing (10) mounted on the bottom of the body (2). The operating section (5) to close the storing space (4) is overturned by the pressure and is structured to drop secondary material.

[0035] When this invention is used, the chamber (1) is opened and at the same time the pressure in the con-

tainer (100) is removed and the operating section (5) is overturned by the pressure in storing space (4), only to mix contents in the storing space (4) and that in the container (100).

[0036] The figure 5 shows the possibility for receiving section (3) to be combined to the lower part of the body (2). The figure 6 shows the attachment of receiving section (3) to soft packing (10).

[0037] As another operating example, the figure 7 and 8 show the design that operating section (5) adhered to the lower part of receiving section (3) is combined to receiving section (3) thanks to fixing section (12). If the pressure in the container (100) is removed, the pressure in storing space (4) pushes operating section (5) and drops secondary material in the container (100). At that time, operating section (5) is closely attached to the fixing section (12) by connecting section (13). The figure 7 shows the state before airtight section (11) in the upper part of the globe is attached to the container (100).

[0038] As another operating example, the figure 9 and 10 show the variation of operation of operating section (5). Desirably, as shown in the figure 10, operating section (5) moves to certain extent to the lower direction to open storing space (4). The figure 10 shows the specific operation of the figure 8.

[0039] As another operating example, the figure 11 shows the possibility to variously change designs of receiving section (3).

[0040] As another operating example, the figure 12 shows the design change of receiving section (3) and various changes of operating section (5) which is moved to some extent to the lower direction and is attached to receiving section (3). The enlarged picture shows check valve (6) which can be equipped to one arbitrary side as explained before.

[0041] As another operating example, the figure 13 shows that the storage of this invention (1) can discharge the mixed contents via the additional discharging route adhered to the upper direction of the body (2).

[0042] As another operating example, the figure 14 shows that the storage (1) can be equipped with check valve (6) in various ways.

[0043] As another operating example, the figure 15 shows that the operating section (5) is structured to be opened by seesaw method.

[0044] As another operating example, the figure 16 is the specific representation of what is mentioned in figure 4. The figure 17 shows that the pressured air is separately in the second storing space (15) and then is structured to open operating section (5). This process can be applied to the technological process of operating section (5) and receiving section (3), mentioned ahead of the figure 17. The special point is the advantage for the contents in the storing space (4) not to be exposed outside.

[0045] As another operating example, the figure 18 shows this invention is the variation example of the figure 17. That is, the storage (1) is combined to the globe of the container (100) and then the pressured air moves via hole-typed check valve (6). In the process to open the storage (1), the operating section (5) goes down to the lower direction and the content in the storing space (4) is dropped via the dropping space (16) and is mixed.

[0046] As another operating example, the figure 19 shows the variation example of figure 18. In detail, the storage (1) is opened and operating section (5) withdraws to the lower direction which leads to opening the storing space (4). The content in the storing space (4) is dropped via a number of holes made in the side of operating section (5).

[0047] As another operating example, the figure 20 shows that the storage (1) mentioned in the figure 20, 22 thru 27 is the technology which does not form part of the invention but in which the pressured air is contained in the storing space (4) from the beginning. The pressured air is once solid and then changes to air as the temperature goes up to the ordinary one. In that process, even though pressure is generated in the storing space (4), the pressure remains consistently in the container (100) so that the storing space (4) of the storage (1) is not opened. To open the storage (1) means the operating section (5) to be opened, however, as seen in the figure 20, it is designed that operating section (5) overturns to the lower direction and the contents in storing space (4) is dropped.

[0048] As another operating example, the figure 21 shows this invention is the variation of the design of the figure 4. When opening the storage (1), the storing space (4) is structured to be opened by overturning the operating section (5) to the back side. It is characterized by additional discharge route attached to the upper part of the body (2).

[0049] As another operating example, the figure 22 refers to the design changes of the figure 20. The operating section (5) is structured to be combined to the connecting section (13).

[0050] As another operating example, the figure 23 shows the design change of figure 20. The operating section (5) goes down to the lower direction and then is structured not to move down any more at certain line.

[0051] As another operating example, the figure 24 involves in the design change of figure 20. The operating section (5) is opened and is structured not to be separated by the upper part of the body (2).

[0052] As another operating example, the figure 25 shows the variation example of figure 20. The storing space (4, 15) is structured to be plural in receiving section (3).

[0053] As another operating example, the figure 26 is the variation example of figure 20. The pressured air imposes pressure on thin membrane (17) and the membrane (17) is destroyed by the bottom sharp operating section (5) in which contents in the storing space (4) is dropped.

[0054] As another operating example, the figure 27 is the design change of figure 20. The operating section (5) is structured to be opened by seesaw method.

INDUSTRIAL APPLICABILITY

[0055] This invention is on structure of storage chamber required for effectively mixing the concentrate and water or concentrate and general beverage or granule and water or powder and water. This invention may be used for diverse purposes to improve the mixing efficiency of secondary materials such as beverages with pressured air including carbonated drinks, highly concentrated beverages and so on.

Claims

1. A storage chamber (1) for secondary material, adapted to be assembled to a container (100) accommodating pressured air, comprising

   i) a body (2) having a receiving section (3) with a storing space (4) in which various contents, such as extract and powder, are accommodated, wherein the receiving section (3) is combined to the body (2); and **characterized in that** it further comprises
   ii) an operating section (5) suitable to drop and mix the contents accommodated in the storing space (4) into the container,

   wherein a check valve (6) is provided at the operating section (5) or receiving section (3),
   the storage chamber (1) being adapted to be assembled to a container (100) accommodating pressured air so that the pressured air in the container (100) is capable of moving to the storing space (4) of the storage chamber (1) via the check valve (6), and, if the storage chamber (1) is opened, the pressured air in the storing space (4) is capable of forcing the operating section (5) to open and the contents stored in the storing space (4) to drop and mix with contents stored in the container (100).

2. A storage chamber (1) for secondary material adapted to be assembled to a container (100) accommodating pressured air, comprising

   i) a body (2) having a receiving section (3) with

      a) a first storing space (4) in which various contents, such as extract and powder, are accommodated, wherein the receiving section (3) is combined to the body (2); and **characterized in that** it further comprises
      b) a second storing space (15); and

   ii) an operating section (5) suitable to drop and mix the contents accommodated in the storing space (4, 15) into the container,

   wherein a check valve (6) is provided at the operating section (5) or receiving section (3),
   the storage chamber (1) being adapted to be assembled to a container (100) accommodating pressured air so that the pressured air in the container (100) is capable of moving to the second storing space (15) of the storage chamber (1) via the check valve (6), and if the storage chamber (1) is opened, the pressured air in the second storing space (15) is capable of forcing the operating section (5) to open and the contents stored in the first and second storing space (4,15) to drop and mix with contents stored in the container (100).

Patentansprüche

1. Eine Vorratskammer (1) für Sekundärmaterial, die angepasst ist, auf einen Container (100), der Druckluft beherbergt, montiert zu werden, umfassend

   i) einen Körper (2) umfassend eine Eingangsstelle (3) mit einem Lagerraum (4), in dem verschiedene Inhalte, wie z.B. Extrakt und Pulver, untergebracht sind, wobei die Eingangsstelle (3) mit dem Körper (2) verbunden ist; und **dadurch gekennzeichnet, dass** sie ferner umfasst:
   ii) einen Betriebsbereich (5), der dazu geeignet ist, die Inhalte, die in dem Lagerraum (4) untergebracht sind, in den Container fallen zu lassen und zu mischen,

   wobei ein Rückschlagventil (6) an dem Betriebsbereich (5) oder der Eingangsstelle (3) vorgesehen ist, die Vorratskammer (1) angepasst ist, auf einen Container (100), der Druckluft beherbergt, montiert zu werden, sodass die Druckluft in dem Container (100) dazu geeignet ist, sich über das Rückschlagventil (6) in den Lagerraum (4) der Vorratskammer (1) zu bewegen, und, falls die Vorratskammer (1) geöffnet ist, die Druckluft im Lagerraum (4) dazu geeignet ist, das Öffnen des Betriebsbereichs (5) zu erzwingen und das Fallen der im Lagerraum (4) gespeicherten Inhalte und das Mischen mit den im Container (100) gespeicherten Inhalten zu erzwingen.

2. Eine Vorratskammer (1) für Sekundärmaterial, die angepasst ist, an einen Container (100), der Druckluft beherbergt, montiert zu werden, umfassend

   i) einen Körper (2) enthaltend eine Eingangsstelle (3) mit

      a) einem ersten Lagerraum (4), in dem verschiedene Inhalte, wie z.B. Extrakt und Pulver, untergebracht sind, wobei die Eingangsstelle (3) mit dem Körper (2) verbunden ist; und **dadurch gekennzeichnet,**

dass sie ferner enthält:
b) einen zweiten Lagerraum (15); und

ii) einen Betriebsbereich (5), der dazu geeignet ist, die Inhalte, die in dem Lagerraum (15) untergebracht sind, in den Container (100) fallen zu lassen und in ihn zu mischen,

wobei ein Rückschlagventil (6) an dem Betriebsbereich (5) oder der Eingangsstelle (3) vorgesehen ist, die Vorratskammer (1) angepasst ist, auf einen Container (100), der Druckluft beherbergt, montiert zu werden, sodass die Druckluft in dem Container (100) dazu geeignet ist, sich über das Rückschlagventil (6) in den zweiten Lagerraum (15) der Vorratskammer (1) zu bewegen, und, falls die Vorratskammer (1) geöffnet ist, die Druckluft im zweiten Lagerraum (15) dazu geeignet ist, das Öffnen des Betriebsbereichs (5) zu erzwingen und das Fallen der im ersten und zweiten Lagerraum (4, 15) gespeicherten Inhalte und das Mischen mit den im Container (100) gespeicherten Inhalten zu erzwingen.

Revendications

1. Chambre de stockage (1) pour une matière secondaire, adaptée pour être assemblée à un récipient (100) logeant de l'air sous pression, comprenant :

   i) un corps (2) ayant une section de réception (3) avec un espace de stockage (4) dans lequel sont logés différents contenus, tels que de l'extrait et de la poudre, dans laquelle la section de réception (3) est combinée au corps (2) ; et **caractérisée en ce qu'**elle comprend en outre :
   ii) une section de commande (5) appropriée pour laisser tomber et mélanger les contenus logés dans l'espace de stockage (4) dans le récipient,

   dans laquelle une valve anti-retour (6) est prévue au niveau de la section de commande (5) ou la section de réception (3),
   la chambre de stockage (1) étant adaptée pour être assemblée à un récipient (100) logeant de l'air sous pression, de sorte que l'air sous pression dans le récipient (100) peut se déplacer vers l'espace de stockage (4) de la chambre de stockage (1) via la valve anti-retour (6), et si la chambre de stockage (1) est ouverte, l'air sous pression dans l'espace de stockage (4) peut obliger la section de commande (5) à s'ouvrir et les contenus stockés dans l'espace de stockage (4) à tomber et à se mélanger avec les contenus stockés dans le récipient (100).

