(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 June 2018 (28.06.2018)

WIPO | PCT

(10) International Publication Number
WO 2018/117830 A1

(51) International Patent Classification:
C05F 17/02 (2006.01)

(21) International Application Number:
PCT/NL2017/050856

(22) International Filing Date:
20 December 2017 (20.12.2017)

(25) Filing Language: Dutch

(26) Publication Language: English

(30) Priority Data:
2018025 20 December 2016 (20.12.2016) NL

(71) Applicants: **SYNPRODO B.V.** [NL/NL]; Nieuweweg 235, 6603 BM Wijchen (NL). **SYNBRA TECHNOLOGY B.V.** [NL/NL]; Zeedijk 25, 4871 NM ETTEN-LEUR (NL).

(72) Inventors: **DE BRUIJN, Petrus Antonius Maria**; c/o Synprodo B.V., Nieuweweg 235, 6603 BM Wijchen (NL). **NOORDEGRAAF, Jan**; c/o Synprodo B.V., Nieuweweg 235, 6603 BM Wijchen (NL).

(74) Agent: **ALGEMEEN OCTROOI - EN MERKENBUREAU B.V.**; P.O. Box 645, 5600 AP Eindhoven (NL).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

WO 2018/117830 A1

(54) Title: MODULAR COMPOSTING UNIT

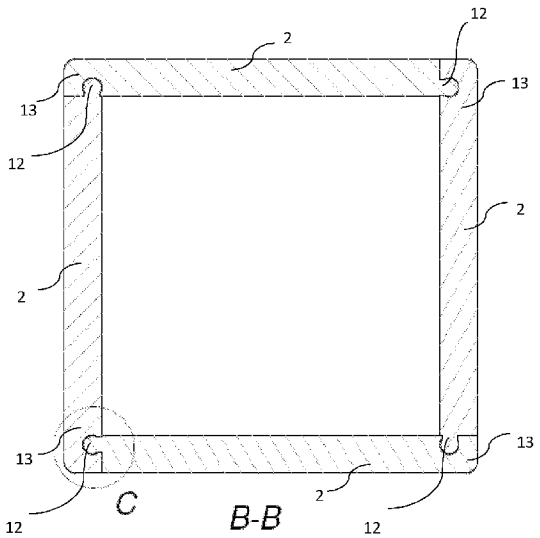

Fig. 2

(57) Abstract: The present invention relates to a container for producing compost, comprising an upright wall, a lid panel and a bottom panel, wherein the wall is composed from a number of identical, upright, rectangular panels made of insulating plastic foam, which panels are attached to each other by their upright sides by means of a mechanical coupling. The present invention furthermore relates to a method for composting a biodegradable starting material in a such a container.

[Continued on next page]

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

Title: Modular composting unit

Description

The present invention relates to a modular composting unit, in particular for composting household, garden and kitchen waste.

Nowadays, waste is already largely separated by the user. This includes separating, inter alia, paper, plastics, glass materials, tin materials, batteries, diapers and so-called biodegradable constituents. The latter constituents, which, in addition to leftovers, also include garden waste, are usually collected in a separate container, a so-called rolly bin, and collected from households according to a specific rota. Such rolly bins may be filled directly with waste, but it is also possible to put the waste into so-called biodegradable bags first which are then deposited in the rolly bin. However, it is also possible to keep the waste in a specific location in the garden, thus enabling the user to create a compost heap. A drawback of the latter method is the fact that the compost heap is also accessible to all kinds of animals, which is often undesirable. Also, the composting process may be adversely affected by varying temperatures and precipitation, for example rain water.

In practice, there is a demand from consumers to be able to compost the biodegradable material themselves. For this purpose, so-called compost bins are already commercially available, for example the so-called Hotbin (brand). The Hotbin is an upright rectangular container which is made from plastic and has a volume of 200 litres. The Hotbin guarantees a temperature increase of 60°C during the composting process, in which case the composting process results in an end product after 30-90 days which can be re-used as compost. Such compost bins are commercially available as end products, which means that the consumer acquires a ready-made, upright rectangular container which is made in one piece.

Compost bins are known per se. Thus, the Dutch laid-open application NL 8200102 discloses a container for producing compost, comprising an upright, substantially cylindrical wall, a lid and optionally a bottom, wherein the wall is composed of a number of identical, upright, rectangular panels made of plastic, which panels are attached to each other by their upright sides by means of sliding connections and wherein each panel is provided with a core border along its one

upright side and a gripping border along its other upright side in order to bring about said sliding connections.

A similar container for producing compost is also known from the European publication EP 0 538 511. The container disclosed in the aforementioned document comprises at least three identically constructed wall parts which are connected to each other via connecting elements and a lid, wherein one lateral edge of each wall part is substantially situated in the wall part plane, while the other wall part lateral edge comes to lie at the end of a wall part section which is bent off according to the vertical container corners, and wherein the connecting elements are formed at both wall part lateral edges. The wall parts are made from an injection-moulding plastic which is able to withstand weather conditions.

Compost bins are furthermore known from Canadian publication CA 2014989 and the German laid-open specification DE 44 209 78.

Australian publication AU488510 relates to a compost bin comprising a continuous surrounding peripheral wall, defined by a number of panels which each slidably engage with each of two parallel straight edges thereof with an edge of a respective adjacent panel to form a sliding connection in between them, wherein said wall has a top end and a bottom end between which said edges extend, wherein each panel is slidable with respect to adjacent panels to allow access at said bottom end to the material to be composted which is present in the bin, wherein each panel comprises ventilation openings for ventilating the material which is present in the bin, wherein the compost bin furthermore comprises a removable impermeable cover which closes the bin at the top end. The panels used in this Australian document are ventilated; they may be made, for example, of a net-like structure which is preferably either inherently stiff or is held in a stiff frame, in particular made from polyvinyl chloride and polyethene.

