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(54) **Press-open type storage device with prestressed to open closure**

(57) The present invention discloses a press-open type device with prestressed to open closure (102), wherein the relative stable state relationship of the closure (102) and one of the storage device being connectedly attached by a flexible flake structure (103) is characterized in that when closure (102) is closed relative to the storage device, the connecting flake type structure (103) is bended to appear a prestressed status to opening direction thereby keeping the closure to remain at a stable opening status after it is pressed to open.

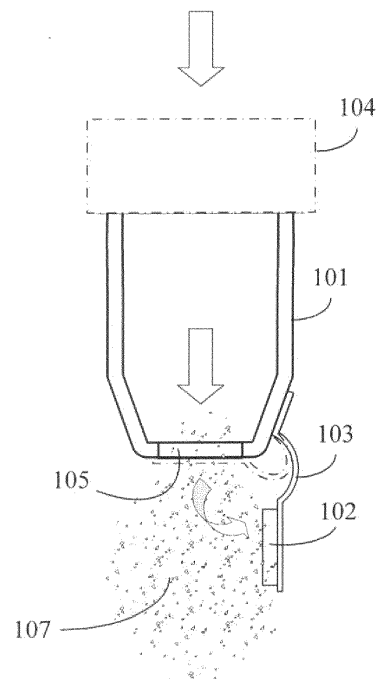


Fig. 1

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Description**BACKGROUND OF THE INVENTION****(a) Field of the invention**

[0001] The present invention relates to a press-open type storage device with prestressed to-open closure which is an innovative cylinder, cylinder like, or multi-face can shaped hollow container structure for storing particle, powder, slurry, paste, or liquid type contents, wherein the peripheral side of the can shaped shell body of present invention is for hand or mechanism holding, or wherein the peripheral side of the cam shaped shell body has flanges for inserting the attachment with the edges of an opening portion of an associated container, the position of the force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of the content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container. The closure is combined with the content dispense outlet to allow the force bearing surface at one end to be forced to open the closure at the other end to dispense contents, or the closure at the other end is opened by hand to let the force bearing surface be forced to dispense contents or to directly pour out contents. Alternatively, where the cam shaped shell body has flanges, the closure is combined with the content dispense outlet, whereby, when inserted into the opening portion of the associated container, the force bearing surface at one end is forced to open the closure at the other end to dispense the contents, or naturally, the closure at the other end can be opened by hand as required to let the force bearing surface be forced to dispense contents, or to pour out directly its contents, or after the closure is opened by hand and placed into the associated container, by contact of the dissolvable solid contents and the liquid or air inside the associated container, the sold contents thereof dissolve, Further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent, the closure, and shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container, whereas the closure is not detached from the shell body so as to mix with the dispensed contents after it is opened, therefore, it is good for i-ecycle and that is the progressiveness of the innovative design of the present invention.

(b) Description of the Prior Art

[0002] The closure of conventional hand or mecha-

nism holding type hollow container for storing particle, powder, slurry, paste or liquid like contents is usually independently provided, wherein it has at least one imperfection: 1) container and closure are at detachment status and are more inconvenient for recollection; or 2) if the press dispense is by side pressing, then the side pressured surface is wide enough to be mistakenly pressed; or 3) The position relationship between the opened closure and shell body is unstable thereby affecting dispense of contents.

SUMMARY OF THE INVENTION

[0003] According to one aspect of the invention, a storage device has: a shell body formed with a dispense outlet at one end of the shell body, a force-bearing structure at the other end, and a closure member for closing the dispense outlet; wherein one end of the closure member is connected to the shell body by a flexible membrane; wherein the force bearing structure comprises an internally installed pushing structure pointing towards the closure to open it or the force bearing structure is deformed thereby producing inner pressure to open said closure; wherein the device is such that a relative stable relationship occurs when the closure member is closed relative to the storage device, the flexible membrane being bent to a prestressed status so that the closure member remains in a stable open status after it is pressed open.

[0004] The present invention provides a cylinder, cylinder-like, or multi-faced can type hollow container of hand or mechanism holding type for storing particle, powder, slurry, paste or liquid type contents, wherein the peripheral side of the can shaped shell body is particularly made for hand or mechanism holding, and the position of force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container. The closure is combined with the content dispense outlet, the force bearing surface at one end is forced to open the closure at the other end to dispense contents, or the closure at the other end can be opened by to let the force bearing surface be forced to dispense contents or to directly pour out contents. Further, a flexible flake type structure is made between the closure and storage device to prevent the closure and shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to opening direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container, whereas the closure is not detached from the shell body so as to mix with the dispensed contents after it is opened, therefore it is good for recycle.

[0005] The invention also provides a sleeved to press-

open type storage device with a prestressed to open closure which is a cylinder, cylinder-like, or multi-faced can type hollow container for storing particle, powder, slurry, paste, liquid or dissolvable solid type contents, wherein the peripheral side of the can shaped shell body having flanges for insertingly attaching with the edges of the opening portion is particularly made for inserting into the opening portion of the selected container, while the position of the force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container. The closure is combined with the content dispense outlet, wherein when they are inserted into the opening portion of the selected container, the force bearing surface at one end is forced to open the closure at the other end to dispense contents, or naturally, the closure at the other end can be opened by hand as required to let the force bearing surface be forced to dispense contents or to directly pour out contents, or after the closure is opened by hand and placed into selected container, by the contact of the dissolvable solid type contents and the liquid or air inside the selected container, the solid type contents thereof dissolves, Further, a flexible flake type structure is made between the closure and the storage device to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container, whereas the closure is not detached from the shell body so as to mix with the dispensed contents after it is opened, therefore it is convenient for recycle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

Fig. 1 is a cross-sectional view showing the main structure of a first embodiment of invention.

Fig. 2 is a cross-sectional view showing the embodiment of the force bearing structure which is made of a material softer than shell body shown in Fig. 1.

Fig. 3 is a cross-sectional view showing the force bearing structure of the shelf body in the embodiment of Fig. 2 is forced to dispense contents of the shell body.

Fig. 4 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 2 being combined inside the shell body pointing toward the closure has an extended pushing structure.

Fig. 5 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 4 is forced to dispense the contents inside the shell body.

Fig. 6 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 1 is constituted by the piston type structure.

Fig. 7 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 6 is pressed to open contents inside the shell body, Fig. 8 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 6 being combined inside the shell body pointing toward closure has an extended pushing structure.

Fig. 9 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 8 is pressed to open contents inside the shell body.

Fig. 10 is a cross-sectional view showing that the force bearing structure is not installed to the storage device with the prestressed to open closure of the present invention.

Fig. 11 is a cross-sectional view showing the main structure of a second embodiment of the invention. Fig. 12 is a cross-sectional view showing the embodiment of the force bearing structure which is made of a flexible material softer than shell body shown in Fig. 11.

Fig. 13 is a cross-sectional view showing the force bearing structure of the shell body in the embodiment of Fig. 12 is forced to dispense contents of the shell body.

Fig. 14 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 12 being combined inside the shell body pointing toward the closure has an extended pushing structure.

Fig. 15 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 14 is forced to dispense the contents inside the shell body.

Fig. 16 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 11 is constituted by the piston type structure.

Fig. 17 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 16 is pressed to open contents inside the shell body.

Fig. 18 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 16 being combined inside the shell body pointing toward closure has an extended pushing structure.

Fig. 19 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 18 is pressed to open contents inside the shell body.

Fig. 20 is a cross-sectional view showing that the force bearing structure is not installed to the storage device with the prestressed to open closure of the present invention.

DESCRIPTION OF MAIN COMPONENT SYMBOLS

[0007]

101: Shell body

102: Closure
 103: Flexible flake type structure
 104: Force bearing structure
 105: Dispense outlet
 106: Pushing structure
 107: Contents
 108: Piston structure
 109: Dog
 110: Container cap
 111: Inner thread
 200: Selected container
 201: Opening portion
 202: External thread

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] The conventional press-open type storage device has the following three types of relative imperfections:

1. The press-open type closure is detached from the storage device after being pressed so as to mix with the stored contents.
2. The press-open type closure is not completely detached after being pressed to open, when the pressing pressure disappears, the closure is bounced back to hinder the dispense of contents;
3. If the press-open type closure is opened by applying an instant pressure to deform the storage device, whereas the closure is partially opened to release the pressure immediately, and the closure can still be bounced back.

[0009] The first embodiment of the present invention relates to an innovative hand or mechanism holding type cylinder, cylinder-like, or multi-faced can type hollow container structure for storing particle, powder, slurry, paste or liquid type contents, wherein the peripheral side of the can shaped shell body is for hand or mechanism holding, further, the position of force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container. The closure is combined with the content dispense outlet to allow the force bearing surface at one end to be forced to open the closure at the other end to dispense contents, or the closure at the other end is opened by hand to let the force bearing surface be forced to dispense contents or to directly pour out contents. Further, a flexible flake type structure is made between the closure and the shell body of hollow container to prevent the closure and shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to opening

direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container, whereas the closure is not detached from the shell body so as to mix with the dispensed contents after it is opened, it is good for recycle and that is an innovative design of the present invention.

[0010] Fig. 1 is a cross-sectionat view showing the main structure of the invention.

