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NL Octrooiencentrum

(11)

2007708

(12) C OCTROOI

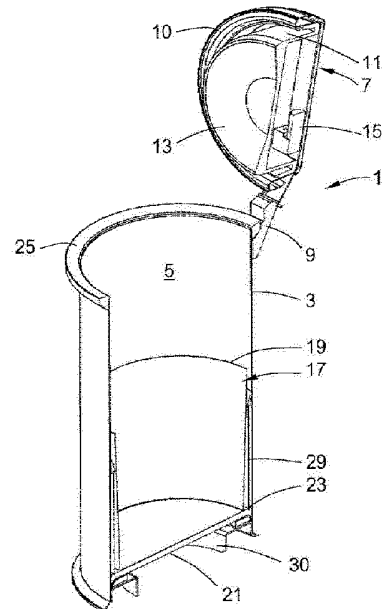
(21) Aanvraagnummer: **2007708**(51) Int.Cl.:
B30B 9/30 (2006.01) **B65F 1/14** (2006.01)(22) Aanvraag ingediend: **03.11.2011**

(43) Aanvraag gepubliceerd:

-

(47) Octrooi verleend:
07.05.2013(45) Octrooischrift uitgegeven:
15.05.2013(73) Octrooihouder(s):
Craftworks B.V. te Nieuw Vennep.(72) Uitvinder(s):
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Ir. K.J. Metman te AMSTERDAM.(54) **Compactor.**

(57) A device (1) is disclosed for compacting material in a bag (33) comprising a cylindrical wall (3), enclosed by the cylindrical wall a bag support (17) for containing the bag and the compacted material, an upper end of the cylindrical wall comprises a lid (7) with an upper seal and the lid can be opened to fill the bag, and a vacuum pump (15) for removing air from the bag is connected to the inside of the bag support. The device is characterized in that the bag can be coupled to an upper rim (19) of the bag support located inside the cylindrical wall, a plunger (21) with a lower seal (23) can sealingly move in the cylindrical wall between a higher position and a lower position and the plunger pushes the bag support towards and/or against the lid when the vacuum pump removes air from the bag.



NL C 2007708

Dit octrooi is verleend ongeacht het bijgevoegde resultaat van het onderzoek naar de stand van de techniek en schriftelijke opinie. Het octrooischrift komt overeen met de oorspronkelijk ingediende stukken.

17123- GU/Fe

Compactor

The invention concerns a device in accordance with the preamble of claim 1. Such a device is known from US 2007/0034098. In the known device, the bag is enclosed by a flexible enclosure which presses on the bag and the garbage material in the bag in unpredictable ways and which flexible enclosure is complicated to produce. This makes the device expensive and difficult to use, especially if more than one compacting cycle is needed to fill the bag.

In order to overcome this disadvantage the device is according to the characterizing part of claim 1. In this way, the bag is pulled around the material while it is being compacted, or conversely, the material is pressed into the bag, and after compacting in a first cycle the user can push the plunger to the lower position so that the device is ready to receive further material to be compacted and to compact it in a second cycle. The device is primarily suited for compacting package or garbage material, but it may be used for any amount of material that is deformable.

In accordance with an embodiment, the device is according to claim 2. In this way, the upper rim improves guiding all material within the cylindrical wall into the bag.

In accordance with an embodiment, the device is according to claim 3. In this way, the cylindrical wall supports the bag support and/or the upper rim against sideways forces so that compacting forces do not cause deformation.

In accordance with an embodiment, the device is according to claim 4. In this way, it is easy to remove the bag with compacted material from the bag support.

In accordance with an embodiment, the device is according to claim 5. In this way, leakage or waste from the material can be collected in the bowl and can be removed easily. The bowl may be removable from the bag support, e.g. for easy cleaning.

In accordance with an embodiment, the device is according to claim 6. In this way, the material above the upper rim is pressed, over the distance of between the higher position and the lower position, into the bag so that considerable
5 compacting occurs.

In accordance with an embodiment, the device is according to claim 7. In this way, the lower seal always moves along that part of the cylindrical wall that has not contacted the material and therefore is undamaged and/or not deformed by
10 the material. The sealing properties of the lower seal do not decrease in this way.

In accordance with an embodiment, the device is according to claim 8. In this way, the bag maintains a fixed position in the bag support and moving material does not move
15 this position. That the upper rim extends above the upper end of the cylindrical wall makes fixing the bag on the outside circumference of the bag support easy.

In accordance with an embodiment, the device is according to claim 9. In this way, the material is pressed below
20 the upper rim and it is possible to pull the bag closed over the compressed material before the material starts to expand upwards due to relaxation.

In accordance with an embodiment, the device is according to claim 10. In this way, eccentric forces on the bag
25 support due to compressing the package material do not lead to misalignment or tilt of the plunger.

In accordance with an embodiment, the device is according to claim 11. In this way, operation of the device is facilitated, in particular if the pressure sensitive switch can
30 be activated by pressing the lid onto the cylindrical wall.

In accordance with an embodiment, the device is according to claim 12. In this way, the user may sense when due to leakage the vacuum pump does not generate a sufficient under
pressure, so that he may correct that immediately.

35 In accordance with an embodiment, the device is according to claim 13. In this way, the device does not run unnecessary. For this, the device may comprise one or more

sensors and a controller coupled with the sensor and the vacuum pump to operate the vacuum pump in response to a signal from the sensor.

In accordance with an embodiment, the device is according to claim 14. In this way, pressure is equalised between the inside and outside of the bag preventing its rupture by pressure differences. It also facilitates use of substantially inelastic bags, which may be more robust than bags of elastic material.

In accordance with an embodiment, the device is according to claim 15. In this way opening the device after compaction is made easy.

The invention further includes use of a bag in the compacting device according to claim 16. In this way, the volume of the compacted material can be maintained after releasing pressure on the material.

In accordance with an embodiment, the use is according to claim 17. In this way suitable material for closing the bag over the compacted material is provided.

The above-described aspects will hereafter be more explained with further details and benefits with reference to the drawings showing an embodiment of the invention by way of example.

Figs 1A and 1B are perspective and cut away views, respectively, of an embodiment prior to compaction;

Figs 2A and 2B are perspective and cut away views, respectively, of the device of Figs 1A-1B after compaction;

Figs 3A and 3B are perspective and cut away views, respectively, of the bag support of the device of Figs 1A-2B, with only Fig. 3B showing the bag;

Fig 4 is a partial cut away view of the cylindrical wall and the bag support in the position of Fig. 2B;

Fig. 5 is a schematic detail of cross section of Fig. 2B, also showing the bag.

It is noted that the drawings are schematic, not necessarily to scale and that details that are not required for understanding the present invention may have been omitted.

Further, elements that are at least substantially identical or that perform an at least substantially identical function are denoted by the same numeral.

Figures 1A-2B show a device 1 for compacting material, here formed as a generally known garbage can, comprising a cylindrical wall 3, enclosing a cavity 5 in which, in use, a bag is arranged (see below), note that the cut away planes of Figs. 1B and 2B are indicated in Figs. 1A and 2A, respectively. An upper end of the cylindrical wall 3 comprises a lid 7, here attached to the cylindrical wall 3 by a hinge 9. As seen in Figs 1A-1B the lid 7 can be opened to fill the bag.

The lid 7 comprises a seal 10 and a groove 11 surrounding an extension in the form of a pusher 13 in the middle of the lid 7, which extends towards and into the cavity 5 and which may be at least partly hollow. The hinge 9 may provide a displaceable hinge axis to allow for both rotation and translation of the lid 7 with respect to the cylindrical wall 3, e.g. to accommodate insertion into the cylindrical wall 3 of the cylindrical pusher 13 closely fitting the cylindrical wall 3.