2. Chambre de stockage (1) pour une matière secondaire, adaptée pour être assemblée à un récipient (100) logeant de l'air sous pression, comprenant :

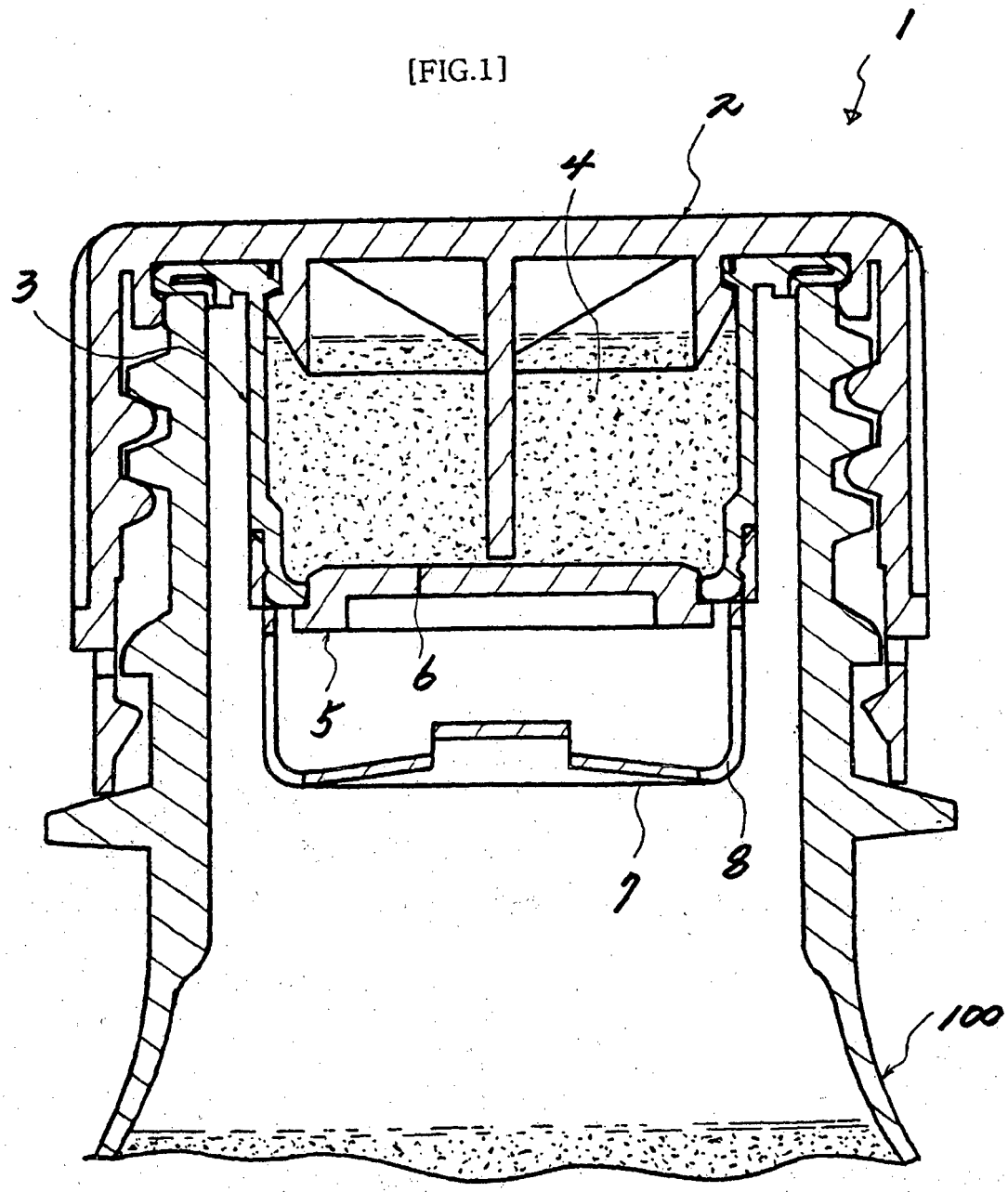
   i) un corps (2) ayant une section de réception (3) avec :

      a) un premier espace de stockage (4) dans lequel sont logés différents contenus, tels que de l'extrait et de la poudre, dans laquelle la section de réception (3) est combinée au corps (2) ; et **caractérisée en ce qu'**elle comprend en outre :
      b) un second espace de stockage (15) ; et

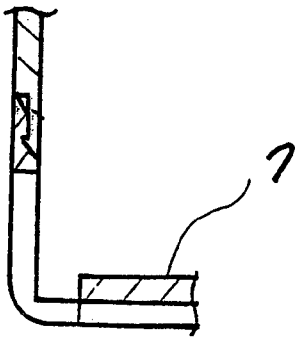
   ii) une section de commande (5) appropriée pour laisser tomber et mélanger les contenus logés dans l'espace de stockage (4, 15) dans le récipient,

   dans laquelle une valve anti-retour (6) est prévue dans la section de commande (5) ou la section de réception (3),
   la chambre de stockage (1) étant adaptée pour être assemblée à un récipient (100) logeant de l'air sous pression, de sorte que l'air sous pression dans le récipient (100) peut se déplacer vers le second espace de stockage (15) de la chambre de stockage (1) via la valve anti-retour (6), et si la chambre de stockage (1) est ouverte, l'air sous pression dans le second espace de stockage (15) peut obliger la section de commande (5) à s'ouvrir et les contenus stockés dans les premier et second espaces de stockage (4, 15) à tomber et à se mélanger avec les contenus stockés dans le récipient (100).

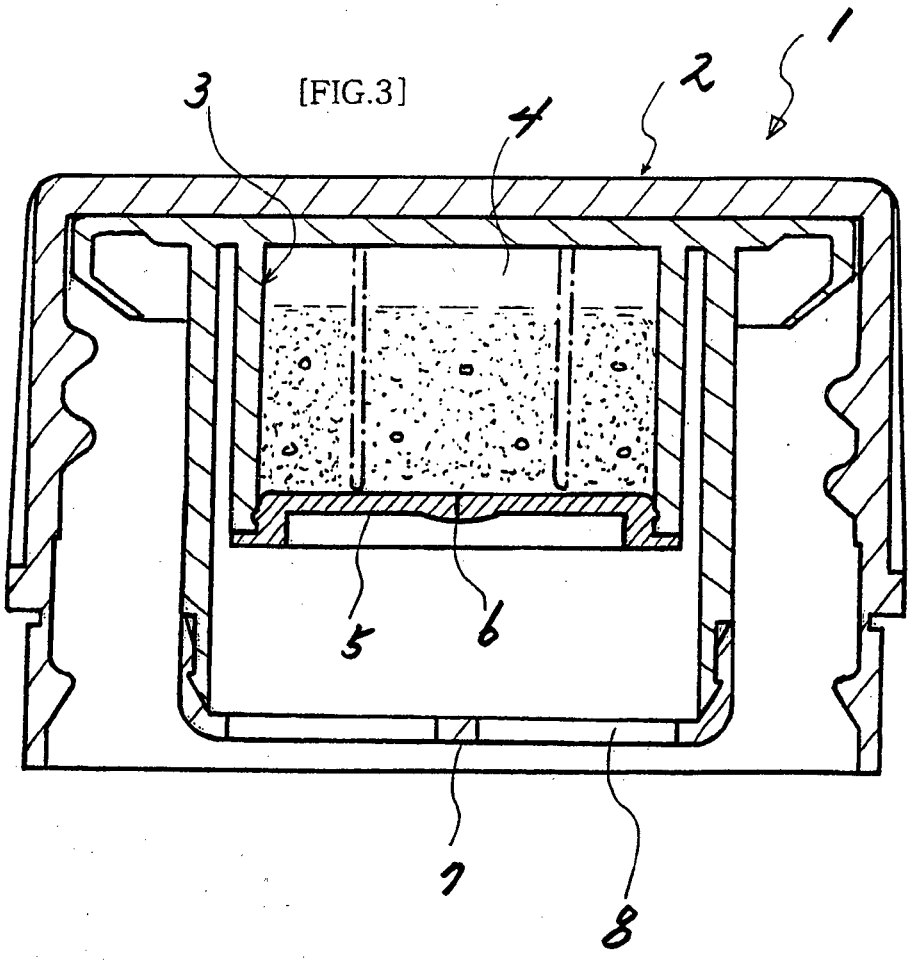
[FIG.1]



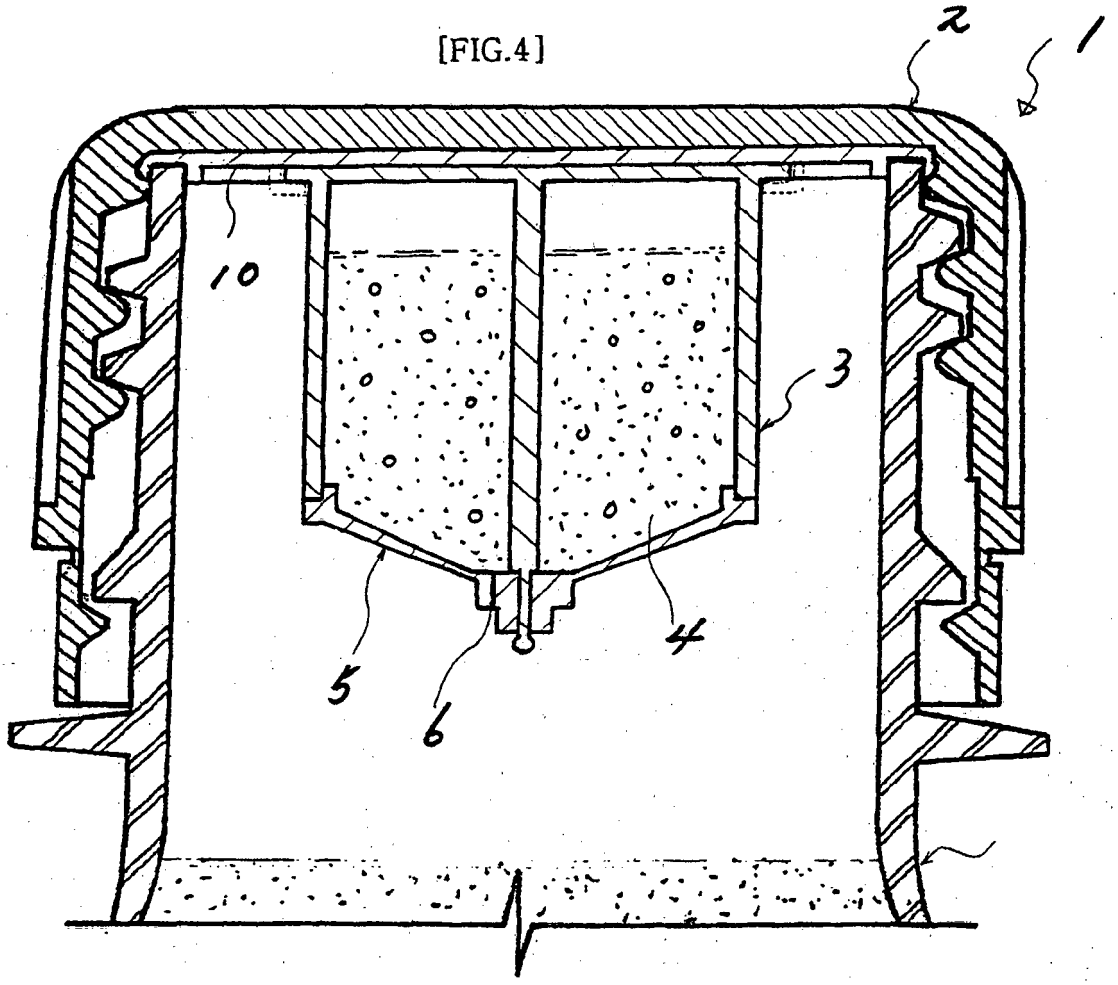
[FIG.2]



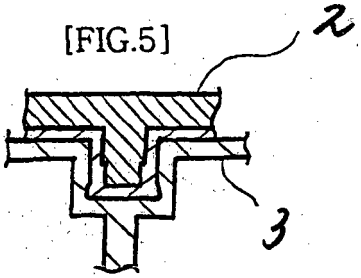
[FIG.3]



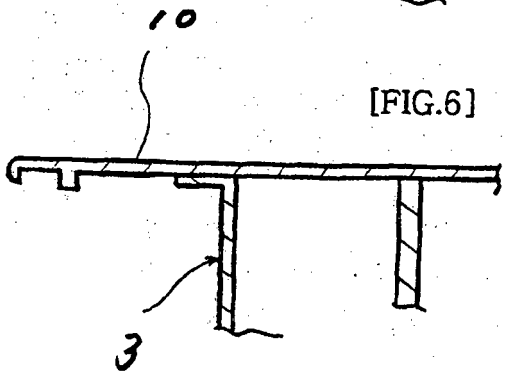
[FIG.4]