[0011] As illustrated in Fig.1, it mainly comprises:

[0012] A shell body (101): It is a cylinder, cylinder like or multi-faced can type hollow container of hand or mechanism holding type made of plastic or metal for storing particle, powder, slurry, paste or liquid type contents (107), wherein the shell body (101) being made with a dispense outlet (105) at the axial bottom end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of the hollow container being attached with the flexible flake type structure (103) allows the position of closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105). Furthermore, the hand or mechanism held shell body of the hollow container can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein when it is applied on by an external force, the closure (102) is pressed to open to dispense contents, or the closure (102) can be opened by hand and let the force bearing surface be forced to dispense contents or to directly pour out contents;

[0013] A closure (102): It appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, when the force bearing structure (104) is applied by an external force, the closure (102) is pressed to detach from the dispense outlet (105) to dispense contents, or the closure is opened by hand to apply force on the force bearing surface to dispense contents or to directly pour out contents, wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements, etc.;

[0014] The definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101).

[0015] A flexible flake type structure (103): It is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and the closure (102), wherein the attaching status of the shell body (101) and the closure (102) includes that when said closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell

body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), while said closure (102) is through said flexible flake type structure (103) to be still attached to the shell body (101) without falling down;

[0016] The structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) of the press-open type storage device with prestressed to open closure include:

1. The flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or
2. The closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or
3. The closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or
4. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of the same material; or
5. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or
6. The shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or
7. The shell body (101), closure (102) and flexible flake type structure (103) are made of different material, wherein they are individually made and further combined.

[0017] The combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like in-lay or locking combination, clamping or sewing combinations by additional auxiliary elements, etc.;

[0018] The force bearing structure (104) of the press-open type storage device with prestressed to open closure can be embodied according to application requirements as following:

1. The force hearing surface of force bearing structure (104) is constituted by a force bearing structure made of a flexible material softer than the one of

shell body (101) to combine with the shell body (101), or is constituted by a force bearing structure (104) formed by a thinner flexible structure made of the same material as the one of shell body (101) to combine with the shell body (101), or is constituted by a force bearing structure (104) formed by a more flexible structure to combine with the shell body (101). In addition, the force bearing structure (104) and shell body (101) can be made of the same material to be integrally made or individually made and further combined, or they can be made of different material and further combined. For filling in the shell body interior with liquid, slurry or paste type contents (107), said force bearing structure (104) is forced to deform thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and the shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure that is good for dispensing the filled in contents (107) in the interior of shell body (101). Fig. 2 is a cross-sectional view showing the embodiment of the force bearing structure which is made of a material softer than shell body shown in Fig. 1; Fig. 3 is a cross-sectional view showing the force bearing structure of the shell body in the embodiment of Fig. 2 is forced to dispense contents of the shell body.

2. The force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), while the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is forced, the pushing structure (106) is pushed toward the closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open. The closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure that is good for dispensing the filled in contents (107) in the interior of shell body (101). Fig. 4 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 2 being combined inside the shell body pointing toward the closure has an extended pushing structure. Fig. 5 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 4 is forced to dispense the contents inside the shell body.

[0019] The force bearing structure (104) and the shell body (101) of the press-open type storage device with a prestressed to open closure can be made of the same or different material to include:

- a) The force bearing structure (104) and the shell body (101) are made of the same material and are integrally formed; or
- b) The force bearing structure (104) and the shell body (101) are respectively made of the same material and further combined; or
- c) The force bearing structure (104) and the shell body (101) are made of different material and are further combined;

3. The force bearing structure (104) can be constituted by a conventional piston type structure comprising a pushable piston structure (108), wherein when the piston structure (108) is forced to push forward, the particle, powder, liquid, slurry or paste type contents (107) filled in the shell body (101) are pressed to open the closure (102), while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103). Fig. 6 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 1 is constituted by the piston type structure. Fig. 7 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 6 is pressed to open contents inside the shell body.

4. The force bearing structure (104) can be constituted by a conventional piston type structure comprising not only a pushable piston structure (108), but the piston structure (108) is also further made with a pushing structure (106) along the direction toward said closure (102), wherein when the piston structure (108) is forced to push forward, the closure (102) is pressed to open through the push by said pushing structure (106), while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103). Fig. 8 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 6 being combined inside the shell body pointing toward closure has an extended pushing structure. Fig. 9 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 8 is pressed to open contents inside the shell body.

[0020] As shown in Figs. 1~9, the following force application methods and relatively matching external structure for the force bearing structure (104) relative to the shell body (101) can be selected according to different application condition herein:

1. The press-open type storage device with prestressed to open closure can be a device for independent use to allow the interior of shell body to be filled with liquid, slurry or paste type contents (107), when the force bearing structure (104) being hand or mechanism held is applied on by a human hand or an external force, said force bearing structure (104) is forced to deform thereby producing inner

pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure thereby dispensing contents (107) in the interior of shell body (101) to unspecified spaces while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103).

2. The press-open type storage device with prestressed to open closure can be a device for independent use, wherein the force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), and wherein the force bearing structure (104) having an extended pushing structure (106) is combined inside the shell body (101) pointing toward the closure (102), when the interior of the shell body is filled with particle, powder, liquid, slurry or paste type contents (107) and the shell body is held by hand or mechanism so that the force bearing structure (104) is applied on by a human hand or an external force, the pushing structure (106) is pushed toward the closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and the closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure thereby dispensing contents (107) in the interior of shell body (101) to unspecified spaces while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103).

[0021] The present invention is further related to a storage device with prestressed to open closure without installing a force bearing structure, wherein it is related to a hand or mechanism holding type cylinder, cylinder-like, or multi-faced can type hollow container structure for storing particle, powder, slurry, paste or liquid type contents, wherein the peripheral side of the can shaped shell body is for hand or mechanism holding, further, the position of the content dispense outlet is made at one axial end of the shell body of the hollow can type container. The closure is combined with the content dispense outlet to allow being opened by hand from once end of the closure to dispense contents or to directly pour out contents. Further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage

device appears a close status, the attaching flake type structure is bended to appear a prestressed status to opening direction so that the closure can be kept at a stable opening status.

[0022] Fig. 10 is a cross-sectional view showing that the force bearing structure is not installed to the storage device with the prestressed to open closure of the present invention.

[0023] As illustrated in Fig. 10, it mainly comprises:

[0024] A shell body (101): It is a cylinder, cylinder like or multi-faced can type hollow container of hand or mechanism holding type made of plastic or metal for storing particle, powder, slurry, paste or liquid type contents (107), wherein the shell body (101) being made with a dispense outlet (105) at one axial end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of a hollow container being attached with the flexible flake type structure (103) allows the position of closure (102) to be at opening status in ordinary condition and to appear a prestressed toward opening direction when it is combined with the dispense outlet (105);

[0025] Said shell body (101) is not disposed with the force bearing structure (104), whereas the dispense outlet (105) thereof is arranged for disposing the closure (102), thereby to be opened by hand;

[0026] A closure (102): It appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, whereby the closure (102) is opened by hand to dispense contents or to directly pour out contents, wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements, etc.;

[0027] The definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101).

[0028] A flexible flake type structure (103): It is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and the closure (102), wherein the attaching status of shell body (101) and the closure (102) includes that when said closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), while said closure (102) is

through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down;

[0029] The cross-sectional view showing that the force bearing structure is not installed to the storage device with the prestressed to open closure of the present invention illustrated in Fig. 10, wherein the structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) include:

1. The flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or
2. The closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or
3. The closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or
4. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of the same material; or
5. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or
6. The shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or
7. The shell body (101), closure (102) and flexible flake type structure (103) are made of different material, wherein they are individually made and further combined.

[0030] The combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like in-lay or locking combination, clamping or sewing combinations by additional auxiliary elements, etc.;

[0031] As summarized from the above descriptions, the first embodiment of the present invention discloses a press-open type storage device with prestressed to open closure, wherein the relatively stable state relationship of the closure and one side of the storage device being connectedly attached by a flexible flake type structure (103) is characterized in that when the closure (102) is closed relative to the dispense outlet (105) of the storage device, the connecting flake type structure (103) is bent to appear a prestressed status to the opening direction thereby allowing the attaching flexible flake type structure (103) to release the prestressed force so as to keep said closure (102) to remain at a stable opening status after it is pressed to open.

[0032] Fig. 11 is a cross-sectional view showing the main structure of the second embodiment of the invention.

[0033] As illustrated in Fig. 11, it mainly comprises:

[0034] A shell body (101): It is a cylinder, cylinder like or multi-faced can type hollow container made of plastic or metal for storing particle, powder, slurry, paste, liquid or dissolvable solid type contents (107), wherein the peripheral side of the shell body (101) of a hollow container having Manges for insertingly attaching with the edges of opening portion of the container is inserted into the opening portion (201) of selected container (200), and the shell body (101) of a hollow container being made with a dispense outlet (105) at the axial bottom end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of the hollow container being attached with the flexible flake type structure (103) allows the position of said closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105). Furthermore, the shell body of a hollow container can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein when it is applied on by an external force, the closure (102) is pressed to open to dispense contents, or naturally, the closure at the other end can be opened by hand and let the force bearing surface be forced to dispense content or to directly pour out contents;

[0035] A closure (102): It appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, when the force bearing structure (104) is applied by an external force, the closure (102) is pressed to detach with the dispense outlet (105) to dispense contents, or the closure at the other end is opened by hand as required to apply force on the force bearing surface to dispense contents or to directly pour out contents, wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements, etc.;

[0036] The definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

[0037] A flexible flake type structure (103): It is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and the closure (102), wherein the attaching status of said shell body (101) and closure (102) includes that when the closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status,

the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense content (107), while the closure (102) is through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0038] The structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) of the sleeved to press-open type storage device with a prestressed to open closure include:

8. The flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or

9. The closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or

10. The closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or

11. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of the same material; or

12. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or

13. The shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or

14. The shell body (101), closure (102) and flexible flake type structure (103) are made of different material, wherein they are individually made and further combined.