A vacuum pump 15 for removing air from the bag support and a bag contained therein is connected to the inside of the cavity 5. Here, the vacuum pump 15 is mounted inside (the pusher 13 of) the lid 7, which is aesthetically pleasing, protects the pump 15 from user contact and is weighting down the lid 7 so that it may close the seal and/or press on material received inside the cavity 5 and/or the bag (see below). Alternatively, a vacuum pump 15 may be arranged elsewhere or be provided as a separate object, e.g. a vacuum cleaner. Preferably, plural connections, e.g. plural openings, are provided between the vacuum pump 15 and the cavity 5, to ensure proper operation of the device in case of accidental covering, clogging or other blocking of one opening, e.g. by material sucked against the opening.

The device 1 further comprises a bag support 17, shown in detail in Figs. 3A-3B in similar views as Figs 1A-2B, located inside the cylindrical wall 3 and having an upper rim 19, and a plunger 21 with a lower seal 23, which can sealingly move, e.g.

slide, in the cylindrical wall 3 between a lower position (Figs 1A-1B) and a higher position (Figs 2A-2B).

The cylindrical wall 3 comprises an upper rim 25, which, together with the seal 10 of the lid 7 provides a substantially air tight seal between the cavity 5 and the environment outside the device 1. The seal 23 and the cylindrical wall 3 likewise provide a substantially air tight seal, so that when the device 1 is closed by the lid 7 the cavity 5 is substantially hermetically sealed off.

Here, and best seen in Figs. 3A-3B, part of the bag support 17 and the plunger 21 form a single part, comprising a side wall 26 and with the plunger 21 forming a bottom wall. The bag support 17 also comprises a guide ring 27 on the side wall 26 and a closed bowl 29 having a side wall 31 of conical shape expanding towards the open side providing the upper rim 19. The guide ring 27 supports the side wall 26 against the cylindrical wall 3 and guides the plunger 21 and the bag support 27. The guide ring 27 may be resilient and provide a seal to sealingly slide in the cylindrical wall 3. Such seal may form the lower seal, obviating the seal 23, and/or reversing functions between seal 23 and guide ring 27. Near the bottom end of the cylindrical wall 3 a support 30 is provided to retain the plunger 23 in the cylindrical wall 3. In another embodiment, plural guides and/or an interrupted guide ring of plural protrusions may be provided.

In use, a bag 33 is arranged inside the bowl 29 of the bag support 17 and is coupled to the upper rim 19 so as to support the bag 33 in open state. As indicated in Fig. 3B, the open end of the bag 33 may be folded back over the upper rim 19 and the rim of the bag 33 may be fixed on or coupled to the upper rim 19 by fixing the rim of the bag 33 to the bag support 17, e.g. with a ridge, hooks or clamping means provided on the side wall 31. Fixation may be performed or assisted by one or more hooks, clamps, elastic rings, tying a closing string, ribbon, or cord etc., e.g. provided with the bag 33, around the bowl 29 of the bag support 17. Also, or alternatively, the upper rim 19 may comprise one or more protrusions, recesses or teeth

to fix the bag 33, e.g. teeth engaging meshes of a net bag. Thus, detachment of the bag 33 can be easy and fast, increasing available time for closing the bag 33 before relaxation of the compacted material.

5 Preferably the bag 33 and the bowl 29 of the bag support 17 have matching sizes, so that the bag 33 closely follows or lines the interior surface of the bag support 17 without stress, expansion or excess bag material, and the open volume of the bag 33 generally corresponds with that of the bag support 17. Since by compacting the compacted material is
10 pressed into the bag 33 and the bag 33 is supported by the bag support 33 against deformation, the bag 33 may be of flexible, tear and puncture resistant material with high resistance to plastic deformation so that it is substantially size retaining.
15 Thus, the volume of the compacted material can be maintained in its compacted state in a closed bag 33 after releasing pressure on the material. A suitable material for the bag 33 is a pre-stretched polyethylene mesh or burlap, e.g. as used for transporting potatoes, wood blocks, etc.

20 An air permeable bag support 17, in particular the bowl 29 when present, and/or an air permeable bag 33, e.g. a net bag, of strong, substantially inelastic woven or non-woven material, prevents sucking the bag 33 from the bag support 17 and allows lifting of the bag 33 from the bag support 17.

25 The bowl 29 shown in Fig. 4 has optional rounded corners R at the transition between its side wall 31 and its bottom wall, facilitating cleaning. It is noted that instead of a closed bowl 29, a bottomless bowl, i.e. only a side wall 31, may be provided, or that the bag support 17 may be a single part
30 having the upper rim 19.

 When installed in the cylindrical wall 3, the radial distance DR between the upper rim 19 and the cylindrical wall 3 may be small, e.g. less than 10 mm, to prevent capturing material between them. The plunger 21 pushes the bag support 17
35 towards and/or against the lid 7 when the vacuum pump 15 removes air from the bag 33 received in the closed cavity 5, due to the pressure difference between the cavity 5 interior and the

environment. The compacting force F is determined by the product of the surface area A of the plunger 21 times the difference of the pressure P_{in} in the bag 33 or the cavity 5 and the environmental pressure P_{env} , $F = A \times (P_{in} - P_{env})$. The vacuum pump 15 can reduce the pressure P_{in} in the cavity 5 to approximately 200-300 millibar, i.e. about 20-30% of the environmental pressure P_{env} , so that with a plunger diameter of about 25 cm or more, a compaction force F of over 3000 N may be achieved, which is generally sufficient for compacting garbage which requires successive deformation of parts. To provide a larger force F , a large plunger diameter and/or a stronger vacuum pump 15 capable of reaching lower interior pressures may be provided. The device 1 comprises an opening to allow access and exchange of environmental air under the plunger 21 at least during use.

A comparison of Figs 1B and 2B shows that, in the shown embodiment, the distance between the higher position (Fig. 2B) and the lower position (Fig. 1B) is about equal to the diameter of the cylindrical wall 3, and that material contained inside the cavity 5 having an initial volume of more than the bag 33 is compacted between the bag support 17 and the lid 7.

Fig. 4 shows the bag support 17 and the cylindrical wall 3 in the higher position, of Fig. 2B, but with the lid 7, the rim 25 and associated portions removed for clarity.

A comparison of Figs 2B, 3B and 4 shows that in this higher position, the upper rim 19 of the bag support 17 extends above the cylindrical wall 3 for a height distance DF and that it is received in the groove 11 of the lid 7, here for the full depth of the groove 11. Thus, the pusher 13 of the lid 7 extends below the upper rim 19 and into the bag 33 and compacted material is pressed into the bag 33 which is therewith pulled around the compacted material. Here, the pusher 13 has a concave surface towards the cavity 5 to guide the material into the bag 33 and shape the compacted material to facilitate closing the bag 33. When opening the lid 7 in the situation of Fig. 2A-2B, 4, the upwardly extending upper rim 19 facilitates fixing, release, removal, and exchange of a bag 33 on / from the bag

support 17. Also, the optional bowl 29 is accessible for removal and cleaning if desired.

The height distance DH between the guide ring 27 and the upper rim 19 of the bag support 17 may be chosen such that a length of the sleeve portion S of the bag 33 between the underside of the pusher 13 to the rim of the bag 33 (and over the upper rim 19) in fully compacted state (see Figs. 2B, and 5) is more than about 1/4 times, preferably more than about 1/3 times, the diameter of the upper rim 19. Thus, sufficient bag material is available for closing the bag 33 over the compacted material, facilitating closing the bag 33 without force and/or before the compacted material can relax and expand again. The distance between the guide ring 27 and the upper rim 19 may be about or less than 50 mm, but preferably it is sufficient to facilitate fixing the bag 33 folded over as in Fig. 3B.