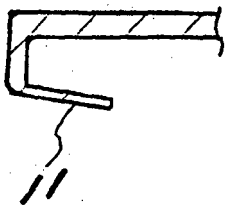
[FIG.5]



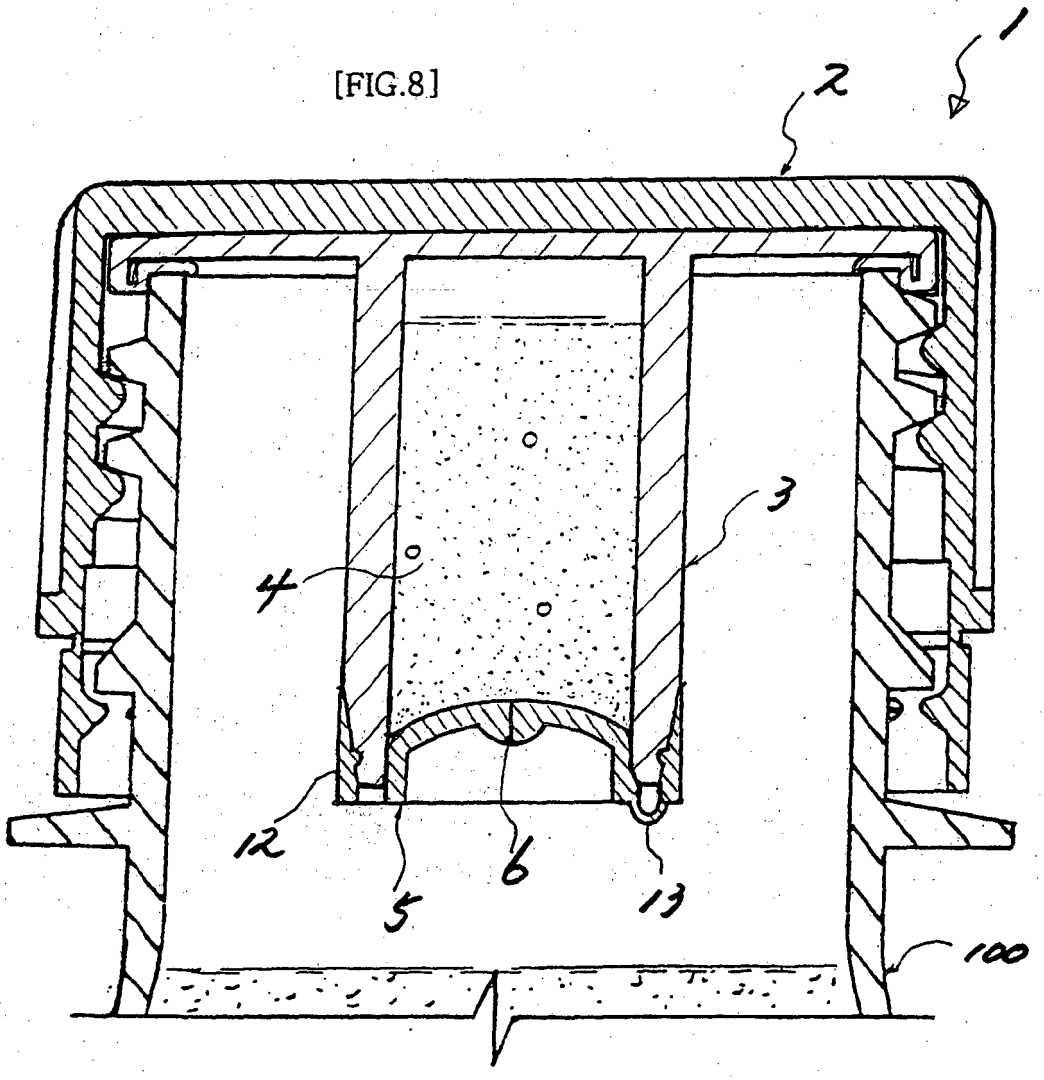
[FIG.6]



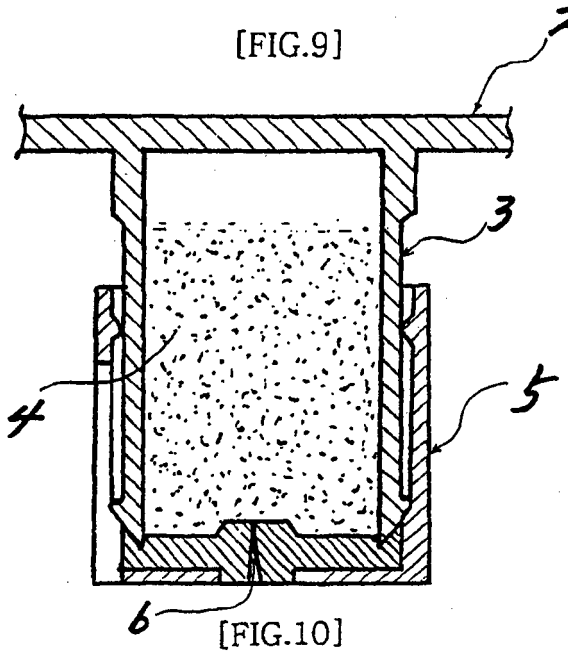
[FIG.7]



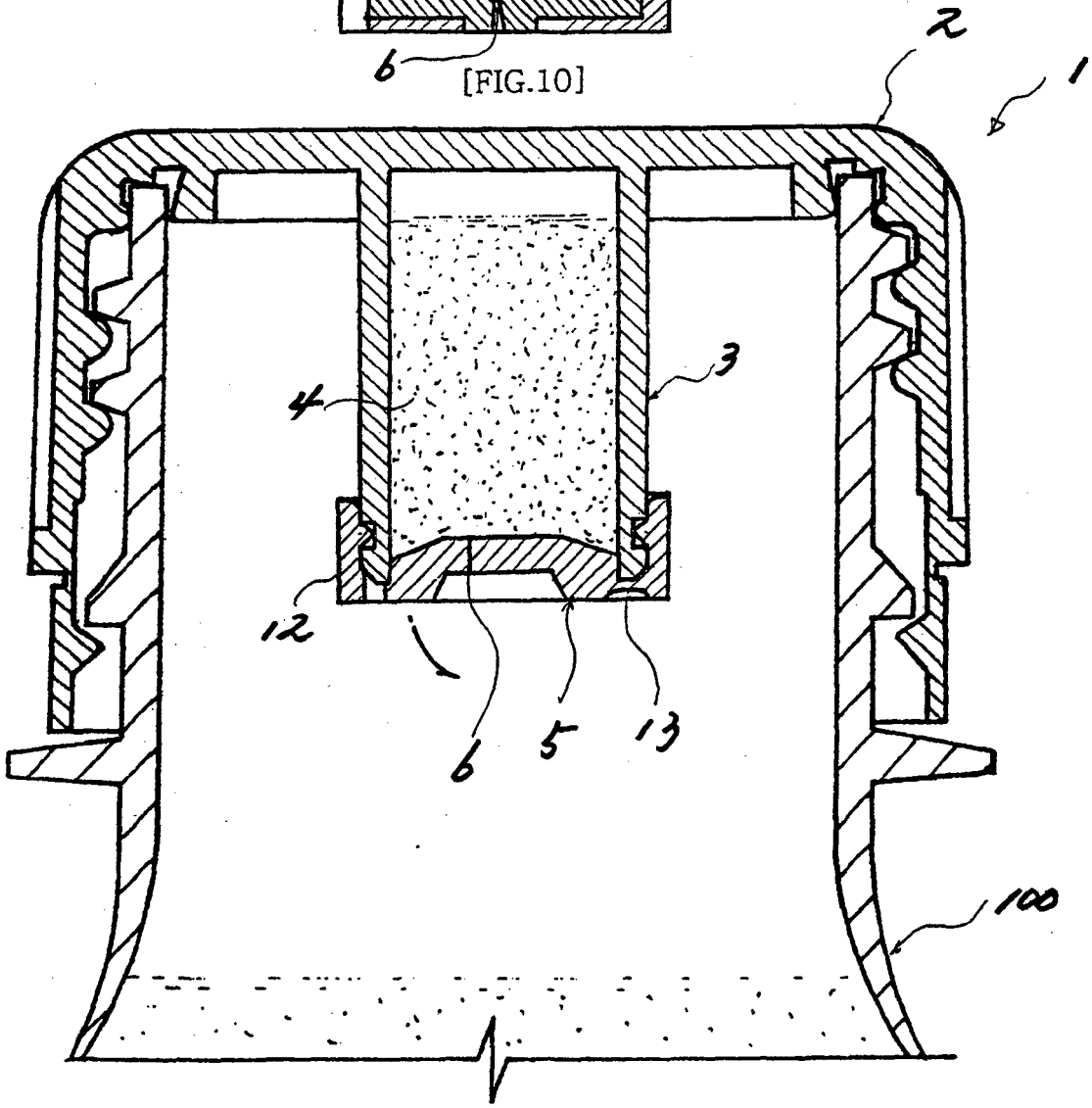
[FIG.8]



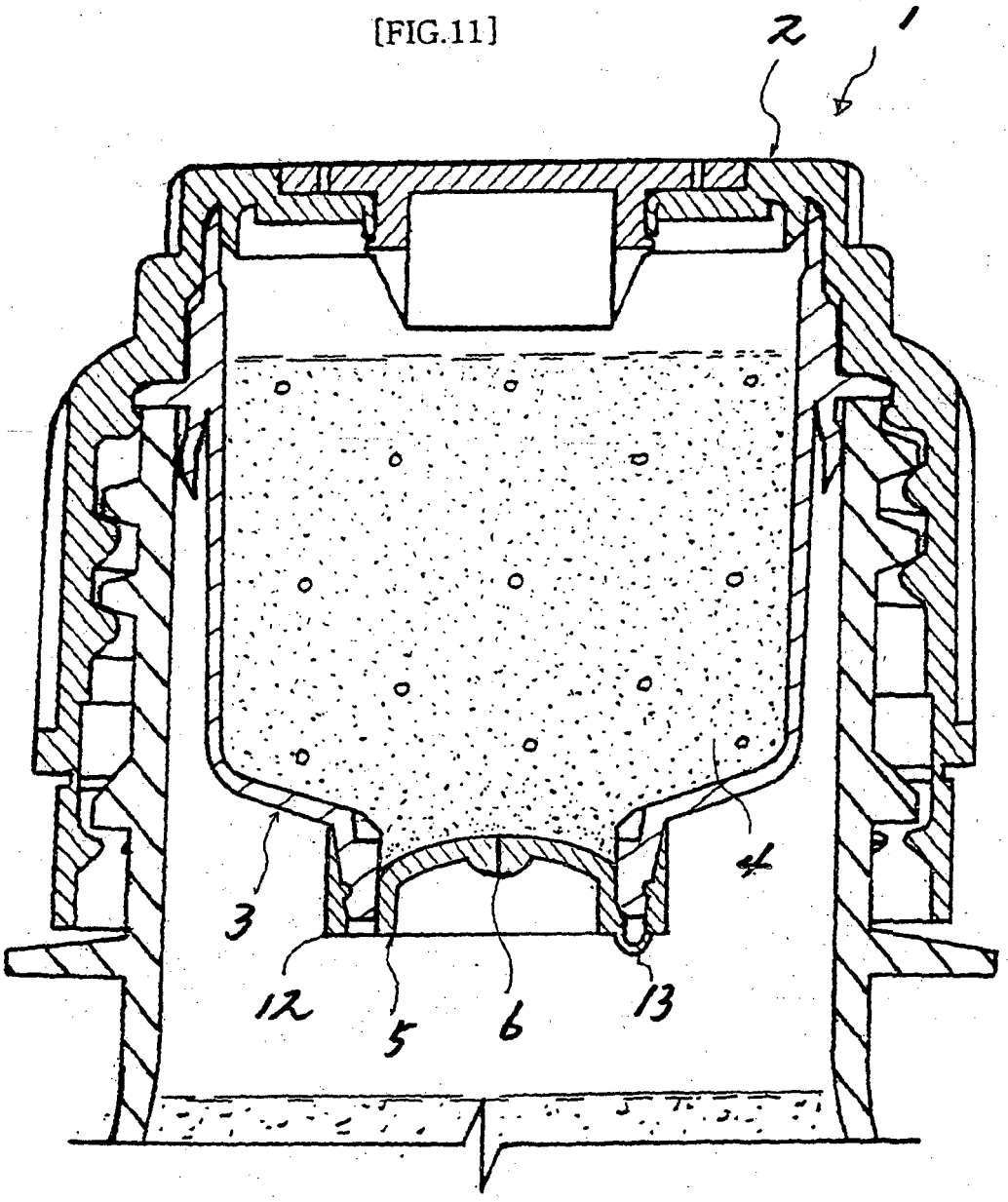
[FIG.9]