US patent number US 3,540,613 relates to a shipping carton for shipping small parcels, which shipping carton is composed of a number of preshaped panels and components which may be assembled to form a stiff protective shipping container and may equally readily be separated to form separate panels and parts which can be bundled and sent in a flat manner on the return journey. The preshaped panels and components are of the thermoforming, thermosetting or another type of

materials shaped under pressure, for example plastic, but also light metals, such as aluminium.

French publication FR 2 179 216 relates to a container consisting of side wall parts which can be coupled to each other.

Composting in such compost bins or compost containers for biodegradable household, garden and kitchen waste is thus a way of end of life for this type of waste. However, so-called bioplastics are not suitable to be used as materials from which such bins can be produced, because the temperature during composting in such a compost bin has to be relatively high. In general, a temperature of more than 55-60°C is recommended to achieve optimum compostation. However, this temperature is only achieved in industrial composting installations. It is therefore not possible to use bioplastics for so-called home composting. However, if the heat which is created during composting can be retained in an intelligent way, a process is created which reinforces itself and is able to sustain itself. This may be achieved, for example, by providing an insulating layer around a composting bin. In this case, consideration may be given to, for example, a polystyrene foam, but this type of foam has been found to be too fragile in practice when it is used multiple times and the composting bin is opened too often, as a result of which it is not used on a large scale.

A drawback of the abovementioned compost bins is the fact that the compost bins lose their composting ability as soon as the outside temperature becomes too low. The composting process takes place at a high temperature, with temperatures reaching values of more than 55-60°C. The compost bins are often situated outdoors and therefore the outside temperature will have an effect on the temperature prevailing inside the composting bin. If the temperature in the composting bin cannot be maintained at the desired temperature level, the composting process will come to a standstill, as a result of which the composting bin will no longer be able to perform the function of composting. If such a composting bin continues to be filled with material to be composted, the composting bin will quickly become full and will essentially only fulfil function as a storage unit, instead of composting.

The commercially available compost bins, such as the above-described Hotbin, have a large volume, which volume of the container can often be a problem as well as a limitation. The compost bins are relatively thin-walled, cool down quickly and are made using injection-moulding or rotamoulding techniques and are

directly produced to its final size. As a result, it is quite laborious to place such a composting bin in the desired position, as the complete bin has to be transported by means of, for example, a car or a van.

It is an aspect of the present invention to provide a composting bin which can be transported from the retail outlet to the consumer in a simple manner.

Another aspect of the present invention is to provide a composting bin which can facilitate the composting process taking place in the bin in a favourable manner.

Yet another aspect of the present invention is to provide a composting bin which can withstand the conditions occurring during a composting process.

Still another aspect of the present invention is to provide a composting bin which has mechanical properties which are such that the composting bin forms and retains a mechanically stable construction during the composting process.

Thus, the present invention relates to a container for producing compost, comprising an upright wall, a lid panel and a bottom panel, wherein the wall is composed from a number of identical, upright, rectangular panels made of insulating plastic foam, which panels are attached to each other by their upright sides by means of a mechanical coupling, wherein each panel is provided with a hook profile which extends along the entire length of its one upright side and a cavity profile which extends along the entire length of its other upright side in order to produce said mechanical coupling, wherein the cavity profile is rotated through 90° with respect to the hook profile in each panel, wherein the abovementioned mechanical coupling takes place by clamping the abovementioned hook profile into the abovementioned cavity profile along the entire length of both upright sides. The abovementioned hook and cavity profiles are both designed to have a round shape in order to be able to use a simple click-fit connection without having to apply high mechanical forces. After all, the container is assembled using human muscle force, as a result of which the materials used have to be able to allow such a click-fit connection.

By means of such a panel, a container for producing compost is obtained which meets one or more of the abovementioned aspects. In particular, the so-called “prefab” design, i.e. the loose panels which can easily be mechanically connected to each other by means of a clamping connection, is advantageous with regard to purchase by the consumer. The drawbacks of the existing, large-volume

containers which are made in one piece are thus prevented. In addition, it is easy to ship the present containers in the form of a so-called self-assembly kit via the known retail channels, as will be explained below, for example via a postal service or courier service. Also, the panels which form the side walls of the container may be produced via a simple shaping process, such as injection-moulding, low-pressure injection-moulding, in order to achieve a low density or to mould a foam part on the basis of a particle foam using the same mould for that specific process.

In an embodiment, the abovementioned upright wall comprises at least two upright, rectangular panels. It is thus possible to make one side wall longer, making a larger volume of the container possible. The container according to the invention may be cylinder-shaped if the panels are bent from a flat state. It is also possible to produce the panels in dimensions such that a square container is obtained. In one embodiment, it is desirable for the upright, rectangular panels to be connected to each other by means of an intermediate ring, which intermediate ring has a peripheral side corresponding to a peripheral side formed by clamping the abovementioned upright, rectangular panels to one another. Such an intermediate ring also provides additional mechanical strength of the container.

According to an embodiment, the abovementioned upright sides are provided with a groove edge on the adjoining sides, which groove edge extends along the entire length of the abovementioned side, which groove edge is connected to the bottom panel by means of a mechanical coupling, wherein the abovementioned bottom panel is provided with a peripheral edge which clamps into the abovementioned groove edge. In this way, a container is created having a so-called “box” shape, in which both the bottom panel and the upright sides are connected to each other via the abovementioned mechanical coupling, in particular the aforementioned hook and cavity profiles as regards the adjoining upright, rectangular panels and the groove edge and peripheral edge as regards the upright, rectangular panels and the bottom panel. Any seams between the interconnected upright, rectangular panels and the other components of the container, as will be discussed below, may be sealed by means of a sealing agent, for example a tape or glue.

