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(54) DRYING BAG AND DRYING SYSTEM

(57) The invention relates to a drying bag for drying a biological or pharmaceutical material, which comprises a bag shell, a bag interior cavity and a bag shell access opening, a plate connected to the bag shell and a closable bag access opening, wherein the bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet, and the plate comprises a plate fastening element, which is involved in a twist-proof and detachable connection of the plate at a supporting tub, when the drying bag is positioned for drying in the supporting. Furthermore, a drying system comprising the drying bag positioned in the supporting tub is disclosed. Additionally, a method for drying a material to be dried using the drying system is disclosed.

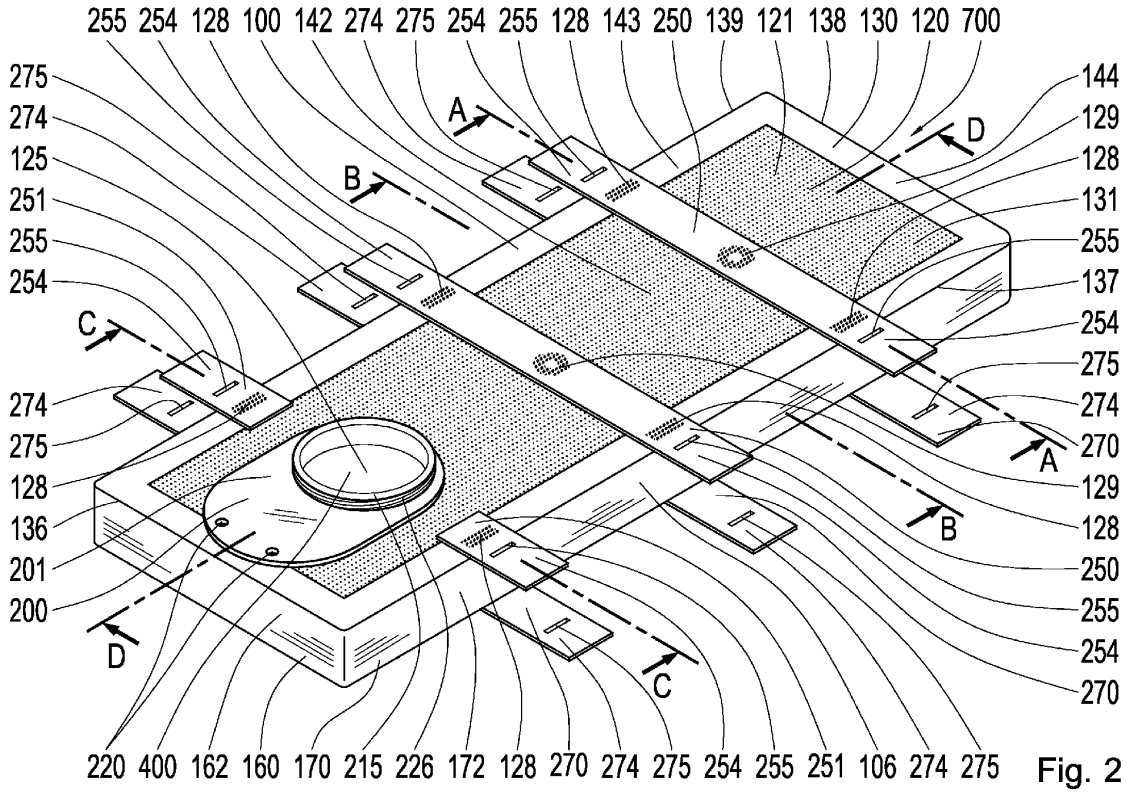

Fig. 2

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Description

[0001] The present invention relates to a drying bag for drying a biological or pharmaceutical material. It relates further to a drying system which comprises the drying bag and a supporting tub with the drying bag being positioned in the supporting tub. Furthermore, it relates to a method for drying a material, particularly a biological or pharmaceutical material, which comprises a step of introducing the material into the drying bag being positioned in the supporting tub to obtain a filled drying system and a step of exposing the filled drying system to conditions suitable to effect drying, particularly to a reduced pressure. The drying system and the method for drying a material are particularly suitable for freeze-drying of a material dissolved or dispersed in a solvent, especially a biological or pharmaceutical material dissolved or dispersed in a solvent comprising water.

[0002] Drying is a common operation in many industrial processes, e.g., in the food, chemical and pharmaceutical industry. The drying of a material such as slurries, suspensions or liquid solutions is commonly carried out in open containers, e.g., in flat open trays. These are placed in a drying chamber, where evaporation of liquid components of the wet material occurs under appropriate conditions, usually at a controlled pressure and temperature. The use of such open containers has the disadvantage that it a risk of contaminating the material to be dried and of causing liquid or solid spills of the material to the surroundings. Hence, depending on the properties of the material to be dried, it is necessary to work in a clean room to avoid contamination of the dried material, and/or to perform an extensive cleaning of the drying chamber. If the material is hazardous, as is the case for many active pharmaceutical ingredients, containment of the material in its wet or liquid state before drying as well as in its final dried state is essential for occupational safety. The containment of the dried material, which often is in the form of powders or dust, which contain fine solid particles, is particularly challenging.

[0003] The above points apply particularly to methods for freeze-drying or lyophilization. Freeze-drying is widely used to improve the stability and handling of foods or pharmaceutical materials. Freeze-drying comprises preparing and freezing the material to be dried followed by one or more drying stages. A primary drying stage involves sublimation of a solvent in the material, often water, at a reduced pressure and temperature. A secondary drying stage may involve gradual heating under low pressure conditions to remove further residual solvent, often water, respectively to lower further a residual content of the solvent, often water, in the material. For a control of the conditions to which the material to be dried is exposed to, it is preferable to precisely monitor temperature and pressure, in particular also the temperature of the material to be dried. During freeze-drying, an evaporation of the solvent at reduced pressure and a subsequent ventilation of the drying chamber can give rise to turbulences and cause spills of fine solid particles of the dried material.

[0004] US 4035924 discloses a lyophilization of solid, liquid, or pasty products. The product to be lyophilized is placed in an open secondary container of flexible material which is capable of being subsequently closed and lyophilized in a lyophilization apparatus with the container kept open. On completion of lyophilization the container is closed, and the closed container withdrawn from the apparatus. The container is preferably in the form of a bag, e.g., a heat-sealable plastic bag. A lyophilization apparatus is provided with means for supporting secondary containers accommodating product to be lyophilized, means for keeping the secondary containers open during lyophilization and means for closing the containers on completion of lyophilization.

[0005] US 4973327 discloses a lyophilization bag, in which a fluid, such as blood, may be introduced, lyophilized without collapsing the bag, stored, reconstituted, and distributed from the bag without immediate transfer of the useful contents from the bag.

[0006] WO 96-31748 A1 discloses a freeze-drying bag, in which part of the bag is made of water-vapor-permeable, sterile barrier bonded to a backing material. The bag permits the passage of gases such as air and water vapor, but not passage of bacteria or other particulate contaminants.

[0007] US 6517526 discloses a container for collecting, freeze-drying, storing, reconstituting, and administering biological solutions. The container features a pliable bottom wall, a top wall incorporating a hydrophobic membrane and side walls sufficiently stiff to support the ceiling but preferably also sufficiently flexible to collapse and minimize storage space. The walls incorporate sealable ports that can be used to load the solution for processing and/or adding reconstituting liquids and/or administering the reconstituted solution to a patient. A secondary pouch encloses the container immediately post-lyophilization.

[0008] WO 2006-028648 A2 discloses a container for plasma lyophilization, which has been designed for lyophilization (lyo-bag), storage, reconstitution and administering of blood products. A rigid support frame for use with a lyo-bag with side walls is designed as an external removable supportive system. It provides the necessary stability for the flexible container during lyophilization. A removable bottom wall support sheet is designed for use with any flexible container for lyophilization.

[0009] JP 2010-228782 A according to a machine translation discloses a bag for freeze vacuum drying and a method of freeze vacuum drying using the bag to avoid a flying of an object during freeze vacuum drying, mixing a foreign object during freeze vacuum drying in a freeze-drying vacuum machine and contaminating the freeze drying vacuum machine.

[0010] WO 2017-137637 A2 discloses a drying container for the drying, especially the freeze-drying, of material. A body of the drying container is closable by

a lid for the drying container to avoid a contamination of the material to be dried inside the drying container and a spilling of airborne solid particles of said material from the container to the environment.

[0011] WO 2019-012512 A1 discloses a process for lyophilizing a product, comprising the steps of providing a bulk product loading system in the form of a bag, the bag having an interior and an exterior defined by a flexible wall, the bag further comprising a filling port providing access to the interior of the bag, filling a product having a first moisture content into the interior of the bag via the filling port, and exposing the product in the interior of the bag to a lyophilization cycle such that the moisture content of the product is reduced from the first moisture content to a second, lower, moisture content.

[0012] EP 3457062 A1 according to a machine translation discloses a bag for the contamination-free freeze-drying of a substance. The bag has a top and a bottom, wherein the top has a vapor-permeable film and at least three side surfaces, which are between the top and bottom, wherein between two lateral side surfaces a joint is formed, which extends from the bottom to the top surface. Further, the bag has a storage compartment, which has a top side and a bottom side, both having a vapor impermeable film and the storage compartment is attached from the outside of a side surface and its interior is in contact with the interior of the bag. Additionally, a method is provided for a contamination-free freeze drying of a substance in the bag with a contamination-free transfer of the substance in the storage compartment being directly mounted to the bag.

[0013] WO 2019-217183 A1 discloses a lyophilization bag for containing a solution in a lyophilizer during lyophilization. The lyophilization bag includes a body having a flexible base member and a flexible top member. The base member and the top member, collectively, at least partially encompass an interior volume of the body. A first portion of the interior volume is defined between at least portions of the base member and a reference plane located spaced from the at least portions of the base member, the first portion of the interior volume defining a volume corresponding to the initial volume of the solution. A second portion of the interior volume is defined between the reference plane and at least portions of the top member. At least one port defining an opening is in communication with the second portion of the interior volume.

[0014] There is still a need for a further container for drying of a material, especially freeze-drying, which protects the material from contamination and, at the same time, enables containment of said material respectively protects the surroundings from contamination with the material. Preferably, the container additionally allows to measure a temperature in immediate vicinity to the material during freeze-drying. Further advantages are addressed in the following.

[0015] An embodiment of the invention is a drying bag for drying a biological or pharmaceutical material, which comprises

a bag shell having a bag shell outer site, a bag shell inner site, a bag interior cavity and a bag shell access opening, which reaches from the bag shell outer site to the bag shell inner site,
a plate having a plate upper site, a plate lower site and a closable plate access opening, which reaches from the plate upper site to the plate lower site,
a bag access opening, which is at least partly defined by the closable plate access opening and the bag shell access opening, and which provides an access to the bag interior cavity,

wherein the bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet,
the plate and the bag shell are connected at the bag access opening,
the plate comprises a plate fastening element, which is a plate hole or a plate stud, and which is involved in a twist-proof and detachable connection of the plate at a supporting tub, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub.

[0016] An advantage of the bag shell being partly made by the pliable first plastic foil is that the bag shell can be stored in a flat, volume-reduced geometrical form prior to a positioning in the supporting bag. The pliability of the first plastic foil allows further that the part of the bag shell, which is made of the first plastic foil, is in principle able to nestle to involved geometrical boundaries of the supporting tub once positioned in the supporting tub. There is a first relevance in view of an efficient transmission of the supporting power provided by the involved geometrical boundaries of the supporting tub to the bag shell, which gets relevant once the bag interior cavity is filled with a material to be dried. There is a second relevance in view of an efficient heat transfer via the bag shell to the material to be dried, which is filled into the bag interior cavity. A large zone, preferably also additionally a homogenous zone, of mechanical contact of the involved geometrical boundaries of the supporting tub to the bag shell outer site provides a larger, preferably additionally also homogenous, heat transfer rate versus a scenario of an interrupted contact caused by gas spaces. Since drying occurs under reduced pressure, especially in case of freeze-drying of a very low pressure, the gas spaces will tend to become vacuum-type isolations. These hinder a heat transfer, which enables a rewarming of the material to be dried, which itself is cooled down during drying by an evaporation of volatile components contained in the material to be dried. The efficient transmission of the supporting power by the supporting tub allows from the viewpoint of mechanical stability of the bag shell also to choose a relatively thin pliable first plastic foil, which favors again the heat transfer. In addi-

tion, the tub function of the supporting tub provides a safety measure in case of an accidental leakage at the bag shell by collecting escaping material to be dried and thus avoiding a spilling into a drying chamber. Accordingly, a thickness of the pliable first plastic foil requires less security surcharge against an accidental leakage. The addressed involved geometrical boundaries of the supporting tub are typically a planar bottom of the supporting tub, which is particularly relevant for the heat transfer, and side walls of the supporting tub, which are particularly relevant for the mechanical stability once the material to be dried is filled into the bag interior cavity. The pliable first plastic foil is the intended primary contact area of the material to be dried during filling of the bag interior cavity, typically only to a part of its bag interior cavity volume, for example 50 volume percent thereof, once the drying bag is positioned in the supporting tub. This applies similarly during drying. Intended primary contact area means that there might be some unintended spattering of the material to be dried during filling or drying, which thus leads to some unintended contact with the vapor permeable sheet or the parts of the bag access opening or a lid closing the bag access opening, which are directly facing the material to be dried. Accordingly, a contact of the material to be dried with the supporting tub respectively a material of the supporting tub at the contact is avoided. This is for example of relevance if the material of the supporting tub is a metal. There could be a danger that traces of metal ions pollute the material to be dried during a continued contact. At the end of the drying process, especially at freeze-drying, the dried material is often obtained in a physical form of a voluminous powder, which has partly formed larger but mechanically instable clumps or even one mechanically instable aggregate. Here, the pliable first plastic foil not only allows that the bag shell is stored in the flat, volume-reduced geometrical form prior to a positioning in the supporting tub. It also allows that the bag shell respectively the drying bag, which is filled with the dried material in a voluminous, but aggregated form is comminuted into smaller aggregates without a need to open the closed drying bag. This might be done for example by bending back and forth or of the closed drying back filled with dried material or by squeezing it together. The pliable first plastic foil itself is for example made of polypropylene or polyethylene.

[0017] An advantage of the bag shell being partly made of the vapor permeable sheet is a possibility of a transfer of evaporated gaseous components of the material to be dried from the bag interior cavity to a drying chamber during drying despite of the bag access opening being closed. Without the possibility of the transfer, the volume of the interior bag cavity would increase in case of an application of a reduced pressure in the drying chamber up to a breakage of the bag shell. The vapor permeable sheet is often less pliable than the first plastic foil, particularly if the vapor permeable sheet is a two-sided laminate or composite material comprising on one side a spined layer, which is plastic-weldable with the pliable first plastic foil. The vapor permeable sheet typically comprises micro-channels to allow the transfer of the evaporated gaseous components of the material to be dried. The vapor permeable sheet is preferably liquid repellent with respect to the typically liquid material to be dried, i.e., the vapor permeable sheet's surface will not be wetted or soaked by said liquid. In case of freeze-drying, a material to be dried in a liquid state is only initially prior to its freezing in a liquid state. For example, if the material to be dried is an aqueous solution or suspension, a vapor permeable sheet with a non-polar surface, for example as provided by polytetrafluoroethylene, will be liquid repellent for non-fluorous components in a liquid state. For example, water will not wet such a surface, but drip off, which helps to contain liquid spills caused by splashes of the material to be dried. The vapor permeable sheet contains for example a membrane layer of polytetrafluoroethylene, including expanded polytetrafluoroethylene, or polyethylene terephthalate. The membrane layer has in case of a polytetrafluoroethylene membrane for example a pore size of 1 to 2 micrometer and in case of a polyethylene terephthalate) membrane a pore size of 7 micrometer. The vapor permeable sheet is for example a composite membrane material, which comprises a membrane layer and a support layer. The vapor permeable sheet is for example an expanded polytetrafluoroethylene membrane on a polyethylene support layer or an expanded polytetrafluoroethylene membrane on a polypropylene support layer. The permeability of a given vapor permeable sheet may differ for different evaporated gaseous components of a material to be dried. For example, a vapor permeable sheet which allows a passage of at least 10 L, preferably at least 50 L, of air per minute and dm^2 of membrane area at a transmembrane pressure of 200 Pa (> 10 L air/min /dm^2, preferably > 50 L air/min /dm^2) is deemed suitable for use in the bag shell for an efficient passage of for example water vapor. Hence preferably, the vapor permeable sheet is a vapor permeable sheet with a passage of at least 10 L, more preferably at least 50 L, of air per minute and dm^2 of membrane area at a transmembrane pressure of 200 Pa (> 10 L air /min /dm^2, preferably > 50 L air/min /dm^2).