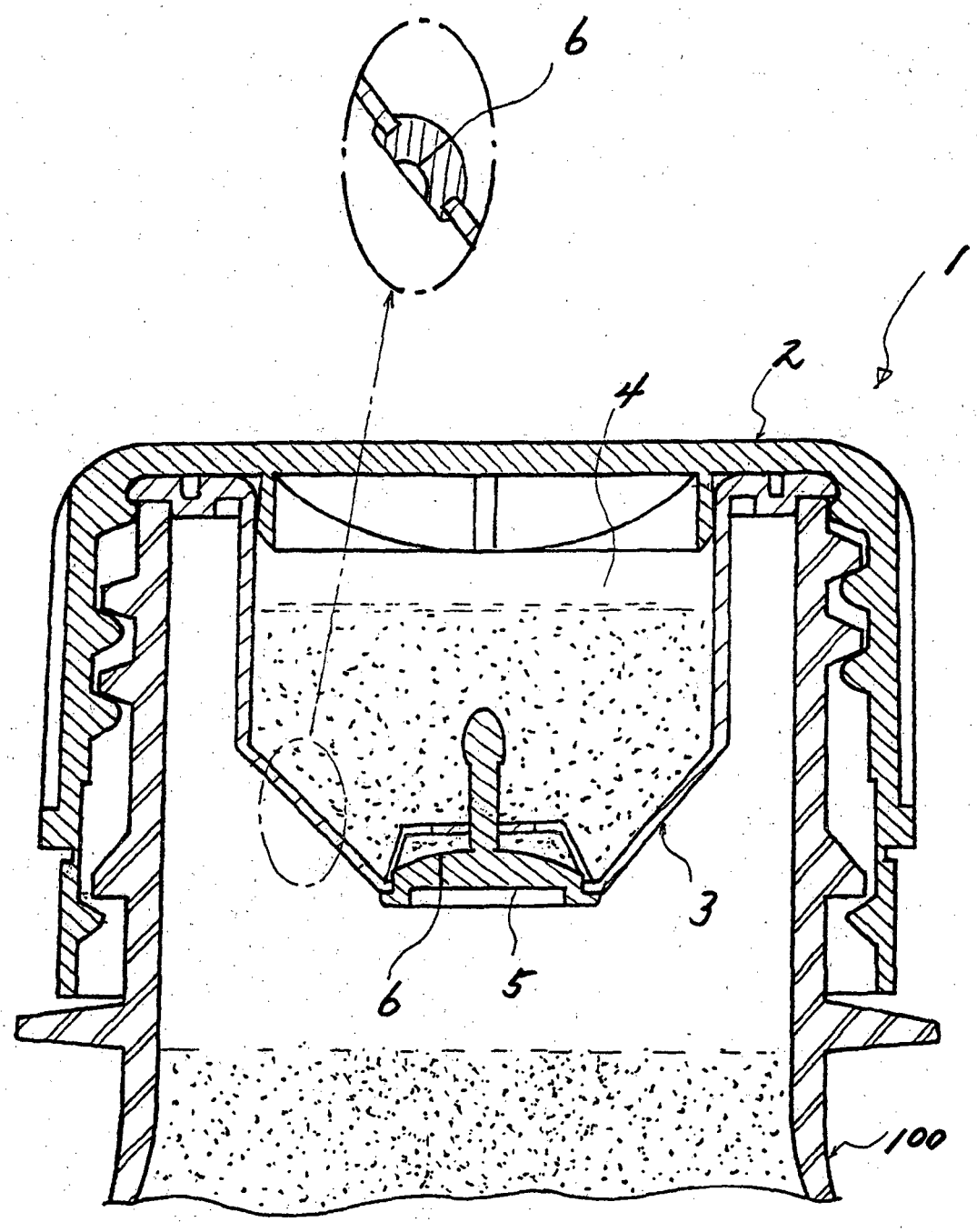
[FIG.10]



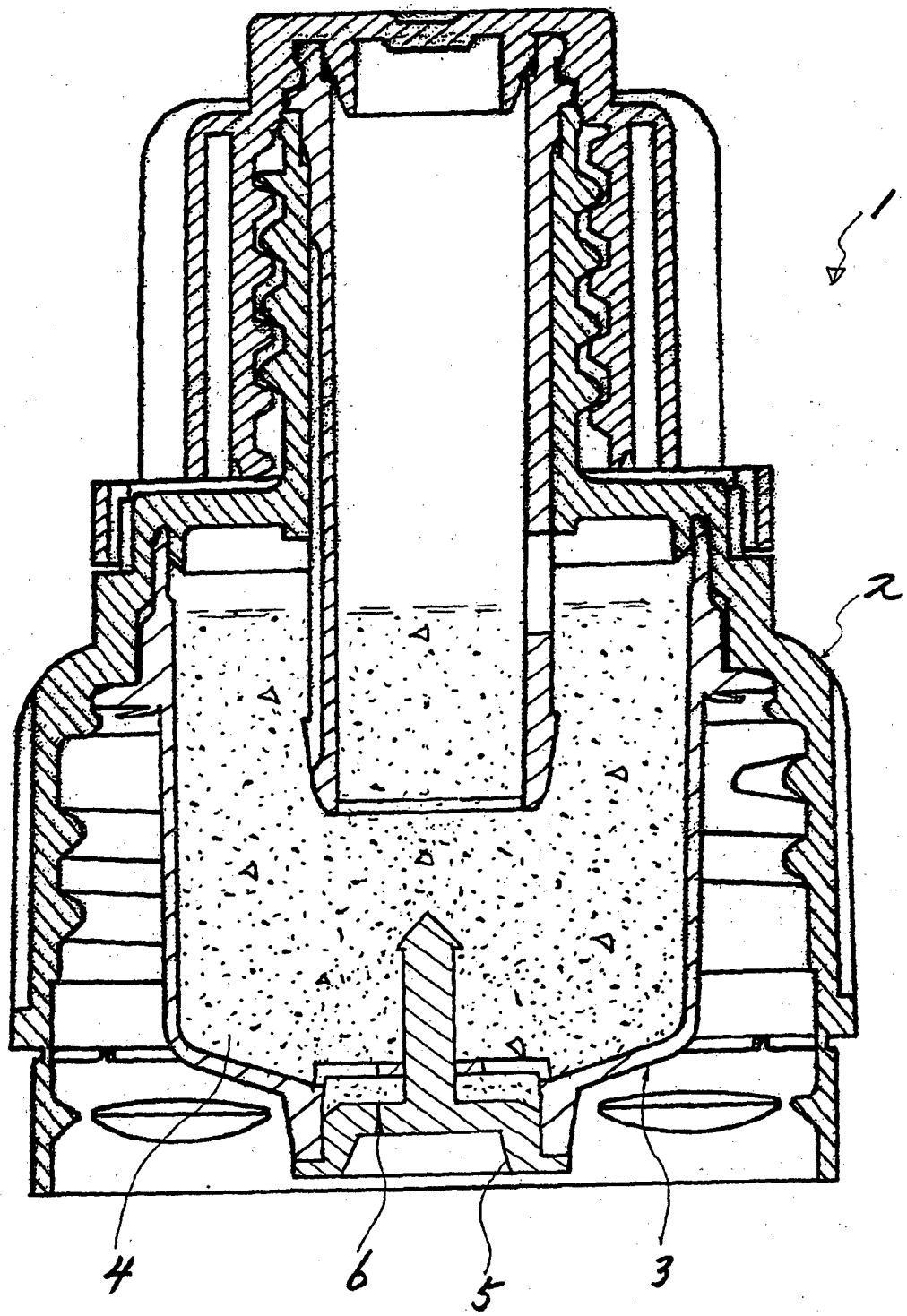
[FIG.11]



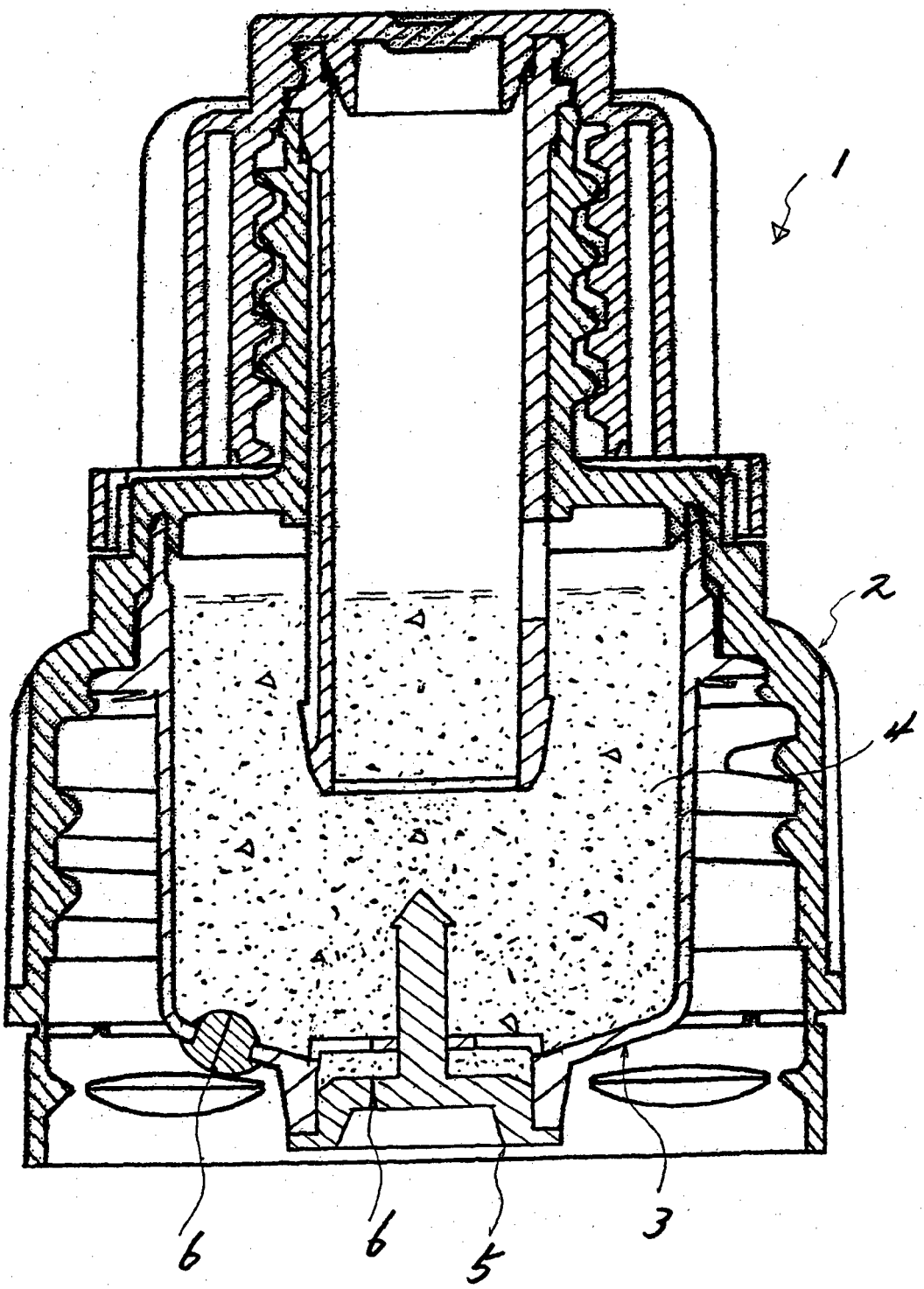
[FIG.12]