[0039] The combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like in-lay or locking combination, clamping or sewing combinations by additional auxiliary elements, etc.;

[0040] The force bearing structure (104) of the sleeved to press-open type storage device with a prestressed to open closure can be embodied according to application requirements as following:

5. The force bearing surface of the force bearing structure (104) is constituted by a force bearing structure of a flexible material softer than the one of

shell body (101) to combine with the shell body (101), or is constituted by a force bearing structure (104) formed by a thinner flexible structure made of the same material as the one of shell body (101) to combine with said shell body (101), or is constituted by a force bearing structure (104) formed by a more flexible structure to combine with said shell body (101). In addition, the force bearing structure (104) and shell body (101) can be made of the same material to be integrally made or individually made and further combined, or they can be made of different material and further combined. For filling in the shell body interior with liquid, slurry or paste type content (107), said force bearing structure (104) is forced to deform thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and the shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure that is good for dispensing the filled in contents (107) in the interior of shell body (101). Fig. 12 is a cross-sectional view showing the embodiment of the force bearing structure which is made of a flexible material softer than shell body shown in Fig. 11, Fig. 13 is a cross-sectional view showing the force bearing structure of the shell body in the embodiment of Fig. 12 is forced to dispense contents of the shell body;

6. The force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), while when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is forced, the pushing structure (106) is pushed toward the closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open. The closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open and keep the closure (102) remaining at a stable opening status even after disappearance of pressure that is good for dispensing the filled in contents (107) in the interior of the shell body (101); Fig. 4 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 12 being combined inside the shell body pointing toward the closure has an extended pushing structure; Fig. 15 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 14 is forced to dispense the contents inside the shell body;

[0041] The force bearing structure (104) and the shell body (101) of the sleeved to press-open type storage device with a prestressed to open closure can be made

of the same or different material to include:

- a) The force bearing structure (104) and the shell body (104) are made of the same material and are integrally formed; or
- b) The force bearing structure (104) and the shell body (101) are respectively made of the same material and further combined; or
- c) The force bearing structure (104) and the shell body (101) are made of different material and are further combined;

7. The force bearing structure (104) can be constituted by a conventional piston type structure comprising a pushable piston structure (108), wherein when the piston structure (108) is forced to push forward, the particle, powder, liquid, slurry or paste type contents (107) filled in the shell body (101) are pressed to open the closure (102), while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103). Fig. 16 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 11 is constituted by the piston type structure. Fig. 17 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 16 is pressed to open contents inside the shell body.

8. The force bearing structure (104) can be constituted by a conventional piston type structure comprising not only a pushable piston structure (108), but the piston structure (108) is also further provided with a pushing structure (106) along the direction toward the closure (102), wherein when the piston structure (108) is forced to push forward, said closure (102) is pressed to open through the push by said pushing structure (106), while said closure (102) is maintained at an opening status without failing down through the prestressed flexible flake type structure (103). Fig. 18 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 6 being combined inside the shell body pointing toward closure has an extended pushing structure. Fig. 19 is a cross-sectional view showing that the force bearing structure in the embodiment of Fig. 18 is pressed to open contents inside the shell body.

[0042] As shown in Figs. 11~19, the following force application methods and relatively matching external structure for the force bearing structure (104) relative to the shell body (101) can be selected according to different application condition herein:

3. The sleeved to press-open type storage device with a prestressed to open closure is for inserting into the opening portion (201) of the selected container (200), wherein when the interior of the shell body is filled with particle, powder, liquid, slurry,

paste or dissolvable solid type content (107) and the force bearing structure (104) is applied on by a human hand or an external force, or a mechanical, pneumatic or hydraulic force, said force bearing structure (104) is forced to deform thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103). In view of the applications, the outside diameter of the shell body (101) can be inserted into the opening portion (201) of the selected container (200) with proper tolerances, while peripheral side of the shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109) to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container and to form a limiting structure when it is pressed, wherein the selected container (200) can be empty without fitting in contents or filled with particular contents;

4. The sleeved to press-open type storage device with a prestressed to closure is for inserting into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107) and the force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of-shell body (101) to be combined on the top portion of the shell body (101), while when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is forced by a human hand or an external force, or a mechanical force of mechanism, or a pneumatic or hydraulic force, the pushing structure (106) is pushed toward the closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and said closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103). In view of the applications, the outside diameter of the shell body (101) can be inserted into the opening portion (201) of the selected container (200) with proper tolerances, while periph-

eral side of said shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109) to limit the depth of insertion for inserting said shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, wherein the selected container (200) can be empty without filling in contents or filled with particular contents;

5. The sleeved to press-open type storage device with a prestressed to open closure can be inserted into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), and the opening portion (201) of the selected container (200) is provided with a container cap (110), wherein the container cap (110) having an inner thread (111) is threadly engaged with the external thread (202) at the outside of the opening portion (201) of the selected container and liquid or paste type contents are filled inside the shell body to exert tightening force on the force bearing structure (104) during the tread engagement, hence, said force bearing structure (104) is forced to deform thereby producing inner pressure to open said closure (102.) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the peripheral side of shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the thread insertion by the container cap (110) into the opening portion (201) of the selected container (200) for tightening advancement;

6. The sleeved to press-open type storage device with a prestressed to open closure can be inserted into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dis-

solvable solid type contents (107), and the opening portion (201) of the selected container (200) is provided with a container cap (110), wherein the container cap (110) having an inner thread (111) is threadly engaged with the external thread (202) at the outside of the opening portion (201) of the selected container (200). The force bearing structure (104) can be constituted by an internally installed pushing structure (106), and the force bearing structure (104) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is tightly forced during thread engagement, the pushing structure (106) is pushed toward said closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and the closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the peripheral side of the shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog (109) is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the thread insertion by the container cap (110) into the opening portion (201) of the selected container (200) for tightening advancement;

7. The sleeved to press-open type storage device with a prestressed to open closure can be inserted into the opening portion (201) of the selected container (200), wherein the opening portion (201) of the selected container (200) is provided with a container cap (110), the inside diameter of the container cap (110) and the outside diameter of the opening portion (201) of the selected container (200) can be tightly pressingly combined and the interior of the shell body is filled with particle, powder, liquid, slurry,

paste or dissolvable solid type contents (107), when said force bearing structure (104) is tightly pressingly forced to deform during the tighten pressing combination process thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the peripheral side of shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the pressing insertion by the container cap (110) into the opening portion (201) of the selected container (200) for pressing combination advancement;

8. The sleeved to press-open type storage device with a prestressed to open closure can be inserted into the opening portion (201) of the selected container 200, wherein the opening portion (201) of the selected container (200) is provided with a container cap (110), the inside diameter of the container cap (110) and the outside diameter of the opening portion (201) of the selected container (200) can be tightly pressingly combined and the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), and the force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is tightly forced during the tighten pressing combination process, the pushing structure (106) is pushed toward said closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and said closure (102) is further through the

prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open the contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the peripheral side of the shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the pressing insertion by the container cap (110) into the opening portion (201) of the selected container (200) for pressing combination advancement.

[0043] The present invention is further related to a sleeved to press-open type storage device with a prestressed to open closure which is an innovative cylinder, cylinder like, or multi-face can shaped hollow container structure for storing particle, powder, slurry, paste, liquid, or dissolvable solid type contents, wherein the peripheral side of the can shaped shell body having flanges for insertingly attaching with the edges of the opening portion is inserted into the opening portion of the selected container, while the position of the content dispense outlet on the shell body of a hollow container is made at one axial end of the shell body of the hollow can type container. The closure is combined with the content dispense outlet for the closure to be opened by hand, wherein when they are inserted into the opening portion of the selected container, contents is directly poured out into selected container, or to dissolve the solid type contents inside the shell body of the hollow container by means of the liquid or air inside the selected container. Further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is beat to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container,

whereas the closure is not detached from the shell body so as to mix with the dispensed contents after it is opened, therefore it is good for recycle.

[0044] Fig. 20 is a cross-sectionat view showing that the force bearing structure is not instated to the storage device with the prestressed to open closure of the present invention.

[0045] As illustrated in Fig.20, it mainly comprises:

10 A shell body (101): It is a cylinder, cylinder like or multi-faced can type hollow container made of plastic or metal for storing particle, powder, slurry, paste, liquid or dissolvable solid type contents (107), wherein the peripheral side of the shell body (101) of a hollow container having flanges for insertingly attaching with the edges of the opening portion (201) of selected container (200), and the shell body (101) of a hollow container being made with a dispense outlet (105) at one axial end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of the hollow container being attached with the flexible flake type structure (103) allows the position of said closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105);

30 Said shell body (101) is not disposed with the force bearing structure (104), whereas the dispense outlet (105) thereof is arranged for disposing the closure (102), thereby to be opened by hand;

35 A closure (102): It appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, wherein the closure is opened by hand to dispense contents or to directly pour out contents, or to dissolve the solid type contents thereof by means of the liquid or air inside the selected container; the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or stamping combination by additional auxiliary locking elements, etc.;

45 The definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

50 A flexible flake type structure (103): It is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and closure (102), wherein the attaching status of the shell body (101) and closure (102) includes that when the closure (102) is combined with the dis-

pense outlet (105) at bottom end of the shelf body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), white the closure (102) is through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0046] As illustrated in Fig. 20 is a cross-sectional view showing that the force bearing structure is not installed to the storage device with the prestressed to open closure of the present invention, wherein the structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) include:

1. The flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or
2. The closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or
3. The closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or
4. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of the same material; or
5. The shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or
6. The shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or
7. The shell body (101), closure (102) and flexible flake type structure (103) are made of different material wherein they are individually made and further combined.