Preferably the bag support 17 remains in place with respect to the cylindrical wall 3 when the lid is opened, e.g. by the friction of the seal 23 and the guide ring 27 or by separate means, e.g. an air cushion between the plunger 23 and a bottom wall of the cylindrical wall 3. Preferably, the bag support 17 and the plunger 21 can be pressed down towards the lower position by a user, e.g. during or prior to filling of the bag 33 and the cavity 5 with material to be compacted.

Figs. 2A and 2B show that the lid 7 contains a hand grip 35 for opening the lid 7. A user control for activating the vacuum pump 15 may be provided, e.g. on or in the lid 7, possibly on, in or near the hand grip 35.

A pressure sensitive switch, e.g. a push button, possibly covered by a membrane, may serve to activate the vacuum pump. Such switch may be arranged to be operated by pressure of the lid 7 against the cylindrical wall 3, e.g. by pressing the lid 7 deep and/or long enough with sufficient pressure. Such pressure sensitive switch may be kept activated by an under pressure in the cavity 5 and the bag 33 developed by the vacuum pump 15. The device 1 may be configured to determine a maximum under pressure for activating the switch, e.g. by using a pressure sensor, magnetic device and/or a resilient member

forcing open the lid with a predetermined force. When sufficient under pressure to activate the switch cannot be achieved, e.g. due to a leak in the system by material trapped in the seal 10;25 of the lid 7, the pump 15 switches off when the lid 7 is released, allowing detection of such undesired situation and correction by the user.

The device may comprise a user operable off-switch and/or a control system to switch the vacuum pump off after achieving a predetermined compacting condition such as a compacting time, a negative pressure in the bag, a plunger position and/or a plunger displacement. A pressure may be measured with a pressure gauge, e.g. a second pressure sensitive switch overriding the first pressure sensitive switch for switching on the device and/or a pump power detector since with decreasing pressure the dissipated power of the pump will increase or other means. A distance or position measuring system may comprise a push button to be pressed by the bag support, an electrical contact to be shorted by the bag support, an optical switch to be interrupted by the bag support. etc.

As options, a lock and/or a user-operable venting valve may be provided to facilitate opening the lid 7 after evacuation of the cavity 5. The lock may be opened and/or the valve may be activated by operation of the hand grip 35. Such opening or activation may be coupled with deactivation of the vacuum pump 15 to ensure the pump 15 is switched off before opening the lid 7. This facilitates opening the lid 7 and protects the pump 15 from sudden pressure changes.

The disclosure is not restricted to the above described embodiments which can be varied in a number of ways within the scope of the claims. For instance, a status indicator, e.g. one or more light sources and/or acoustic signalling devices may be provided, to indicate pump operation, finished compaction, detection of a leak etc. Instead of a guide ring a plurality of guides may be provided and/or the bag support may form a close fit to the cylindrical wall.

In the shown embodiment the cylindrical wall 3 has a constant diameter. In another embodiment (not shown) the seal 23

has a larger diameter than the guide ring 27 and the corresponding portions of the cylindrical wall 3 have corresponding different diameters. In this way, downward movement of the guide ring 27 and/or the entire bag support 17 is restricted.

Elements and aspects discussed for or in relation with a particular embodiment may be suitably combined with elements and aspects of other embodiments, unless explicitly stated otherwise.

CONCLUSIES

1. Inrichting voor het in een zak samendrukken van materiaal, omvattende een cilindrische wand, omsloten door de cilindrische wand een zaksteun voor het opnemen van de zak en het samengedrukte materiaal, waarbij een bovineinde van de
5 cilindrische wand een deksel omvat voorzien van een hogere afdichting en het deksel kan worden geopend om de zak te vullen, en een vacuumpomp voor het onttrekken van lucht aan de zak is verbonden met het inwendige van de zaksteun, met het kenmerk dat de zak kan worden gekoppeld met een bovenrand van
10 de zaksteun die zich binnen de cilindrische wand bevindt, een plunjer met een lagere afdichting afdichtend kan bewegen binnen de cilindrische wand tussen een hogere positie en een lagere positie en de plunjer de zaksteun naar en/of tegen het deksel drukt wanneer de vacuumpomp lucht uit de zak onttrekt.
15
2. Inrichting volgens conclusie 1, waarbij de afstand tussen de bovenrand en de cilindrische wand minder dan 10 mm bedraagt.
3. Inrichting volgens conclusie 1 of 2, waarbij ten minste een geleiding de zaksteun ondersteunt tegen de cilin-
20 drische wand en waarbij bij voorkeur de afstand tussen de geleiding en de bovenrand minder dan 50 mm bedraagt.
4. Inrichting volgens conclusie 1, 2 of 3, waarbij de zaksteun een conische vorm heeft.
5. Inrichting volgens conclusie 1, 2, 3 of 4, waar-
25 bij de zaksteun een gesloten bak heeft die de zak kan omsluiten en waarbij bij voorkeur de bak afgeronde hoeken heeft.
6. Inrichting volgens een van de voorgaande conclusies, waarbij de afstand tussen de hogere positie en de
30 lagere positie meer dan 0.5 keer de diameter van de cilindrische wand is en bij voorkeur meet dan 1 keer de diameter van de cilindrische wand.

7. Inrichting volgens een van de voorgaande conclusies, waarbij de afstand tussen de lagere afdichting en de bovenrand meer is dan de afstand tussen de hogere positie en de lagere positie.

5 8. Inrichting volgens een van de voorgaande conclusies, waarbij de zaksteun op of nabij de bovenrand een ribbel, haken, tanden of klemmiddelen heeft voor het fixeren van de zak op de bovenrand en waarbij bij voorkeur het deksel een verdieping heeft zodat in de hogere positie de bovenrand
10 uitsteekt boven het bovineinde van de cilindrische wand.

9. Inrichting volgens een van de voorgaande conclusies, waarbij het deksel een uitsteeksel, een kamer en/of een groef heeft zodat in de hogere positie een deel van het deksel zich onder de bovenrand kan uitstrekken.

15 10. Inrichting volgens een van de voorgaande conclusies, waarbij ten minste een deel van de zaksteun en de plunjer vast verbonden zijn of een enkel onderdeel vormen en waarbij bij voorkeur de afstand tussen de geleiding en de lagere afdichting meer dan 0.5 keer de diameter van de
20 cilindrische wand is en met meer voorkeur meer dan 1 keer de diameter van de cilindrische wand.

11. Inrichting volgens een van de voorgaande conclusies, omvattende een drukgevoelige schakelaar, bijvoorbeeld een drukknop, voor het bedienen van de vacuum-
25 pomp.

12. Inrichting volgens conclusie 11, waarbij de drukgevoelige schakelaar is ingericht op geactiveerd te blijven door een onderdruk in de zaksteun.