The insulating plastic foam to be used is preferably a plastic of a non-biodegradable foam, selected from the group comprising expanded polypropylene (EPP), expanded polyethylene (EPE), expanded polyethylene terephthalate (E-PET),

engineered thermoplastic polyurethane (ETPU), expanded polystyrene (EPS), foam mixtures of polystyrene (PS) and polyethylene (PE), polystyrene (PS) and polypropylene (PP), polystyrene (PS) and poly(p-phenylene oxide) (PPO). Such an insulating plastic foam can not only withstand the conditions which prevail in the container, but the plastic also provides sufficient mechanical strength to the container. The latter property is of particular importance when the container is filled with material to be composted, in which case the risk of collapse has to be reduced to a minimum. Such an insulating plastic foam ensures that the temperatures prevailing during the composting process are maintained in the present container, so that the composting process which takes place in the composting bin is able to continue even at low outside temperatures.

The present inventors have found that from the point of view of mechanical stability of the present container, a foam density of 20-120 kg/m^3, preferably 40-80 kg/m^3, is desirable. A density which is lower than the abovementioned range results in a mechanically weak container, whereas a density which is higher than the abovementioned range results in a heavier construction which does not require an even higher mechanical stability.

Furthermore, the present inventors have also found that the wall thickness of the panels has to have a thickness of at least 2 cm, in particular of at least 3, preferably of at least 4 cm. Such a thickness is desirable with regard to insulating capacity. In addition, such a minimal thickness contributes to the mechanical strength of the present container. From a mechanical point of view, no clear upper limit can be given for the thickness, but panels having a higher thickness will result in a reduction of the effective internal volume of the present container, so that an upper limit for the thickness is set at at most 10 cm, in particular at most 8 cm, preferably at most 6 cm.

In order to achieve an optimum heat-insulating capacity, the present inventors have found that the R_c value, that is to say the total indicated R value of a construction, in particular the heat resistance thereof, has to have a value of at least 1 m^2 K/W.

The calculation of the R_c value depends on the materials from which the construction to be investigated is made, with the type of material being indicated by the λ value (the thermal conduction coefficient). In this case, the higher the thermal conduction coefficient, the worse the insulation (as the heat is being conducted more

readily). In order to determine the heat resistance, the material thickness, in metres, is divided by the λ value. The greater the material thickness, the better the insulation. The formula is $R_c = d / \lambda$, wherein R_c = heat resistance in m^2 K / W, d = thickness of the material in m, and λ = thermal conduction coefficient in W / m K.

After the container has been filled with the biodegradable starting material to be composted, a composting process will start in the container during which a composted product is produced. It is therefore desirable that at least one of the upright, rectangular panels is provided with an aperture provided therein for removing at least some of the contents of the abovementioned container via the aforementioned aperture. In certain embodiments, it is also desirable for the container to be provided with means for removing liquid from the container, for example via a tap coupling at the location of the bottom panel.

As the container, when filled with biodegradable material to be composted, is subjected to mechanical forces, it is desirable, in certain embodiments, to further reinforce the abovementioned mechanical coupling by using a bonding agent or a tape.

The invention furthermore relates to a method for composting a biodegradable starting material, the method comprising the following steps:

i) placing the biodegradable starting material to be composted in the container according to the present invention;

ii) establishing conditions in the container which render composting of biodegradable starting material possible;

iii) maintaining the abovementioned conditions in the container:

iv) removing composted starting material from the container.

In step ii), certain inoculation materials may be added to start the biological composting process. Because the volume of the material to be composted will decrease during the composting process, it is desirable to repeat step i) at certain points in time, optionally in combination with step iv). Any gases which are produced during composting can freely leave the container and escape into the atmosphere.

The present invention furthermore relates to a kit, comprising a bottom panel, a lid part, a number of identical, upright, rectangular panels, optionally provided with one or more intermediate rings, each provided with a mechanical coupling as described above. Such a kit makes it possible to offer the container as a

kind of self-assembly kit to the consumer. This has advantages with respect to transport and shipping options of the product. Also, due to the modular construction of the container, it may be possible to construct differently sized containers. In this case, the panels have to be connected to each other by means of the present click-fit connection to form the number of units desired by the consumer. In terms of production engineering, no separate moulds have to be produced for the panels for every possible size.

In a particular embodiment of the abovementioned kit, the kit contains a bonding agent for reinforcing one or more mechanical couplings produced.

Fig. 1 shows a side view of the container for producing compost according to the invention, shown in cross section A-A from Fig. 5.

Fig. 2 shows a cross section along line B-B.

Fig. 3 shows the mutual connection between the rectangular panels from which the side walls are assembled.

Fig. 4 shows the connection between the rectangular panels from which the side walls are assembled and the bottom panel.

Fig. 5 is a top view of the container for producing compost according to the invention.

Fig. 6 shows a perspective view of the container for producing compost according to the invention.

Fig. 7 shows the separate individual components from which the container for producing compost according to the invention can be assembled.

The present invention will be explained below by means of a number of examples, in particular Figs. 1-7, and it should be noted that these examples and any dimensions mentioned only serve for clarification.

Fig. 1 shows a side view of the container 1 for producing compost according to the invention, shown in cross section A-A from Fig. 5. In Fig. 1, rectangular bottom panel 3, which is in particular in the form of a square bottom panel, is internally provided with a lattice 14. The connection between bottom panel 3 and upright, rectangular panel 2 is illustrated in more detail in Fig. 4. On the front side of container 1, a removable plate 4 is provided in upright, rectangular panel 6 in order to allow access to the container 1. The container 1 shown in Fig. 1 is provided with a so-called intermediate ring 5 which rests on the top side of upright, rectangular panel 2,

6. This intermediate ring 5 makes it possible to increase the height of container 1, in particular by positioning the upright, rectangular panels 2 on intermediate ring 5. In a specific embodiment, it is possible again to position upright, rectangular panels 2 on the intermediate ring 5 which has thus been placed, as a result of which the container 1 is composed of a number of upright, rectangular panels 2 positioned on top of one another, wherein the upright, rectangular panels 2 are in each case separated from each other by intermediate ring 5, viewed in the height direction. However, in the embodiment shown in Fig. 1, the "second" row of upright, rectangular panels 2 is provided with a cover ring 7 on which a lid panel 8 is positioned.