[0018] A connection of those parts of the bag shell, which are made of the pliable first plastic foil, and those parts of the bag shell, which are made of the vapor permeable sheet, occurs at first-plastic-foil-to-sheet connection points. At the first-plastic-foil-to-sheet connection point, a surface zone of the pliable first plastic foil is overlayed to a surface zone of the vapor permeable sheet and both zones are connected. Both zones are opposite to each other and are put together to form together a first-plastic-foil-to-sheet connection point. The connection is typically tight for the material to be dried, the gaseous evaporated components of the material to be dried and the dried material. The connection is for example conducted by plastic welding, if the pliable first plastic foil and

at least one side of the vapor permeable sheet can be plastic-welded with each other. Alternatively, a suitable glue is an option, if the glue is inert at least for the time and under the conditions of drying against the material to be dried, the gaseous evaporated components of the material to be dried and the dried material. Another possibility is that both zones are sufficiently pressed together to be tight, and the pressing is achieved by a mechanical device, for example a series of small clamps or staples or a sewing seam. Preferably, the connection is conducted by plastic welding. Preferably, the vapor permeable sheet at the first-plastic-foil-to-sheet connection point is directed towards the bag interior cavity and the pliable first plastic foil is at the first-plastic-foil-to-sheet connection point is directed away from the bag interior cavity toward the surroundings. This arrangement is of advantage in case of a two-sidedness of the vapor permeable sheet with only one site available for plastic welding with the pliable first plastic foil, because it allows that the plastic welding itself is conducted by the plastic welding energy apparatus being applied from the bag shell outer site.

[0019] Preferably, at the drying bag, the pliable first plastic foil and the vapor permeable sheet are connected at a first-plastic-foil-to-sheet connection point and the pliable first plastic foil and the vapor permeable sheet are connected by plastic welding.

[0020] An advantage of the plate is the provision of mechanical stability to the bag shell access opening with its plate access opening, which builds together with the bag shell access opening the bag access opening. The plate access opening is closable by a suitable lid and thus the plate access opening provides to the bag access opening also a port functionality, which allows a removable closure of the bag access opening by a lid. Furthermore, when the plate is twist-proofly and detachably connected to the supporting tub, the plate holds via the connection at the bag access opening an upper part of the bag shell and supports the bag shell being unfolded and erected for having a large volume of the bag interior cavity. A closing as well as a re-opening of the bag access opening by a lid exerts a torque on the plate access opening, for example by screwing on a lid with an inner thread or by pressing a lid with a soft rim into or onto the plate opening access part of the bag access opening. A diameter of the lid and thus the resulting torque is typically relatively large, since a large diameter of the bag access opening is desirable for removing the dried material, which is typically in a solid form and comprises fine particles, from the bag interior cavity. Diverting the occurring torque for closing or re-opening the bag access opening via the detachably connected plate to the supporting tub allows using a less rigid, less mechanical stable but also less thick bag shell than without a mechanical support provided by the plate detachably connected at the supporting tub. The plate has typically in addition to the plate upper site and the plate lower site one or more front sides. In comparison to the one or more front sides, the area of the plate upper site and the plate lower site, including at both sites the formally empty area of the plate access opening, is large. The plate is typically planar and flat-bottomed. Thus, the plate does not take away too much tub space respectively does not occupy too much of a supporting tub recess. Furthermore, the plate does not contribute too much to an overall height of the drying system once the drying bag is positioned in the supporting tub. Additionally, when the drying bag is folded, a flat-bottomed plate is beneficial to a low storage volume of the folded drying bag. An exception to the flat-bottomed form of the plate can be the closable plate access opening in case its plate surroundings extend as a tube from the plate upper site or the plate lower site, typically from the plate upper site. The tube allows to better integrate a plate opening thread, which serves for a lid with a fitting counter thread, the plate opening thread is preferably an external thread. An external thread avoids for example that residues of dried material are holded back in thread grooves of an internal thread, when the dried material is removed via the re-opened bag access opening. An exception to the flat-bottomed form of the plate can be the plate stud, for example when the plate stud extends from the plate upper site or the plate lower site. The plate is made for example from a second plastic, a metal, a laminated wood or a laminated cardboard. The second plastic can be the same plastic as the first plastic of the pliable first plastic foil, if the plate, which is significantly thicker than the pliable first plastic foil, is still stiff enough to fulfill its mechanical functions. Preferably, the plate is made of a second plastic. The second plastic is for example polyethylene, for example a high density polyethylene, for example polyethylene HD 6081 obtainable from the company TotalEnergies, or a polypropylene. Preferably, the plate is made of a second plastic, which can be plastic-welded with one site of the vapor permeable sheet.

[0021] Preferably, the drying bag has a closable plate access opening, which has a plate opening thread.

[0022] Preferably, the drying bag has a plate, which is made of a second plastic.

[0023] The plate hole or the plate stud as a specific plate specific fastening element help to ensure a twist-proof and detachable connection of the plate at the supporting tub, when the drying bag is positioned in the supporting tub, by a form-fitting engagement with a matching fixture at the supporting tub. The plate hole is for example a plate reach-through hole, which reaches from the plate upper site or the plate lower site, or a plate blind hole, which starts from the plate upper site or the plate lower site and ends in the plate. The plate reach-through hole has the advantage of a larger contact zone with the matching fixture at the supporting tub and thus a resulting higher mechanical stability in view of the typically flat-bottomed plate. The plate stud is for example a plate perpendicular stud or a plate inclined stud. The plate perpendicular stud extends perpendicularly from the plate upper site or the plate lower site. The plate inclined stud extends at an angle different to essentially

90 degrees from the plate upper site of the plate lower site. A plate perpendicular stud has the advantage that the torque, which occurs during closing or re-opening of the bag access opening, is better absorbed, i.e., a different angle might lead to an easier pull-out of the plate stud from its matching fixture at the supporting tub. The plate stud is for example a full stud or a tube stud. The tube stud possesses a centered open hole, whereas the full stud does not have an open hole. In addition to the plate access opening and to a plate fastening element, which is a plate reach-through hole, the plate optionally comprises a plate flow opening, which reaches from the plate upper site to the plate lower site. The plate flow opening is for example a plate flow hole. In case the plate covers, for example by a direct contact or by overlaying in a close distance, parts of the bag shell outer site, which are made of the vapor permeable sheet, then a plate flow opening reduces a potential hindrance of a transfer of the gaseous evaporated component from the material to be dried through the vapor permeable sheet. A required mechanical stability of the plate should be considered in view of a number and a size of one or more plate flow openings.

[0024] Preferably, the drying bag has a plate with a plate hole or a plate stud, wherein the plate hole is a plate reach-through hole, which reaches from the plate upper site to the plate lower site, and the plate stud is a plate perpendicular stud, which is fixed at the plate upper site or the plate lower site and stands perpendicularly out.

[0025] The possibility to the choose a bag access opening with a large diameter is an advantage, when the dried material is obtained in a powdery state with a high bulk density. While filling a liquid into a container is less an issue if the liquid is not too viscous, the removal of a voluminous powder, which has partly formed larger but mechanically instable clumps or even one mechanically instable aggregate, which is often a form of the dried material especially after freeze-drying. The bag access opening of the present drying bag can be chosen with a relatively large diameter, since it is integrated and thus mechanically stabilized by the plate, which can itself be rigidly connected at the supporting tub. Thus, a bag access opening with a large diameter at the present drying bag does not require a bag shell, which is rigidly constructed for dissipating the forces involved in closing and re-opening a lid with a relatively large diameter. It is also noted that a simple cutting of the bag shell for a removal of the dried material includes a risk that debris of the bag shell from the cutting pollutes the material to be dried. Furthermore, the dried material is more openly exposed to the environment. Additionally, an opening generated by a cutting of the bag shell at the pliable first plastic foil generates a mechanically less stable port than the bag access opening. Accordingly, it is harder to control its dimensions during a removal of the dried material from the bag interior cavity. The bag access opening has typically a circular geometrical form. Thus, the bag access opening diameter is typically a circle diameter. The bag access opening diameter is preferably between 6 cm and 30 cm, for example between 7 centimeter and 20 centimeter, for example between 8 centimeter and 15 centimeter and for example between 9 centimeter and 12 centimeter. Preferably, the bag shell has one bag shell opening. Preferably, the drying bag has one bag access opening. Having only one opening has the advantage that less constructive interventions into the bag shell are necessary.

[0026] Preferably, the drying bag has a bag access opening, which has a bag access opening diameter between 6 centimeter and 30 centimeter.

[0027] The drying bag has preferably a tensioning belt. The tensioning belt serves for a fixation of the drying bag, when the drying bag is positioned for drying in the supporting tub. The fixation occurs by detachably connecting a free tensioning belt end at the supporting tub. The tensioning belt is connected to the bag shell outer site at a tensioning-belt-bag-shell connection point. The connection is a permanent connection. The connection is for example conducted by plastic welding. It is understood that for plastic welding, the material of the bag shell outer site at the connection point and the material of the tensioning belt at the connection point have to be suitable to be plastic-welded with each other. The tensioning belt is preferably made of the first pliable plastic foil. The tensioning belt is for example a double fixation tensioning belt, which possesses two free tensioning belt ends, or a single fixation tensioning belt, which possesses one free tensioning belt end. Preferably, the tensioning belt end possesses a tensioning belt fastening element. The tensioning belt fastening element is involved in a detachable connection of the tensioning belt at a supporting tub anchor for the tensioning belt fastening element, which is attached at the supporting tub. The tensioning belt fastening element is for example a perforation at the tensioning belt or a bulge at the tensioning belt. The perforation has for example a contour of a slit or a circular hole. The fixation by the tensioning belt helps to maintain a high volume of the bag interior cavity when the drying bag is unfolded and erected. This applies for an empty unfolded and erected drying bag as well as for an unfolded and erected drying bag, which is filled with the material to be dried. The fixation by the tensioning belt helps further to avoid wrinkles in the bag shell, especially where the bag shell is made of the pliable first plastic foil. One or two or more tensioning belts are possible at the drying bag. A suitable number of tensioning belts depends on the dimensions and the geometric shape of the bag shell at its maximum volume of the bag interior cavity. For an improved tightening of the bag shell, two tensioning belt ends, which are either two ends of a double fixation tensioning belt or two ends of two single fixation tensioning belts, are preferably arranged opposite to each other. For an optimal effect, this includes that the corresponding two supporting tub anchors for the tensioning belt fastening element are also arranged opposite to each other at the supporting tub.

[0028] The drying bag has preferably a tensioning belt, which possesses a free tensioning belt end and is connected to the bag shell outer site at a tensioning-belt-bag-shell connection point, and the free tensioning belt end possesses a tensioning belt fastening element, which allows a detachable connection of the free tensioning belt end at a supporting tub anchor for the tensioning belt fastening element, which is attached at the supporting tub.

[0029] Preferably, the tensioning belt fastening element is a perforation at the tensioning belt and the supporting tub anchor for the tensioning belt fastening element is a supporting tub hook for the tensioning belt.

[0030] Preferably, the tensioning belt is a double fixation tensioning belt, which possesses two free tensioning belt ends, or a single fixation tensioning belt, which possesses one free tensioning belt end.

[0031] The bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet. Looking onto the bag shell outer site from outside of the bag shell, the bag shell outer site comprises surface zones, which are made of the pliable first plastic foil, and surface zones, which are made from the vapor permeable sheet. The bag shell access opening is only a formal surface zone, which is neither made of the pliable first plastic foil nor of the vapor permeable sheet. All the surface zones of the bag shell outer site, which are made of the pliable first plastic foil, are defined as a first portion of the bag shell outer site. All the surface zones of the bag shell outer site, which are made of the vapor permeable sheet, are defined as the second portion of the bag shell outer site. A tensioning-belt-bag-shell connection point, i.e., where the tensioning belt is connected to the bag shell outer site, can be a tensioning-belt-bag-shell-first-plastic-foil connection point or a tensioning-belt-bag-shell-sheet connection point. The tensioning-belt-bag-shell-first-plastic-foil connection point is at a surface zone of the bag shell outer site, which is made of the pliable first plastic foil, respectively at the first portion of the bag shell outer site. The tensioning-belt-bag-shell-sheet connection point is at a surface zone of the bag shell outer site, which is made of the vapor permeable sheet, respectively at the second portion of the bag shell outer site. The tensioning-belt-bag-shell-first-plastic-foil connection point has the advantage that no surface zone of the vapor permeable sheet is blocked from its contribution to the overall transfer of evaporated gaseous components of the material to be dried. A tensioning belt has for example one tensioning-belt-bag-shell connection point, two tensioning-belt-bag-shell connection points, or three tensioning-belt-bag-shell connection points. At the outermost tensioning-belt-bag-shell connection point, the initially free and at a positioning in the supporting tub then detachably connected tensioning belt end starts. The tensioning-belt-bag-shell connection point, where the free tensioning belt end starts, must absorb the mechanical force from the fixation at the supporting tub. Preferably, its contour is a rectangle. The tensioning-belt-bag-shell connection point, where no free tensioning belt end starts, for example because it is in the middle of a tensioning belt having two opposite outermost tensioning-belt-bag-shell connection points, has preferably a contour of a circle. The circle is the contour which homogenously adsorbs the mechanical forces for holding the bag shell in a position to avoid wrinkles of the bag shell.

[0032] Preferably, the drying bag has a first portion of the bag shell outer site, which is made of the pliable first plastic foil, a second portion of the bag shell outer site, which is made of the vapor permeable sheet, and the tensioning-belt-bag-shell connection point of the tensioning belt, where the free tensioning belt end starts, is a tensioning-belt-bag-shell-first-plastic-foil connection point at the first portion of the bag shell outer site.

[0033] Preferably, the drying bag has a first portion of the bag shell outer site, which is made of the pliable first plastic foil, a second portion of the bag shell outer site, which is made of the vapor permeable sheet, and the tensioning-belt-bag-shell connection point of the tensioning belt is connected at a tensioning-belt-bag-shell-sheet connection point, which is at the second portion of the bag shell outer site.

[0034] The bag shell is preferably formed by a bag top wall, a bag bottom wall and at least one bag side wall. The bag top wall and the bag bottom wall are in principle parallel to each other and all of the at least one side walls extend essentially perpendicularly from the bag bottom wall, when the drying bag is unfolded and erected. The bag bottom wall and each of the at least one bag side wall are made of a pliable first plastic foil, whereas the bag top wall is partly made of the pliable first plastic foil and partly made of the vapor permeable sheet. The bag shell access opening is integrated in the top wall as a bag top wall access opening. Preferably, the bag shell access opening is at the bag top wall. Accordingly, the bag shell access opening is preferably a bag top wall access opening. The parallel orientation of the bag top wall and the bag bottom wall in combination with the perpendicularly extending side wall(s) allows a uniform height of the material to be dried with a uniform distance from the top of the material to the bag top wall, when the bag interior cavity is filled to a degree between 15 percent and up to 80 percent of the volume of the bag interior cavity, when the drying bag is positioned in the supporting tub. A complete usage of the volume would take away a space for the gaseous components evaporating from the material to be dried. A uniform thickness from the bottom to the top of the material to be dried supports a finally homogenously dried material, because there is only a difference due to a vertical placement and not an additional difference due to a horizontal placement. A finally homogenously dried material is also favored, if the height of the material to be dried is kept relatively low, for example between 1 centimeter and 4 centimeter or for example between 1.5 centimeter and 3.0 centimeter. The less height of the material to be dried the less differences

are to be expected from the specific vertical placement of a respective part of the material to be dried. This consideration favors an overall flat geometrical form of a drying bag once unfolded and erected, i.e., a high area-to-volume ratio. Furthermore, a high area is beneficial for a smooth and good heat transfer into the material to be dried during drying, when the heat transfer occurs by contact of a base of the bag shell, for example the bag bottom wall, with a warmed surface. This consideration favors also an overall flat geometrical form of a drying bag once unfolded and erected, i.e., the high area-to-volume ratio. The warmed surface is a supporting tub bottom wall, which itself is warmed on a respective heated shelf of the drying chamber. In case of freeze-drying, there is also a cooling phase, which serves to freeze the material to be dried. This also involves a heat transfer, but this time heat is flowing from the material to be dried towards a respective cooled shelf of the drying chamber. In case of one bag side wall, the unfolded and erected bag shell has a geometrical form of a cylinder. In case of two bag side walls, the geometrical form is a half cylinder. In case of three bag side walls, the geometrical form is for example a prism. In case of four bag side walls, the geometrical form is for example a cuboid. It is understood that the respective forms are to some extent idealized, for example the bag top wall might be not perfectly planar respectively having curvatures and depressions. For example, the edges of the respective geometrical form are curved caused by bends of the pliable first plastic foil. A bag shell with a geometrical form of a cuboid has the advantage that a manufacturing from an endless hose made of the pliable first plastic foil is possible. The manufacturing requires the closing of both ends of a tube, which is cut from the endless hose, and optionally some cutting at these ends prior the closing. Of course, the vapor permeable sheet needs also to be inserted, for example by cutting a respective opening in the tube wall followed by welding with a respective piece of the vapor permeable sheet. However, a bag bottom wall, a bag top wall and two of the bag side walls, i.e., preferably the two ones which have a larger length unless the cuboid is a cube, are formed automatically, when the drying bag is unfolded and erected during positioning in the supporting tub. The pliable first plastic foil is beneficial for avoiding a need for preformed joints at the transitions of the bag bottom wall to the two of the bag side walls and the transitions from for these two bag side walls to the bag top wall.