[0047] The combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like in-lay or locking combination, clamping or spewing combinations by additional auxiliary elements, etc.;

[0048] To sum up, the second embodiment of the present invention discloses a sleeved to press-open type

storage device with a prestressed to open closure having a peripheral side of the shell body (101) to be inserted into the opening portion of the selected container, wherein the peripheral side of the shell body (101) has flanges for insertingly attaching with the edges of the opening portion of said container. The shell body (101) is made with a dispense outlet (105) at the axial bottom end thereof to appear a close status when the dispense outlet (105) is combined with the closure (102), and to dispense contents (107) when said closure (102) is opened. Further, the closure and one side of the storage device is connectedly attached by a flexible flake type structure (103), wherein it is characterized in that when said closure (102) is closed relative to the dispense outlet (105) of the storage device, the connecting flake type structure (103) is bent to appear a prestressed status to the opening direction thereby allowing the attaching flexible flake type structure (103) to release the prestressed force so as to keep said closure (102) to remain at a stable opening status after it is pressed to open.

[0049] The invention also provides a press-open storage device with prestressed to open closure, wherein it is a hand or mechanism holding type cylinder, cylinder-like, or multi-faced can type hollow container structure for storing particle, powder, slurry, paste or liquid type contents, wherein the peripheral side of the can shaped shell body is for hand or mechanism holding, further, the position of force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container; the closure is combined with the content dispense outlet to allow the force bearing surface at one end to be forced to open the closure at the other end to dispense contents, or the closure at the other end is opened by hand to let the force bearing surface be forced to dispense contents or to directly pour out contents; further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status; wherein it mainly comprises:

a shell body (101): it is a cylinder, cylinder like or multi-faced can type hollow container of hand or mechanism holding type made of plastic or metal for storing particle, powder, slurry, paste or liquid type contents (107), wherein the shell body (101) being made with a dispense outlet (105) at the axial bottom end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened; further, the shell body of the hollow con-

tainer being attached with the flexible flake type structure (103) allows the position of closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105); Furthermore, the hand or mechanism held shell body of the hollow container can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein when it is applied on by an external force, the closure (102) is pressed to open to dispense contents, or the closure (102) can be opened by hand and let the force bearing surface be forced to dispense contents or to directly pour out contents;

a closure (102): it appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, when the force bearing structure (104) is applied by an external force, the closure (102) is pressed to detach from the dispense outlet (105) to dispense contents, or the closure is opened by hand to apply force on the force bearing surface to dispense contents or to directly pour out contents, wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements, etc.;

the definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

a flexible flake type structure (103): it is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and the closure (102), wherein the attaching status of shell body (101) and the closure (102) includes that when said closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), while said closure (102) is through said flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0050] The invention further provides a sleeved to press-open storage device with a prestressed to open

closure, wherein it is a cylinder, cylinder like, or multi-face can shaped hollow container structure for storing particle, powder, slurry, paste, liquid, or dissolvable solid type contents, wherein the peripheral side of the can shaped shell body having flanges for insertingly attaching with the edges of the opening portion is inserted into the opening portion of the selected container, while the position of the force bearing surface for press-open closure to be applied on by an external force on the shell body of a hollow container and the position of the content dispense outlet are respectively made at the two axial ends of the shell body of the hollow can type container; the closure is combined with the consent dispense outlet, wherein when they are inserted into the opening portion of the selected container, the force bearing surface at one end is forced to open the closure at the other end to dispense contents, or naturally, the closure at the other end can be opened by hand as required to let the force bearing surface be forced to dispense contents or to directly pour out contents, or after the closure is opened by hand and placed into selected container, by means of the contact of the dissolvable solid type contents and the liquid or air inside the selected container, the solid type contents thereof dissolves. Further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and the shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status; wherein it mainly comprises:

a shell body (101): it is a cylinder, cylinder like or multi-faced can type hollow container made of plastic or metal for storing particle, powder, slurry, paste, liquid or dissolvable solid type contents (107), wherein the peripheral side of the shell body (101) of a hollow contained having flanges for insertingly attaching with the edges of opening portion of the container is inserted into the opening portion (201) of selected container (200), and the shell body (101) of a hollow container being made with a dispense outlet (105) at the axial bottom end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened; further, the shell body of the hollow container being attached with the flexible flake type structure (103) allows the position of said closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105); furthermore, the shell body of a hollow container can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein when it is applied on by an external force, the closure (102) is pressed

to open to dispense contents, or naturally, the closure at the other end can be opened by hand and let the force bearing surface be forced to dispense contents or to directly pour out contents;

a closure (102): it appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, when the force bearing structure (104) is applied by an external force, the closure (102) is pressed to detach with the dispense outlet (105) to dispense contents, or the closure at the other end is opened by hand as required to apply force on the force bearing surface to dispense contents or to directly pour out contents, wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements;

the definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

a flexible flake type structure (103): it is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and closure (102), wherein the attaching status of the shell body (101) and the closure (102) includes that when the closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), while the closure (102) is through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0051] When the device does not have flanges and is further without installing a force bearing structure, it is related to a hand or mechanism holding type cylinder, cylinder-like, or multi-faced can type hollow container structure for storing particles, powder, slurry, paste or liquid contents, wherein the peripheral side of the can shaped shell body is for hand or mechanism holding, further, the position of the content dispense outlet is made at one axial end of the shell body of the hollow can type container; the closure is combined with the content dispense outlet to allow opening by hand from one end of the closure to dispense the contents or directly to pour

out the contents; further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and shell body from detachment, wherein the relatively stable relationship between the closure and shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status; wherein it mainly comprises:

a shell body (101): it is a cylinder, cylinder like or multi-faced can type hollow container of hand or mechanism holding type made of plastic or metal for storing particle, powder, slurry, paste or liquid type contents (107), wherein the shell body (101) being made with a dispense outlet (105) at the axial bottom end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of a hollow container being attached with the flexible flake type structure (103) allows the position of closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105);

said shell body (101) is not disposed with the force bearing structure (104), whereas the dispense outlet (105) thereof is arranged for disposing the closure (102), thereby to be opened by hand;

a closure (102): it appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, whereby the closure (102) is opened by hand to dispense contents or to directly pour out contents; wherein the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements;

the definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

a flexible flake type structure (103): it is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and the closure (102), wherein the attaching status of shell body (101) and the closure (102) includes that when said closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure

(103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (10) to maintain at a stable opening status to dispense contents (107), while said closure (102) is through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0052] In this embodiment, the structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) include:

- a) the flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or
- b) the closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or
- c) the closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or
- d) the shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of the same material; or
- e) the shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or
- f) the shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or
- g) the shell body (101), closure (102) and flexible flake type structure (103) are made of different material, wherein they are individually made and further combined.

[0053] In this embodiment, the combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like inlay or locking combination, clamping or sewing combinations by additional auxiliary elements.

[0054] In the embodiment with flanges, the device is for inserting into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107) and the force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top

portion of the shell body (101), while when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is forced by a human hand or an external force, or a mechanical force of mechanism, or a pneumatic or hydraulic force, the pushing structure (106) is pushed toward the closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and said closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103); in view of the applications, the outside diameter of the shell body (101) can be inserted into the opening portion (201) of the selected container (200) with proper tolerances, while peripheral side of said shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109) to limit the depth of insertion for inserting said shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, wherein the selected container (200) can be empty without filling in contents or filled with particular contents.

[0055] In this embodiment, the device can be inserted into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), and the opening portion (201) of the selected container (200) is provided with a container cap (110), wherein the container cap (110) having an inner thread (111) is threadly engaged with the external thread (202) at the outside of the opening portion (201) of the selected container and liquid or paste type contents are filled inside the shell body to exert tightening force on the force bearing structure (104) during the tread engagement, hence, said force bearing structure (104) is forced to deform thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents; in view of the applications, the peripheral side of shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter or the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the

inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the thread insertion by the container cap (110) into the opening portion (201) of the selected container (200) for tightening advancement.

[0056] In this embodiment, the device can be inserted into the opening portion (201) of the selected container (200), wherein the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), and the opening portion (201) of the selected container (200) is provided with a container cap (110), wherein the container cap (110) having an inner thread (111) is threadably engaged with the external thread (202) at the outside of opening portion (201) of the selected container (200). The force bearing structure (104) can be constituted by an internally installed pushing structure (106), and the force bearing structure (104) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is tightly forced during thread engagement, the pushing structure (106) is pushed toward said closure (102) thereby touchingly pressing the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and the closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the periphery side of the shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog (109) is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the thread insertion by the container cap (110) into the opening portion (201) of the selected container (200) for tightening advancement.

[0057] In this embodiment, the device can be inserted into the opening portion (201) of the selected container (200), wherein the opening portion (201) of the selected container (200) is provided with a container cap (110), the inside diameter of the container cap (110) and the outside diameter of the opening portion (201) of the selected container (200) can be tightly pressingly combined and the interior of the shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), when said force bearing structure (104) is tightly pressingly forced to deform during the tighten pressing combination process thereby producing inner pressure to open the closure (102) which is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents; in view of the applications, the peripheral of shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the pressing insertion by the container cap (110) into the opening portion (201) of the selected container (200) for pressing combination advancement.