Fig. 2 shows a top view of a cross section along line B-B from Fig. 1 and shows in which way the connection between the upright, rectangular panels 2 is achieved. Each upright, rectangular panel 2 is provided with a hook profile 12 which extends over the entire length of one upright side thereof and a cavity profile 13 which extends over the entire length of the other upright side thereof. In each upright, rectangular panel 2, hook profile 12 and cavity profile 13 are rotated through 90° with respect to each other in such a way that the adjacent upright, rectangular panel 2 and the upright, rectangular panel 2 which is situated at right angles to the other adjacent upright, rectangular panel 2, engage with each other by means of the hook profile 12 clamping into cavity profile 13. In order to produce the mechanical coupling between both upright, rectangular panels 2, the one upright, rectangular panel 2 is clamped into the other upright, rectangular panel 2. By now connecting four separate identical panels 2 with each other in this way, a stable construction, which has a so-called "box shape", is obtained. Due to each upright, rectangular panel 2 being provided with a hook profile 12 and cavity profile 13, one mould is sufficient for the production process. Enlarging the container 1, in particular the height thereof, is achieved by in each case placing an intermediate ring 5 on top of a "layer" of upright, rectangular panels 2, after which a subsequent "layer" of upright, rectangular panels 2 is placed on intermediate ring 5. The intermediate ring 5 is designed in such a way that a clamping connection is produced between the intermediate ring 5 and the adjacent upright, rectangular panels 2.

Fig. 3 shows the mutual connection between the rectangular panels 2 from which the side walls of container 1 are assembled. Panel 2 has a cavity profile 13 which extends along the entire length of the upright side, which cavity profile 13 is

clamped into hook profile 12 of the other upright, rectangular panel 2, adjacent thereto, with the one hook profile 12 of the panel 2 being rotated through an angle of 90° with respect to the cavity profile 13 of the other panel 2. Both hook profile 12 and cavity profile 13 extend along the entire length of the upright side and each panel 2 has both a hook profile 12 and a cavity profile 13.

Fig. 4 shows the connection between the rectangular panels 2 from which the side walls are assembled and the bottom panel 3. On its peripheral side, bottom panel 3 is provided with an upright peripheral edge 43 which fittingly engages in groove edge 42 of panel 2. On the basis of such an engagement of groove edge 42 and peripheral edge 43, a stable anchoring of panels 2 on bottom panel 3 is achieved.

Fig. 5 shows a top view of the container 1 for producing compost according to the invention. A lattice 14 is situated on the bottom panel (see also Fig. 1). Access to the bottom side of container 1 is gained by removing the removable panel 4 from container 1. The rectangular shape of container 1 is achieved by clamping four separate upright, rectangular panels 2 into each other, each of which are provided with a hook profile 12 which extends along the entire length of one upright side thereof and a cavity profile 13 which extends along the entire length of the other upright side thereof.

Fig. 6 shows a perspective view of the container 1 for producing compost according to the invention. The rectangular shape of container 1 is achieved by clamping upright, rectangular panels 2 into each other, each of which is provided with a hook profile 12 (not shown) which extends along the entire length of one upright side thereof and a cavity profile 13 (not shown) which extends along the entire length of the other upright side thereof. By clamping the hook and cavity profiles into each other, upright walls are produced which give the container 1 its shape. The front side of container 1 is provided with a removable panel 4 to allow access to the container 1, in particular for removing material which has already composted. The material to be composted is introduced into the container 1 by opening lid panel 8 and will undergo a composting process. Any gases which may develop in the process can leave the container 1 via lid panel 8. The container 1 illustrated in Fig. 6 is provided with a so-called intermediate ring 5 which rests on the top side of (the bottom “row” of) each upright, rectangular panel 2. This intermediate ring 5 makes it possible to increase the height of container 1, in particular by additionally positioning upright, rectangular

panels 2 on the intermediate ring 5. In the embodiment illustrated in Fig. 6, the "second" row, that is to say the "top row", of upright, rectangular panels 2, is provided with a cover ring 7 on its top side, on which a lid panel 8 is positioned.

Fig. 7 shows the separate individual components from which the container for producing compost according to the invention can be assembled. Fig. 7 can thus be seen as a kit according to the present invention. The kit will be made commercially available as a self-assembly kit, provided with clear instructions for assembling the container. In this way, the volume of the unassembled container, which is to be assembled from the separate individual components as shown in Fig. 7, is significantly smaller than the volume of the finally assembled container, as shown in Fig. 6. The individual components thus comprise eight upright, rectangular panels 2 made of insulating plastic foam, one panel 6 of which is provided with an aperture. The remaining components comprise an intermediate ring 5, a cover ring 7, a lid panel 8 and a bottom panel 3. The dimensions of the periphery of each of intermediate ring 5, cover ring 7, lid panel 15 and bottom panel 3 is virtually identical, so that a stable, upright container 1 can be assembled from these. When assembling the container, the individual components are clamped into each other according to a construction plan, after which the container is ready for use.

The base surface area illustrated in Fig. 7 may, for example, have dimensions of 550 mm x 550 mm. The height of the final container, as illustrated in Fig. 6, has, for example, a height of 1080 mm and a base surface area of 550 mm x 550 mm.

The present inventors have investigated the containers known from a number of literature references and the values obtained in the process are indicated in the table below as follows:

Source	Panel material	d in m	d (estimate)	lambda in W/mK	Rc = d/lambda
Application	EPP foam	0.04		0.04	1.000
Application	EPE foam	0.04		0.04	1.000
Application	PET foam	0.04		0.04	1.000
FR 2179216	PE solid	unknown	0.01	0.2	0.050
US 3540613	Cardboard	unknown	0.01	0.21	0.048
AU 488510	PE solid	unknown	0.01	0.2	0.050
EP 0538511.	PE solid	unknown	0.01	0.2	0.050

It follows from the table that the R_c value of the wall of the container should be understood as d/lambda, in which case the following holds good for a good heat resistance: Rc>=1 m^2 K / W. Said references do not meet this and are not click-fittable, even in combination with an Rc>1.