[0035] Preferably, the bag shell of the drying bag is formed by

one bag top wall having a bag top wall upper site, a bag top wall lower site and a bag top wall access opening, which reaches from the bag top wall upper site to the bag top wall lower site,

one bag bottom wall having a bag bottom wall upper site and a bag bottom wall lower site, at least one bag side wall having a bag side wall inner site and a bag side wall outer site,

the bag top wall lower site, the bag bottom wall upper site and all of the at least one bag side wall inner sites define the bag interior cavity,

the bag shell access opening is the bag top wall access opening,

the bag bottom wall and each of the at least one bag side wall are made of a pliable first plastic foil,

the bag top wall is partly made of the pliable first plastic foil and partly made of the vapor permeable sheet.

[0036] Preferably, the drying bag has a bag shell, which has four bag side walls and is in the form of an approximated cuboid, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub.

[0037] A bag top wall edge is the transition from the bag top wall to a bag side wall. In other words, the bag top wall edge connects to a bag side wall. A bag top wall edge is well-defined once the drying bag is positioned in the supporting tub. When determined by a vertical top view, i.e. by viewing from above onto the top wall, the bag top wall edge extends in the direction of the respective side wall until the essentially perpendicular side wall start. It is understood that a bag top wall edge is geometrically idealized in the form of a right angle but deviates from this due to gravity and a possible bending angle of the bag shell material at the bag top wall edge. If each of the bag top wall edges of the bag top wall is made of the same material, then a bag top wall frame is defined on the bag top wall upper site. The bag top wall frame surrounds perimetrically - and thus defines - an inner zone of the bag top wall upper site. This initially merely formal definition of an inner zone gets relevant once the bag shell outer site at the inner zone of the bag top wall upper site is made of a different material than bag top wall frame. For example, the bag top wall frame is made of the pliable first plastic foil and the inner zone of the bag top wall frame is made of the vapor permeable sheet with an exception of the bag shell access opening. Preferably, all of the first-plastic-foil-to-sheet connection points are at the top wall. Preferably, all of the first-plastic-foil-to-sheet connection points are at the bag top wall frame at the top wall. An advantage of the bag top wall edge being made of the pliable first plastic foil is that the pliable first plastic foil is more amenable to a bending than the vapor permeable sheet, which is tentatively less bendable than the pliable first plastic foil. The bag top wall frame consists geometrically formally out of a closed bag top wall edge strip, which has a constant or variable bag top wall edge strip width. If the bag top wall edge strip width gets too small, then a material foreseen for the inner zone of the top wall upper site extends into a bag top wall edge and gets bended. If the bag top wall edge strip width gets too large, then the area foreseen for a material with vapor permeability decreases and can impact a stream of gaseous evaporated components from the material to be dried

during drying, which is located at the bag interior cavity close to a respective side wall. Preferably, the bag top wall edge strip width is in a range above 4 millimeter and below 50 millimeter. More preferably, it is in a range of above 5 millimeter and below 30 millimeter. Very preferably, it is in a range of above 6 millimeter and below 25 millimeter.

[0038] Preferably, the drying bag has a bag top wall, which connects to a bag side wall at a bag top wall edge and each bag top wall edge is made of the pliable first plastic foil.

[0039] Preferably, the drying bag has a first portion of the bag shell outer site, which is made of the pliable first plastic foil, a second portion of the bag shell outer site, which is made of the vapor permeable sheet, and all of the bag top wall edges form a perimetrical bag top wall frame at the bag top wall upper site, which surrounds the second portion of the bag shell outer site at the bag top wall upper site.

[0040] If the tensioning belt is connected at a zone of the bag shell outer site, which is part of the bag top wall upper site, then the tensioning belt is a bag top wall tape strip. If a tensioning belt is connected at a zone of the bag shell outer site, which is part of the bag bottom wall lower site, then the tensioning belt is a bag bottom wall tape strip. In case the bag top wall tape strip is also a double fixation tensioning belt, which has two free tensioning belt ends, i.e. a double fixation bag top wall tape strip, and both tensioning belt ends are directed to opposite directions, then there is the possibility for a bag-top-wall-tape-strip connection point to act also as a tension beam, who carries a part of the weight of the bag top wall. By carrying a part of the weight of the bag top wall, a thread for this part of the top wall to sag in the direction of the bag bottom wall is diminished. An advantage of using the double fixation bag top wall tape strip with its both ends directed in opposite directions is keeping an overall flat height once the drying bag is positioned in the supporting tub. There is no additional installation height introduced by a beam at the supporting tub. Furthermore, the beam would have to be integrated into the supporting tub setup as an additional element. In general, a bag-top-wall-tape-strip connection point is at the top wall close to the nearest bag side wall and a bag bottom wall tape strip connection point is at the bag bottom wall close to the nearest bag side wall. This allows to keep the edges of the geometrical form of the unfolded and erected drying bag positioned in the supporting tub. A bag top wall tape strip might partly overlay the vapor permeable sheet at the bag top wall upper site. A bag top wall tape strip has for example a bag top wall tape strip flow aperture. The bag top wall tape strip flow aperture is not located at the bag top wall tape strip end. The bag top wall tape strip flow aperture is located at a position, where the bag top wall tape strip covers the vapor permeable sheet at the bag top wall upper site. In case the bag top wall tape strip plate covers, for example by a direct contact or by overlaying in a close distance, parts of the bag top wall outer site, which are made of the vapor permeable sheet, then a bag top wall tape strip flow aperture reduces a potential hindrance of a transfer of the gaseous evaporated component from the material to be dried through the vapor permeable sheet. A required mechanical stability of the bag top wall tape strip should be considered in view of a number and a size of one or more bag top wall tape strip flow apertures.

[0041] Preferably, the drying bag has a tensioning belt that is a bag top wall tape strip, the tensioning belt end is a bag top wall tape strip end, the tensioning-belt-bag-sheet connection point is a bag-top-wall-tape-strip connection point, the bag shell outer site is the upper bag top wall site, the tensioning belt fastening element is a bag top wall tape strip fastening element and the supporting tub anchor for the tensioning belt fastening element is a supporting tub anchor for the bag top wall tape strip fastening element. Preferably, the bag top wall tape strip fastening element is a perforation at the bag top wall tape strip and the supporting tub anchor for the bag top wall tape strip fastening element is a supporting tub hook for the bag top wall tape strip.

[0042] Preferably, the drying bag has a tensioning belt, which is a double fixation tensioning belt and a double fixation bag top wall tape strip, which possesses two free bag top wall tape strip ends. Preferably, the two free bag top wall tape strip ends are directed in opposite directions.

[0043] Preferably, the drying bag has a tensioning belt, which is a bag bottom wall tape strip, the tensioning belt end is a bag bottom wall tape strip end, the tensioning-belt-bag-shell connection point is a bag bottom wall tape strip connection point, the outer bag shell site is the lower bag bottom wall site, and the tensioning belt fastening element is a bag bottom wall tape strip fastening element and the supporting tub anchor for the tensioning belt fastening element is a supporting tub anchor for the bag bottom wall tape strip fastening element. Preferably, the bag bottom wall tape strip fastening element is a perforation at the bag bottom wall tape strip and the supporting tub anchor for the bag bottom wall tape strip fastening element is a supporting tub hook for the bag bottom wall tape strip.

[0044] Preferably, the drying bag has a tensioning belt, which is a double fixation tensioning belt and a double fixation bag bottom wall tape strip, which possesses two free bag bottom wall tape strip ends.

[0045] The bag bottom tape strips, for example a single fixation bag bottom wall tape strip or a double fixation bag bottom wall tape strip, can have an extended overall length. The free bag bottom wall tape strip end is then extended by at least the height of a bag side wall. This allows that the free extended bag bottom wall tape strip end is guided through or around a supporting tub hold-down. A supporting tub hold-down allows to detachably connect the tensioning belt fastening element of the bag bottom wall tape strip end at a supporting tub anchor for the tensioning belt fastening element, which is attached

at a supporting tub side wall top rim. This allows to keep the supporting tub bottom wall upper site free of a supporting tub anchor for the tensioning belt fastening element. This avoids a danger of harming the bag shell, especially the bag bottom wall, which is made of the pliable first plastic foil.

[0046] Preferably, the drying bag has a tensioning belt, which is a double fixation bag bottom wall tape strip and has an overall length and the overall length is larger than the sum of the width of the bag bottom wall and two times the height of the at least one bag side wall.

[0047] The plate is connected at its closable plate access opening with the bag shell at its bag shell access opening. The plate lower site is located above the bag shell outer site, for example specifically at the bag top wall upper site, the closable plate access opening overlays the bag shell opening, for example specifically the top wall access opening, and the plate and the bag shell, for example specifically the bag top wall are connected at the closable plate access opening and the bag shell access opening, for example specifically the top wall access opening. For example, a bag-shell-connecting zone of the plate lower site surrounds the closable plate access opening, and a plate-connecting zone of the bag shell outer site surrounds the bag shell access opening. Both zones are opposite to each other and are put together to form together a bag-shell-plate connection point, for example specifically a bag-top-wall-plate connection point. The connection is typically tight for the material to be dried, the gaseous evaporated components of the material to be dried and the dried material. The connection is for example conducted by plastic welding, if a material of the plate at the bag-shell-connecting zone of the plate lower site and a material of the bag shell at the plate-connecting zone of the bag shell outer site can be plastic-welded with each other. Alternatively, a suitable glue is an option, if the glue is inert at least for the time and under the conditions of drying against the material to be dried, the gaseous evaporated components of the material to be dried and the dried material. Another possibility is that both zones are sufficiently pressed together to be tight, and the pressing is achieved by a mechanical device, for example a series of small clamps or staples or a bulging projection at the plate lower site, which surrounds the plate access opening and allows a put-over of the bag shell access opening. Preferably, the bag shell access opening is at the bag top wall, the bag shell access opening is a bag top wall access opening, the plate-connecting zone of the bag shell outer site is a plate-connecting zone of the bag top wall upper site, and the bag-shell-plate connection point is a bag-top-wall-plate connection point. It is advantageous, if the plate-connecting zone of the bag shell outer site, for example specifically the plate-connecting zone of the bag top wall upper site, is completely at the bag shell zone, for example specifically the top wall zone, which is made of the vapor permeable sheet. If so, the bag-shell-plate connection point, for example specifically the bag-top-wall-plate connection point, has also a function of holding a part of the weight of the bag shell, for example specifically a part of the weight of the top wall, in the unfolded and erected geometric form of the drying bag, when the drying bag is positioned in the supporting tub. This is in view that ideally, for example without a consideration of a bag top wall frame and its advantages for the bag top wall edges, the complete top wall is made solely of the vapor permeable sheet to provide as much area as formally possible for a transfer of gaseous evaporated components of the material to dried through the vapor permeable sheet during drying. The bag top wall upper site has a total areal size, which can be determined by a vertical top view. The more area of the bag top wall upper site is made solely of the vapor permeable sheet, the higher the possibility of a transfer respectively a transfer rate. It is noted that the complete area cannot be made solely of the vapor permeable sheet. There is at least the area of the bag top wall access opening, which is - once the bag access opening is closed by a lid - blocked for a transfer. There is further the bag-top-wall-plate connection point, where a vapor permeable sheet at the plate-connecting zone of the bag top wall upper site is overlayed with connection contact by the bag-top-wall-connecting zone of the plate lower site. Accordingly, this area is blocked for a transfer. There is further the first-plastic-foil-to-sheet connection point with its additional layer made of the pliable first plastic foil. Accordingly, this area is blocked for a transfer. There are the areas of the bag top wall edges, which are made of the pliable first plastic foil. Accordingly, these areas are blocked for a transfer. There might be a bag-top-wall-tape-strip-sheet connection point, where the vapor permeable sheet is overlayed with connection contact by the material of the bag top wall tape stip. Nevertheless, it is desirable that between 35 to 90 percent of the total areal size of the bag top wall outer site as determined by a vertical top view are made solely of the vapor permeable sheet.

[0048] Preferably, the drying bag has a first portion of the bag shell outer site, which is made of the pliable first plastic foil, a second portion of the bag shell outer site, which is made of the vapor permeable sheet, and a bag-shell-connecting zone of the plate lower site, which surrounds the closable plate access opening, and a plate-connecting zone of the bag shell outer site, which surrounds the bag shell access opening, are opposite to each other and define the bag-shell-plate connection point, which surrounds the closable plate access opening and the bag shell access opening and at which the plate and the bag shell are connected, and the plate-connecting zone of the bag shell outer site is at the second portion of the bag shell outer site.

[0049] Preferably, the drying bag has a plate-connecting zone of the bag shell outer site, which is a plate-connecting zone of the bag top wall upper site, the bag shell access opening is the bag top wall access opening, the bag-shell-plate connection point is a bag-top-wall-plate connection point, and the second portion of the bag

shell outer site is at the bag top wall upper site.

[0050] Preferably, the drying bag has a first portion of the bag shell outer site, which is made of the pliable first plastic foil, a second portion of the bag shell outer site, which is made of the vapor permeable sheet, and the bag top wall upper site has a total areal size determined by a vertical top view, and the second portion of the bag shell outer site covers between 35 to 90 percent of the total areal size of the bag top wall outer site as determined by a vertical top view and is solely made of the vapor permeable sheet, for example between 45 to 85 percent, for example 55 to 80 percent and for example 65 to 75 percent.

[0051] The closable plate access opening can be closed by a removable lid, which leads to a closure of the bag access opening and thus of the drying bag unless the lid itself contains an unclosed opening. It is understood that a closed drying bag means that the drying bag is essentially tight for the material to be dried and for the dried material except for whatever can transfer through the vapor permeable sheet. The removable lid is for example a removable plug or a removable lid with a counter thread, which fits to the plate opening thread. The removable lid with the counter thread can be screwed onto the plate opening thread. A large diameter of the bag access opening is especially helpful for removal of dried material, which is in solid form, from the bag interior cavity. Filling of the material to be dried into the bag interior cavity of a drying bag positioned in a supporting tub might not require a large diameter for an efficient access in view of the material to be dried being often in a pumpable liquid form. Furthermore, a measurement of a property of the material to be dried, e.g., its temperature, might also not require a large diameter for an efficient access in view of many probes being available in a small dimension. Thus, it is of advantage if the removable lid with its large diameter does not have to be always removed and instead, an access option exists at the removable lid. Preferably, the removable lid comprises a closable lid opening, which reaches from the lid upper site to the lid lower site. This allows an access with a smaller diameter to the bag interior cavity without removing the removable lid from the bag access opening with its larger diameter. Preferably, the removable lid comprises a closable lid opening and a lid opening thread. The lid opening thread allows that the lid opening is removably closed by a removable cap, which has a cap counter thread, and the cap counter thread fits to the lid opening thread. For a temperature measurement of the material to be dried during the drying, an insertion of a temperature probe into the material to be dried is beneficial. An option to so is that the removable cap, which comprises a cap counter thread and the cap counter thread fits to the lid opening thread, comprises further a closable cap opening. The closable cap opening can be closed with a removable semi-closed guide tube suitable for removably inserting a temperature probe into the semi-closed guide tube. The semi-closed guide tube has a length, which allows to reach into the bag interior cavity and there close to the bottom wall. Accordingly, a closed bottom of the semi-closed guide tube reaches into a material to be dried in the drying bag, which is positioned in the supporting tub and filled with the material to be dried. An insertion of a temperature probe, which fits to the inner body of the semi-closed guide tube and is in physical contact with the semi-closed guide tube, allows a measurement of the temperature in the material to be dried via an indirect physical contact. It is noted that in case of a several drying systems being placed in a drying chamber, a temperature measurement might only be conducted in one or two of the several drying systems. Accordingly, some of the semi-closed guide tubes at the respective caps remain without an inserted temperature probe or a removable cap without a cap opening but with a cap counter thread is screwed onto the respective lid openings with a lid opening thread for an overall closure of the bag access opening by the removable lid with the closable lid opening. For a test calibration of the temperature measurement, the large diameter of the bag access opening allows to introduce into the bag interior cavity a wireless temperature probe, which is sufficiently capsuled to be chemically resistant against the material to be dried. The test calibration might serve to control the temperature measured by the temperature probe inserted to the semi-closed guide tube or to work generally with significantly less temperature probes, if similar drying campaigns of material to be dried originating from similar batches in a similar drying chamber are repeated under similar drying conditions. While the dried material from the drying bag of the calibration drying bag might afterwards be disposed in case of very stringent requirements of no deviation. The lid and the cap are for example made from a third plastic. The third plastic is for example a polyethylene, for example a high-density polyethylene, for example polyethylene HD 6081 obtainable from the company TotalEnergies. The guide tube is for example made from a fourth plastic. The fourth plastic is for example a fluoroplastic resin, for example Teflon (TM) PFA 440 HPB obtainable from the company Chemours.