[0058] In this embodiment, the device can be inserted into the opening portion (201) of the selected container 200, wherein the opening portion (201) of the selected container (200) is provided with a container cap (110), the inside diameter of the container cap (110) and the outside diameter of the opening portion (201) of the selected container (200) can be tightly pressingly combined and the interior of shell body is filled with particle, powder, liquid, slurry, paste or dissolvable solid type contents (107), and the force bearing structure (104) comprising an internally installed pushing structure (106) is made of a flexible material softer than the one of shell body (101) to be combined on the top portion of the shell body (101), when the force bearing structure (104) having an extended pushing structure (106) being combined inside the shell body (101) pointing toward the closure (102) is tightly forced during the tighten pressing combination process, the pushing structure (106) is pushed toward said closure (102) thereby touchingly pressing

the closure (102) combined with the dispense outlet (105) of the shell body (101) to open, and said closure (102) is further through the prestressed help by the flexible flake type structure (103) attached to the closure (102) and shell body (101) to open the contents (107) inside the shell body (101) of the selected container (200) and keep said closure (102) remaining at a stable opening status even after disappearance of pressure, while the closure (102) is maintained at an opening status without falling down through the prestressed flexible flake type structure (103), wherein the selected container (200) can be empty without filling in contents or filled with particular contents. In view of the applications, the peripheral side of the shell body (101) is made with a protruded ring type dog or a radially protruded block type dog (109), the outside diameter of the dog is slightly larger than the inside diameter of the opening portion (201) of the selected container (200) and is slightly smaller than the inside diameter of the container cap (110) so as to limit the depth of insertion for inserting the shell body (101) into the opening portion (201) of the selected container (200) and to form a limiting structure when it is pressed, while the outside diameter of the force bearing structure (104) at the top end of the shell body (101) is also slightly smaller than the inside diameter of the container cap (110) so as to avoid hindering the pressing insertion by the container cap (110) into the opening portion (201) of the selected container (200) for pressing combination advancement.

[0059] In this the device is without instating a force bearing structure, wherein it is a cylinder, cylinder like, or multi-face can shaped hollow container structure for storing particles, powder, slurry, paste, liquid or dissolvable solid contents, wherein the peripheral side of the can shaped shell body having flanges for insertingly attaching with the edges of the opening portion is inserted into the opening portion of the selected container, while the position of the content dispense outlet on the shell body of a hollow container is made at one axial end of the shell body of the hollow can type container. The closure is combined with the content dispense outlet for the closure to be opened by hand, wherein when they are inserted into the opening portion of the selected container, contents is directly poured out into selected container, or to dissolve the solid type contents inside the shell body of the hollow container by means of the liquid or air inside the selected container. Further, a flexible flake type structure is made between the closure and the shell body of a hollow container to prevent the closure and the shell body from detachment, wherein the relatively stable relationship between the closure and the shell body is that when the closure relative to the storage device appears a close status, the attaching flake type structure is bent to appear a prestressed status to the opening direction so that the closure can be kept at a stable opening status to avoid hindering the dispense of contents inside the shell body of the hollow container; it mainly comprises:

a shell body (101): it is a cylinder, cylinder like or

multi-faced can type hollow container of plastic or metal for storing particle, powder, slurry, paste, liquid or dissolvable solid type contents (107), wherein the peripheral side of the shell body (101) of a hollow container having flanges for insertingly attaching with the edges of opening portion of the container is inserted into the opening portion (201) of selected container (200), and the shell body (101) of a hollow container being made with a dispense outlet (105) at one axial end thereof is at a close status when the dispense outlet (105) is combined with a closure (102), and dispenses contents (107) when said closure (102) is opened. Further, the shell body of the hollow container being attached with the flexible flake type structure (103) allows the position of said closure (102) to be at opening status in ordinary conditions and to appear a prestressed toward opening direction status when it is combined with the dispense outlet (105);

said shell body (101) is not disposed with the force bearing structure (104), whereas the dispense outlet (105) thereof is arranged for disposing the closure (102), thereby to be opened by hand;

a closure (102): it appears a closure structure to matchingly combined with the dispense outlet (105) at bottom end of the shell body (101) to make the two appear a closing combined status, wherein the closure is opened by hand to dispense contents or to directly pour out contents, or to dissolve the solid type contents thereof by means of the liquid or air inside the selected container; the closing combining methods for said closure (102) and shell body (101) include: 1) plugging combination 2) in-laying combination 3) locking combination 4) adhering combination 5) fusion combination or clamping combination by additional auxiliary locking elements;

the definition of closing combination of said closure (102) and dispense outlet (105) of shell body (101) includes a full close status or semi-close status and is dependent on the property and the preservation requirement of the contents stored inside the shell body (101);

a flexible flake type structure (103): it is constituted by a flexible flake type attaching structure made of flexible material for attaching the shell body (101) and closure (102), wherein the attaching status of the shell body (101) and the closure (102) includes that when the closure (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear a close status, the flexible flake type structure (103) is bent to a prestressed status to the opening direction, wherein the closure (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to maintain at a stable opening status to dispense contents (107), while the closure

(102) is through the flexible flake type structure (103) to be still attached to the shell body (101) without falling down.

[0060] Preferably, the structural relationships between the shell body (101), closure (102) and flexible flake type structure (103) include:

- a) the flexible flake type structure (103), closure (102) and shell body (101) are made of the same material and are integrally formed; or
- b) the closure (102) and flexible flake type structure (103) are made of the same material and integrally formed to further combine with the shell body (101) made of the same material; or
- c) the closure (102) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the shell body (101) made of different material; or
- d) the shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) of the same material; or
- e) the shell body (101) and flexible flake type structure (103) are made of the same material and are integrally formed to further combine with the closure (102) made of different material; or
- f) the shell body (101), closure (102) and flexible flake type structure (103) are made of the same material, wherein they are individually made and further combined; or
- g) The shell body (101), closure (102) and flexible flake type structure (103) are made of different material, wherein they are individually made and further combined.

[0061] Advantageously, the combining methods for said shell body (101) and closure (102) as well as the combining methods for said closure (102) and flexible type structure (103) include: fusion combination, adhering combination, rivet combination, mechanism like in-lay or locking combination, clamping or sewing combinations by additional auxiliary elements.

Claims

1. A storage device having:

- a shell body (101) formed with a dispense outlet (105) at one end of the shell body, a force-bearing structure (104) at the other end, and a closure member (102) for closing the dispense outlet;
- wherein one end of the closure member is connected to the shell body by a flexible membrane (103);
- wherein the force bearing structure (104) com-

prises an internally installed pushing structure (106) pointing towards the closure to open it or the force bearing structure is deformed thereby producing inner pressure to open said closure; wherein the device is such that a relative stable relationship occurs when the closure member is closed relative to the storage device, the flexible membrane being bent to a prestressed status so that the closure member remains in a stable open status after it is pressed open.

- 2. A device as claimed in claim 1, wherein the closure member (102) is a closure structure to matchingly combine with the dispense outlet (105) at the bottom end of the shell body (101) to make the two appear a closing combined status, when a force bearing structure (104) is applied by an external force, the closure member (102) is pressed to detach from the dispense outlet (105) to dispense the contents of the shell body, or the closure is opened by hand to apply force on the force bearing surface to dispense the contents, or to directly pour out the contents, wherein the closing combining methods for the closure member (102) and the shell body (101) include: 1) a plugging combination 2) an in-laying combination 3) a locking combination 4) an adhering combination 5) a fusion combination or a clamping combination by additional auxiliary locking elements; the closing combination of the closure member (102) and the dispense outlet (105) of the shell body (101) including a fully closed status or a semi-closed status, and is dependent on the property and the reservation requirement of the contents stored inside the shell body (101).
- 3. A device as claimed in claim 1 or claim 2, wherein the flexible membrane (103) is constituted by a flexible flake-type attaching structure made of flexible material for attaching the shell body (101) and the closure member (102), wherein the attaching status of the shell body (101) and the closure member (102) includes that, when the closure member (102) is combined with the dispense outlet (105) at bottom end of the shell body (101) to allow the shell body (101) as a container to appear in a closed status, the flexible flake type structure (103) is bent to a prestressed status in the opening direction, wherein the closure member (102) detaches from the shell body (101) and is helped by the prestressed flexibility of the flexible flake-type structure (103) to allow the dispense outlet (105) at bottom end of the shell body (101) to be maintained in a stable open status to dispense the contents (107), while the closure member (102) is, through the flexible flake-type structure (103), still attached to the shell body (101) without falling down.
- 4. A device as claimed in any one of claims 1 to 3,