CLAIMS

1. Container for producing compost, comprising an upright wall, a lid panel and a bottom panel, wherein the wall is composed from a number of identical, upright, rectangular panels made of insulating plastic foam, which panels are attached to each other by their upright sides by means of a mechanical coupling, wherein each panel is provided with a hook profile which extends along the entire length of its one upright side and a cavity profile which extends along the entire length of its other upright side in order to produce said mechanical coupling, wherein the cavity profile is rotated through 90° with respect to the hook profile in each panel, wherein said mechanical coupling takes place by clamping said hook profile into said cavity profile along the entire length of both upright sides.

2. Container according to Claim 1, characterized in that said upright wall comprises at least two upright, rectangular panels which are positioned on top of each other, wherein said upright, rectangular panels are connected to each other by means of an intermediate ring, which intermediate ring has a peripheral side corresponding to a peripheral side formed by clamping abovementioned upright, rectangular panels to each other.

3. Container according to Claims 1-2, characterized in that said upright sides are provided with a groove edge on the adjoining sides, which groove edge extends along the entire length of said side, which groove edge is connected to a peripheral edge of the bottom panel by means of a mechanical coupling, wherein said groove edge is clamped into said peripheral edge.

4. Container according to one or more of the preceding Claims 1-3, characterized in that the insulating plastic foam is a non-biodegradable foam, selected from the group comprising expanded polypropylene (EPP), expanded polyethylene (EPE), expanded polyethylene terephthalate (E-PET), engineered thermoplastic polyurethane (ETPU), expanded polystyrene (EPS), foam mixtures of polystyrene (PS) and polyethylene (PE), polystyrene (PS) and polypropylene (PP), polystyrene (PS) and poly(p-phenylene oxide) (PPO).

5. Container according to Claim 4, characterized in that the insulating plastic foam is a non-biodegradable foam with a foam density of 20-120 kg/m^3, preferably of 40-80 kg/m^3.

6. Container according to one or more of the preceding claims, characterized in that the wall thickness of the panels is at least 2 cm, in particular at least 3, preferably at least 4 cm.

7. Container according to one or more of the preceding claims, characterized in that the heat resistance of the container, Rc, is at least or equal to 1 m^2 K / W, with: $R_c = d / \lambda$, wherein R_c = heat resistance in m^2 K / W, d = thickness of the material used in m, and λ = thermal conduction coefficient in W / m K.

8. Container according to one or more of Claims 4-7, characterized in that the insulating plastic foam is a non-biodegradable foam of the EPP type.

9. Container according to one or more of Claims 4-7, characterized in that the insulating plastic foam is a non-biodegradable foam of the EPE type.

10. Container according to one or more of Claims 4-7, characterized in that the insulating plastic foam is a non-biodegradable foam of the PET type.

11. Container according to one or more of the preceding claims, characterized in that at least one of the upright, rectangular panels is provided with an aperture provided therein for removing at least some of the contents of said container via said aperture.

12. Container according to one or more of the preceding claims, characterized in that said mechanical coupling is further reinforced by using a bonding agent.

13. Method for composting a biodegradable starting material, characterized in that the method comprises the following steps:

i) placing the biodegradable starting material to be composted in the container according to one or more of the preceding claims;

ii) establishing conditions in the container which render composting of biodegradable starting material possible;

iii) maintaining said conditions in the container:

iv) removing composted starting material from the container.

14. Method according to Claim 13, characterized in that steps i) – iv) are repeated.

15. Kit, comprising a bottom panel, a lid part and a number of identical, upright, rectangular panels, provided with a mechanical coupling as described in one or more of Claims 1-12.

16. Kit according to Claim 15, characterized in that the kit comprises a bonding agent for reinforcing one or more mechanical couplings produced.