[0052] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid.

[0053] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which comprises a lid counter thread, which fits to the plate opening thread.

[0054] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid having a lid upper site and a lid lower site, which comprises a closable lid opening, which reaches from the lid upper site to the lid lower site, and a lid opening thread.

[0055] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which has a closable lid opening and a lid opening thread, which closable lid opening is closed with a removable cap, which has a cap counter thread, and the cap counter thread fits to the lid opening thread.

[0056] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which has a closable lid opening and a lid opening thread, which closable lid opening is closed with a removable cap, which has a cap counter thread, and the cap counter thread fits to the lid opening thread, and which has a closable cap opening.

[0057] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which has a closable lid opening and a lid opening thread, which closable lid opening is closed with a removable cap, which has a cap counter thread and the cap counter thread fits to the lid opening thread, and which has a closable cap opening, and which closable cap opening is closed with a removable semi-closed guide tube suitable for removably inserting a temperature probe into the semi-closed guide tube.

[0058] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which has a closable lid opening and a lid opening thread, which closable lid opening is closed with a removable cap, which has a cap counter thread and the cap counter thread fits to the lid opening thread, and which has a closable cap opening, and which closable cap opening is closed with a removable semi-closed guide tube suitable for removably inserting a temperature probe into the semi-closed guide tube, and the temperature probe is removably inserted in the semi-closed guide tube.

[0059] The removable lid as mounted on the bag access opening, for example a removable lid with a lid counter thread screwed onto the closable plate access opening and thus closing the drying bag, contributes to the overall height of the drying system with the closed drying bag positioned in the supporting tub and the plate detachably connected to the supporting tub. Space for drying in a drying chamber is valuable, particularly in case of freeze-drying in view of the reduced pressure in the drying chamber and the involved increased technical requirements for a reinforced construction of the drying chamber. As previously addressed, an overall flat geometrical form of a drying bag once unfolded and erected after positioning in the supporting tub, i.e., with a high area-to-volume ratio, is desirable. A removable lid with a closable lid opening and a lid opening thread, which extends from the lid opening, can add additional height by the extending lid opening thread. It is desirable that a removable lid with a closable lid opening and a lid opening thread remains as flat as a removable lid without a closable lid opening and without a lid opening thread. It is understood that the same applies once a removable cap is closing the closable lid opening.

[0060] Preferably, the drying bag has a closable plate access opening, which is closed with a removable lid, which removable lid has an upper lid site and a lid lower site and comprises further a closable lid opening, which reaches from the lid upper site to the lid lower site, and a lid opening thread, the lid upper site comprises a lid outer plateau, a lid inner plateau, a lid inner base and a lid flank, the lid inner plateau surrounds the closable lid opening and is limited at one site by the closable lid opening and at one site by the lid opening thread, the lid inner base is limited at one site by the lid opening thread and at one site by the lid flank, the lid flank is limited at one site by the lid inner base and at one site by the lid outer plateau, and when the removable lid is placed on its lower lid site, the lid outer plateau is higher than the lid inner plateau.

[0061] A material to be dried is a starting mixture Mix-start-1, which contains a substance Sub-1, which cannot be transformed into a gaseous evaporated component during the applied conditions of drying, and a component, which can be transformed into a gaseous evaporated component during the applied conditions of drying, in a starting concentration of the component. The dried material is an ending mixture Mix-end-1, which contains the substance Sub-1 and is free of the component or contains the component in an ending concentration of the component, which is smaller than the starting concentration of the component. The material to be dried is typically in a liquid state, preferably in a liquid state at 20 °C and at a pressure of 101.325 kPa, and the dried material is desirably in a solid state, preferably in a solid state at 20 °C and at a pressure of 101.325 kPa. The component is for example a solvent Sol-1. The solvent Sol-1 is for example water, methanol, ethanol, 1-propanol, 2-propanol, acetonitrile, tetrahydrofuran, 1,4-dioxane or a mixture thereof. The solvent Sol-1 is preferably water or an aqueous solvent mixture, which contains water and a water miscible organic solvent. The solvent Sol-1 is preferably water or an aqueous solvent mixture, which contains water and an organic solvent, which is methanol, ethanol, acetone or acetonitrile. Preferably, each organic solvent in the aqueous solvent mixture is a water miscible organic solvent. Preferably, each organic solvent in the aqueous solvent mixture is miscible with water in any volume or weight ratio at 20 ° C and a pressure of 101.325 kPa. Preferably, the starting mixture Mix-start-1 contains water in a total amount of between 40 % and 99.5 % by weight of the starting mixture, more preferably between 60 % and 99.0 % by weight of the starting mixture, very preferably between 80 % and 98.5 % by weight of the starting mixture, particularly between 90 % to 98.0 % by weight of the starting mixture. Preferably, the starting mixture Mix-start-1 contains water in a total amount of between 40 g and 99.5 g per 100 mL volume of the starting mixture, more preferably between 60 g and 99.0 g per 100 mL volume of the starting mixture, very preferably between 80 g and 98.5 g per 100 mL volume of the starting mixture, particularly between 90 g to 98.0 g per 100 mL volume of the starting mixture. The substance Sub-1 is for example a biological or pharmaceutical substance Sub-1, which is found in an organism or manufactured for use as a medical drug. The substance Sub-1 is for example a polypeptide or an oligonucleotide. The substance Sub-1 is for example an organic substance Sub-1. The organic substance Sub-1 is for example a polypeptide, which is originates from an organ-

ism, or a polypeptide, which originates from a synthetic reaction in the absence of an organism. The substance Sub-1 is for example dissolved or suspended in the component. Preferably, the substance Sub-1 is dissolved in the component. More preferably, the substance Sub-1 is dissolved in the solvent Sol-1. Very preferably, the substance Sub-1 is dissolved in the Sol-1 at 20 °C and at a pressure of 101.325 kPa. Preferably, the starting mixture Mix-start-1 is liquid at 20 °C and at a pressure of 101.325 kPa. Preferably, the starting mixture Mix-start-1 is pumpable at 20 °C and at a pressure of 101.325 kPa. Preferably, the starting mixture Mix-start-1 has a dynamic viscosity in a range between 0.2 and 100 mPa s (cP) at 20 °C and at a pressure of 101.325 kPa. Preferably, the starting mixture Mix-start-1 contains the substance Sub-1 in a total amount of between 60 % and 0.5 % by weight of the starting mixture, more preferably between 40 % and 1.0 % by weight of the starting mixture, very preferably between 20 % and 1.5 % by weight of the starting mixture, particularly between 10 % to 2.0 % by weight of the starting mixture, more particularly between 5 % to 2.1 % by weight of the starting mixture, very particularly between 4 % to 2.3 % by weight of the starting mixture and especially between 3.5 % to 2.5 % by weight of the starting mixture. Preferably, the starting mixture Mix-start-1 contains the substance Sub-1 in a total amount of between 60 g and 0.5 g per 100 mL volume of the starting mixture, more preferably between 40 g and 1.0 g per 100 mL volume of the starting mixture, very preferably between 20 g and 1.5 g per 100 mL volume of the starting mixture, particularly between 10 g to 2.0 g per 100 mL volume of the starting mixture, more particularly between 5 g to 2.1 g per 100 mL volume of the starting mixture, very particularly between 4 g to 2.3 g per 100 mL volume of the starting mixture and especially between 3.5 g to 2.5 g per 100 mL volume of the starting mixture. The pliable first plastic foil is essentially tight for the starting mixture Mix-1, the substance Sub-1 and the solvent Sol-1, and a vapor permeable sheet, which is permeable for the solvent Sol-1 in gaseous form and essentially tight for the solvent Sol-1 in liquid form or in solid form, essentially tight for the substance Sub-1 in gaseous, liquid or solid form and essentially tight for the mixture Mix-start-1 in liquid or solid form. It is understood that essentially tight means herein tight under reasonably applied conditions of drying for a period normally applied for drying and an acceptance of a release of trace amounts, which is acceptable for the material to be dried or the dried material. For example, tight means at least a tightness for water at a temperature of 20°C and at a pressure of 101.325 kPa. For example, conditions of drying in the form of freeze-drying are a temperature range between 40°C and -50 °C, a pressure range between atmospheric pressure, for example 101.325 kPa, and a reduced pressure, for example 0.1 kPa, and a period for drying between 3 hours and 72 hours. For example, a vapor permeable sheet can be chosen chosen such that a specific containment level is achieved for a specific drying process with a given drying system. Fine solid particles of the dried material, for example airborne particles, may emerge during drying or freeze-drying. The vapor permeable sheet is preferably constructed such that it is essentially impermeable for particles emerging during the drying or freeze-drying process, i.e., during the drying steps and subsequent steps such as ventilation of the drying chamber and resuspension of the material. Hence, a vapor permeable sheet typically provides a barrier to airborne solid particles emerging during drying, especially freeze-drying. Typically, the average size of such emerging particles is between 1 micrometer and 100 micrometer as measured by Focused Beam Reflectance Measurement technology. However, the particle size may be larger or smaller, which depends on the specific material to be dried, the applied drying conditions and if comminuting of the dried material in the bag interior cavity is conducted. The vapor permeable sheet will be chosen such that the mass concentration of dried material in the air of the drying chamber is below a specific value after completion of the drying process with the maximally used load of material to be dried. A required level of containment typically depends on the nature of the material to be dried. Typical values are, e.g., selected from below 0.05 $\mu g / m^3$, below 0.1 $\mu g / m^3$, below 1 $\mu g / m^3$, and below 10 $\mu g / m^3$. Hence, a vapor permeable sheet is used, which allows containment of the dried material at a required level. For example, a vapor permeable sheet is used which allows containment of the dried material such that its maximal concentration in the air of the drying chamber is below 10 $\mu g / m^3$, below 1 $\mu g / m^3$, below 0.1 $\mu g / m^3$, or below 0.05 $\mu g / m^3$. A skilled person will routinely carry out tests with different sheet materials to select an appropriate sheet for a specific purpose.

[0062] Preferably, the drying bag is a drying bag for drying a biological or pharmaceutical material, which biological or pharmaceutical material is a mixture Mix-start-1 comprising a substance Sub-1, which is a biological or pharmaceutical substance Sub-1, and a solvent Sol-1 and the substance Sub-1 is dissolved in the solvent Sol-1.

[0063] Preferably, the drying bag has a pliable first plastic foil, which is essentially tight for a starting mixture Mix-start-1, the substance Sub-1 and the solvent Sol-1, and a vapor permeable sheet, which is permeable for the solvent Sol-1 in gaseous form and essentially tight for the solvent Sol-1 in liquid form or in solid form, essentially tight for the substance Sub-1 in gaseous, liquid or solid form and essentially tight for the starting mixture Mix-start-1 in liquid or solid form.

[0064] The technical and functional features addressed in the context of the drying bag including preferences apply similarly to the below described further embodiments of the invention, for example a drying system and a method for drying a material.

[0065] A further embodiment of the invention is a drying system, which comprises

a drying bag for drying a biological or pharmaceutical material, which comprises

a bag shell having a bag shell outer site, a bag shell inner site, a bag interior cavity and a bag shell access opening, which reaches from the bag shell outer site to the bag shell inner site,
a plate having a plate upper site, a plate lower site and a closable plate access opening, which reaches from the plate upper site to the plate lower site,
a bag access opening, which is at least partly defined by the closable plate access opening and the bag shell access opening, and which provides an access to the bag interior cavity,

wherein the bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet,
the plate and the bag shell are connected at the bag access opening,
the plate comprises a plate fastening element, which is a plate hole or a plate stud, and which is involved in a twist-proof and detachable connection of the plate at a supporting tub, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub, and

a supporting tub, which comprises

one supporting tub bottom wall having a supporting tub bottom wall upper site and a supporting tub bottom wall lower site,
at least one supporting tub side wall having each a supporting tub side wall inner site, a supporting tub side wall outer site and a supporting tub side wall top rim,

the number of supporting tub side walls is an integer and equal to or higher than the sum of all bag side walls,
each of the at least one supporting tub side walls extends from the supporting tub bottom wall,
the supporting tub bottom wall upper site and the supporting tub side wall inner sites define a supporting tub recess,
the supporting tub recess is sized and shaped to position the drying bag therein,

wherein the drying bag is positioned in the supporting tub and the plate is twist-proofly and detachably connected at the supporting tub under involvement of the plate fastening element.

[0066] An already addressed function of the supporting tub is to keep the unfolded drying bag erected once positioned in the supporting tub. Furthermore, the supporting tub has the already addressed function of a safety device in case of a leakage of the material to be dried from the bag interior cavity through the bag shell. This safety function requires that the supporting tub is tight at its bottom wall and each of its at least one supporting tub side walls from the bottom wall up to the height of the material to be dried in the drying bag, which height is determined starting from the supporting tub bottom wall upper site. For example, the supporting tub is tight if each of the at least one supporting tub side wall is free of an unclosed opening or a hole, which reaches from the supporting tub side wall inner site of one of the at least one supporting tub side walls to the supporting tub side wall outer site, and which is below the height of the material to be dried in the drying bag, which height is determined starting from the supporting tub bottom wall upper site. Furthermore, if the supporting tub bottom wall is free of an unclosed opening or a hole, which reaches from the supporting tub bottom wall upper site to the supporting tub bottom wall lower site. The supporting tub is preferably an open tub, which is at least partially open at the site opposite to the supporting tub bottom wall upper site. A positioning of the drying bag in the supporting tub leads to the desired supporting function of the supporting tub, i.e., a situation that parts of the bag shell outer site lie on the supporting tub bottom wall upper site, with an exception in case of a tensioning belt attached at these parts of the bag shell outer site, and each of the bag side wall outer sites touches a supporting tub side wall inner site. Preferably, the bag bottom wall lower site lies on the supporting tub bottom wall upper site, with an exception in case of a bag bottom wall tape strip, and each of the bag side wall outer sites touches a supporting tub side wall inner site. A thickness of the at least one supporting tub side wall, i.e., the shortest distance between a supporting tub side wall's inner site and outer site, is preferably only thick enough to fulfill the mechanical stability function and the desired overall mechanical stability or mechanical robustness of the drying system. A thickness of the supporting tub bottom, i.e., the shortest distance between a supporting tub bottom wall's upper site and lower site, is preferably only thick enough to fulfill the mechanical stability function, the desired overall mechanical stability or mechanical robustness of the drying system and to keep its geometrical form for an efficient heat transfer. The heat transfer occurs from a temperature-regulated shelf of a drying chamber once the drying system is put onto it and drying has started, via the supporting tub bottom wall and via the bag shell to the material to be dried in the bag interior cavity. A positive heat transfer to the material to be dried occurs, when the shelf is warmed, whereas a negative heat transfer occurs to the material to be dried, when the shelf is cooled. Cooling respectively freezing of the material to be dried is an initial step during a freeze-drying procedure. If the supporting tub bottom wall is too thin, then a curling of the supporting tub bottom wall during repeated usage can be a danger and a continuous contact with the temperature-regulated shelf of the drying chamber is interrupted at a

part of the supporting tub bottom wall lower site. It is noted that there is no physical contact foreseen between the material to be dried or the dried material with the supporting tub unless an accidental leakage of the bag shell. Accordingly, there is no need for a cleaning, for example a washing, of the supporting tub after each drying. Efforts for cleaning can be postponed for example to the end of a drying campaign with several individual dryings. The supporting tub is for example made of a metal, for example stainless steel, a nickel alloy, or a titanium alloy. The stainless steel is for example stainless steel 316 L, for example stainless steel 316L with a surface finish 2B and an average roughness R_A equal to or smaller than 0.8 micrometer. The nickel alloy is for example Hastelloy C-22 (TM) from the company Haynes. The titanium alloy is for example titanium grade 5.

[0067] Preferably, each of the at least one supporting tub side walls extends perpendicularly from the supporting tub bottom wall.

[0068] Preferably, the number of supporting tub side walls is an integer and equal to the sum of all bag side walls.

[0069] Preferably, the drying system has a drying bag with a bag interior cavity, which bag interior cavity has a bag interior volume $V_{int\text{-}bag}$, the supporting tub recess has a supporting tub recess volume $V_{sup\text{-}recess}$, and the bag interior cavity volume $V_{int\text{-}bag}$ is smaller than the supporting tub recess volume $V_{sup\text{-}recess}$.

[0070] Preferably, the drying system has a supporting tub, which is made of stainless steel.