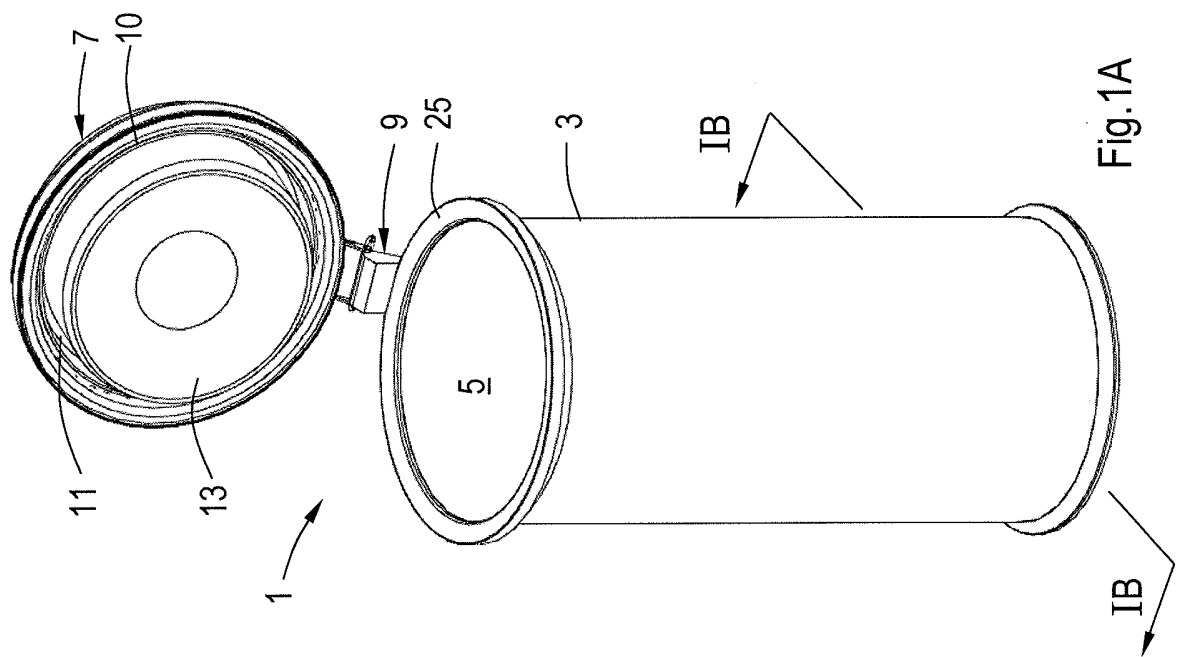
13. Inrichting volgens een van de voorgaande conclusies, waarbij de vacuumpomp is ingericht om uitgeschakeld te worden na het bereiken van een bepaalde samendrukconditie en waarbij bij voorkeur de samendrukconditie een samendruk-
30 tijd, een onderdruk in de zaksteun, een positie van de plunjer of de bovenrand en/of een plunjerverplaatsing.

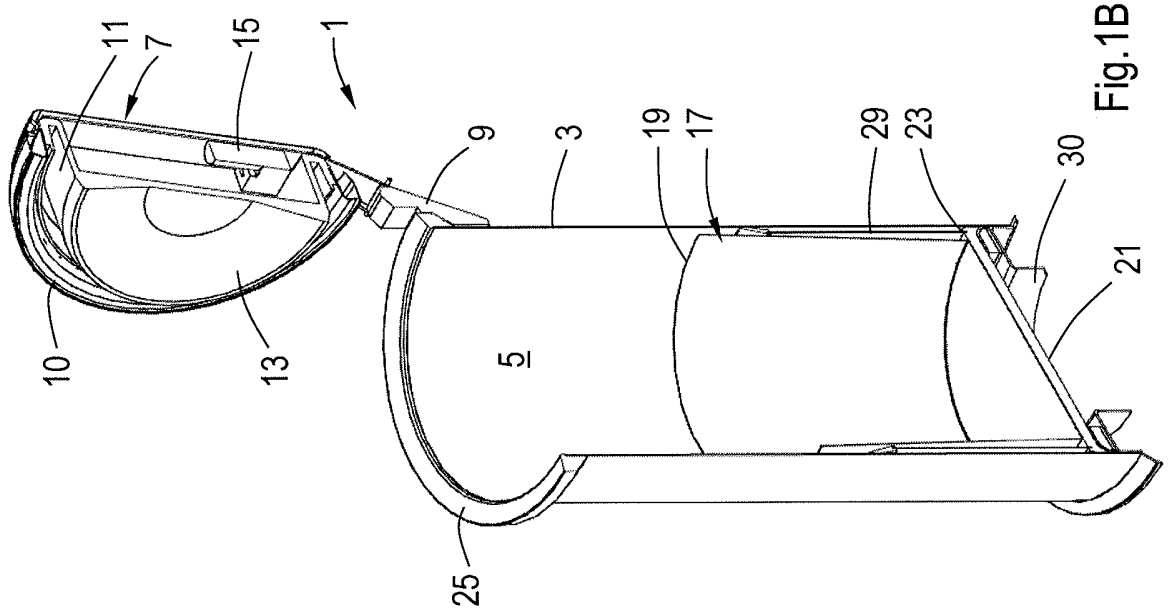
14. Inrichting volgens een van de voorgaande conclusies, waarbij de zak en/of de zaksteun luchtdoorlatend is, bij voorkeur een net gedeelte of een opengewerkt gedeelte omvattend.

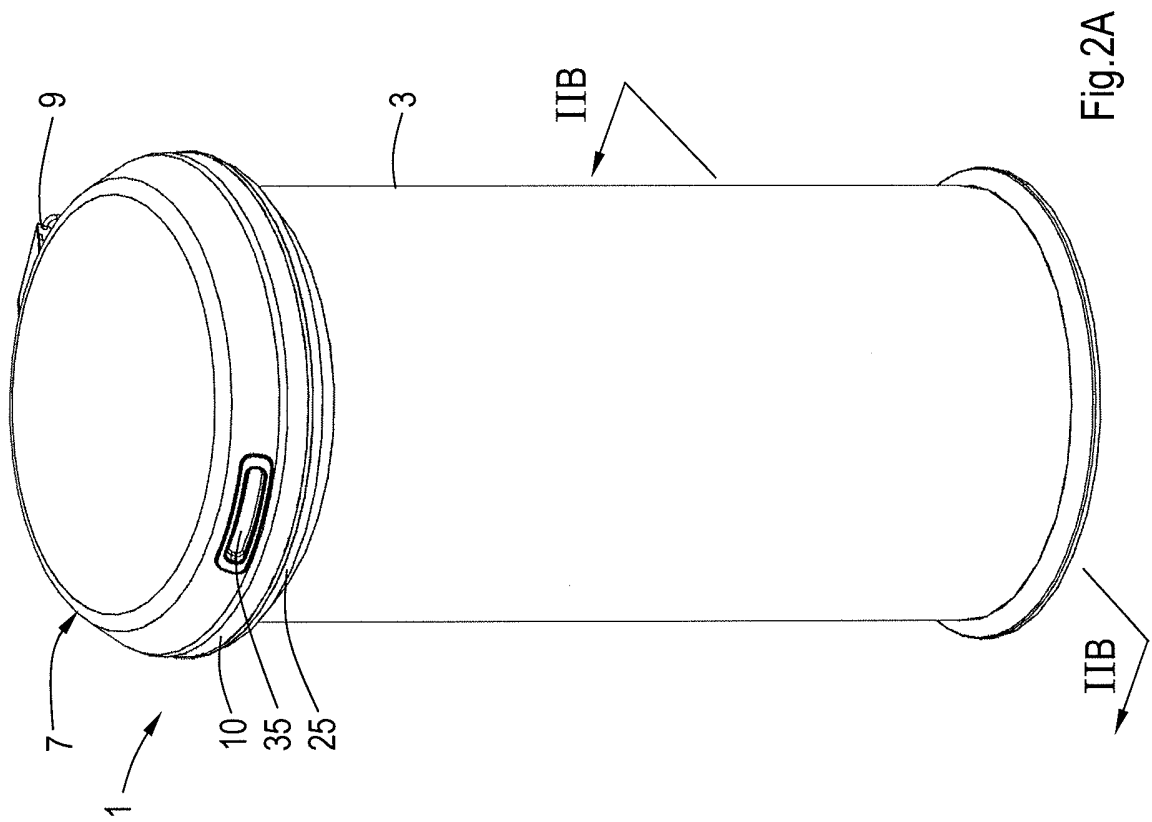
5 15. Inrichting volgens een van de voorgaande conclusies, omvattende een klep voor het beluchten van de zak en/of de zaksteun.