5

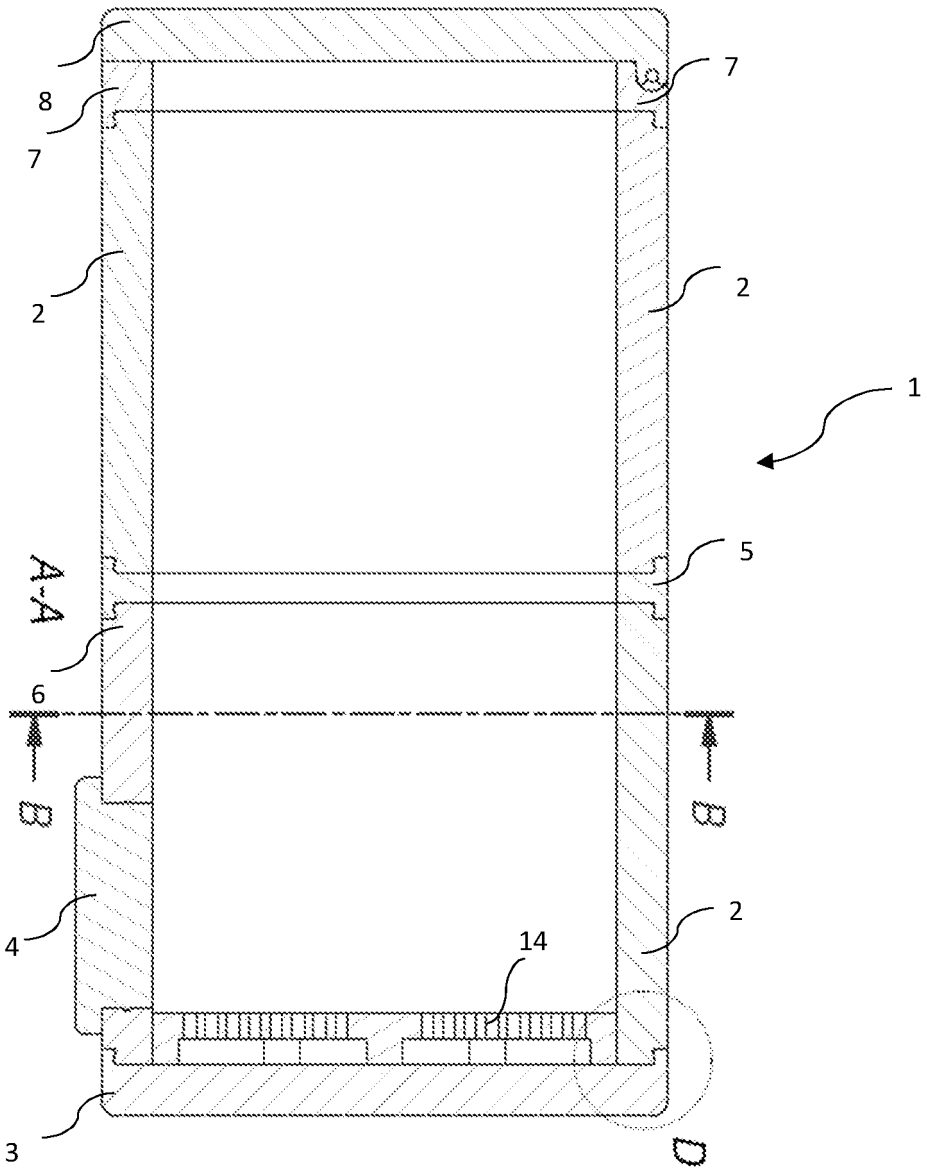

Fig. 1

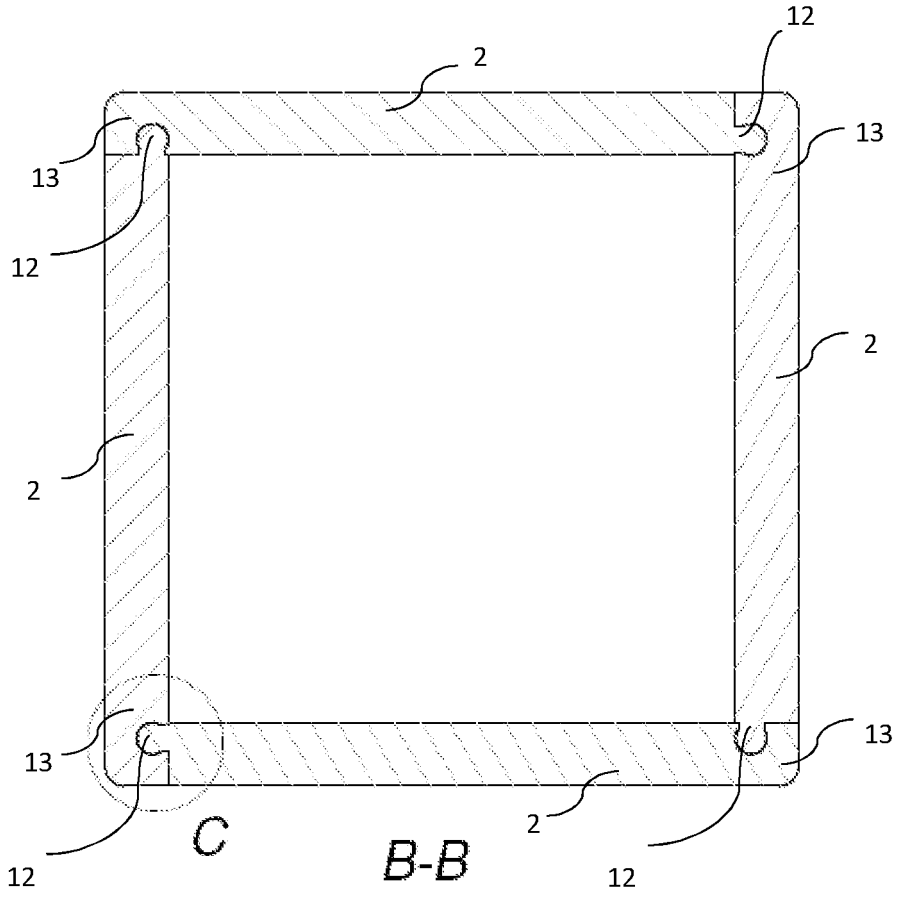

Fig. 2

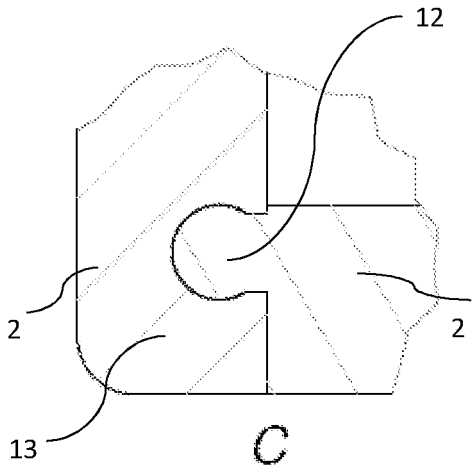

Fig. 3

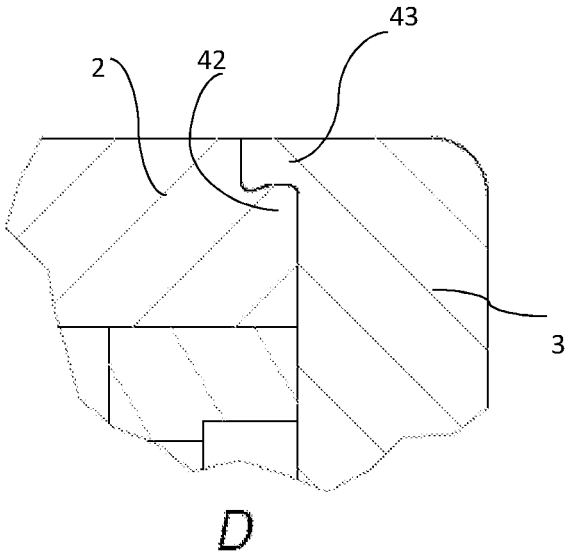

Fig. 4

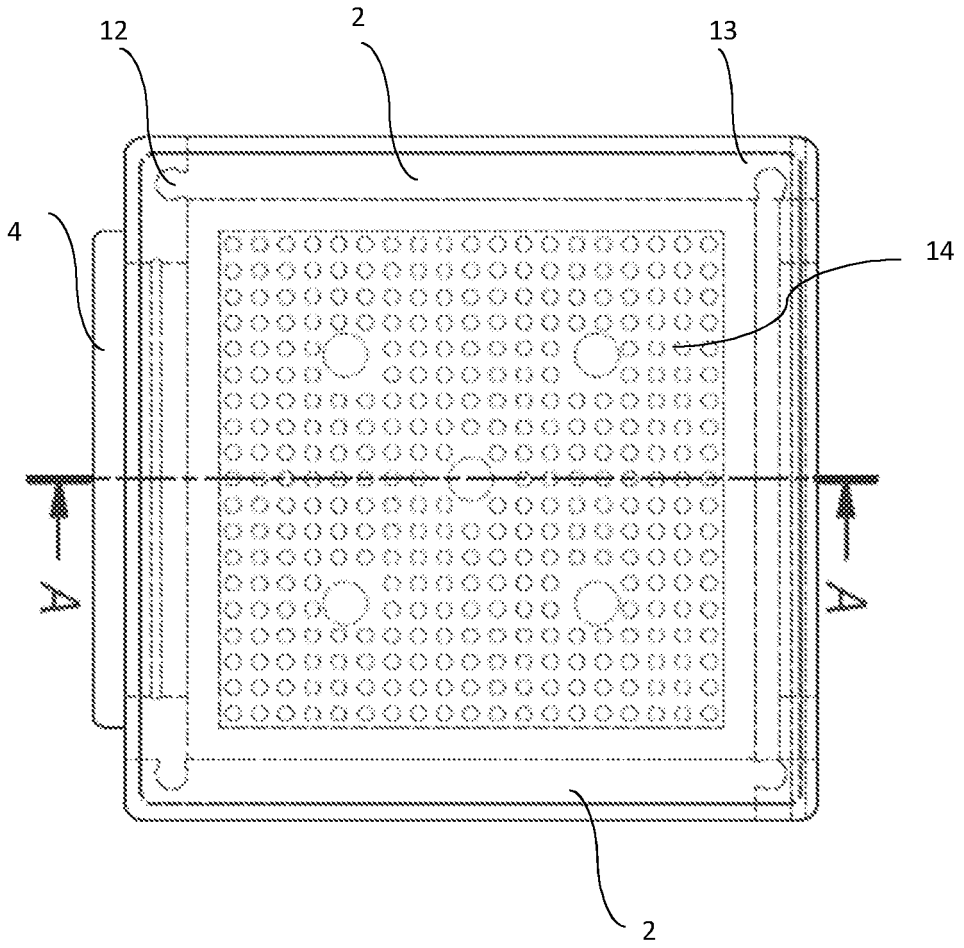

Fig. 5

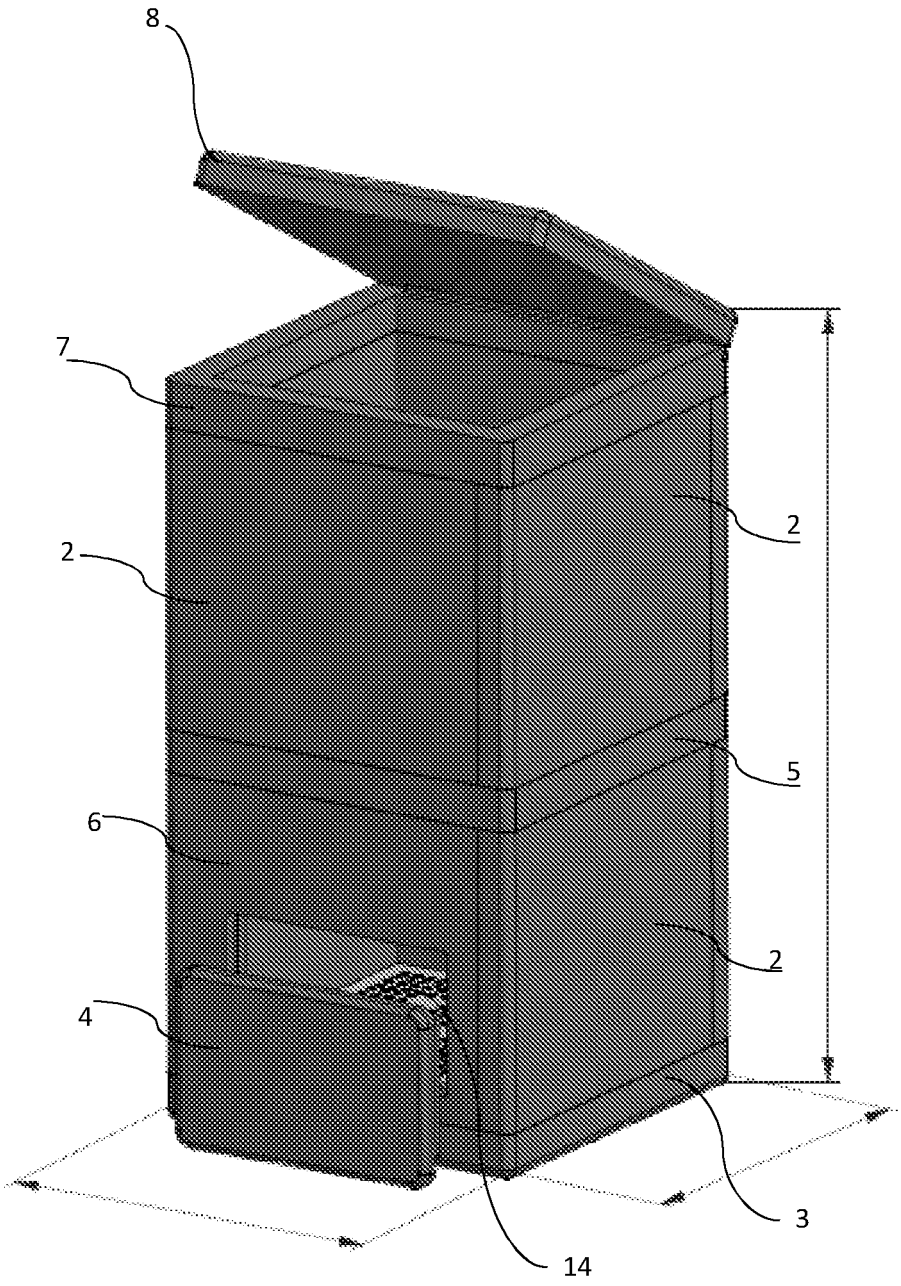

Fig. 6

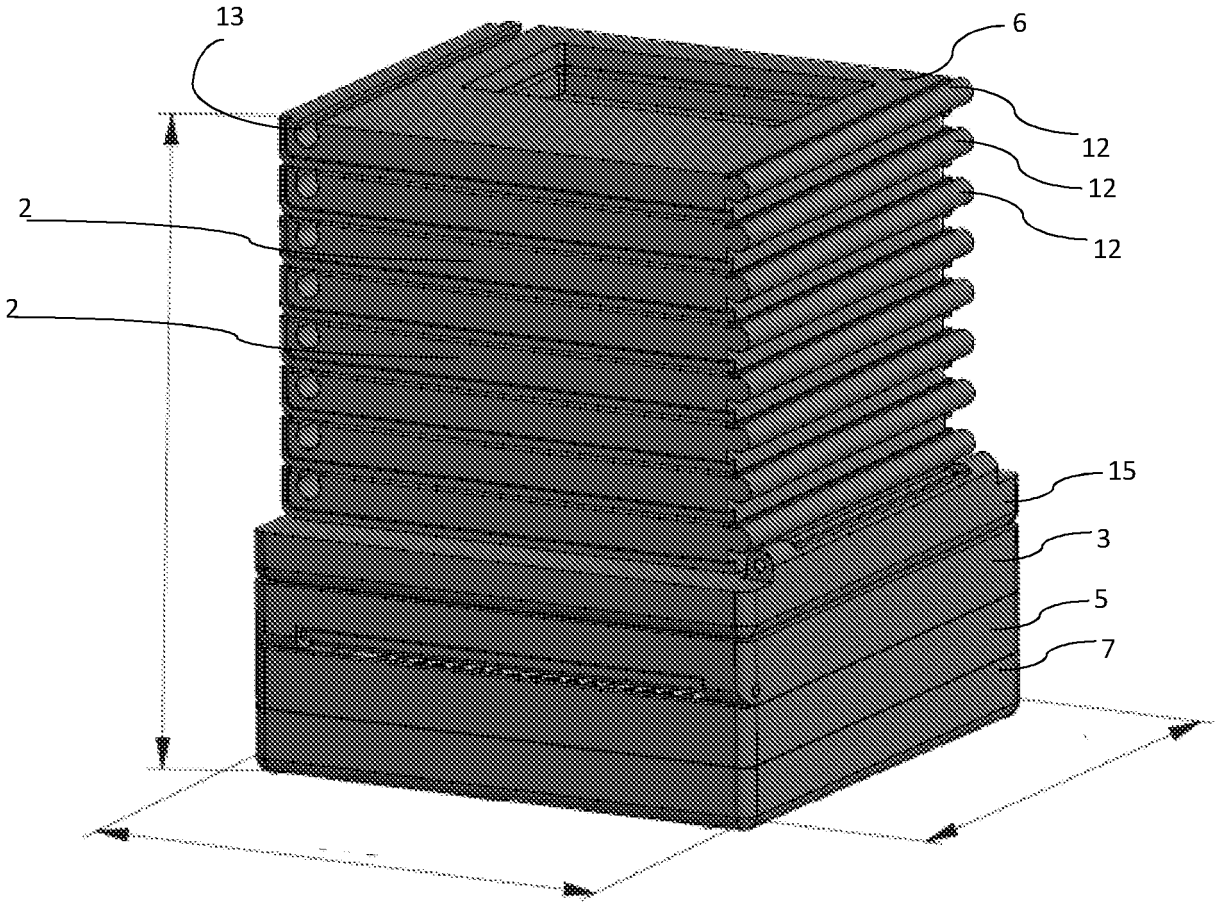

Fig. 7

INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2017/050856

A. CLASSIFICATION OF SUBJECT MATTER
INV. C05F17/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65F C05F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, BIOSIS, COMPENDEX, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 190 572 A (LONG RICHARD [US]) 2 March 1993 (1993-03-02)	13,14