- wherein the shell body (101) is a cylinder, cylinder-like or multi-faced can-type hollow container of hand or mechanism holding type made of plastics material or metal for storing particles, powder, slurry, paste or liquid contents (107), wherein the shell body (101) is provided with the dispense outlet (105) at the bottom end thereof, and is in a closed status when the dispense outlet (105) is combined with the closure member (102), and dispenses the contents (107) when the closure member (102) is open, the shell body being attached to the flexible membrane (103) to allow the position of the closure member (102) to be in an open status in ordinary conditions, and to be prestressed towards an opening direction when it is combined with the dispense outlet (105); the hand or mechanism held shell body can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein, when an external force is applied to the closure member (102) it is pressed to in open status to dispense the contents (107), or the closure member (102) can be opened by hand to let the force bearing surface to be forced to dispense the contents or to pour out directly the contents.
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5. A device as claimed in any one of claims 1 to 3, wherein the shell body (101) is a cylinder, a cylinder-like or multi-faced can type hollow container made of plastics material or metal for storing particles, powder, slurry, paste, liquid or dissolvable solid contents (107), wherein the shell body (101) is made with the dispense outlet (105) at the axial bottom end thereof, and is in a closed status when the dispense outlet (105) is combined with the closure member (102), and dispenses the contents (107) when the closure member (102) is open; the shell body (101) is attached to the flexible membrane (103) to allow the position of the closure member (102) to be in an open status in ordinary conditions, and to be prestressed towards an opening direction when it is combined with the dispense outlet (105); the shell body (101) can be selected as needed to be made with a force bearing structure (104) at the axial top end thereof, wherein, when an external force is applied to the closure member (102), it is pressed to an open status to dispense the contents (107), or naturally, the closure member at the other end can be opened by hand and let the force bearing surface be forced to dispense the contents or to pour out the contents directly.
6. A device as claimed in any one of claims 1 to 5, wherein the flexible membrane (103), the closure member (102) and the shell body (101) are made of the same material and are integrally formed.
7. A device as claimed in any one of the preceding claims, wherein the combining methods for the shell body (101) and the closure member (102) as well as the combining methods for the closure member (102) and the flexible membrane (103) include: fusion combination, adhering combination, rivet combination, a mechanism such as an in-lay or a locking combination, or clamping or sewing combinations by additional auxiliary elements.
8. A device as claimed in claim 2, or in any one of claims 3 to 7 when appendent to claim 2, wherein the force bearing surface of the force bearing structure (104) is constituted by a force bearing structure made of flexible material softer than that of the shell body (101) to combine with the shell body (101), or is constituted by a force bearing structure (104) formed by a thinner flexible structure made of the same material as that of shell body (101) to combine with the shell body (101) or is constituted by a force bearing structure (104) formed by a more flexible structure to combine with the shell body (101); in addition, the force bearing structure (104) and shell body (101) can be made of the same material to be integrally made or individually made, and further combined, or they can be made of different materials and further combined.
9. A device as claimed in claim 2, or in any on of claims 3 to 7 when appendent to claim 2, wherein the force bearing structure (104) comprises an internally-installed pushing structure (106) made of a flexible material sorter than that of shell body (101) to be combined on the top portion of the shell body (101), while the force bearing structure (104) having an extended pushing structure (106) is combined inside the shell body (101) and points toward the closure member (102), so that the pushing structure (106) can be pushed towards the closure member (102) thereby touchingly pressing the closure member (102) combined with the dispense outlet (105) of the shell body (101) to open; the closure member (102) is further, through the prestressed flexible membrane (103) attached to the closure member (102) and the shell body (101) caused to open and keep the closure member (102) remaining at a stable open status even after the disappearance of pressure to facilitate dispensing of the contents (107) in the interior of shell) body (101).
10. A device as claimed in claim 2, or in any one of claims 3 to 7, when appendent to claim 2, wherein the force bearing structure (104) is constitutes by a conventional piston type structure comprising a pushable piston (108), wherein when the piston (108) can be forced to push forwards, so that the particles, powder, liquid, slurry or paste contents (107) in the shell body (101) are pressed to open the closure member (102), while the closure member (102) is maintained in an opening status without falling down through the prestressed flexible member (103).

11. A device as claimed in claim 2, or in any one of claims 3 to 7, when appendent to claim 2, wherein the force bearing structure (104) is constituted by a conventional piston type structure comprising not only a pushable piston (108), but the piston (108) is also further made with a pushing structure (106) along the direction toward the closure member (102), wherein when the piston (108) is forced to push forwards, the closure member (102) is pressed to open through the push of the pushing structure (106), while the closure member (102) is maintained in an open status without falling down through the prestressed flexible membrane (103).

12. A device as claimed in any one of claims 1 to 4, wherein it can be a device for independent use to allow the interior of the shell body (101) to be filled with liquid, slurry or paste contents (107), when the hand or mechanism held force, hearing structure (104) is applied by a human or an external force, the force bearing structure (104) is forced to deform, thereby producing inner pressure to open the closure member (102) which is further, through the prestressed flexible membrane (103) attached to the Closure member (102) and to the shell body (101) caused to open and to keep the closure membrane (102) remaining in a stable open status even after the disappearance of the pressure, thereby dispensing the contents (107) from the interior of the shell body (101), while the closure member (102) is maintained in an open status without falling down through the prestressed flexible membrane (103).

13. A device as claimed in any one of claims 1 to 4, wherein it can be a device for independent use, wherein the force bearing structure (104) comprising an internally instated pushing structure (106) is made of a flexible material softer than that of the shell body (101) to be combined with the top portion of the shell body (101), and wherein the force bearing structure (104) having an extended pushing structure (106) is combined inside the shell body (101) pointing toward the closure member (102), when the interior of the shell body is filled with particles, powder, liquid, slurry or paste contents (107) and the shell body (101) is held by hand or by a mechanism so that the force bearing structure (104) is applied by a human hand or an external force, the pushing structure (106) is pushed towards the closure member (102), thereby touchingly pressing the closure member (102) combined with the dispense outlet (105) of the shell body (101) to open, and the closure member (102) is further, through the prestressed flexible membrane (103) attached to the closure member (102) and to the shell body (101) caused to open and to keep the closure member (102) remaining in a stable open status even after the disappearance of pressure, thereby dispensing the contents (107) from the interior of the

shell body (101) while the closure member (102) is maintained in an open status without falling down through the prestressed flexible membrane (103).

14. A device as claimed in claim 1, wherein, when the interior of the shell body (100) is filled with particles, powder, liquid, slurry, paste or dissolvable solid contents (107) and the force bearing structure (104) is applied by a human hand or by an external force, or by a mechanical, pneumatic or hydraulic force, the force bearing structure (104) is forced to deform, thereby producing inner pressure to open the closure member (102) which is further, through the prestressed flexible member (103) attached to the closure member (102) and to the shell body (101) caused to open and to keep the closure member (102) remaining at a stable open status even after the disappearance of pressure, while the closure member (102) is maintained in an open status without falling down through the prestressed flexible member (103).