[0071] For example in case of one bag side wall, the unfolded and erected bag shell has a geometrical form of a cylinder. Then the supporting tub has preferably one supporting tub side wall and a geometrical form of an open cylinder, i.e., with a missing roof area. In case of two bag side walls, the geometrical form is a half cylinder. Then the supporting tub has preferably two supporting tub side walls and a geometrical form of an opened half cylinder, i.e., with a missing roof area. In case of three bag side walls, the geometrical form is for example a prism. Then, the supporting tub has preferably three supporting tub side walls and a geometrical form of an opened prism, i.e., with a missing roof area. In case of four bag side walls, the geometrical form is for example a cuboid. Then the supporting tub has preferably four supporting tub side walls and a geometrical form of an opened cuboid, i.e., with a missing roof area. The supporting tub with a geometrical form of an opened cuboid has for example a length of 75 centimeter, a width of 30 centimeter and a height of 5 cm. It is understood that the respective forms are to some extent idealized, for example a supporting tub overhang or a supporting tub anchor for a tensioning belt fastening element at a supporting tub side wall top rim can create a deviation. For example, the edges of the respective geometrical forms are slightly curved because the supporting tub is manufactured by bending of a laser cutted sheet followed by connecting the edges of the supporting tub side walls, which are lying next to each other, for example by welding. At the example of the 75 centimeter-30-centimeter-5-centimeter-opened-cuboid supporting tub, a supporting tub anchor for a tensioning belt fastening element at a supporting tub side wall top rim, which is a supporting tub hook for the bag top wall tape strip, could add an additional height of 0.8 centimeter to the height of 5 cm. The length of the supporting tub hook for the bag top wall tape strip is for example 3 centimeter. The height of 5 cm is the height of the supporting tub side wall, which reaches from the supporting tub bottom wall lower site until the supporting tub side wall top rim without a supporting tub anchor for a tensioning belt fastening element.

[0072] Preferably, the drying system has a drying bag with a bag shell, which has four bag side walls and is in the geometrical form of an approximated cuboid, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub, and the number of supporting tub side walls is four and the supporting tub bottom wall has a rectangular form.

[0073] A detachable connection of the plate to the supporting tub, which is twist-proof and detachable, is desirably conducted in a few simple steps. A form-fitting engagement of all plate fastening elements with their respective matching fixtures at the supporting tub is beneficial for a simple conduction of the detachable connection. A force-fitting element in the connection is for example provided by a bolt or a clamp. Preferably, the plate of the drying bag is detachably connected to the supporting tub under an additional involvement of a bolt or a clamp. Preferably, the plate of the drying bag is detachably connected to the supporting tub under an additional involvement of a bolt. Preferably, the plate of the drying bag is detachably connected to the supporting tub under an additional involvement of a bolt and the bolt has a bolt head with a bolt head knurling. The bolt head knurling allows a better screwing in and unscrewing of the bolt to a fitting thread by hand without an additional tool. The bolt or the clamp is for example made of a metal or a fifth plastic. The fifth plastic is for example polyamide 6.6. The fifth plastic is especially suitable for a single use, whereas the metal is especially suitable for multiple use. The metal of the bolt or of the clamp is for example stainless steel, for example stainless steel with anti-galling properties, for example stainless steel of the grade 1.4057, for hardened medical steel 1.4057. The metal of the bolt or of the clamp is for example a nickel alloy, for example Nitronic 60 (TM). A supporting tub overhang attached at a supporting tub side wall top rim is for example a suitable part of the supporting tub for attaching the respective matching fixtures for an engagement of the plate fastening element. The supporting tub overhang has for example a flat plate-type form with a supporting tub overhang upper site and a supporting tub overhang lower site. The supporting tub overhang lower site is directed towards the supporting tub bottom wall upper site. In addition to a supporting tub overhang reach-

through hole, which is involved a detachable connection of the plate, the supporting tub overhang comprises optionally a supporting tub overhang flow opening, which reaches from the supporting tub overhang upper site to the supporting tub overhang lower site. The supporting tub overhang flow opening is for example a supporting tub overhang flow hole. In case the supporting tub overhang covers, for example by a direct contact or by overlaying in a close distance, parts of the bag shell outer site, which are made of the vapor permeable sheet, then a supporting tub overhang flow opening reduces a potential hindrance of a transfer of the gaseous evaporated component from the material to be dried through the vapor permeable sheet. A required mechanical stability of the supporting tub overhang should be considered in view of a number and a size of one or more supporting tub overhang flow openings.

[0074] Preferably, a bolt is also involved in a detachable connection of the plate at the supporting tub.

[0075] Preferably, the drying system has a drying bag with a plate, which is detachably connected at a supporting tub overhang of the supporting tub.

[0076] Preferably, the drying system has a supporting tub with a supporting tub overhang, which is provided at a supporting tub side wall top rim.

[0077] Preferably, the drying system has a supporting tub with a supporting tub overhang, which is planar and parallel to the supporting tub bottom wall upper site and has a supporting tub overhang upper site and a supporting tub overhang lower site.

[0078] Preferably, the drying system has supporting tub with a supporting tub overhang, which supporting tub overhang comprises a supporting tub overhang fastening element, which is a supporting tub overhang hole or a supporting tub overhang stud and which is involved together with the plate fastening element in the twist-proof and detachable connection of the plate.

[0079] Preferably, the drying system has a supporting tub with a supporting tub overhang, which supporting tub overhang has an supporting tub overhang hole, which is a supporting tub overhang reach-through hole, which reaches from the supporting tub overhang upper site to the supporting tub overhang lower site, and the supporting tub overhang stud is a supporting tub overhang tube stud, which is fixed at the supporting tub overhang upper site or the supporting tub overhang lower site. Preferably, the supporting tub stud stands perpendicularly out from the the supporting tub overhang upper site or the supporting tub overhang lower site.

[0080] Preferably, the drying system has a supporting tub with a supporting tub overhang, which supporting tub overhang has a supporting tub overhang reach-through hole, which is a supporting tub overhang reach-through short hole or a supporting tub overhang reach-through long hole.

[0081] Preferably, the drying system has a supporting tub with a supporting tub overhang, which supporting tub overhang has a supporting tub overhang fastening element, which is a supporting tub overhang hole, and the drying system has a drying bag with a plate with a plate fastening element, which is a plate reach-through hole, and the supporting tub overhang hole and the plate reach-through hole are both detachably connected by a bolt.

[0082] The available space in a drying chamber is limited. A geometrically compact drying system allows an efficient exploitation of the available space. It is desirable that the supporting tub is designed slim to avoid taken away available space from the unfolded and erected drying bag. It is also desirable that parts of the supporting tub or the drying bag do not extend sideways beyond the floor space as defined by the supporting tub bottom wall lower site. In other words, when determined by a vertical top view, i.e., looking from above onto the supporting tub bottom wall upper site, all parts of the supporting tub or the drying bag are completely arranged above the supporting tub bottom wall lower site.

[0083] Preferably, the drying system has a supporting tub overhang fastening element, which is completely arranged above the supporting tub bottom wall lower site when determined by a vertical top view.

[0084] Preferably, the supporting tub of the drying system has a supporting tub overhang, which is completely arranged above the supporting tub bottom wall lower site when determined by a vertical top view.

[0085] Preferably, the plate of the drying bag of the drying system is completely arranged above the supporting tub bottom wall lower site when determined by a vertical top view.

[0086] Preferably, the bag access opening of the drying bag of the drying system is closed with a removable lid, and the removable lid is completely arranged above the supporting tub bottom wall lower site when determined by a vertical top view.

[0087] In case the bag shell of the drying bag comprises a tensioning belt, then a detachable connection of the tensioning belt to the supporting tub is necessary for a usage of the tensioning belt to stabilize the unfolded and erected drying bag once positioned in the supporting tub. The free tensioning belt end must therefore be detachably connected to a respective fixture at the supporting tub anchor for the tensioning belt. Preferably, the tensioning belt end comprises a tensioning belt fastening element and the supporting tub comprises a fitting supporting tub anchor for the tensioning belt fastening element. It is of advantage, if the supporting tub anchor for the tensioning belt fastening element does not disturb the supporting tub recess or at least minimizes a disturbance of the supporting tub recess. For example, in case the supporting tub anchor for the tensioning belt fastening element is a supporting tub anchor for the bag bottom wall tape strip fastening element, then its attachment at the supporting tub bottom wall upper site or at a supporting tub side wall inner site is an option. However, then the supporting tub anchor for the bag bottom wall tape strip fastening element disturbs the geometrical form of the

free space available for the bag shell, for example leading to a wrinkle or a warp of the bag shell when the bag shell outer site gets in contact with the supporting tub anchor for the bag bottom wall tape strip fastening element. Particularly, when the bag shell is made of the pliable first plastic foil. This can lead to uneven drying conditions experienced by the material to be dried during drying. Similarly, there could be an increased danger of mechanically injure the bag shell by the geometrical form of the supporting tub anchor for the bag bottom wall tape strip fastening element, for example a hook or a rod. Particularly, when the bag shell is made of the pliable first plastic foil. Furthermore, if the attachment of the supporting tub anchor for the bag bottom wall tape strip fastening element is conducted by welding, then the welding point might introduce over a period of repeated usages with experienced temperature changes, for example during freeze-drying with its cooling phase and warming phase, mechanical tensions, which lead to a disturbance of a planarity, for example by a warping. As addressed, this is not desirable for the supporting tub bottom wall and could require selecting a higher thickness of the supporting tub bottom wall. In contrast, an attachment of the supporting tub anchor for the tensioning belt fastening element at a supporting tub side wall top rim is preferably. For using a supporting tub anchor for the tensioning belt fastening element attached at a supporting tub side wall top rim, a usage of a supporting tub hold-down is possible in case of a tensioning belt, which is a bag bottom wall tape strip. The supporting tub hold-down preferably also secures the bag bottom wall tape strip end from slipping.

[0088] For example, the drying bag of the drying system comprises a bag bottom wall tape strip with a bag bottom wall tape strip fastening element, the supporting tub of the drying system comprises a supporting tub anchor for the bag bottom wall tape strip fastening element, which is attached at an inner supporting tub side wall site close to the supporting tub bottom wall upper site, and the bag bottom wall tape strip end is detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element. For example, the drying bag of the drying system comprises a bag bottom wall tape strip with a bag bottom wall tape strip fastening element, the supporting tub of the drying system comprises a supporting tub anchor for the bag bottom wall tape strip fastening element, which is attached at the supporting tub bottom wall upper site, and the bag bottom wall tape strip end is detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element. For example, the drying bag of the drying system comprises a bag bottom wall tape strip with a bag bottom wall tape strip fastening element, the supporting tub of the drying system comprises a supporting tub anchor for the bag bottom wall tape strip fastening element, which is attached at a supporting tub side wall top rim, a supporting tub hold-down is located at the supporting tub side wall inner site close to the supporting tub bottom wall upper site, and the bag bottom wall tape strip end is guided around the supporting tub hold-down and detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element with the bag bottom wall tape strip fastening element.

[0089] The supporting tub hold-down is for example a supporting tub pole hold-down, which possesses a supporting tub pole, which allows to guide the free bag bottom wall tape strip end and to thread through the free bag bottom wall tape strip end. In case of a supporting tub full pole hold-down, the free bag bottom wall tape strip end is threaded one-time through the opening defined by the U-type supporting tub pole hold-down and its two attachments at the supporting tub. In case of a supporting tub slitted pole hold-down with a supporting tub slit, the free bag bottom wall tape strip end can one-time be threaded like, i.e., one-time threaded. The free bag bottom wall tape strip end can also be two-time threaded through by an additional threading through the supporting tub slit. The supporting tub hold-down is for example a supporting tub stick hold-down, which possesses a hold-down stick, which allows to guide the free bag bottom wall tape strip end and to throw over the free bag bottom wall tape strip end. The free bag bottom wall tape strip end cannot be threaded through. Throwing-over is simpler than threading-through, but the guidance provided by threading-through is more secure against slip than by throwing-over. At a supporting tub, which has a geometrical form of an opened cuboid with a length of 75 centimeter, a width of 30 centimeter and a height of 5 cm, a supporting tub slitted pole hold-down has for example a width of 8 centimeter, the inner distance between the two hangers of the U-type part is 6 centimeter, each of the two hangers has a width of 1 centimeter, the length of the supporting tub slit is 6 centimeter and the width of the supporting tub slit is 0.2 centimeter, the shortest distance between the supporting tub slitted pole hold-down and the supporting tub bottom wall upper site slit 0.3 centimeter, the shortest distance between the beginning of the supporting tub slit and the supporting tub bottom wall upper site is 0.7 centimeter, and the supporting tub slit and the supporting tub bottom wall upper site are parallel to each other.

[0090] Preferably, the drying bag of the drying system comprises a tensioning belt, which possesses a tensioning belt end with a tensioning belt fastening element, the supporting tub of the drying system comprises a supporting tub anchor for the tensioning belt fastening element, and the tensioning belt end is detachably connected to the supporting tub anchor for tensioning belt fastening element with the tensioning belt fastening element.

[0091] Preferably, the drying bag of the drying system comprises a tensioning belt, which is a bag top wall tape strip and which possesses a tensioning belt end, which is a bag top wall tape strip end, with a tensioning belt fastening element, which is a bag top wall tape strip fastening element, the supporting tub of the drying system comprises a supporting tub anchor for the tensioning belt fastening element, which is a supporting tub anchor

for the bag top wall tape strip fastening element, which is attached at a supporting tub side wall top rim, and the bag top wall tape strip end is detachably connected to the supporting tub anchor for the bag top wall tape strip fastening element with the bag top wall tape strip fastening element.

[0092] Preferably, the supporting tub of the drying system comprises further an anchor for the tensioning belt fastening element.

[0093] Preferably, the supporting tub of the drying system comprises further an anchor for the tensioning belt fastening element, which is a supporting tub hook for the tensioning belt.

[0094] Preferably, the supporting tub of the drying system comprises a supporting tub anchor for the tensioning belt fastening element, the drying bag of the drying system comprises a tensioning belt, which possesses a free tensioning belt end and is connected to the bag shell outer site, and the tensioning belt end is detachably connected to the supporting tub anchor for the tensioning belt fastening element.

[0095] Preferably, the supporting tub of the drying system comprises a supporting tub anchor for the tensioning belt fastening element, the drying bag of the drying system comprises a tensioning belt, which possesses a free tensioning belt end with a tensioning belt fastening element and is connected to the bag shell outer site at a tensioning-belt-bag-shell connection point, and the tensioning belt end is detachably connected to the supporting tub anchor for the tensioning belt fastening element with the tensioning belt fastening element.

[0096] Preferably, the supporting tub of the drying system comprises a supporting tub anchor for the tensioning belt fastening element, the drying bag of the drying system comprises a tensioning belt, which possesses a free tensioning belt end and is connected to the bag shell outer site, the tensioning belt end is detachably connected to the supporting tub anchor for the tensioning belt fastening element, and the tensioning belt fastening element is attached at one of the supporting tub side wall top rims.

[0097] Preferably, the drying bag of the drying system comprises a tensioning belt, which is a bag bottom wall tape strip, the tensioning belt end is the bag bottom wall tape strip end, the supporting tub anchor for the tensioning belt fastening element is the supporting tub anchor for the bag bottom wall tape strip fastening element, the tensioning belt fastening element is the bag bottom wall tape strip fastening element, and the supporting tub of the drying system comprises also a supporting tub hold-down, which is located at one of the supporting tub side wall inner sites close to the supporting tub bottom wall upper site, the bag bottom wall tape strip end is guided around the supporting tub hold-down and detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element with the bag bottom wall tape strip fastening element.

[0098] Preferably, the supporting tub of the drying has a supporting tub hold-down, which is a supporting tub slitted pole hold-down, which possesses a supporting tub pole with a supporting tub slit, which guides the bag bottom wall tape strip end, or is a supporting tub full pole hold-down, which possesses a supporting tub pole without a supporting tub slit, which guides a bag bottom wall tape strip end of the drying bag. Preferably, the supporting tub slit has a contour of a rectangle.

[0099] Preferably, the supporting tub of the drying system has a supporting tub hold-down, which is a supporting tub stick hold-down, which possesses a supporting tub stick, which guides a bag bottom wall tape strip end of the drying bag.

[0100] Preferably, the supporting tub of the drying system has a supporting tub anchor for the bag bottom wall tape strip fastening element, which is attached at one of the supporting tub side wall top rims and is at the same time also the supporting tub anchor for the bag top wall tape strip fastening element.

[0101] Preferably, the drying bag of the drying system has a tensioning belt, which is the bag bottom wall tape strip, the tensioning belt end is the bag bottom wall tape strip end, the supporting tub of the drying system has a supporting tub anchor for the tensioning belt fastening element, which is a supporting tub hook for the bag bottom wall tape strip, the tensioning belt fastening element is the bag bottom wall tape strip fastening element, the supporting tub hook for the bag bottom wall tape strip is attached at one of the supporting tub side wall inner sites close to the supporting tub bottom wall upper site and the bag bottom wall tape strip end is detachably connected to the supporting tub hook for the bag bottom wall tape strip.