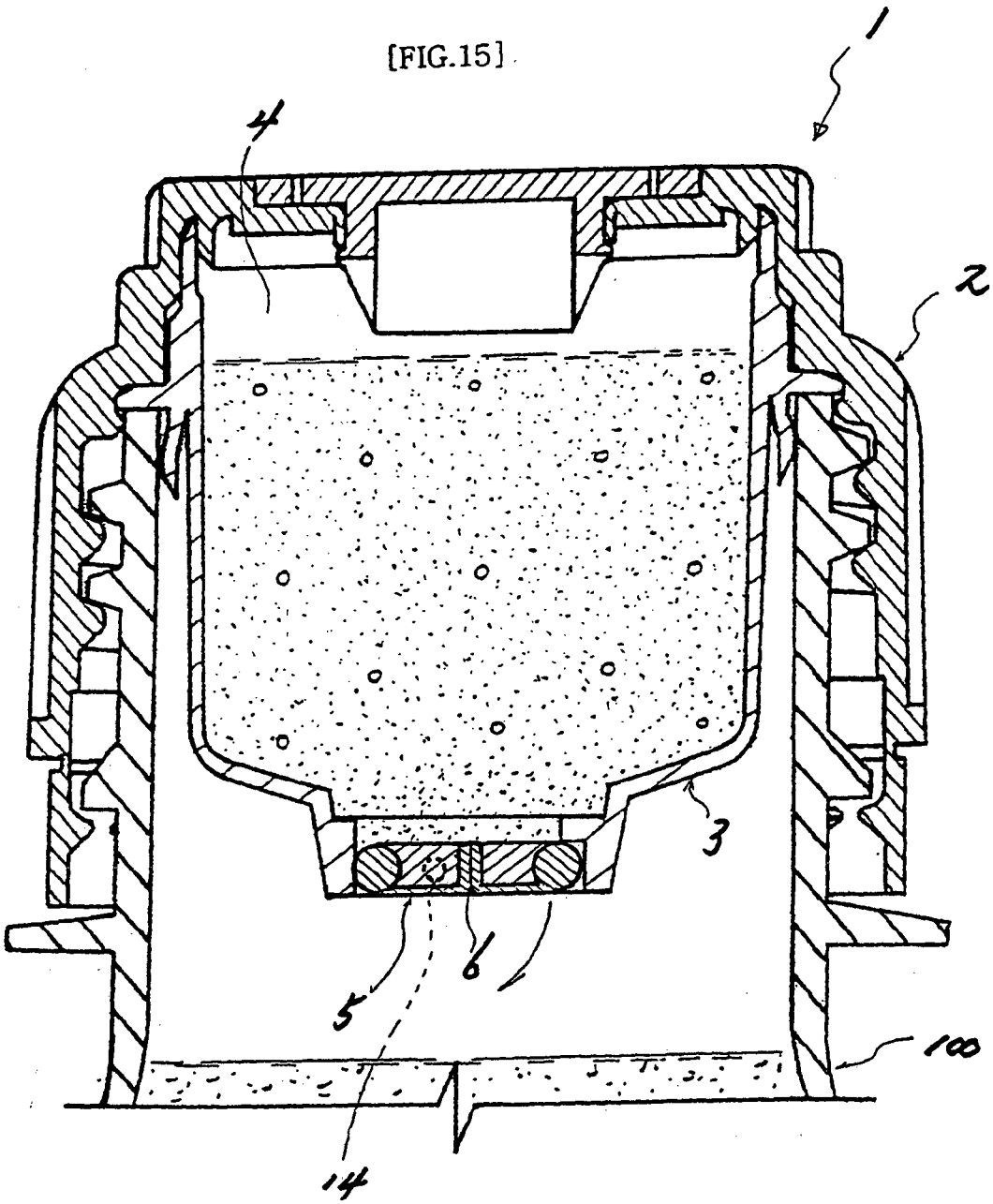
[FIG.13]



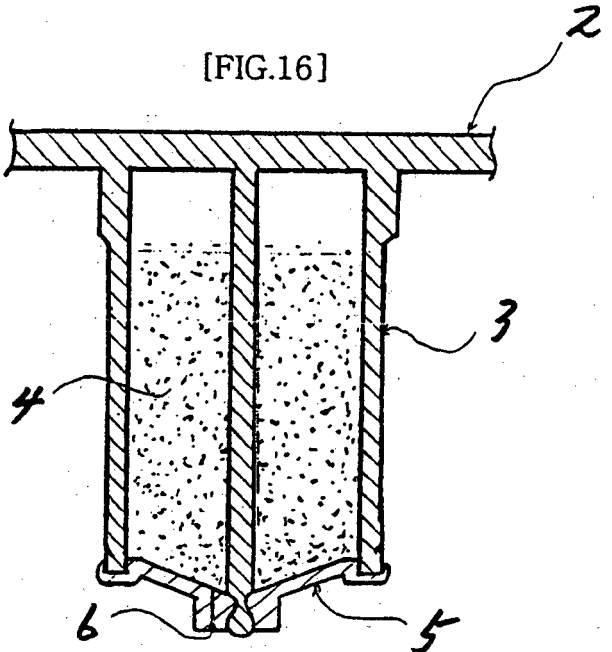
[FIG.14]



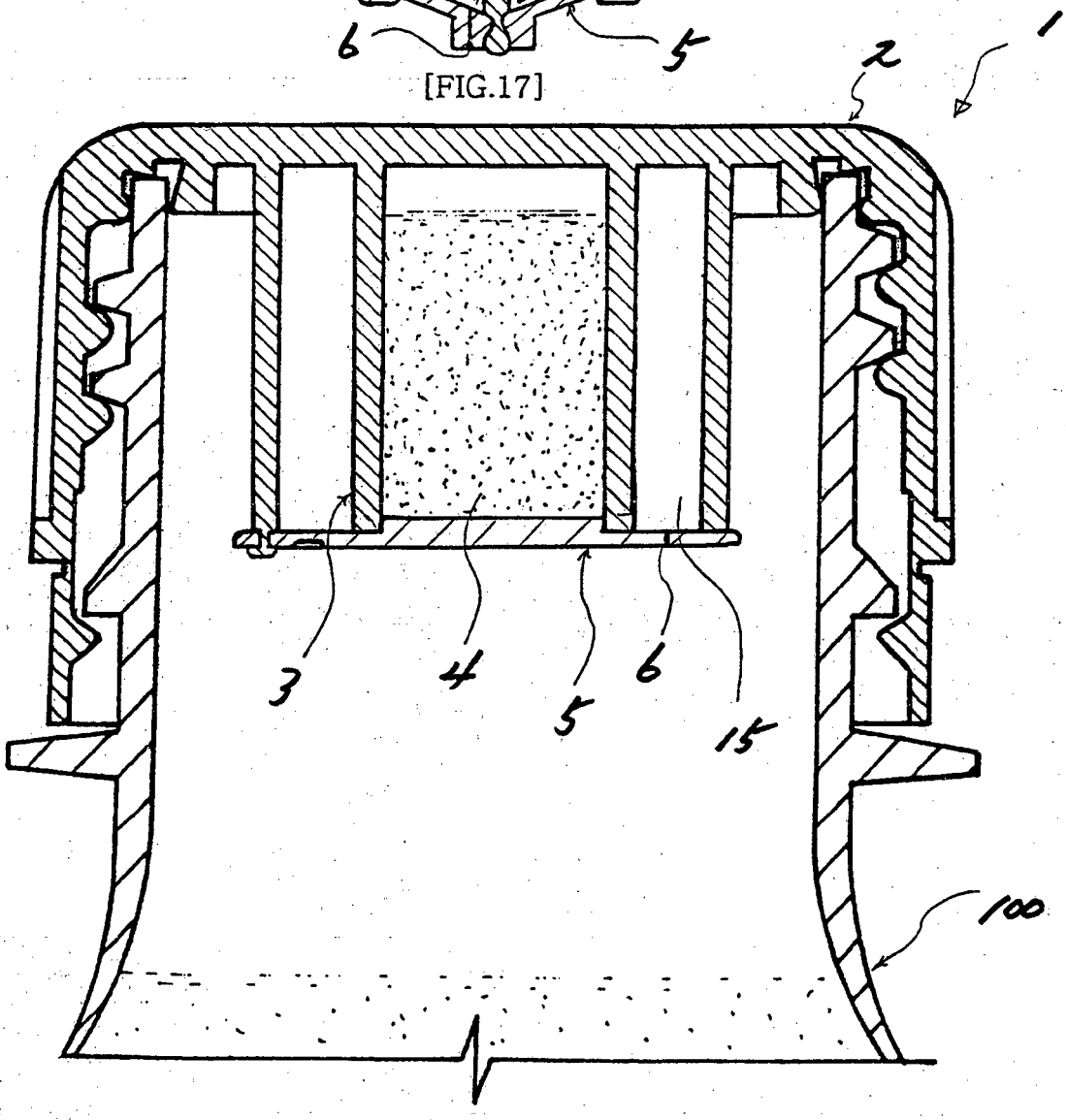
[FIG.15]



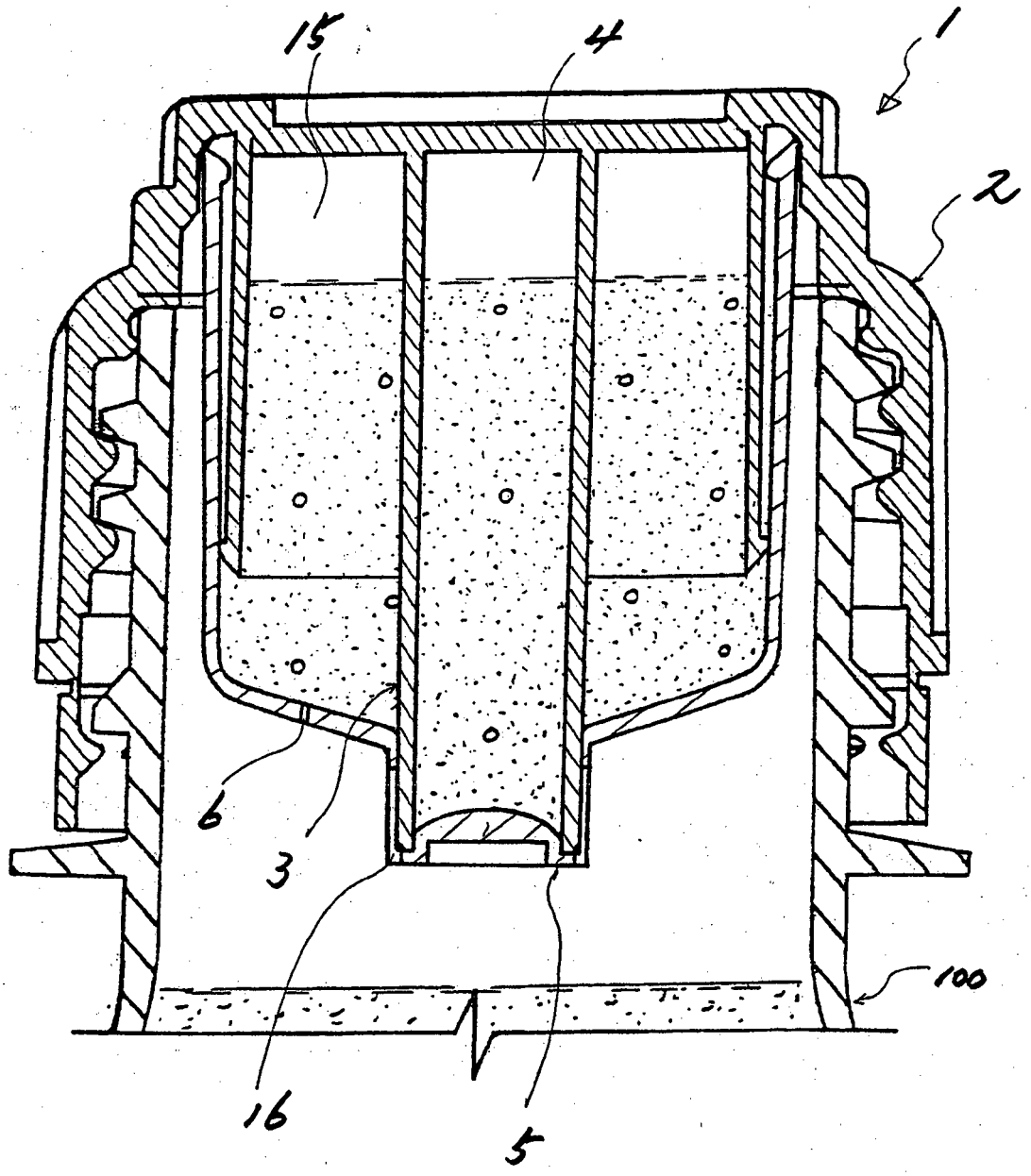
[FIG.16]