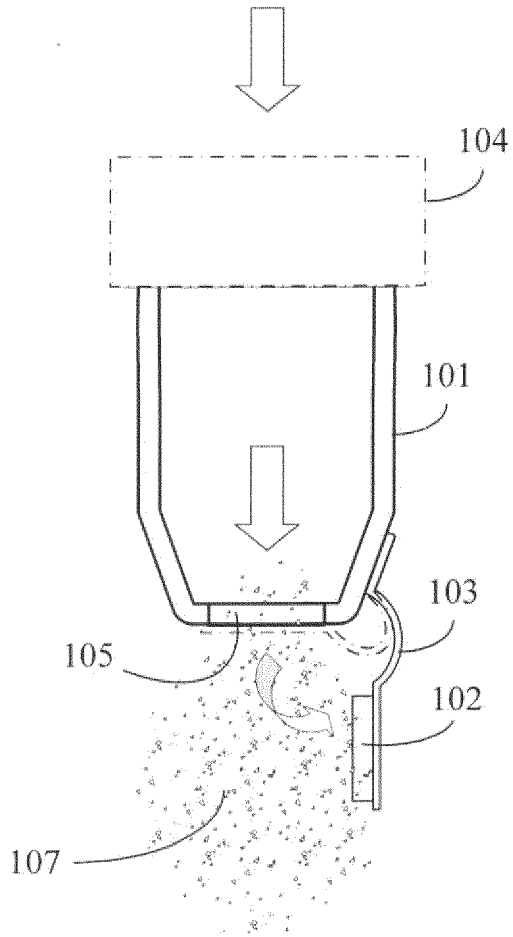


Fig. 1

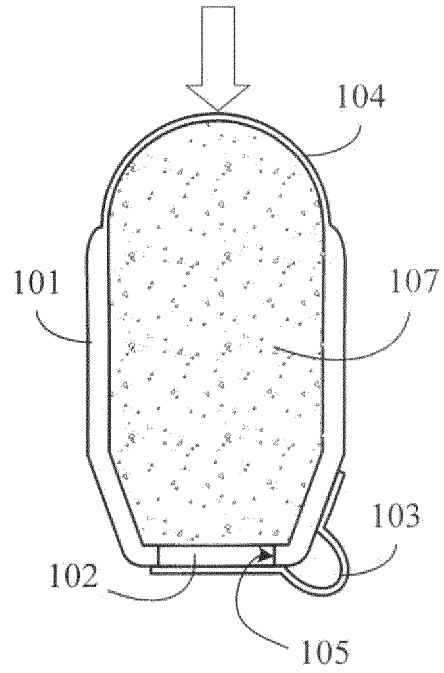


Fig. 2

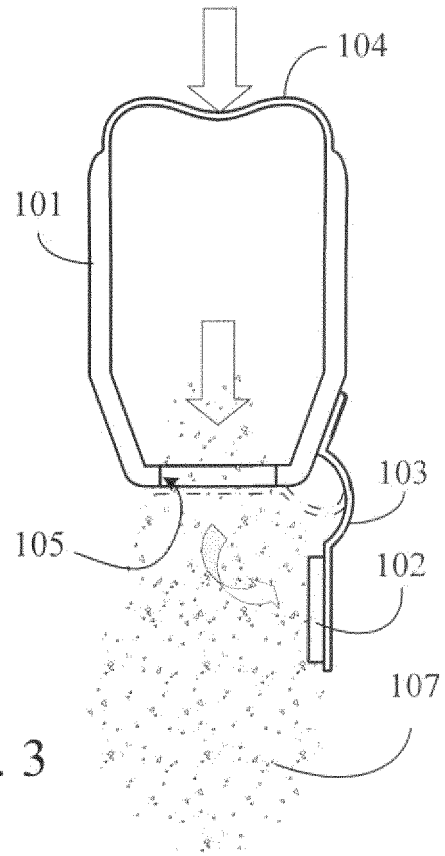


Fig. 3

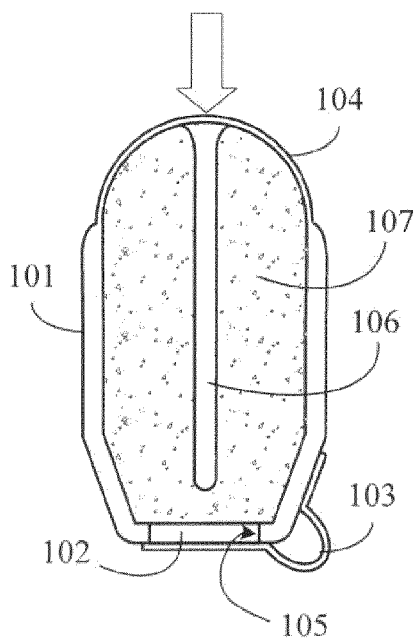


Fig. 4

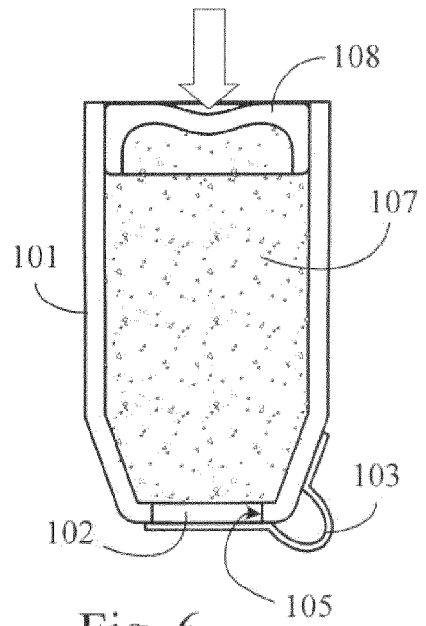


Fig. 6

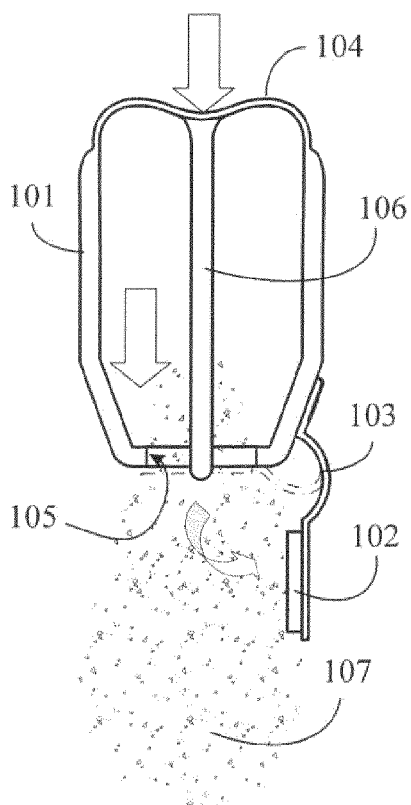


Fig. 5

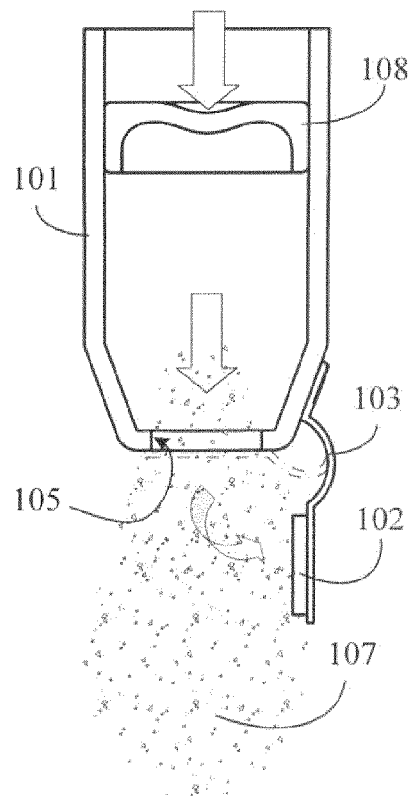


Fig. 7

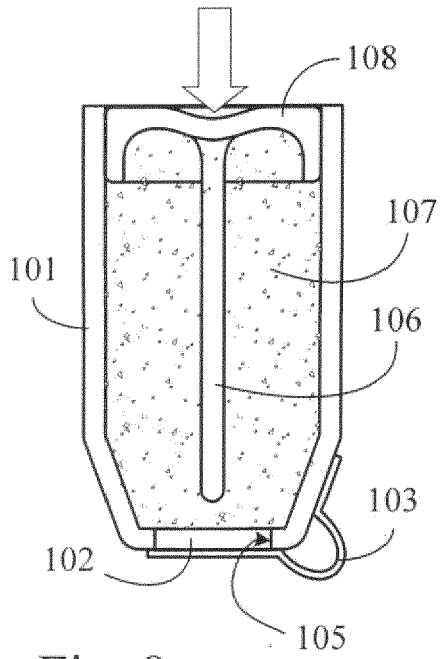


Fig. 8

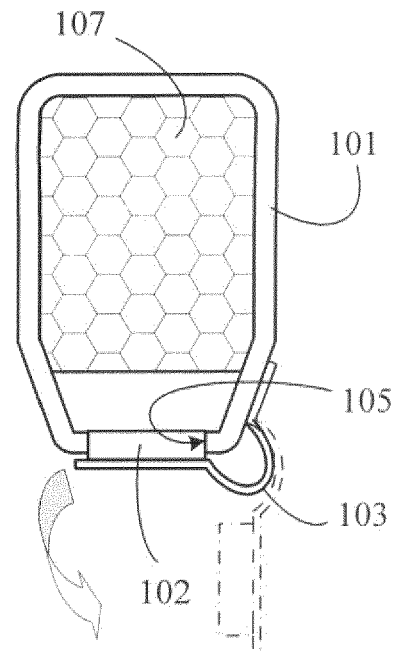


Fig. 10

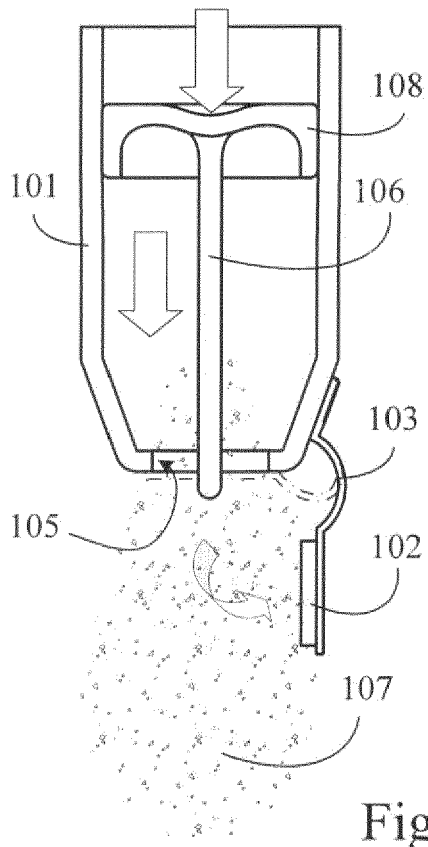


Fig. 9

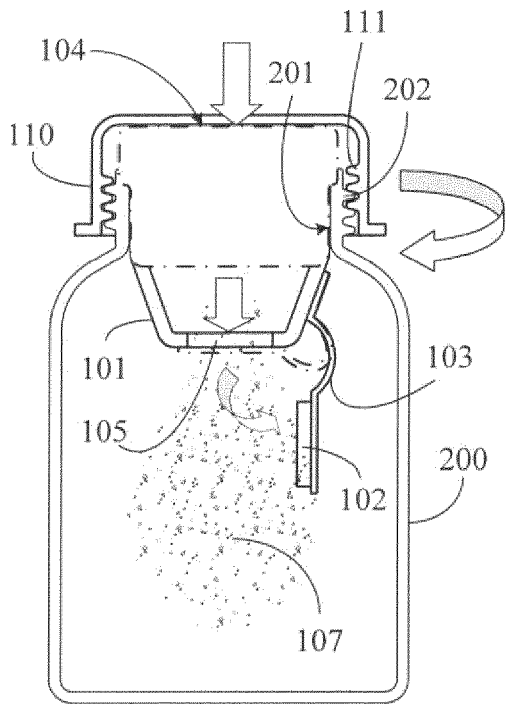


Fig.11

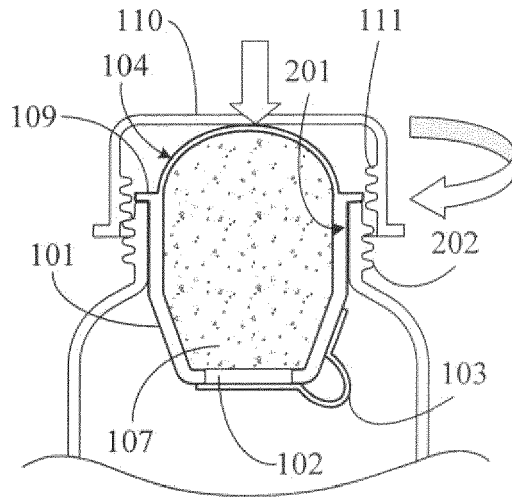


Fig.12

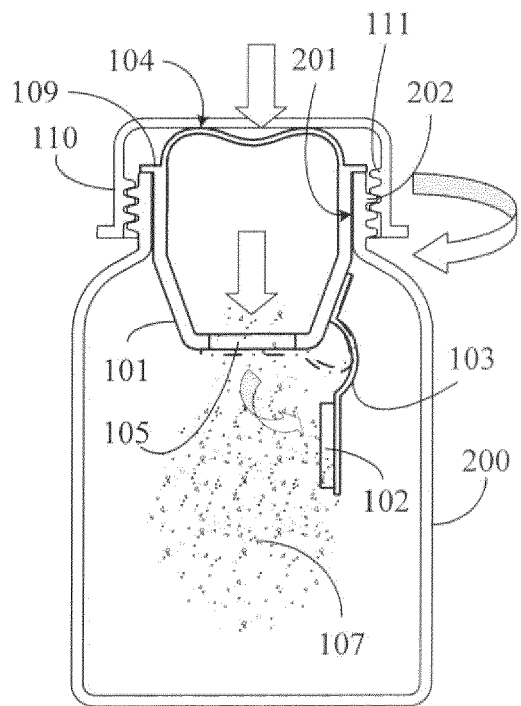


Fig.13

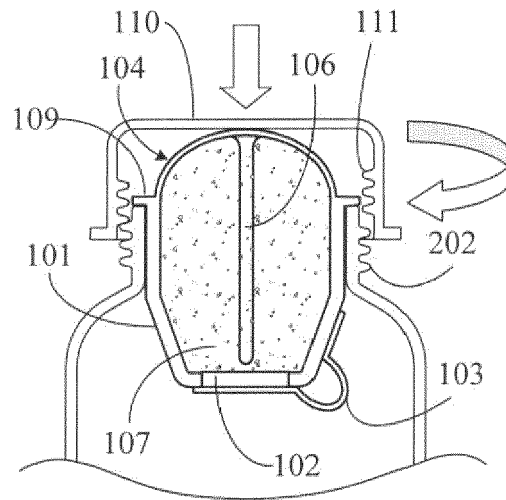


Fig.14

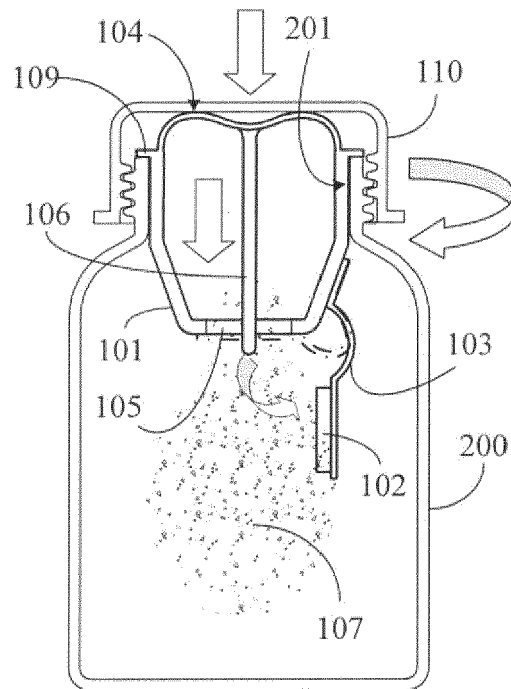


Fig.15

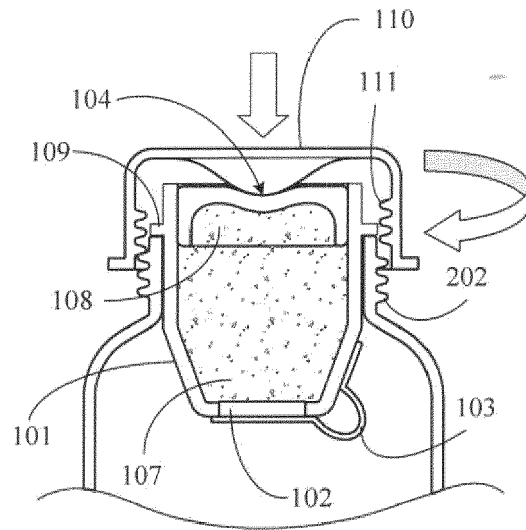


Fig. 16

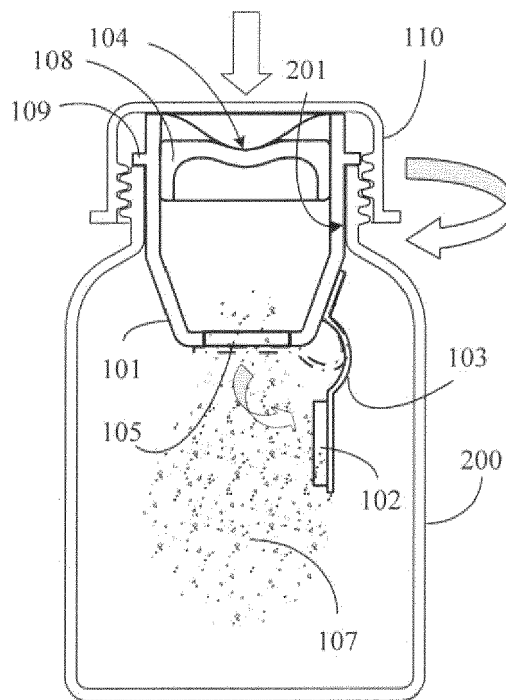


Fig. 17

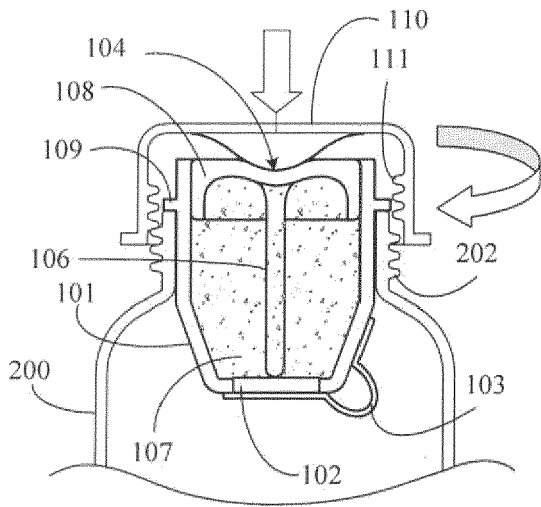


Fig.18