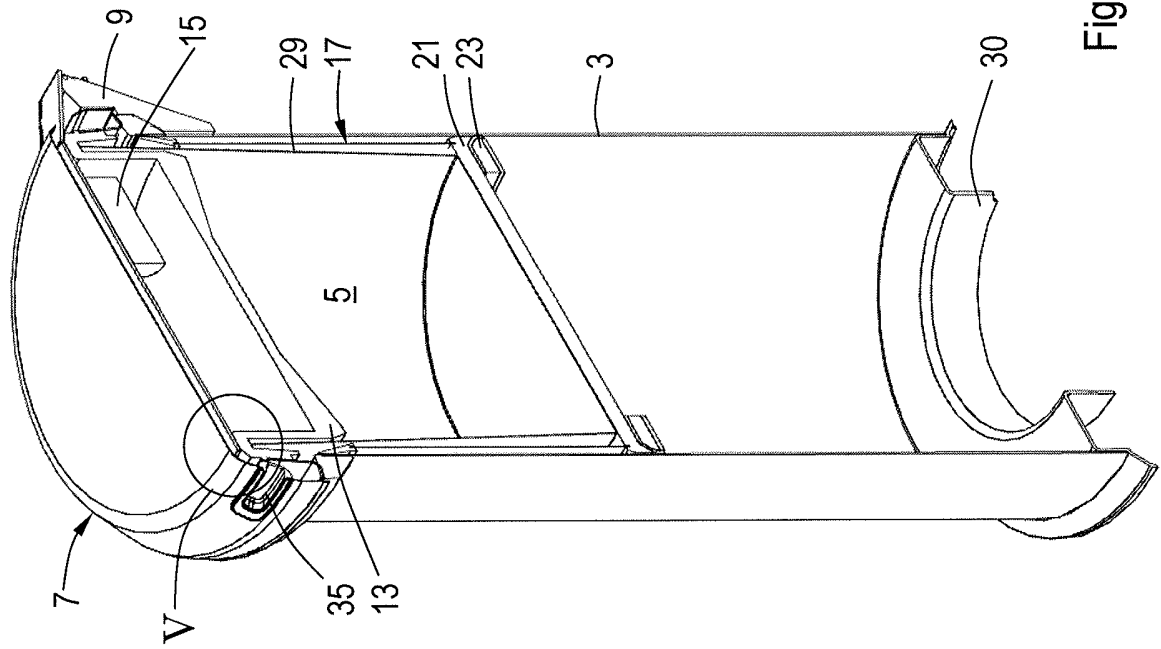
10 16. Gebruik van een hoofdzakelijk flexibele, maatvaste, scheur- en/of perforatieresistente zak in een inrichting volgens een van de voorgaande conclusies.

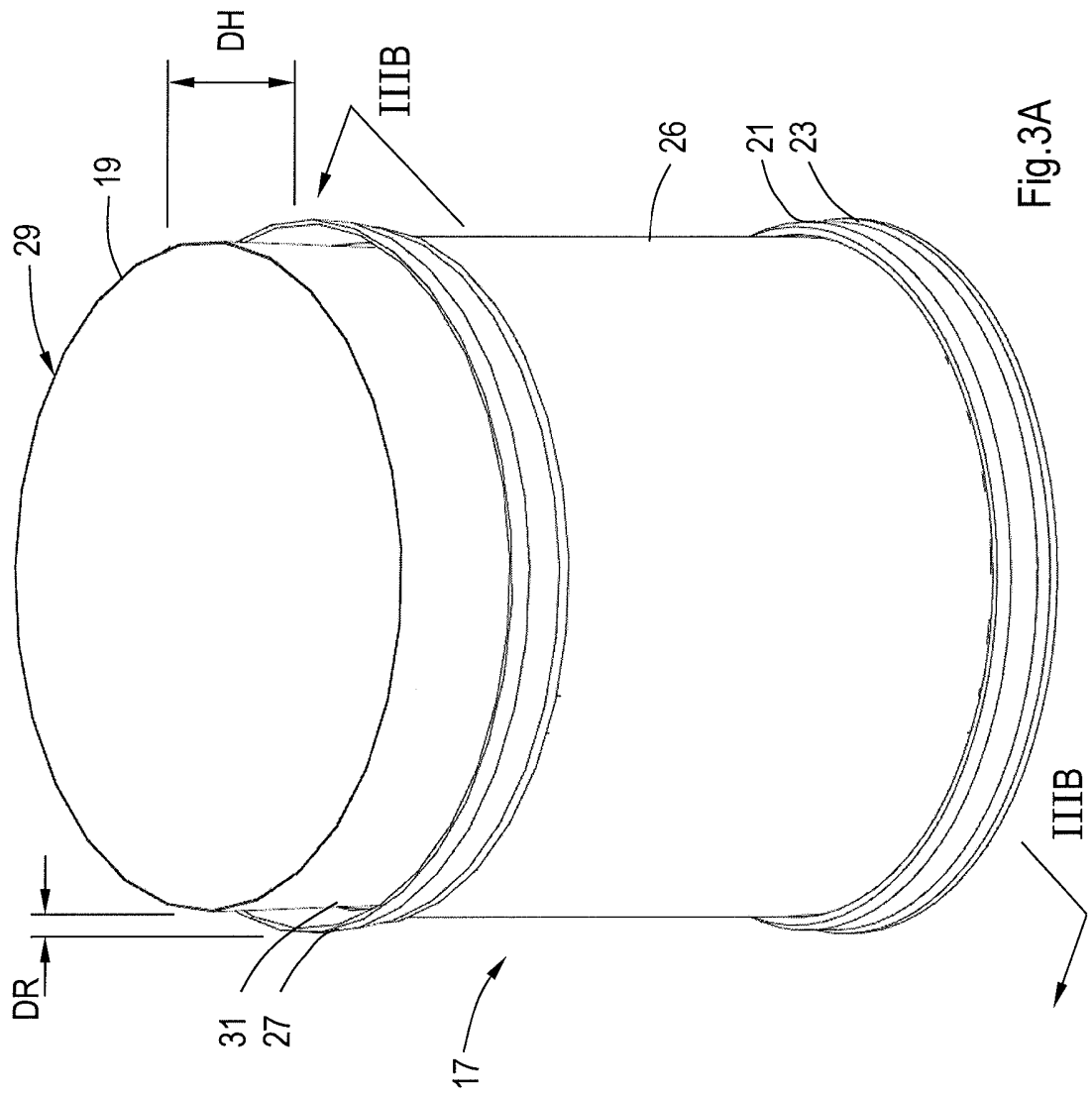
17. Gebruik van een zak volgens conclusie 16 waarbij de bovenzijde van de zak over de bovenrand van de zaksteun wordt gevouwen.