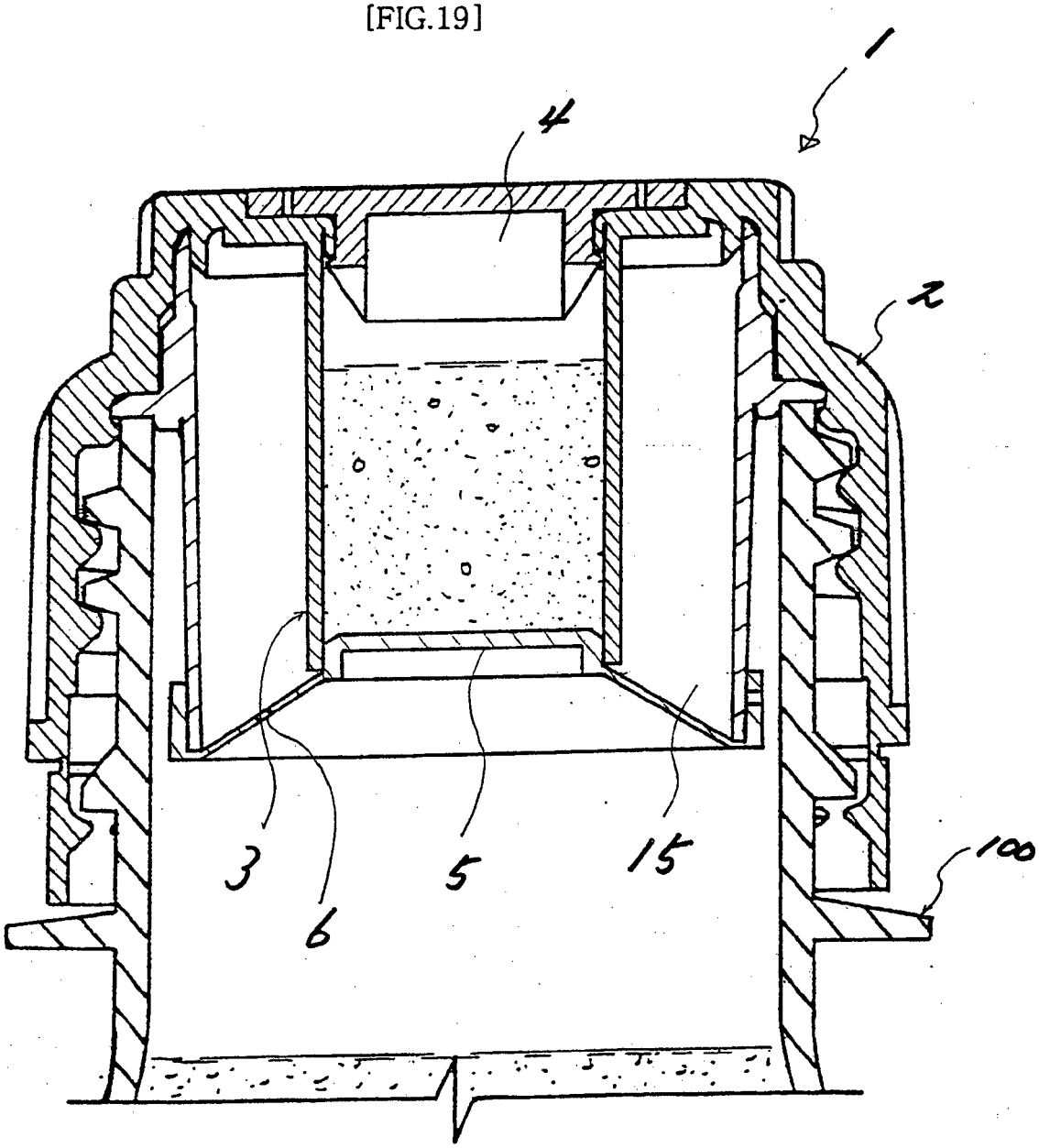
[FIG.17]



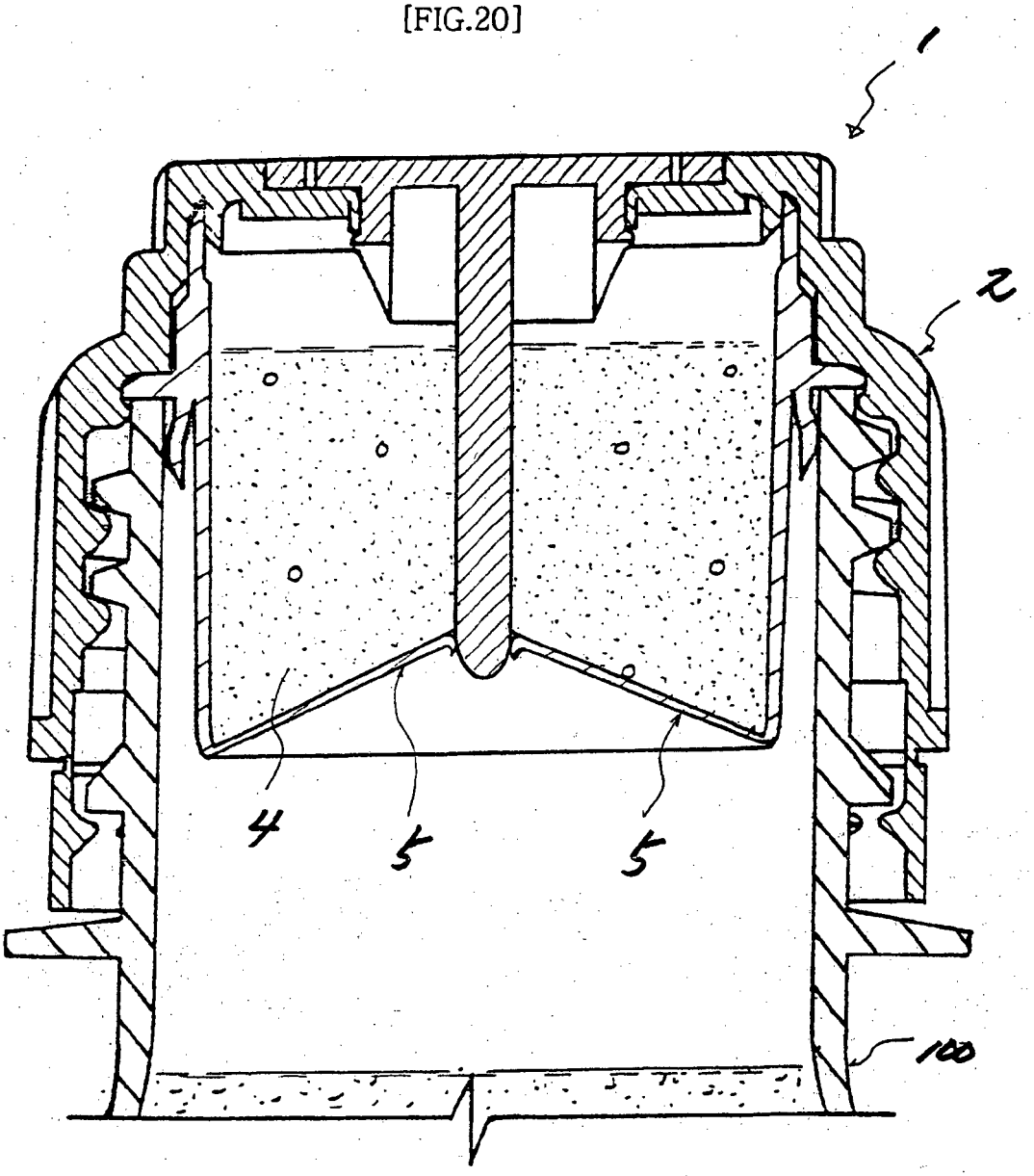
[FIG.18]



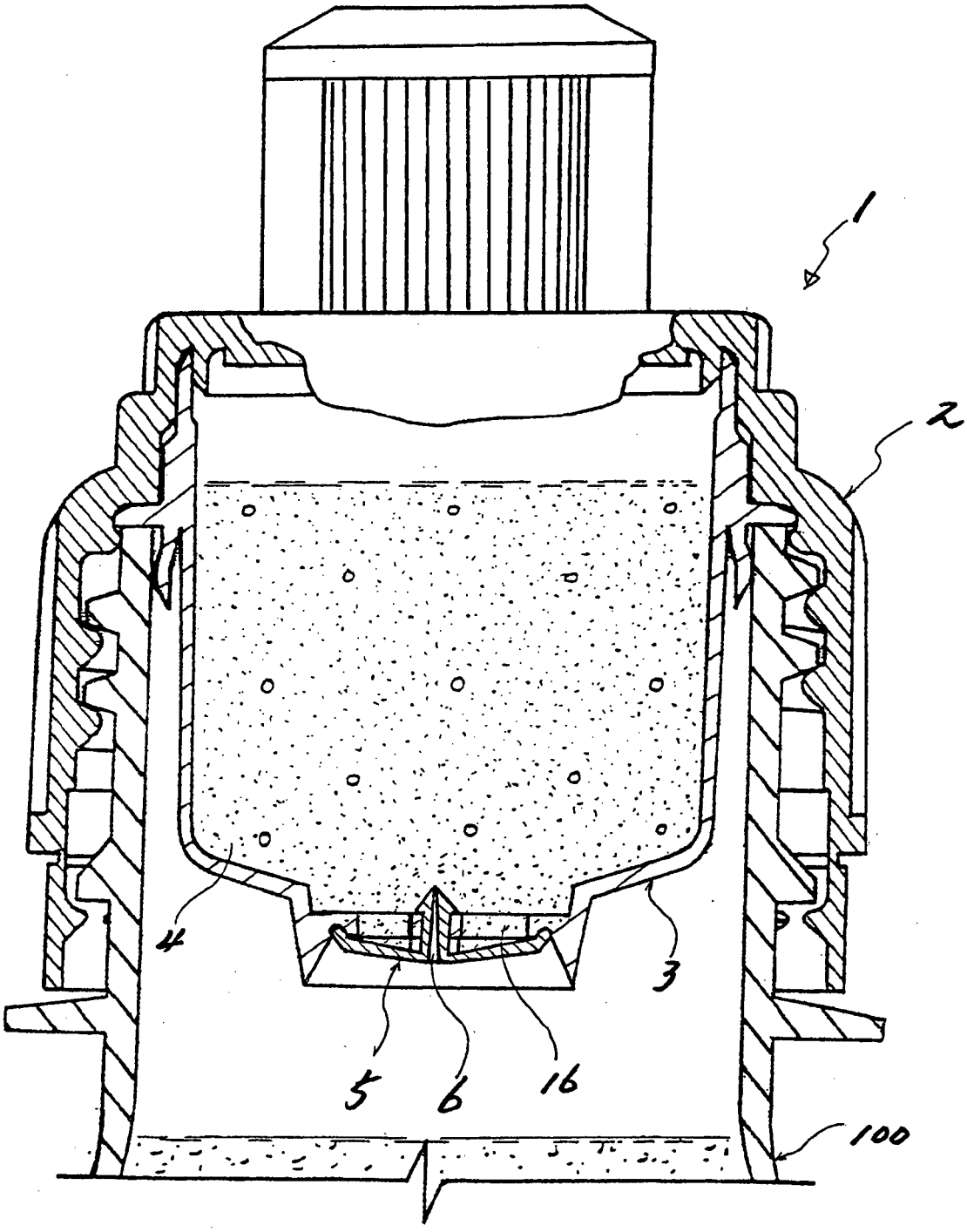
[FIG.19]