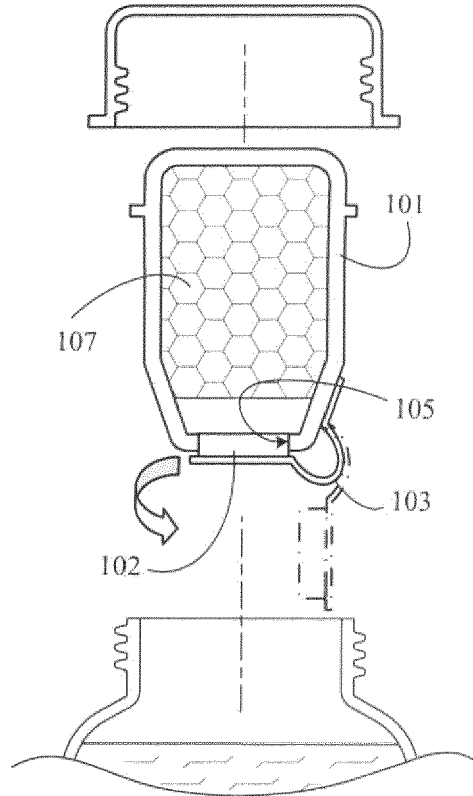


Fig. 20

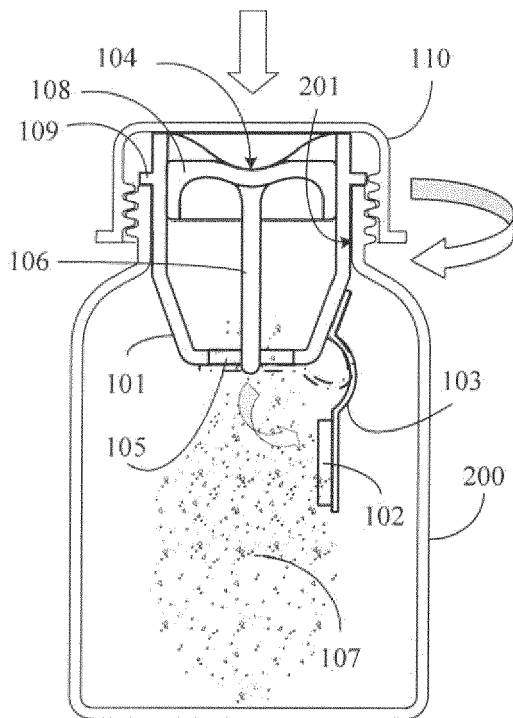


Fig.19



EUROPEAN SEARCH REPORT

Application Number
EP 12 17 4991

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 6 302 268 B1 (MICHAELI DANIEL REUVEN [US]) 16 October 2001 (2001-10-16) * line 34 - column 4, line 21; figures 3,4 *	1-14	INV. B65D1/32 B65D51/28 B65D55/16 B65D81/32
Y	----- AU 512 839 B2 (NILSON B) 30 October 1980 (1980-10-30) * page 4, last paragraph - page 5, paragraph 2; figures 1,3 *	1-14	
A	----- US 2007/079895 A1 (JENG FU J [TW]) 12 April 2007 (2007-04-12) * abstract; figures *	1	
A	----- US 3 241 727 A (HECKMAN THOMAS P) 22 March 1966 (1966-03-22) * abstract; figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 26 July 2012	Examiner Zanghi, Amedeo
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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26-07-2012

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82