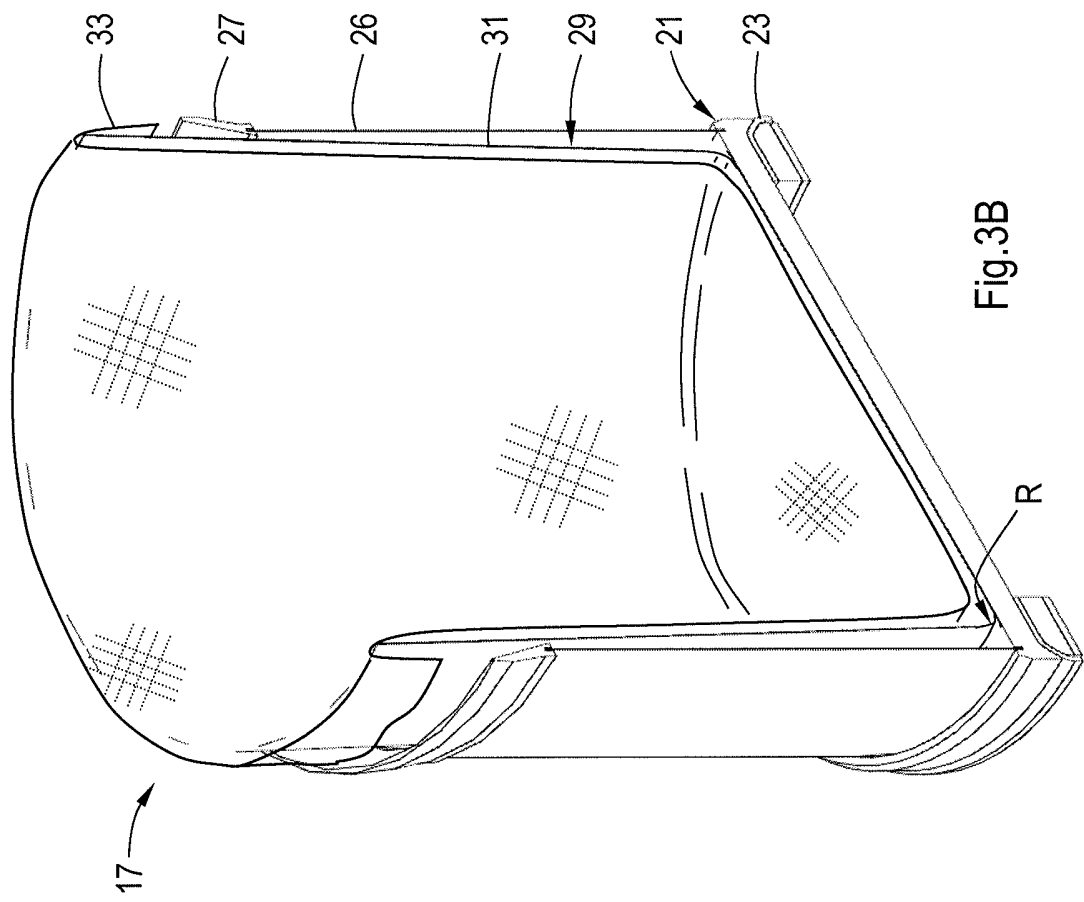
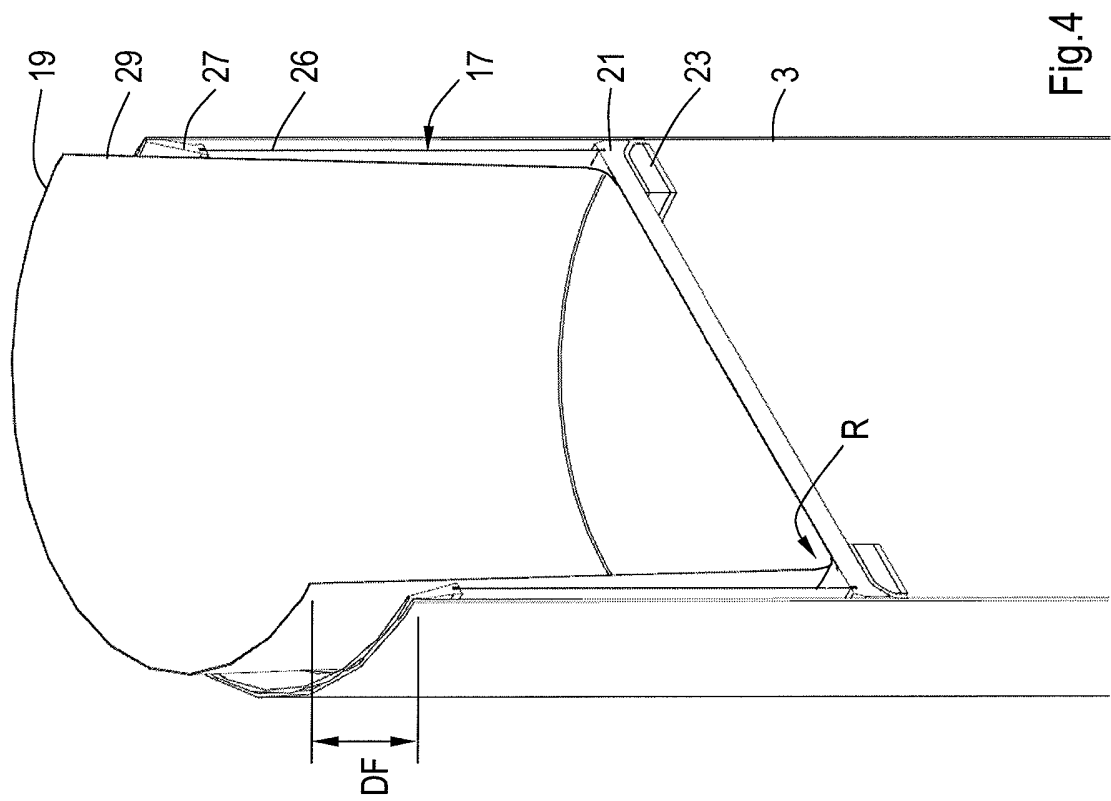


Fig. 3B



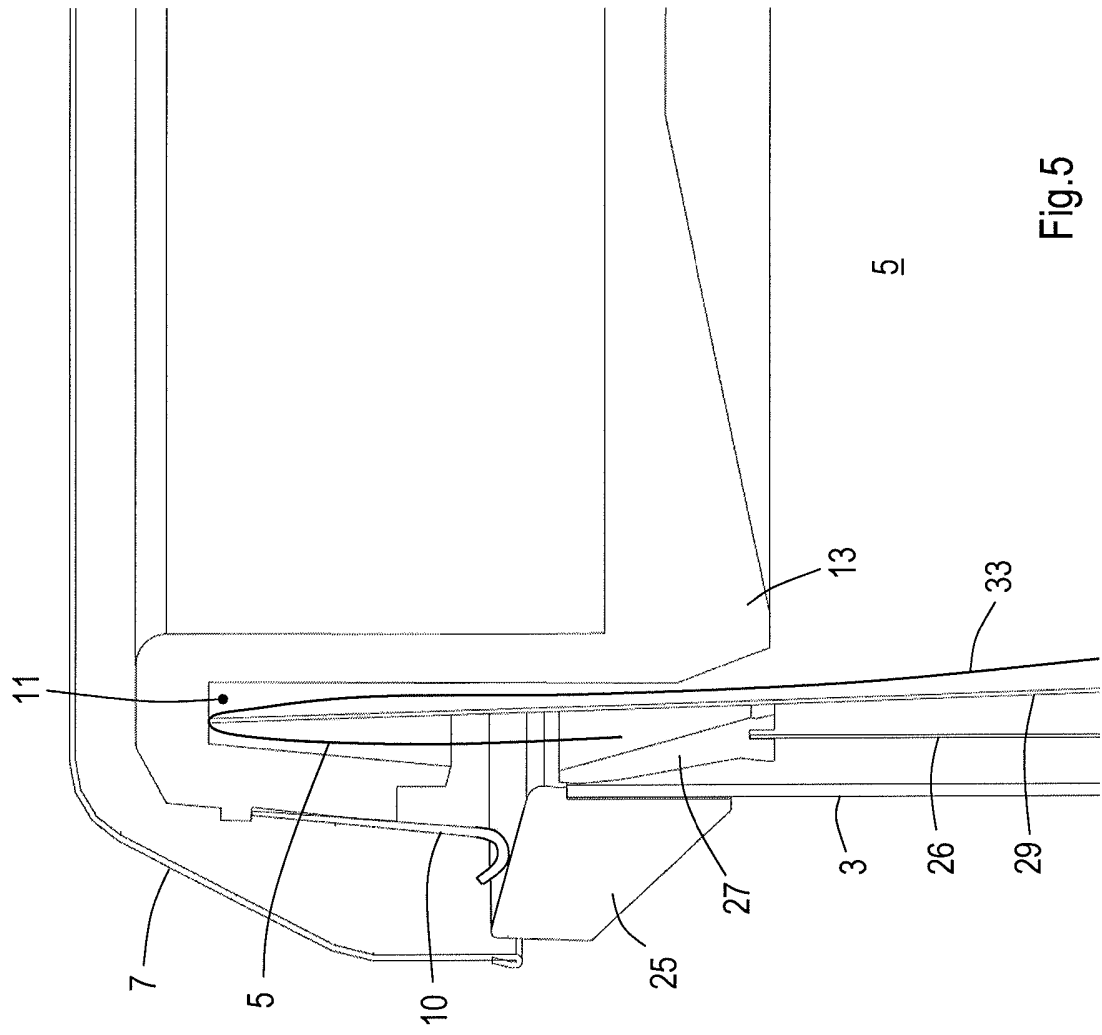


Fig.5



ONDERZOEKSRAPPORT

BETREFFENDE HET RESULTAAT VAN HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK

RELEVANTE LITERATUUR			
Categorie ¹	Literatuur met, voor zover nodig, aanduiding van speciaal van belang zijnde tekstgedeelten of figuren.	Van belang voor conclusie(s) nr.:	Classificatie (IPC)
X	EP 1 498 364 A1 (ROSOLINI LTD [IE]) 19 januari 2005 (2005-01-19)	1-10,13, 14,16,17	INV. B30B9/30
Y	* conclusies; figuren *	11,12,15	B65F1/14
Y	FR 2 855 506 A1 (SITA FRANCE [FR]) 3 december 2004 (2004-12-03) * bladzijde 11, regel 20 - regel 26; figuur 18 *	11,12	
Y	DE 102 57 596 A1 (SCHOLTIS BRITTA [DE]) 6 november 2003 (2003-11-06) * conclusies; figuren *	15	
X	US 2003/136279 A1 (TARLOW KENNETH A [US]) 24 juli 2003 (2003-07-24)	1-13,16, 17	
Y	* conclusies; figuren *	14	
Y	FR 2 886 207 A1 (LEHDAL SARL [FR]) 1 december 2006 (2006-12-01) * conclusies; figuren *	14	
X	CH 700 180 B1 (HOVLAND PER [CH]) 15 juli 2010 (2010-07-15)	1-8, 10-13, 16,17	Onderzochte gebieden van de techniek B30B B65F
Y	* conclusies; figuren *	9,14	
Y	JP 55 094797 A (HITACHI LTD) 18 juli 1980 (1980-07-18) * samenvatting; figuur 1 *	9,14	
	-/--		
Indien gewijzigde conclusies zijn ingediend, heeft dit rapport betrekking op de conclusies ingediend op:			
Plaats van onderzoek: 's-Gravenhage		Datum waarop het onderzoek werd voltooid: 23 mei 2012	Bevoegd ambtenaar: Bélibel, Chérif
¹ <u>CATEGORIE VAN DE VERMELDE LITERATUUR</u>			
X: de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur Y: de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht A: niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft O: niet-schriftelijke stand van de techniek P: tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur T: na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding E: eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven D: in de octrooiaanvraag vermeld L: om andere redenen vermelde literatuur &: lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie			

RELEVANTE LITERATUUR		
Categorie ¹	Literatuur met, voor zover nodig, aanduiding van speciaal van belang zijnde tekstgedeelten of figuren.	Van belang voor conclusie(s) nr:
X	WO 88/09264 A1 (MYERS HOLDINGS PTY LTD [AU]) 1 december 1988 (1988-12-01) * conclusies; figuren *	1-13,16,17
A	US 3 717 089 A (OLES H ET AL) 20 februari 1973 (1973-02-20) * samenvatting; figuren *	1-13,16,17

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EOB FORM 02.83 (P0414C)

¹ CATEGORIE VAN DE VERMELDE LITERATUUR

X: de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur
Y: de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht
A: niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft
O: niet-schriftelijke stand van de techniek
P: tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur

T: na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding
E: eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven
D: in de octrooiaanvraag vermeld
L: om andere redenen vermelde literatuur
&: lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie

**AANHANGSEL BEHORENDE BIJ HET RAPPORT BETREFFENDE
HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK,
UITGEVOERD IN DE OCTROOIAANVRAGE NR.**

NO 138041
NL 2007708

Het aanhangsel bevat een opgave van elders gepubliceerde octrooiaanvragen of octrooien (zogenaamde leden van dezelfde octrooifamilie), die overeenkomen met octrooischriften genoemd in het rapport.

De opgave is samengesteld aan de hand van gegevens uit het computerbestand van het Europees Octrooibureau per

De juistheid en volledigheid van deze opgave wordt noch door het Europees Octrooibureau, noch door het Bureau voor de Industriële eigendom gegarandeerd; de gegevens worden verstrekt voor informatiedoeleinden.

23-05-2012

In het rapport genoemd octrooigeschrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
EP 1498364 A1	19-01-2005	AT 338706 T CN 1576190 A EP 1498364 A1 US 2005028689 A1	15-09-2006 09-02-2005 19-01-2005 10-02-2005
FR 2855506 A1	03-12-2004	AT 343534 T CA 2527230 A1 DE 04742575 T1 DE 602004002958 T2 DK 1633662 T3 EP 1633662 A1 ES 2255898 T1 FR 2855506 A1 JP 4533894 B2 JP 2007504071 A PT 1633662 E US 2007034098 A1 WO 2004108565 A1	15-11-2006 16-12-2004 14-09-2006 06-09-2007 26-02-2007 15-03-2006 16-07-2006 03-12-2004 01-09-2010 01-03-2007 31-01-2007 15-02-2007 16-12-2004
DE 10257596 A1	06-11-2003	GEEN	
US 2003136279 A1	24-07-2003	GEEN	
FR 2886207 A1	01-12-2006	GEEN	
CH 700180 B1	15-07-2010	GEEN	
JP 55094797 A	18-07-1980	GEEN	
WO 8809264 A1	01-12-1988	US 5083509 A WO 8809264 A1	28-01-1992 01-12-1988
US 3717089 A	20-02-1973	GEEN	



Agentschap NL
Ministerie van Economische Zaken,
Landbouw en Innovatie

SCHRIFTELIJKE OPINIE

DOSSIER NUMMER NO138041	INDIENINGSDATUM 03.11.2011	VOORRANGSDATUM	AANVRAAGNUMMER NL2007708
CLASSIFICATIE INV. B30B9/30 B65F1/14			
AANVRAGER Craftworks B.V.			

Deze schriftelijke opinie bevat een toelichting op de volgende onderdelen:

- ☒ Onderdeel I Basis van de schriftelijke opinie
- ☐ Onderdeel II Voorrang
- ☐ Onderdeel III Vaststelling nieuwheid, inventiviteit en industriële toepasbaarheid niet mogelijk
- ☐ Onderdeel IV De aanvraag heeft betrekking op meer dan één uitvinding
- ☒ Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid
- ☐ Onderdeel VI Andere geciteerde documenten
- ☒ Onderdeel VII Overige gebreken
- ☒ Onderdeel VIII Overige opmerkingen

	DE BEVOEGDE AMBTENAAR Bélibel, Chérif
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SCHRIFTELIJKE OPINIE

Aanvraag nr.:
NL2007708

Onderdeel I Basis van de Schriftelijke Opinie

1. Deze schriftelijke opinie is opgesteld op basis van de meest recente conclusies ingediend voor aanvang van het onderzoek.
2. Met betrekking tot **nucleotide en/of aminozuur sequenties** die genoemd worden in de aanvraag en relevant zijn voor de uitvinding zoals beschreven in de conclusies, is dit onderzoek gedaan op basis van:
 - a. type materiaal:
 - ☐ sequentie opsomming
 - ☐ tabel met betrekking tot de sequentie lijst
 - b. vorm van het materiaal:
 - ☐ op papier
 - ☐ in elektronische vorm
 - c. moment van indiening/aanlevering:
 - ☐ opgenomen in de aanvraag zoals ingediend
 - ☐ samen met de aanvraag elektronisch ingediend
 - ☐ later aangeleverd voor het onderzoek
3. ☐ In geval er meer dan één versie of kopie van een sequentie opsomming of tabel met betrekking op een sequentie is ingediend of aangeleverd, zijn de benodigde verklaringen ingediend dat de informatie in de latere of additionele kopieën identiek is aan de aanvraag zoals ingediend of niet meer informatie bevatten dan de aanvraag zoals oorspronkelijk werd ingediend.
4. Overige opmerkingen:

SCHRIFTELIJKE OPINIE

Aanvraag nr.:
NL2007708

Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid

1. Verklaring

Nieuwheid	Ja: Conclusies 15 Nee: Conclusies 1-14, 16, 17
Inventiviteit	Ja: Conclusies Nee: Conclusies 1-17
Industriële toepasbaarheid	Ja: Conclusies 1-17 Nee: Conclusies

2. Citaties en toelichting:

Zie aparte bladzijde

Onderdeel VII Overige gebreken

De volgende gebreken in de vorm of inhoud van de aanvraag zijn opgemerkt:

Zie aparte bladzijde

Onderdeel VIII Overige opmerkingen

De volgende opmerkingen met betrekking tot de duidelijkheid van de conclusies, beschrijving, en figuren, of met betrekking tot de vraag of de conclusies nawerkbaar zijn, worden gemaakt:

Zie aparte bladzijde

Item V

1 Reference is made to the following documents:

- D1 EP 1 498 364 A1 (ROSOLINI LTD [IE]) 19 januari 2005 (2005-01-19)
- D2 FR 2 855 506 A1 (SITA FRANCE [FR]) 3 december 2004 (2004-12-03)
- D3 DE 102 57 596 A1 (SCHOLTIS BRITTA [DE]) 6 november 2003 (2003-11-06)
- D4 US 2003/136279 A1 (TARLOW KENNETH A [US]) 24 juli 2003 (2003-07-24)
- D5 FR 2 886 207 A1 (LEHDAL SARL [FR]) 1 december 2006 (2006-12-01)
- D6 CH 700 180 B1 (HOVLAND PER [CH]) 15 juli 2010 (2010-07-15)
- D7 JP 55 094797 A (HITACHI LTD) 18 juli 1980 (1980-07-18)
- D8 WO 88/09264 A1 (MYERS HOLDINGS PTY LTD [AU]) 1 december 1988 (1988-12-01)

2 The following is stated under reference to item VIII of this written opinion.

- 2.1 Document D1 discloses, cf. figures, (the references in parentheses applying to this document and the expressions in italics relating to the unclarities stated under Item VIII) a *"device (10) for compacting material in a bag (20)"* (cf. item VIII, § 1.1) comprising a cylindrical wall (11), enclosed by the cylindrical wall a bag support (57) for containing the bag and the compacted material, an upper end of the cylindrical wall comprises a lid (12) with an upper seal (57) and the lid *"can be"* (cf. item VIII, § 1.2) opened to fill the bag, and a vacuum pump (17, 18) for removing air from the bag is connected to the inside of the bag support, wherein the bag *"can be"* (cf. item VIII, § 1.2) coupled to an upper rim of the bag support located inside the cylindrical wall, a plunger (14) with a lower seal (51) *"can"* (cf. item VIII, § 1.2) *sealingly move in the cylindrical wall between a higher position and a lower position and the plunger pushes the bag support towards "and/or" (cf. item VIII, § 1.4) against the lid" (cf. item VIII, § 1.3) "when the vacuum pump removes air from the bag" (cf. item VIII, § 1.5).*

The subject-matter of claim **1** is also disclosed in documents D1 and D4, D6 and D8.

Consequently the subject matter of claim **1** lacks novelty.

- 2.2 Document D1 discloses, cf. figures, (the references in parentheses applying to this document and the expressions in italics relating to the unclarities stated under Item VIII) the use of a "*substantially*" (cf. *item VIII, § 1.6*) "*flexible*" (cf. *item VIII, § 1.6*), size retaining, tear "*and/or*" (cf. *item VIII, § 1.4*) puncture resistant bag (20) in a device (10) in accordance with claim **1**.

The subject-matter of claim **16** is also disclosed in documents D1 and D4, D6 and D8.

Consequently the subject matter of claim **16** lacks novelty.

- 3 Dependent claims **2 - 15 and 17** do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements in respect of novelty and/or inventive step.

- 3.1 The additional features of claims **2 - 10, 13, 14 and 17** are already known from document D1, cf. figures.

- 3.2 The additional features of claims **2 - 13 and 17** are already known from document D4, cf. figures.

- 3.3 The additional features of claims **2 - 8, 10 - 13 and 17** are already known from document D6, cf. figures.

- 3.4 The additional features of claims **2 - 13 and 17** are already known from document D8, cf. figures.
- 3.5 The additional features of dependent claims **11 and 12** have already been employed for the same purpose in a device suitable for compacting material in a bag, see document D2, cf. figure 18. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a device suitable for compacting material in a bag according to document D1.
- 3.6 The additional features of dependent claim **15** have already been employed for the same purpose in a device suitable for compacting material in a bag, see document D3, cf. figures. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a device suitable for compacting material in a bag according to document D1.
- 3.7 The additional features of dependent claim **14** have already been employed for the same purpose in a device suitable for compacting material in a bag, see document D5, cf. figures. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a device suitable for compacting material in a bag according to document D4.
- 3.8 The additional features of dependent claims **9 and 14** have already been employed for the same purpose in a device suitable for compacting material in a bag, see document D7, cf. figure 18. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to a device suitable for compacting material in a bag according to document D6.
- 4 Claims **1 - 17** are industrially applicable.

Item VII

- 1 The relevant background art disclosed in the documents D1 and D3 to D8 is not mentioned in the description, nor are these documents identified therein.

Item VIII

- 1 The following is observed in respect to clarity.
 - 1.1 Regarding claim **1** the attention of the applicant is drawn to the fact that expressions like *"device (1) for compacting material in a bag (33)"* should formally be construed as meaning merely *"device (1) suitable for compacting material in a bag (33)"*.
 - 1.2 It must be considered that the expressions *"can be"* and *"can"* in claims **1, 5 and 9**, the expressions *"preferably"* and *"more preferably"* in claims **3, 5, 6, 8, 10, 13 and 14** and the expressions *"e.g."* in claim **11** have no limiting effect on the scope of claims **1, 3, 5, 6, 8 - 11, 13 and 14**. Thus, the features following such expressions are to be regarded as entirely optional.
 - 1.3 The expression *"can sealingly move in the cylindrical wall between a higher position and a lower position and the plunger pushes the bag support towards and/or against the lid"* in claim **1**, the expression *"is configured to be kept activated by an under pressure in the bag support (17)"* in claim **12** and the expression *"is configured to be switched off after achieving a predetermined compacting condition and wherein preferably the compacting condition is a compacting time, a negative pressure in the bag support, a position of the plunger or the upper rim, and/or a plunger displacement"* in claim **13** define the means in terms of its function and should be construed as defining any means capable of performing the stated function.
 - 1.4 It is to be noted that alternatives, cf. the terms *"and/or"* and *"or"* in claims **1, 8 - 10 and 13 - 16**, are allowed but are considered technically equivalent and substitutable.

- 1.5 The expression *"when the vacuum pump removes air from the bag"* in claim **1** relates to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from this claim.
- 1.6 The term *"higher"* used in claims **1, 6 and 7 - 9**, the term *"lower"* used in claims **1, 6 and 7**, the term *"predetermined"* used in claim **13** and the terms *"substantially"* and *"flexible"* used in claim **16** have no well-recognised meaning and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear.
- 1.7 The expression *"so that in the higher position the upper rim extends above the upper end of the cylindrical wall (3)"* used in claim **8** tries to define the subject-matter in terms of a result to be achieved.