[0102] A further embodiment of the invention is a method for drying of a material to be dried, which comprises the steps

(a) introducing the material to be dried into an interior bag cavity of a drying bag of a drying system, the drying system comprising

a drying bag for drying a biological or pharmaceutical material, which comprises

a bag shell having a bag shell outer site, a bag shell inner site, a bag interior cavity and a bag shell access opening, which reaches from the bag shell outer site to the bag shell inner site,

a plate having a plate upper site, a plate lower site and a closable plate access opening, which reaches from the plate upper site to the plate lower site,

a bag access opening, which is at least partly defined by the closable plate access opening and the bag shell access opening, and which provides an access to the bag interior cavity,

wherein the bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet,
the plate and the bag shell are connected at the bag access opening,
the plate comprises a plate fastening element, which is a plate hole or a plate stud, and which is involved in a twist-proof and detachable connection of the plate at a supporting tub, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub, and

a supporting tub, which comprises

one supporting tub bottom wall having a supporting tub bottom wall upper site and a supporting tub bottom wall lower site,
at least one supporting tub side wall having each a supporting tub side wall inner site, a supporting tub side wall outer site and a supporting tub side wall top rim,

the number of supporting tub side walls is an integer and equal to or higher than the sum of all bag side walls,
each of the at least one supporting tub side walls extends from the supporting tub bottom wall,
the supporting tub bottom wall upper site and the supporting tub side wall inner sites define a supporting tub recess,
the supporting tub recess is sized and shaped to position the drying bag therein,
the drying bag is positioned in the supporting tub and the plate is twist-proofly and detachably connected at the supporting tub under involvement of the plate fastening element,
to obtain a drying system with a filled drying bag,

(b) unless the filled drying bag is already closed, closing the filled drying bag to obtain a closed filled drying bag,
(c) exposing the drying system with the closed filled drying bag to conditions suitable to effect drying of the material to be dried to obtain a dried material.

[0103] Introducing the material to be dried into the bag interior cavity of the drying bag occurs for example through the bag access opening, which is free of a removable lid. In case the bag access opening is closed with a removable lid, which comprises a closable lid opening, the introduction of material to be dried is for example performed through the closable lid opening. The bag interior cavity is for example filled until around half of its bag interior cavity volume once the drying bag is positioned in the supporting tub, for example 50 volume percent thereof. In case of a geometrical form of the drying bag, at which the bag bottom wall and the bag top wall are approximately parallel und all of the at least one bag side wall extend approximately perpendicularly from the bag bottom wall, a filling of around half of the bag interior cavity volume once the drying bag is positioned in the supporting tub means a filling height of around half of the distance between the bag bottom wall and the bag top wall.

[0104] Closing the filled drying bag is for example conducted by closing the bag access opening by a removable lid. In case the bag access opening is closed with a removable lid, which comprises a closable lid opening, closing of the filled drying bag is for example performed through closing of the closable lid opening, for example by a removable cap.

[0105] At freeze-drying, an evaporation occurs by a sublimation, i.e., evaporated gaseous components of the material to be dried have been directly transformed from the solid state to the gaseous state. This occurs typically under a reduced pressure. Freeze-drying is typically conducted in a freeze-drying program with various phases. A first phase includes a freezing of the material to be dried, for example starting at room temperature or 5 °C and cooling down to -45 °C or -50 °C, typically under ambient pressure. A second phase includes reducing the pressure and transfer heat energy to the frozen material to be dried. This leads to an evaporation, i.e., sublimation, of gaseous components of the material to be dried. The released gaseous components of the material to be dried transfer through the vapor permeable sheet and stream through the free space of the drying chamber to a cooled condenser, where the gaseous components of the material to be dried condense and are thus collected. Often, a third phase is applied, which includes a warming of the material to be dried to room temperature or slightly above, for example to 30 °C, and a further reduction of the already reduced pressure. A freeze-drying program with its various phases is often also called a lyophilization cycle with various cycle phases. The first phase is also called freezing, the second phase is also called primary drying, and the third phase is also called secondary drying. The phases are often individually modified, for example optimized in the context of a scale-up. Modifications of a phase occurs for example by a hold time at a specific temperature and reduced pressure, by an annealing step with a limited re-warming during cooling down or re-cooling-down during warming, by a certain cooling rate in °C per minute or a certain warming rate in °C per minute. Thus, the conditions suitable to effect drying of the material to be dried are preferably fine-tuned depending on the material to be dried. Two examples of a freeze-drying program for a protein formulation are depicted on page 29 / table 2 of WO 2022-256359 A1. Three examples of a freeze-drying program for a peptide formulation are depicted on page 36 / table 17, page 38 / table 20 and page 40 / table 24 of WO 2015-181757 A1. During the step of exposing the drying system with the closed filled drying bag to conditions suitable to effect

drying of the material to be dried, the supporting tub of the drying system is for example placed onto a shelf of a drying chamber. A positive heat transfer to the material to be dried occurs, when the shelf is warmed, whereas a negative heat transfer occurs to the material to be dried, when the shelf is cooled. Accordingly, a temperature of the shelf is regulated and follows for example a drying program, for example a freeze-drying program.

[0106] Preferably, the method for drying of a material to be dried is a method for freeze-drying of the material.

[0107] Preferably, the material to be dried at the method for drying of a material is a mixture Mix-start-1 comprising a substance Sub-1, which is a biological or pharmaceutical substance, and a solvent Sol-1.

[0108] A further embodiment of the invention is a use of a drying system, which drying system comprises

a drying bag for drying a biological or pharmaceutical material, which comprises

a bag shell having a bag shell outer site, a bag shell inner site, a bag interior cavity and a bag shell access opening, which reaches from the bag shell outer site to the bag shell inner site,
a plate having a plate upper site, a plate lower site and a closable plate access opening, which reaches from the plate upper site to the plate lower site,
a bag access opening, which is at least partly defined by the closable plate access opening and the bag shell access opening, and which provides an access to the bag interior cavity,
wherein the bag shell is partly made of a pliable first plastic foil and partly made of a vapor permeable sheet,
the plate and the bag shell are connected at the bag access opening,
the plate comprises a plate fastening element, which is a plate hole or a plate stud, and which is involved in a twist-proof and detachable connection of the plate at a supporting tub, when the drying bag is positioned for drying in the supporting tub and the plate is detachably connected at the supporting tub, and

a supporting tub, which comprises

one supporting tub bottom wall having a supporting tub bottom wall upper site and a supporting tub bottom wall lower site,
at least one supporting tub side wall having each a supporting tub side wall inner site, a supporting tub side wall outer site and a supporting tub side wall top rim,

the number of supporting tub side walls is an integer and equal to or higher than the sum of all bag side walls,

each of the at least one supporting tub side walls extends from the supporting tub bottom wall,
the supporting tub bottom wall upper site and the supporting tub side wall inner sites define a supporting tub recess,
the supporting tub recess is sized and shaped to position the drying bag therein,
the drying bag is positioned in the supporting tub and the plate is twist-proofly and detachably connected at the supporting tub under involvement of the plate fastening element,

for a drying of a material to be dried.

[0109] Preferably, the use of the drying system is for freeze-drying of a material to be dried.

Brief description of the Figures

[0110]

Fig. 1 shows a supporting tub I, which belongs to a drying system I, and directions of graphical sections A-A, B-B, C-C and D-D.

Fig. 2 shows a drying bag I, which belongs to the drying system I, and the directions of the graphical sections A-A, B-B, C-C and D-D.

Fig. 3 shows an exploded view of the drying system I with the drying bag I, the supporting tub I and two bolts I.

Fig. 4 shows a part of the drying bag I, when its plate I is mentally taken away from the drying bag I.

Fig. 4a shows the upper site of plate I, when the plate I is mentally taken away from the drying bag I.

Fig. 4b shows the lower site from plate I of the drying bag I, when the plate I is mentally taken away from the drying bag I and flipped.

Fig. 5 shows one half of the graphical section A-A of the drying system I with the drying bag I positioned in the supporting tub I.

Fig. 6a shows the first half of the graphical section B-B of the drying system I with the drying bag I positioned in the supporting tub I.

Fig. 6b shows the second first half of the graphical section B-B of the drying system I with the drying bag I positioned in the supporting tub I.

Fig. 7 shows one half of the graphical section C-C of the drying system I with the drying bag I positioned in the supporting tub I.

Fig. 8 shows four parts of the graphical section D-D of the drying system I with the drying bag I positioned in the supporting tub I.

Fig. 9 shows an exploded view of a bag access opening at a part of a bag top wall of the drying bag I, which is closed with a lid I, a cap I and a guide tube I.

Fig. 10 shows an exploded view of the drying system I with the supporting tub I, two bolts I, and the drying bag I, which is closed by the lid I, the

cap I and the guide tube I with an inserted temperature probe I.

Fig. 11 shows one half of the graphical section C-C of the drying system I with the closed drying bag I positioned in the supporting tub I, its closure by the lid I, the cap I and the guide tube I with the inserted temperature probe I.

Fig. 12 shows four parts of the graphical section D-D of the drying system I with the closed drying bag I, which is positioned in the supporting tub I and is closed by the lid I, the cap I and the guide tube I with the inserted temperature probe I.

[0111] In summary, Fig. 1 to Fig. 12 refer primarily to the drying system I.

Fig. 13 shows a supporting tub II, which belongs to a drying system II, and directions of graphical sections D-D and E-E.

Fig. 14 shows a drying bag II, which belongs to the drying system II, and the direction of the graphical section D-D.

Fig. 15 shows an exploded view of the drying system II with the supporting tub II, one bolt II and the closed drying bag II, which is closed by the lid I, the cap I, and the guide tube I with the inserted temperature probe I.

Fig. 16 shows a part of graphical section D-D of the drying system II with the drying bag II positioned in the supporting tub II and a superimposed arrangement of the bolt II.

Fig. 17 shows a part of the graphical section E-E of the supporting tab II and a superimposed arrangement of the bolt II.

Fig. 18 shows a bolt I and a bolt II.

[0112] In summary, Fig. 13 to Fig. 18 refer primarily to the drying system II.

Fig. 19 shows a supporting tub III, which belongs to a drying system III, and directions of graphical sections AA, D-D and E-E.

Fig. 20 shows a drying bag III, which belongs to the drying system III, and the directions of the graphical sections A-A and D-D.

Fig. 21a shows the upper site of a plate III, when the plate III is mentally taken away from the drying bag III.

Fig. 21b shows the lower site from the plate III of the drying bag III, when the plate III is mentally taken away from the drying bag III and flipped.

Fig. 22 shows one half of the graphical section A-A of the drying system III with the drying bag III positioned in the supporting tub III.

Fig. 23 shows four interrupted parts of the graphical section D-D of the drying system III with the drying bag III positioned in the supporting tub III and a superimposed arrangement of the bolt II.

Fig. 24 shows a part of the graphical section E-E of the supporting tab III and a superimposed arrangement of the bolt II.

Fig. 25 shows an exploded view of the drying system III with the supporting tub III, one bolt II and the closed drying bag III, which is closed by the lid I, the cap I and the guide tube I with the inserted temperature probe I.

[0113] In summary, Fig. 19 to Fig. 25 refer primarily to the drying system III.

[0114] The following figures and considerations are provided for illustrative purposes and are not to be construed as limiting the scope of the claims. Supporting tubs and drying bags of any shape are possible if the respective pair is adapted to allow a positioning of the drying bag in the supporting tub. The relative dimensions or the rectangular shapes shown in the drawings are not limiting. Particularly, the thickness of bag shells and of tensioning belts is drawn enlarged in relation to the thickness of supporting tub bottom walls and supporting tub side walls of the supporting tub for a better visibility.

[0115] Fig. 1 shows a supporting tub 300, which belongs to a drying system I, and directions of graphical sections A-A, B-B, C-C and D-D.

[0116] Fig. 1 shows the supporting tub 300 comprising a supporting tub bottom wall 310 and four supporting tub side walls 320, 330, 340 and 350. Due to the perspective of Fig. 1, a supporting tub side wall top rim 323 and a supporting tub side wall outer site 322 of the supporting tub side wall 320 is visible. Similarly, a supporting tub side wall top rim 333 and a supporting tub side wall outer site 332 of the supporting tub side wall 330 is visible. Contrarily, a supporting tub side wall top rim 343 and a supporting tub side wall inner site 341 of the supporting tub side wall 340 is visible. Again contrarily, a supporting tub side wall top rim 353 and a supporting tub side wall inner site 351 of the supporting tub side wall 350 is visible. A supporting tub bottom wall upper site 311, the supporting tub side wall inner sites 341 and 351 and the non-visible supporting tub side wall inner sites of the supporting tub side walls 320 and 330 define a supporting tub recess 315. At the supporting tub side wall top rim 323, a supporting tub overhang 360 extends perpendicularly to the supporting tub side wall 320 and is arranged above the supporting tub bottom wall inner site 311 when determined from a top view, i.e., viewed from above in a right angle down onto the supporting tub bottom wall inner site 311. Due to the perspective of Fig. 1, the supporting tub overhang upper site 361 is visible. The supporting tub overhang 360 possesses two supporting tub overhang reach-through short holes 370. The supporting overhang reach-through short hole 370 is a specific supporting tub overhang reach-through hole, a specific supporting tub overhang hole and a specific supporting tub overhang

fastening element. An inner thread (not drawn) at the supporting tub overhang reach-through short hole 370 allows to screw in a bolt with an appropriate external thread. At the two opposite supporting tub side wall top rims 333 and 353, six supporting tub hooks for the bag top wall tape strip 325 are attached, i.e., three on each of the two rims and each hook from one rim is arranged opposite to a hook from the other rim. The supporting tub hooks for the bag top wall tape strip 325 is a specific supporting tub hook for the tensioning belt, a specific supporting tub anchor for the bag top wall tape strip fastening element and a specific supporting tub anchor for the tensioning belt fastening element. At the two opposite supporting tub side wall top rims 333 and 353, six supporting tub slitted pole hold-downs 380 are attached, i.e., three on each of the two rims and each hold-down from one rim is arranged opposite to a hold-down from the other rim. The three supporting tub slitted pole hold-downs 380 attached at the supporting tub side wall top rim 333 are only partly visible. The supporting tub slitted pole hold-down 380 is a specific supporting tub pole hold-down and a specific supporting tub hold-down. The supporting tub slitted pole hold-down 380 possesses a supporting tub pole 383, which is arranged with its longitudinal dimension in parallel to the supporting tub bottom wall inner site 311 and is close to the supporting tub bottom wall inner site 311, i.e., a distance between the supporting tub pole 383 and the supporting tub bottom wall inner site 311 is only short. The supporting tub pole 383 of the supporting tub slitted pole hold-down 380 possesses a supporting tub slit 381, which runs with its longitudinal dimension like the supporting tub pole 383 parallel to the supporting tub bottom wall inner site 311. Each of the six supporting tub slitted pole hold-downs 380 is centered with its mirror symmetrical U-type hanger form at one of the six supporting tub hooks for the bag top wall tape strip 325. Or in other words, each of the six supporting tub hooks for the bag top wall tape strip 325 is middled to one of the six supporting tub slitted pole hold-downs 380 with their mirror symmetrical U-type hanger form. The six supporting tub slitted pole hold-downs 380 allow to redirect a bag bottom wall tape strip (not shown) to a supporting tub side wall top rim. Hence in case of the supporting tub 300, the six supporting tub hooks for the bag top wall tape strip 325 are at the same time supporting tub hooks for the bag bottom wall tape strip 328. The supporting tub hook for the bag bottom wall tape strip 328 is a specific supporting tub hook for the tensioning belt, a specific supporting tub anchor for the bag bottom wall tape strip fastening element and a specific supporting tub anchor for the tensioning belt fastening element.

[0117] Fig. 2 shows a drying bag 700, which belongs to a drying system I, and directions of graphical sections A-A, B-B, C-C and D-D.