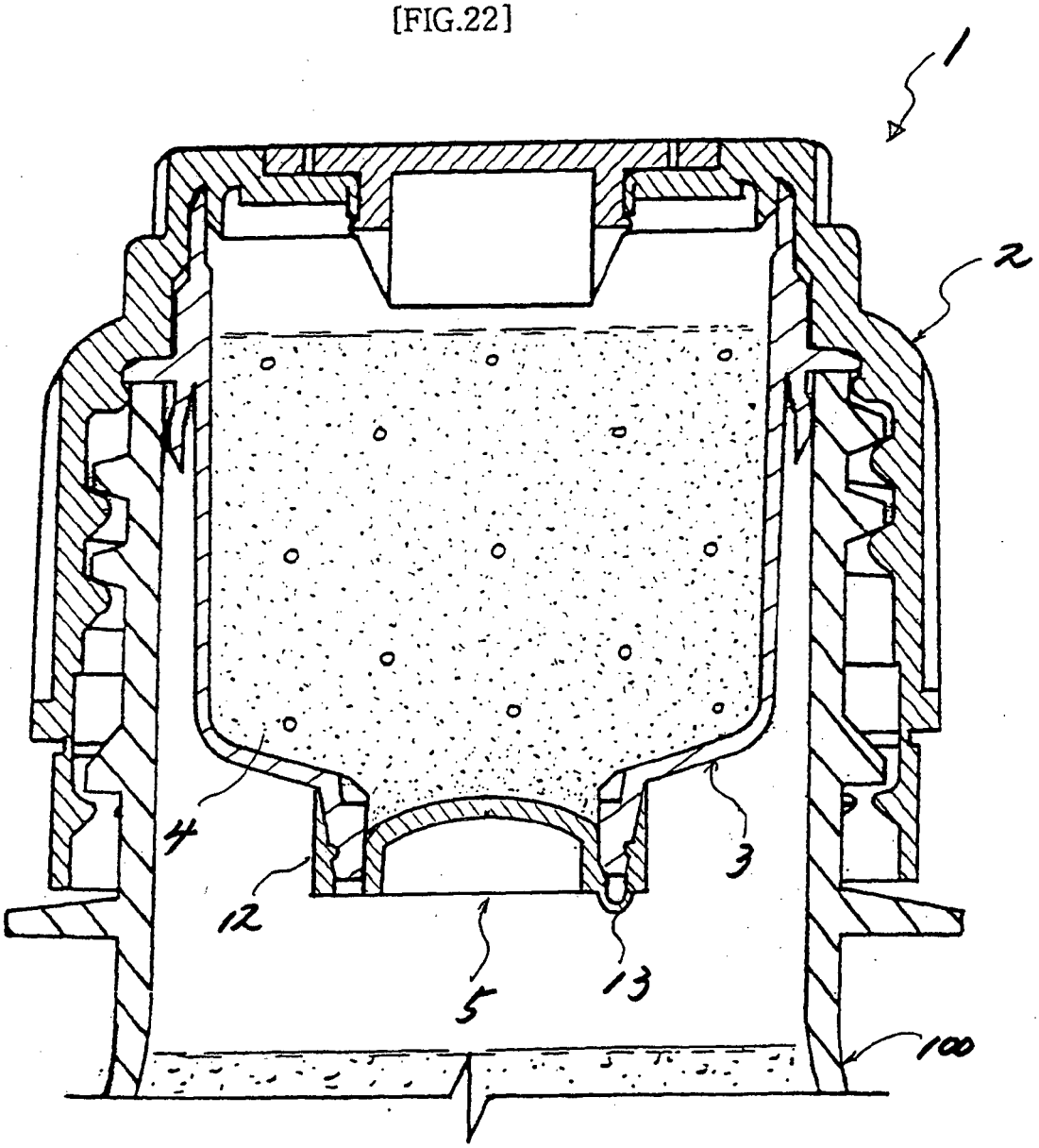
[FIG.20]



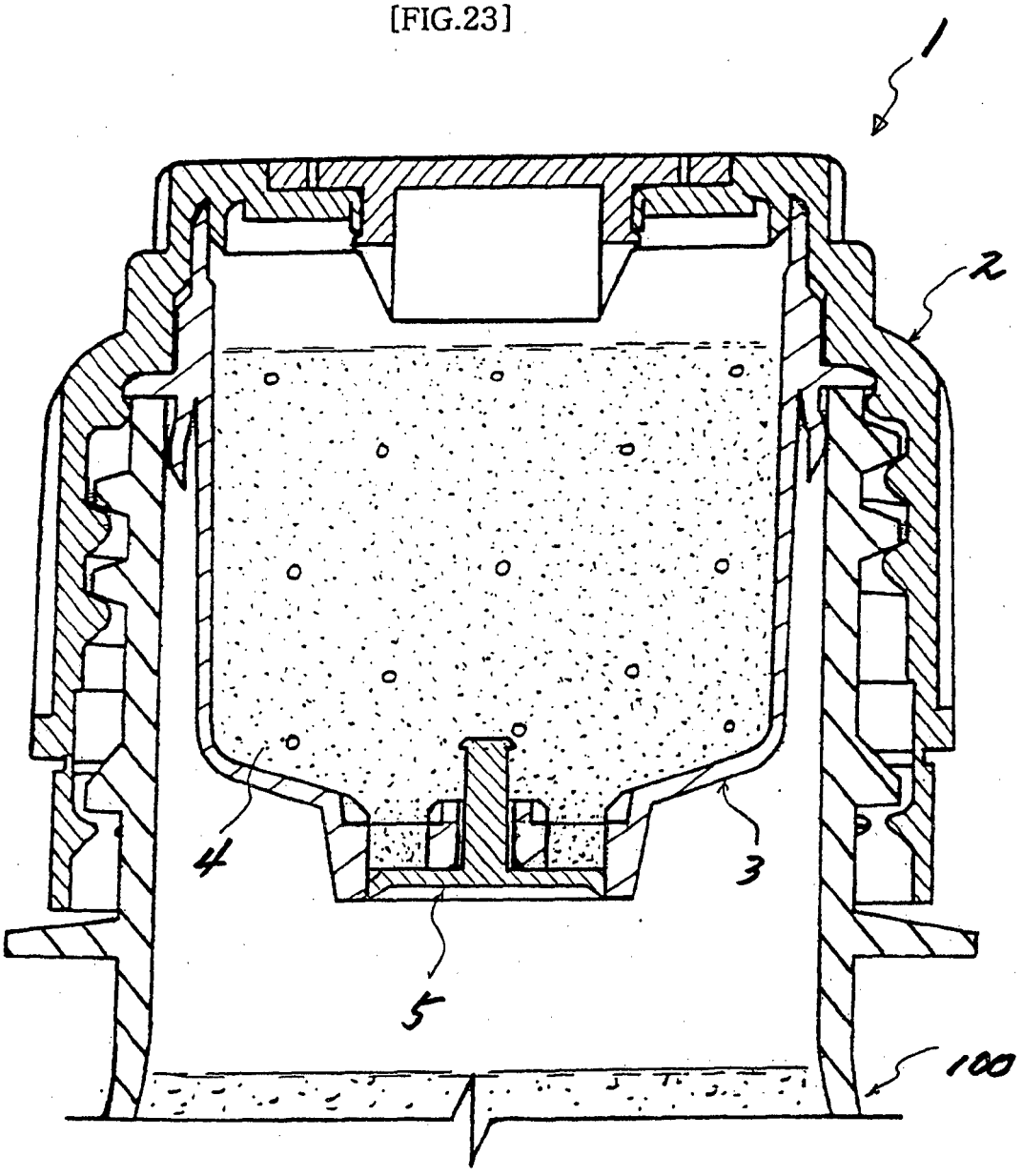
[FIG.21]



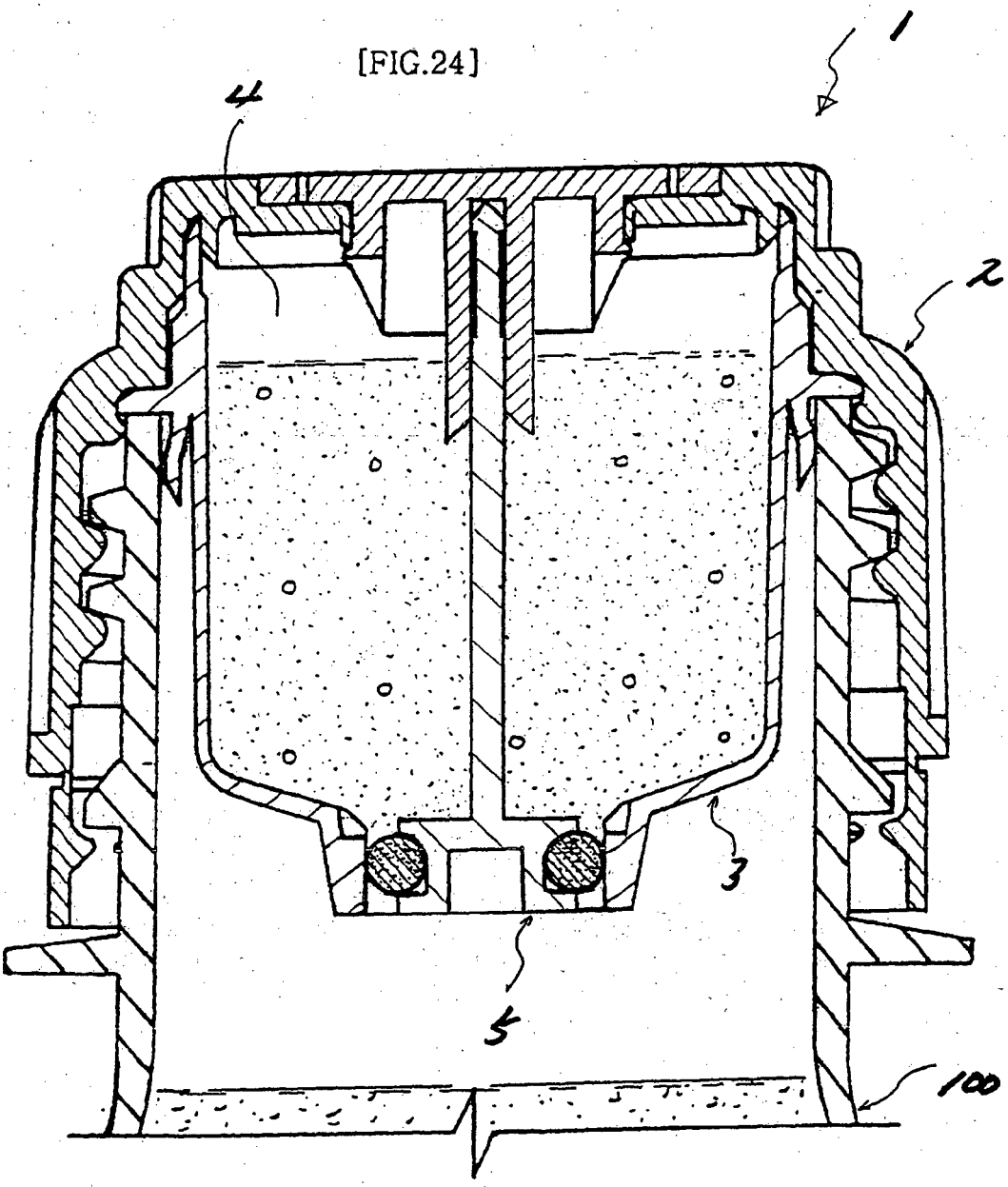
[FIG.22]