Y	column 3, line 60 - column 4, line 7 claims figures	1-12,15, 16

Y	US 4 125 394 A (WILSON CLIFFORD A) 14 November 1978 (1978-11-14) claims; figures column 3, line 21 - column 4, line 59	1-12,15, 16

X	EP 0 538 511 A1 (REMAPLAN ANLAGENBAU GMBH [DE]) 28 April 1993 (1993-04-28)	13,14
A	claims; figures	1-12

X	DE 33 25 765 A1 (FREI GMBH [DE]) 7 March 1985 (1985-03-07)	13,14
A	claims; figures	1-12

	-/--	

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 March 2018	11/04/2018

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Rodriguez Fontao, M

1

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2017/050856

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 94 15 053 U1 (RYDMANN THEO [DE]) 22 December 1994 (1994-12-22)	13,14
A	claims; figures	1-12

X	DE 32 14 780 A1 (GUETTLER FRITZ) 27 October 1983 (1983-10-27)	13,14
A	claims; figures	1-12

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/NL2017/050856

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5190572 A	02-03-1993	NONE	
US 4125394 A	14-11-1978	NONE	
EP 0538511 A1	28-04-1993	AT 140913 T	15-08-1996
		EP 0538511 A1	28-04-1993
DE 3325765 A1	07-03-1985	NONE	
DE 9415053 U1	22-12-1994	NONE	
DE 3214780 A1	27-10-1983	NONE	