[0118] Fig. 2 shows the drying bag 700, which comprises a bag shell 100, a plate 200, two single fixation bag top wall tape strips 251, two double fixation bag top wall tape strips 250 and three double fixation bag bottom wall tape strips 270. Due to the perspective of Fig. 2, the three double fixation bag bottom wall tape strips 270 are only partly visible. The single fixation bag top wall tape strip 251 is a specific bag top wall tape strip, a specific single fixation tensioning belt and a specific tensioning belt. The double fixation bag top wall tape strip 250 is a specific bag top wall tape strip, a specific double fixation tensioning belt and a specific tensioning belt. The double fixation bag bottom wall tape strip 270 is a specific bag bottom wall tape strip, a specific double fixation tensioning belt and a specific tensioning belt. The bag shell 100 is built by a non-visible bag bottom wall, a bag top wall 120, the bag side wall 160, the bag side wall 170 and two other non-visible bag side walls. The plate 200 comprises a plate access opening 215, a plate opening thread 226 and two plate reach-through holes 220. The plate reach-through hole 220 is a specific plate hole and a specific plate fastening element. The plate access opening 215 defines at least partly together with a bag top wall access opening at the bag top wall 120 a bag access opening 400. The bag top wall access opening is not visible in Fig. 2, because it is hidden by a plate upper site 201 of the plate 200. The bag top wall access opening is a specific bag shell access opening. The bag access opening 400 allows an access to a bag interior cavity 125. The bag shell 100 has a bag shell outer site 106. Due to the perspective of Fig. 2, the following parts of the bag shell outer site 106 are visible: a bag top wall upper site 121 of the bag top wall 120, a bag side wall outer site 162 of the bag wall side 160 and a bag side wall outer site 172 of the bag wall side 170. The part of the bag shell outer site 106, which is made of a pliable first plastic foil 130, is a first portion of the bag shell outer site 143. The part of the bag shell outer site 106, which is made of a vapor permeable sheet 131, is a second portion of the bag shell outer site 142. The second portion of the bag shell outer site 142 is completely a part of the bag top wall upper site 121. A bag top wall edge 136 defines the transition from the bag top wall 120 to the bag side wall 160, a bag top wall edge 137 defines the transition from the bag top wall 120 to the bag side wall 170 and bag top wall edges wall edges 138 and 139 define the transitions from the bag top wall 120 to the respective two non-visible bag side walls. All of the four bag top wall edges 136, 137, 138 and 139 are made of the pliable first plastic foil 130 and form a bag top wall frame 144 at the bag top wall upper site 121, which surrounds perimetrically the second portion of the bag shell outer site 142, which is made of the vapor-permeable sheet 131. The access opening 400 is completely arranged at the second portion of the bag shell outer site 142, because the non-visible bag top wall access opening is completely arranged inside of the second portion of the bag shell outer site 142. Each of the two single fixation bag top wall tape strip 251 is connected to the bag top wall frame 144 at a bag-top-wall-tape-strip-first-plastic-foil connection point 128. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 is a specific bag-top-wall-tape-strip connection point, a specific tensioning-

belt-bag-shell-first-plastic-foil connection point and a specific tensioning-belt-bag-shell connection point. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 originates from a plastic welding of the single fixation bag top wall tape strip 251, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the single fixation bag top wall tape strip 251, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. The bag top wall tape strip end 254 is a specific tensioning belt end. The bag top wall tape strip end 254 possesses a perforation at the bag top wall tape strip 255. The perforation has a contour of a slit. The perforation at the bag top wall tape strip 255 is a specific perforation at the tensioning belt, a specific bag top wall tape strip fastening element and a specific tensioning belt fastening element. Each of the bag top wall tape strip ends 254 of the single fixation bag top wall tape strip 251 is free, e.g., none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the two double fixation bag top wall tape strips 250 is connected to the bag top wall frame 144 at two bag-top-wall-tape-strip-first-plastic-foil connection points 128. Both of the two bag-top-wall-tape-strip-first-plastic-foil connection points 128 originate from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the double fixation bag top wall tape strip 250, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. All of the four bag top wall tape strip ends 254 of the two double fixation bag top wall tape strips 250 possess a perforation at the bag top wall tape strip 255. The perforation has a contour of a slit. All of the four bag top wall tape strip ends 254 are free, e.g. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the two double fixation bag top wall tape strips 250 is connected to the second portion of the bag shell outer site 142 at a bag-top-wall-tape-strip-sheet connection point 129. The bag-top-wall-tape-strip-sheet connection point 129 is a specific bag-top-wall-tape-strip connection point, a specific tensioning-belt-bag-shell-sheet connection point and a specific tensioning-belt-bag-shell connection point. The bag-top-wall-tape-strip-sheet connection point 129 originates from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131. The vapor permeable sheet possesses one site, which has an outer layer out of a plastic material, which can be plastic-welded with the pliable first plastic foil 130. The bag-top-wall-tape-strip-sheet connection point 129 has a circular contour and is arranged in the middle of the length of the double fixation bag top wall tape strip 250 and in a midline of the bag top wall 120, which runs along the direction of the graphical section D-D. From the three double fixation bag bottom wall tape strips 270, six bag bottom wall tape strip ends 274 are visible. The bag bottom wall tape strip end 274 is a specific tensioning belt end. Each of the six bag bottom wall tape strip ends 274 possess a perforation at the bag bottom wall tape strip 275. The perforation has a contour of a slit. The perforation at the bag bottom wall tape strip 275 is a specific perforation at the tensioning belt, a specific bag bottom wall tape strip fastening element and a specific tensioning belt fastening element. All of the six bag bottom wall tape strip ends 274 are free, e.g. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. The three double fixation bag bottom wall tape strips 270 have a length, which is larger than the sum of the width of the bag bottom wall (not visible), the height of the bag side wall 170 and the height of the bag side wall opposite to the bag side wall 170 (not visible). This allows that each of the six bag bottom wall tape strip ends 274 is sufficiently long to be guided through a supporting tub slitted pole hold-down and detachably connected to a supporting tub hook for the bag bottom wall tape strip, which is attached at the supporting tub side wall top rim.

[0119] Fig. 3 shows an exploded view of a drying system 800 with a drying bag 700, a supporting tub 300 and two bolts 500.

[0120] Fig. 3 shows the orientation of the drying bag 700, when the drying bag 700 is positioned in the supporting tub 300 and the plate is detachably connected by two bolts 500 with the supporting tub overhang.

[0121] Fig. 4 shows a part of a drying bag I, when its plate I is mentally taken away from the drying bag I.

[0122] Fig. 4 shows the bag shell 100 with the bag shell outer site 106. Two single fixation bag top wall tape strips 251 are plastic-welded at the bag-top-wall-tape-strip-first-plastic-foil connection points 128 to the bag shell outer site 106. Furthermore, parts of one double fixation bag bottom wall tape strip 270 are visible. Parts of the bag shell outer site 106 are made of the pliable first plastic foil 130 and parts of the bag shell outer site 106 are made of the vapor permeable sheet 131. The bag top wall access opening 108 is circular and surrounded by a plate-connecting zone of the bag top wall upper site 141. The plate-connecting zone of the bag top wall upper site 141 is a specific plate-connecting zone of the bag shell outer site. The plate-connecting zone of the bag top wall upper site 141, whose ring-shaped area is indicated by the circular dotted line as one borderline in addition to the bag top wall access opening 108 as the other borderline, is the part of the bag shell respectively bag top wall, which is foreseen for a permanent connection to a bag-top-wall-connecting zone of the plate lower site (not shown). Once connected by plastic-welding, the plate-connecting zone of the bag top wall upper site 141 and the bag-top-wall-connecting

zone of the plate lower site (not shown) define a circular disc-shaped bag-top-wall-plate connection point (not shown).

[0123] Fig. 4a shows a plate upper site 201 of a plate 200 with its plate access opening 215, when the plate 200 is mentally taken away from the drying bag I.

[0124] Fig. 4a shows two plate reach-through holes 220 of the plate 200, which reach from the plate upper site 201 to a plate lower site (not visible).

[0125] Fig. 4b shows a plate lower site 202 of the plate 200 with its plate access opening 215, when the plate 200 is mentally taken away from the drying bag I and flipped.

[0126] Fig. 4b shows the plate access opening 215, which is circular and surrounded by the bag-top-wall-connecting zone of the plate lower site 230. The bag-top-wall-connecting zone of the plate lower site 230 is a specific bag-shell-connecting zone of the plate lower site. The bag-top-wall-connecting zone of the plate lower site 230, whose ring-shaped area is indicated by the circular dotted line as one borderline in addition to the plate access opening 215 as the other borderline, is the part of the plate lower site 202 of the plate plate 200, which is foreseen for a permanent connection to the plate-connecting zone of the bag top wall upper site (not shown). Once connected by plastic-welding, the bag-top-wall-connecting zone of the plate lower site 230 and the plate-connecting zone of the bag top wall upper site (not shown) define a circular disc-shaped bag-top-wall-plate connection point (not shown). Two plate reach-through holes 220 of the plate 200, which reach from the plate upper site (not visible) to the plate lower site 202.

[0127] Fig. 5 shows one half of a graphical section A-A of a drying system 800 with a drying bag 700 positioned in a supporting tub 300.

[0128] Fig. 5 shows parts of a bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a part of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 are visible. From the bag shell 100, a bag side wall 170 with its bag side wall inner site 171 and with its bag side wall outer site 172 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122 and with its bag top wall edge 137, which defines the transition from the bag top wall 120 to the bag side wall 170, is also visible. The part of a bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 171 and the bag top wall lower site 122 as its borderlines. The visible parts of a first portion of the bag shell outer site 143, which are made of a pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 172 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the bag top wall edge 137 in the direction of a formal center of the bag top wall upper site 121 until the point, where a vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of a second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120 and extends in the direction of a formal center of the bag top wall upper site 121. The addressed formal center is in the graphical section A-A of Fig. 5 a bag-top-wall-tape-strip-sheet connection point 129. A first-plastic-foil-to-sheet connection point 145 is the area, where the vapour permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour (not visible) and the bag-top-wall-tape-strip-sheet connection point 129 has a circular contour (not visible).

[0129] One half of the double fixation bag top wall tape strip 250 is visible, including one of its two bag top wall tape strip ends 254 with a perforation at the bag top wall tape strip 255. The bag top wall tape strip end 254 is detachably connected to a supporting tub hook for the bag top wall tape strip 325. One half of the bag-top-wall-tape-strip-sheet connection point 129, where the vapor permeable sheet 131 of the bag top wall 120 and the double fixation bag top wall tape strip 250 are permanently connected, and the bag-top-wall-tape-strip-first-plastic-foil connection point 128, where the pliable first plastic foil 130 of the bag top wall 120 and the double fixation bag top wall tape strip 250 are permanently connected, are also visible. Both connections are done by plastic welding. One half of a double fixation bag bottom wall tape strip 270 is visible. The double fixation bag bottom wall tape strip 270 is permanently connected to the bag bottom wall 110 at a bag bottom wall tape strip connection point 115. The bag bottom wall tape strip connection point 115 is a specific tensioning-belt-bag-shell-first-plastic-foil connection point and a specific tensioning-belt-bag-shell connection point. The connection is done by plastic welding. One half of one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and one complete off-center bag bottom wall tape strip connection point 115, which has a rectangular contour (not visible) and is close to an outer edge of the bag bottom wall 110, are visible. A bag bottom wall tape strip end 274 starts at the off-center bag bottom wall tape strip connection point 115 and extends in the direction where a perforation at the bag bottom wall tape strip 275 is located. The bag bottom wall tape strip end 274 is guided around the lower part of a supporting tub pole 383 of a supporting tub slitted pole hold-down 380 and through a supporting tub slit 381 towards a supporting tub hook for the bag bottom wall tape strip 328. The supporting tub hook for the bag bottom wall tape strip 328 is arranged at the supporting tub side wall top rim 333 and is at the same time the supporting tub hook for the bag top wall tape strip 325. The perforation at the bag bottom wall tape strip 275 serves to detachably

connect the bag bottom wall tape strip end 274 at the supporting tub hook for the bag bottom wall tape strip 328. From the supporting tub 300, one half of the supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 300, a supporting tub side wall 330 with its supporting tub side wall inner site 331 and with its supporting tub side wall outer site 332 is also visible. A part of a supporting tub recess 315 is also visible, i.e. the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 331 and a formal borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 333 less the additional height caused by the supporting tub hook for the bag top wall tape strip 325. The bag bottom wall lower site 112 lies on the double fixation bag bottom wall tape strip 270, which itself lies on the supporting tub bottom wall upper site 311. The bag side wall outer site 172 touches the double fixation bag bottom wall tape strip 270 at the bag bottom wall tape strip end 274, which touches itself in this area the supporting tub side wall inner site 331. The bag side wall outer site 172 touches also at a small area a part of the supporting tub pole 383. The pliable first plastic foil 130 allows a larger touching zone between the bag side wall outer site 172, the bag bottom wall tape strip end 274 and the supporting tub side wall inner site 331 than depicted in Fig. 5 for visibility reasons.

[0130] Fig. 6a shows the first half of a graphical section B-B of a drying system 800 with a drying bag 700 positioned in the supporting tub 300.

[0131] Fig. 6a shows parts of a bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a first half of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 is visible. From the bag shell 100, the bag side wall 170 with its bag side wall inner site 171 and its bag side wall outer site 172 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122 and with its bag top wall edge 137, which defines the transition from the bag top wall 120 to the bag side wall 170, is also visible. The part of a bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 171 and the bag top wall lower site 122 as its borderlines. The visible parts of the first portion of the bag shell outer site 143, which are made of the pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 172 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the bag top wall edge 137 in the direction of a formal center of the bag top wall upper site 121 until the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120 and extends in the direction of a formal center of the bag top wall upper site 121. The addressed formal center is in the graphical section B-B of Fig. 6a, where the graphical section B-B is cut into its two halves. The first-plastic-foil-to-sheet connection point 145 is the area, where the vapor permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. From the supporting tub 300, one half of the supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 300, the supporting tub side wall 330 with its supporting tub side wall inner site 331, with its supporting tub side wall outer site 332 and with its supporting tub side wall top rim 333 is also visible. A part of the supporting tub recess 315 is also visible, i.e. the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 331 and a formal borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 333. The bag bottom wall lower site 112 lies on the double fixation bag bottom wall tape strip 270, which itself lies on the supporting tub bottom wall upper site 311. The bag side wall outer site 172 touches the bag bottom wall tape strip end 274, which itself touches the supporting tub side wall inner site 331 and the supporting tub pole 383, and the supporting tub pole 383. The pliable first plastic foil 130 allows a larger touching area between the bag side wall outer site 172 via the bag bottom wall tape strip end 274 and the supporting tub side wall inner site 331 than depicted in Fig. 5 for visibility reasons.

[0132] Fig. 6b shows the second half of a graphical section B-B of a drying system 800 with a drying bag 700 positioned in a supporting tub 300.

[0133] Fig. 6b shows parts of a bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a first half of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 is visible. From the bag shell 100, the bag side wall 190 with its bag side wall inner site 191 and its bag side wall outer site 192 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122 and with its bag top wall edge 139, which defines the transition from the bag top wall 120 to the bag side wall 190, is also visible. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 191 and the bag top wall lower site 122 as its borderlines. The visible parts of the first portion of the bag shell outer site 143, which are made of the pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 192 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the

bag top wall edge 139 in the direction of a formal center of the bag top wall upper site 121 until the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120 and extends in the direction of a formal center of the bag top wall upper site 121. The addressed formal center is in the graphical section B-B of Fig. 6b, where the graphical section B-B is cut into its two halves. The first-plastic-foil-to-sheet connection point 145 is the area, where the vapor permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. From the supporting tub 300, one half of the supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 300, the supporting tub side wall 350 with its supporting tub side wall inner site 351, with its supporting tub side wall outer site 352 and with its supporting tub side wall top rim 333 is also visible. A part of the supporting tub recess 315 is also visible, i.e., the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 351 and a mental borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 353. The bag bottom wall lower site 112 lies on the supporting tub bottom wall upper site 311 and the bag side wall outer site 192 touches the supporting tub side wall inner site 351.

[0134] Fig. 7 shows one half of a graphical section C-C of a drying system 800 with a drying bag 700 positioned in the supporting tub 300.