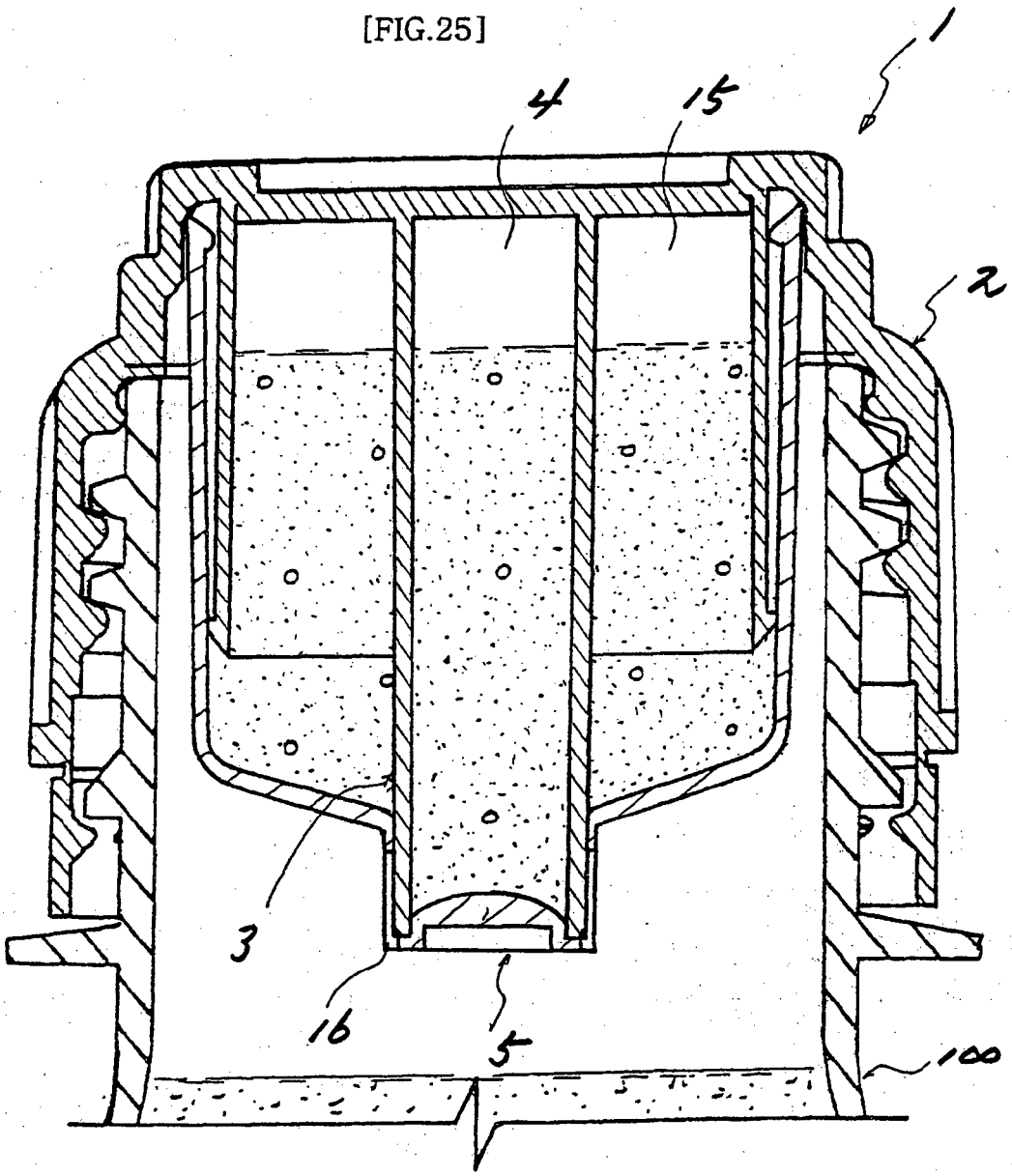
[FIG.23]



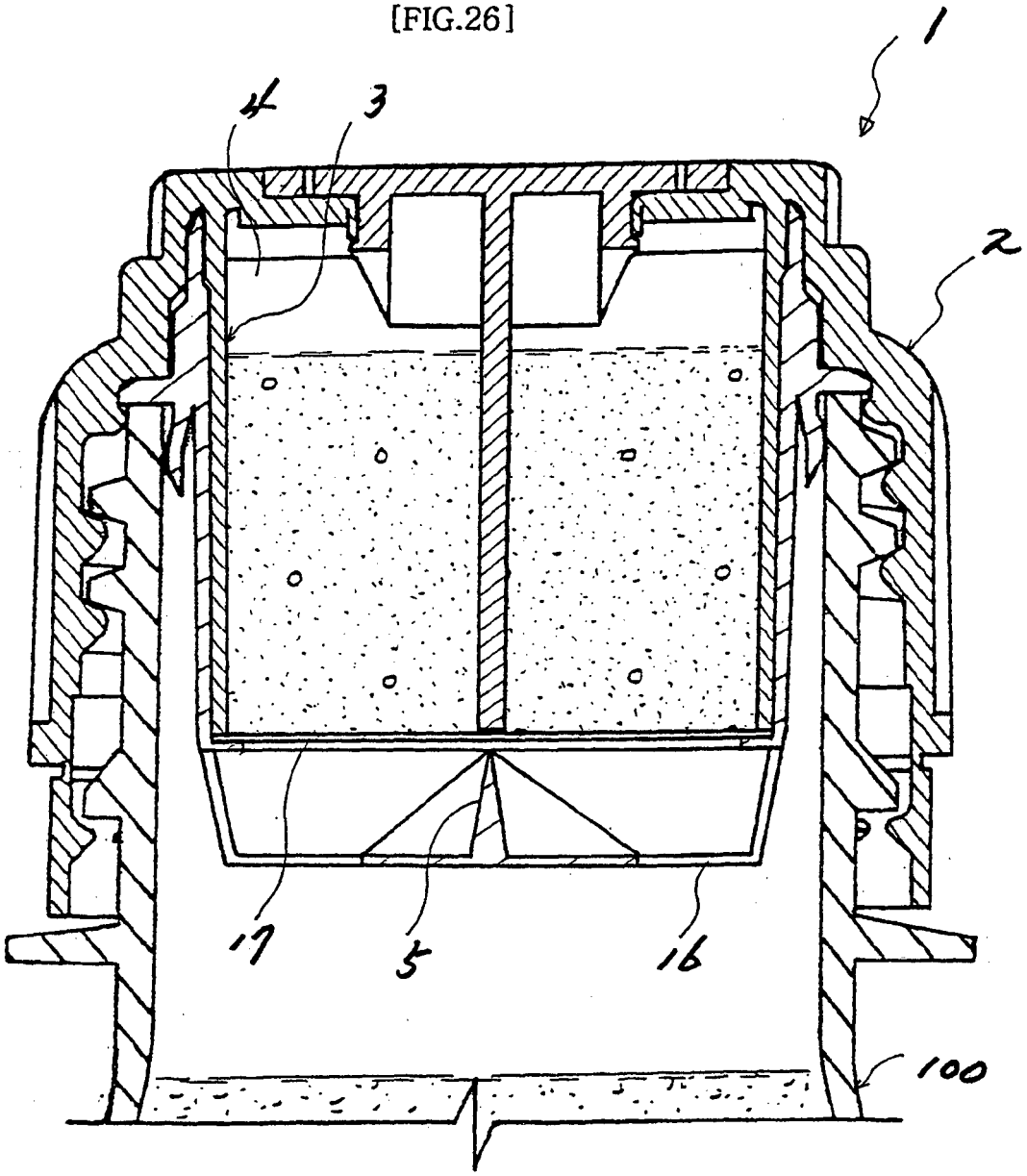
[FIG.24]



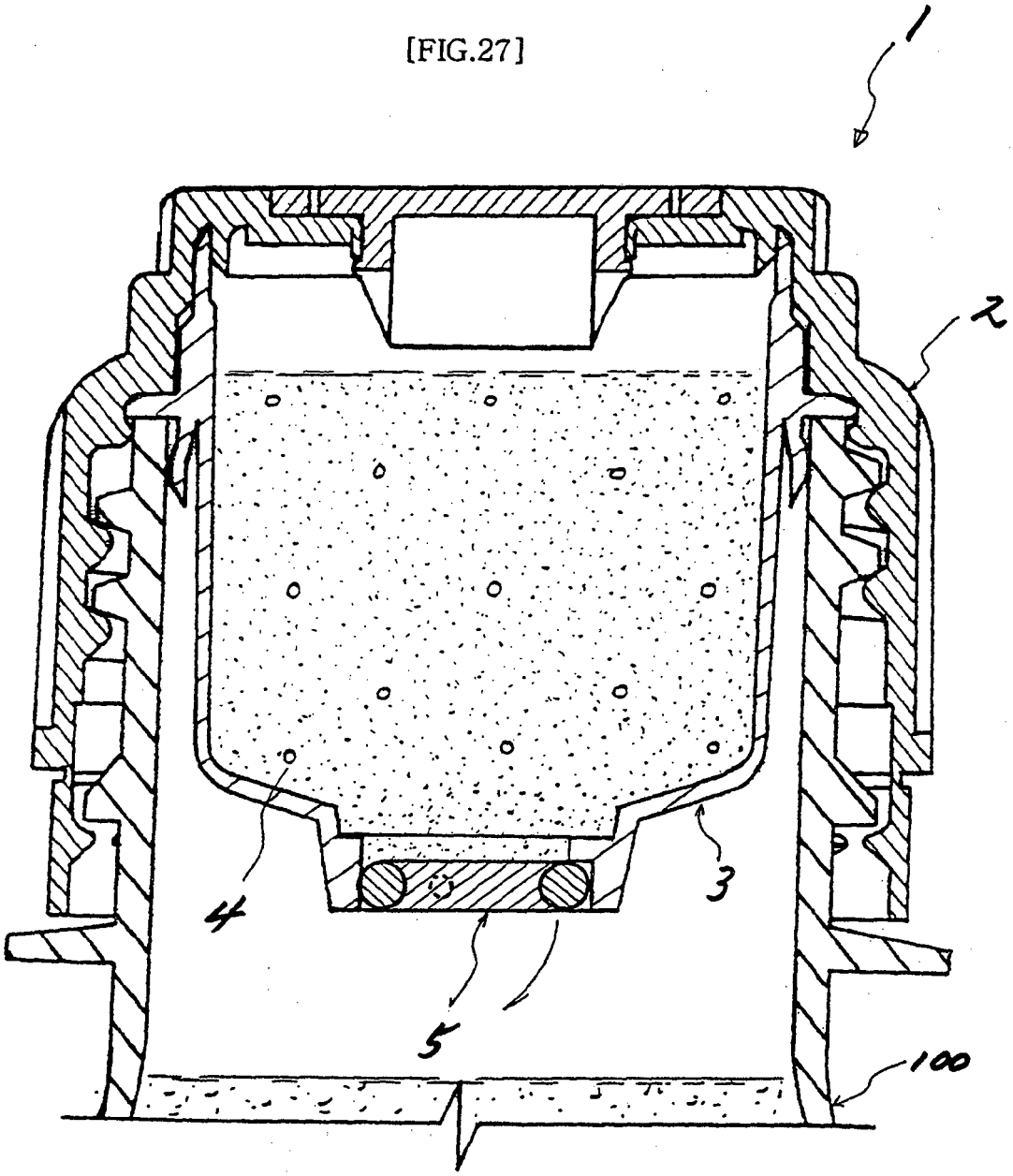
[FIG.25]



[FIG.26]



[FIG.27]



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 6962254 B **[0004]**
- US 6230884 B **[0004]**
- US 6854595 B **[0004]**
- EP 2002004523 W **[0006]**
- JP P200100185428 B **[0007]**
- US 6620444 B **[0008] [0009]**
- US 20010001196 A **[0008]**