[0135] Fig. 7 shows parts of a bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a part of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 are visible. From the bag shell 100, a bag side wall 170 with its bag side wall inner site 171 and with its bag side wall outer site 172 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122, with its bag top wall edge 137, which defines the transition from the bag top wall 120 to the bag side wall 170, and with its bag top wall access opening 108 is also visible. At a plate 200 with its plate upper side 201 and its plate lower side 202, one half of a plate access opening 215 and a part of the plate opening thread 226 are visible. The plate access opening 215 defines at least partly together with the bag top wall access opening 108 a closable bag access opening 400, which provides an access to the bag interior cavity 125. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 171, the bag top wall lower site 122 and a formal extension of the bag top wall lower site 122 parallel to the bag bottom wall upper site 111, which thus would formally cover the bag top wall access opening 108, as its borderlines. At a bag-top-wall-plate connection point 140, the bag top wall 120 at its bag top wall upper site 121, which is made at this point of the vapor permeable sheet 131, and the plate 200 at its plate lower site 202 are permanently connected. The connection is done by plastic welding. The bag-top-wall-plate connection point 140 is a specific bag-shell-plate connection point. At the bag top connection point 140, a plate-connecting zone of the bag top wall upper site, which is at the bag top wall upper site 121, and a bag-top-wall-connecting zone of the plate lower site, which is at the plate lower site 202, are in contact with each other. The visible parts of the first portion of the bag shell outer site 143, which are made of the pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 172 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the bag top wall edge 137 in the direction of the bag top wall access opening 108 until the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall and extends in the direction of the bag top wall access opening 108. A first-plastic-foil-to-sheet connection point 145 is the area, where the vapor permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. A single fixation bag top wall tape strip 251 with its bag top wall tape strip end 254 and with its perforation at the bag top wall tape strip 255 is visible. The bag top wall tape strip end 254 is detachably connected to the supporting tub hook for the bag top wall tape strip 325. A bag-top-wall-tape-strip-first-plastic-foil connection point 128, where the pliable first plastic foil 130 of the bag top wall 120 and the single fixation bag top wall tape strip 251 are permanently connected, is also visible. The connection is done by plastic welding. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour (not visible). One half of the double fixation bag bottom wall tape strip 270 is visible. The double fixation bag bottom wall tape strip 270 is permanently connected to the bag bottom wall 110 at a bag bottom wall tape strip connection point 115. The connection is done by plastic welding. One half of one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and one complete off-center bag bottom wall tape strip connection point 115, which has a rectangular contour (not visible) and is close to an outer edge of the bag bottom wall 110, are visible. The bag bottom wall tape strip end 274 starts at the off-center bag bottom wall tape strip connection point 115 and extends

in the direction where the perforation at the bag bottom wall tape strip 275 is located. The bag bottom wall tape strip end 274 is guided around the lower part of the supporting tub pole 383 and through the supporting tub slit 381 towards a supporting tub hook for the bag bottom wall tape strip 328. The supporting tub hook for the bag bottom wall tape strip 328 is arranged at the supporting tub side wall top rim 333 and is at the same time the supporting tub hook for the bag top wall tape strip 325. The perforation at the bag bottom wall tape strip 275 serves to detachably connect the bag bottom wall tape strip end 274 at the supporting tub hook for the bag bottom wall tape strip 328. From the supporting tub 300, one half of the supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 300, the supporting tub side wall 330 with its supporting tub side wall inner site 331 and with its supporting tub side wall outer site 332 is also visible. A part of the supporting tub recess 315 is also visible, i.e. the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 331 and a formal borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 333 less the additional height caused by the supporting tub hook for the bag top wall tape strip 325. The bag bottom wall lower site 112 lies on the double fixation bag bottom wall tape strip 270, which itself lies on the supporting tub bottom wall upper site 311. The bag side wall outer site 172 touches the bag bottom wall tape strip end 274, which itself touches the supporting tub side wall inner site 331 and the supporting tub pole 383, and a part of the supporting tub pole 383. The pliable first plastic foil 130 allows a larger touching area between the bag side wall outer site 172 via the bag bottom wall tape strip end 274 and the supporting tub side wall inner site 331 than depicted in Fig. 7 for visibility reasons.

[0136] Fig. 8 shows four parts of a graphical section D-D of a drying system 800 with a drying bag 700 positioned in a supporting tub 300.

[0137] Fig. 8 shows the drying system 800 with three interruptions to allow a depiction on one page at the chosen size. Parts of a bag shell 100 are visible, i.e. a bag top wall 120 including a bag top wall access opening 108 and with its bag top wall upper site 121, a bag side wall 160 with its bag side inner wall site 161 and its bag side wall outer site 162, a bag side wall 180 with its bag side inner wall site 181 and its bag side wall outer site 182 and a bag bottom wall 110. The bag top wall 120 extends from its bag top wall edge 136, which defines the transition from the bag top wall 120 to the bag side wall 160, to its bag top wall edge 138, which defines the transition from the bag top wall 120 to the bag side wall 180. A first portion of the bag shell outer site 143, i.e. where a bag shell outer site 106 is made of a pliable first plastic foil 130, starts from a point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying a vapor permeable sheet 131 and which is close to the bag top wall edge 138, runs along the bag side wall outer site 182, then the bag bottom wall lower site 112 and then the bag side wall outer site 162 to a point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136. A second portion of the bag shell outer site 142, i.e. where the bag shell outer site 106 is made of the vapor permeable sheet 131, starts at the point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136, and runs along the bag top wall outer site 121 to the point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 138, with an exception of the bag top wall access opening 108. Two first-plastic-foil-to-sheet connection points 145 at the bag top wall 120, where the vapor permeable sheet 131 is permanently connected to the pliable first plastic foil 130, are visible. The connections are done by plastic welding. Two parts of the bag-top-wall-plate connection point 140, where the bag top wall 120 and a plate 200 are permanently connected in proximity to the bag top wall opening 108 and a plate access opening 215, are visible. Two double fixation bag top wall tape strips 250 are permanently connected to the bag top wall 120 at the respective bag-top-wall-tape-strip-sheet connection points 129. The connections are done by plastic welding. The bag-top-wall-tape-strip-sheet connection points 129 have a rectangular contour (not visible). Three double fixation bag bottom wall tape strips 270 are permanently connected to the bag bottom wall 110 at the respective three bag bottom wall tape strip connection points 115. The three connections are done by plastic welding. Each of the three double fixation bag bottom wall tape strips 270 of drying bag 700 has thus one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and two off-center bag bottom wall tape strip connection points (not visible), which have a rectangular contour (not visible) and are close to an outer edge of the bag bottom wall 110.

[0138] The plate 200 has the plate access opening 215, which defines at least partly together with the bag top wall access opening 108 a bag access opening 400, which provides an access to a bag interior cavity 125. From the plate 200, a plate opening thread 226 is visible. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 161, the bag side wall inner site 181, the bag top wall lower site 122 and a formal extension of the bag top wall lower site 122 parallel to the bag bottom wall upper site 111, which thus would formally cover the bag top wall access opening 108, as its borderlines. From the supporting tub 300, the supporting tub side wall 340 with its supporting tub side wall inner site 341 and with its supporting tub side wall outer site 342 is visible. From the supporting tub 300, the supporting tub side wall 320 with

its supporting tub side wall inner site 321 and with its supporting tub side wall outer site 322 is also visible. At the top of the supporting tub side wall 320, i.e. in the direction away from a supporting tub bottom wall 310, a supporting tub overhang 360 with its supporting tub overhang upper site 361 and with its supporting tub overhang lower site 362 is connected and extends parallel to the supporting tub bottom wall to a center of the supporting tub 300 respectively extends perpendicularly to the supporting tub side wall 320 in the direction of the opposite supporting tub side wall inner site 341. A part of the plate 200 lies on the supporting tub overhang 360, i.e., a part of a plate lower site 202 touches the supporting tub overhang upper site 361.

[0139] Fig. 9 shows an exploded view of a bag access opening 400 at a part of a bag top wall 120, which is closed with a lid 420, a cap 450 and a guide tube 470.

[0140] Fig. 9 shows the orientation of the lid 420, the cap 450 and the guide tube 470, when they close the bag access opening 400. A temperature probe 480 is inserted from the open site of the semi-closed guide tube 470. The bag access opening 400, which is at least partly defined by the by the plate access opening 215 and the bag shell access opening 108, is depicted together with the plate 200 and a part of a bag top wall 120 with its bag top wall upper site 121 and its bag top wall lower site 121. The part of the bag top wall 120, which is visible, is made of the vapor permeable sheet 131. A bag-top-wall-plate connection point 140, where the bag top wall 120 and the plate 200 are permanently connected in proximity to the bag top wall opening 108 and the plate access opening 215, is visible. The connection is done by plastic welding. The plate 200 has a plate opening thread 226, which fits to a lid counter thread 431 of the removable lid 420. The bag access opening 400 is closed by screwing the removable lid 420 onto the plate opening thread 226. The removable lid 420 with its lid upper site 421 and with its lid lower site 422 has a closable lid opening 432, which is circular, possesses a lid opening thread 433 and reaches from the lid upper site 421 to the lid lower site 422. The lid upper site 421 has a lid outer plateau 440, a lid inner plateau 441, a lid inner base 444 and a lid flank 446. The lid inner plateau 441 is limited at one site by the closable lid opening 432 and at one site by the lid opening thread 433. The lid inner base 444 is limited at one site by the lid opening thread 433 and at one site by the lid flank 446. The lid flank 446 is limited at one site by the lid inner base 444 and at one site by the lid outer plateau 440. The lid outer plateau 440 is higher than the lid inner plateau 441. In other words, when the lid 420 would be placed on its lid lower site 422 at a formal plane then a height of the outer plateau 440 determined from the formal plane is larger than a height of the inner plateau 441 determined from the formal plane. The difference in heights between the lid outer plateau 440 and the inner plateau 441 is such that the screwed on removable cap 450 does not extend above the lid outer plateau 440 when determined from the formal plane. The cap 450 has a cap counter thread 461, which fits to the lid opening thread 433. The closable lid opening 432 is closed by screwing the removable cap 450 onto the lid opening thread 433. The removable cap 450 has a closable cap opening 462, which is closed by the guide tube 470. The temperature probe 480 is inserted into the semi-closed guide tub 470.

[0141] Fig. 10 shows an exploded view of a drying system 800 with a supporting tub 300, two bolts 500 and a closed drying bag 700, which is closed by a lid 420, a cap 450 and a guide 470 with an inserted temperature probe 480.

[0142] Fig. 10 shows the orientation of the drying bag 700, when the drying bag 700 is positioned in the supporting tub 300 and a plate is detachably connected by two bolts 500 with a supporting tub overhang. A bag access opening is closed by the removable lid 420, which is itself closed with the removable cap 450. The removable cap 450 is itself closed with the removable guide tub 470. The temperature probe 480 is removably inserted into the removable guide tub 470.

[0143] Fig. 11 shows one half of a graphical section C-C of a drying system 800 with a closed drying bag 700 positioned in a supporting tub 300 and its closure by a lid 420, a cap 450 and a guide tube 470 with an inserted temperature probe 480.

[0144] Fig. 11 shows parts of the bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a part of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 are visible. From the bag shell 100, a bag side wall 170 with its bag side wall inner site 171 and with its bag side wall outer site 172 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122, with its bag top wall edge 137, which defines the transition from the bag top wall 120 to the bag side wall 170, and with its bag top wall access opening 108 is also visible. At a plate 200 with its plate upper side 201 and its plate lower side 202, one half of a plate access opening 215 is visible. The plate access opening 215 defines at least partly together with the bag top wall access opening 108 a closable bag access opening 400, which provides an access to the bag interior cavity 125, when the closable bag access opening 400 is not closed. In Fig. 11, the bag access opening 400 is closed by the removable lid 420, which is screwed onto the plate 200 and is pressed on the plate upper side 201. The removable lid 420 is itself closed by the removable cap 450, which is screwed onto the removable lid 420. The removable cap 450 is closed by an insertion of the removable semi-closed guide tube 470. The temperature probe 480 is inserted into the removable semi-closed guide tube 470 at the open site of the semi-closed guide tube 470. A flexible electrical cable of the temperature probe 480, which serves to transmit the measured temperature probe signals, is visible. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 171, the bag top

wall lower site 122 and a formal extension of the bag top wall lower site 122 parallel to the bag bottom wall upper site 111, which thus would formally cover the bag top wall access opening 108, as its borderlines. A volume of the part of the guide tube 470, which extends below the formal extension of the bag top wall lower site 112 into the bag shell 100, must be deduced from the bag interior cavity if a free volume of the bag interior cavity is determined. At a bag-top-wall-plate connection point 140, the bag top wall 120 at its bag top wall upper site 121, which is made at this point of the vapor permeable sheet 131, and the plate 200 at its plate lower site 202 are permanently connected. The connection is done by plastic welding. At the bag top connection point 140, a plate-connecting zone of the bag top wall upper site, which is at the bag top wall upper site 121, and a bag-top-wall-connecting zone of the plate lower site, which is at the plate lower site 202, are in contact with each other. The visible parts of the first portion of the bag shell outer site 143, which are made of the pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 172 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the bag top wall edge 137 in the direction of the bag top wall access opening 108 until the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall and extends in the direction of the bag top wall access opening 108. A first-plastic-foil-to-sheet connection point 145 is the area, where the vapor permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. A single fixation bag top wall tape strip 251 with its bag top wall tape strip end 254 and with its perforation at the bag top wall tape strip 255 is visible. The bag top wall tape strip end 254 is detachably connected to the supporting tub hook for the bag top wall tape strip 325. A bag-top-wall-tape-strip-first-plastic-foil connection point 128, where the pliable first plastic foil 130 of the bag top wall 120 and the single fixation bag top wall tape strip 251 are permanently connected, is also visible. The connection is done by plastic welding. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour (not visible). One half of the double fixation bag bottom wall tape strip 270 is visible. The double fixation bag bottom wall tape strip 270 is permanently connected to the bag bottom wall 110 at a bag bottom wall tape strip connection point 115. The connection is done by plastic welding. One half of one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and one complete off-center bag bottom wall tape strip connection point 115, which has a rectangular contour (not visible) and is close to an outer edge of the bag bottom wall 110, are visible. The bag bottom wall tape strip end 274 starts at the off-center bag bottom wall tape strip connection point 115 and extends in the direction where the perforation at the bag bottom wall tape strip 275 is located. The bag bottom wall tape strip end 274 is guided around the lower part of the supporting tub pole 383 and through the supporting tub slit 381 towards a supporting tub hook for the bag bottom wall tape strip 328. The supporting tub hook for the bag bottom wall tape strip 328 is arranged at the supporting tub side wall top rim 333 and is at the same time the supporting tub hook for the bag top wall tape strip 325. The perforation at the bag bottom wall tape strip 275 serves to detachably connect the bag bottom wall tape strip end 274 at the supporting tub hook for the bag bottom wall tape strip 328. From the supporting tub 300, one half of the supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 300, the supporting tub side wall 330 with its supporting tub side wall inner site 331 and with its supporting tub side wall outer site 332 is also visible. A part of the supporting tub recess 315 is also visible, i.e. the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 331 and a formal borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 333 less the additional height caused by the supporting tub hook for the bag top wall tape strip 325. The bag bottom wall lower site 112 lies on the double fixation bag bottom wall tape strip 270, which itself lies on the supporting tub bottom wall upper site 311. The bag side wall outer site 172 touches the bag bottom wall tape strip end 274, which itself touches the supporting tub side wall inner site 331 and the supporting tub pole 383, and the supporting tub pole 383. The pliable first plastic foil 130 allows a larger touching area between the bag side wall outer site 172 via the bag bottom wall tape strip end 274 and the supporting tub side wall inner site 331 than depicted in Fig. 11 for visibility reasons. A lid outer plateau 440 is at the same height than the supporting tub hook for the bag top wall tape strip 325 when both are determined starting from the supporting tub bottom wall lower site 312. Solely the flexible electrical cable of the temperature probe 480, which is thin, extends above the lid outer plateau 440.

[0145] Fig. 12 shows four parts of a graphical section D-D of a drying system 800 with a closed drying bag 700, which is positioned in a supporting tub 300 and closed by a lid 420, a cap 405 and a guide tube 470 with an inserted temperature probe 480.

[0146] Fig. 12 shows the drying system 800 with three interruptions to allow a depiction on one page at the chosen size. Parts of a bag shell 100 are visible, i.e. a bag top wall 120 including a bag top wall access opening 108 and with its bag top wall upper site 121, a bag side wall 160 with its bag side inner wall site 161 and its bag side wall outer site 162, a bag side wall 180 with its bag

side inner wall site 181 and its bag side wall outer site 182 and a bag bottom wall 110. The bag top wall 120 extends from its bag top wall edge 136, which defines the transition from the bag top wall 120 to the bag side wall 160, to its bag top wall edge 138, which defines the transition from the bag top wall 120 to the bag side wall 180. A first portion of the bag shell outer site 143, i.e. where a bag shell outer site 106 is made of a pliable first plastic foil 130, starts from a point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying a vapor permeable sheet 131 and which is close to the bag top wall edge 138, runs along the bag side wall outer site 182, then the bag bottom wall lower site 112 and then the bag side wall outer site 162 to a point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136. A second portion of the bag shell outer site 142, i.e. where the bag shell outer site 106 is made of the vapor permeable sheet 131, starts at the point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136, and runs along the bag top wall outer site 121 to the point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 138, with an exception of the bag top wall access opening 108. Two first-plastic-foil-to-sheet connection points 145 at the bag top wall 120, where the vapor permeable sheet is permanently connected to the pliable first plastic foil 130, are visible. The connections are done by plastic welding. Two parts of the bag-top-wall-plate connection point 140, where the bag top wall 120 and a plate 200 are permanently connected in proximity to the bag top wall opening 108 and the plate access opening 215, are visible. From the plate 200, a plate opening thread 226 is visible. Two double fixation bag top wall tape strips 250 are permanently connected to the bag top wall 120 at the respective bag-top-wall-tape-strip-sheet connection points 129. The connections are done by plastic welding. Three double fixation bag bottom wall tape strips 270 are permanently connected to the bag bottom wall 110 at the respective three bag bottom wall tape strip connection points 115. The three connections are done by plastic welding. Each of the three double fixation bag bottom wall tape strips 270 of drying bag 700 has thus one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and two off-center bag bottom wall tape strip connection points (not visible), which have a rectangular contour (not visible) and are close to an outer edge of the bag bottom wall 110. The plate 200 has a plate access opening 215, which defines at least partly together with the bag top wall access opening 108 a closable bag access opening 400, which provides an access to a bag interior cavity 125, when the closable bag access opening 400 is not closed. In Fig. 12, the bag access opening 400 is closed by the removable lid 420, which is screwed onto the plate 200 and is pressed on a plate upper side 201. The removable lid 420 is itself closed by the removable cap 450, which is screwed onto the removable lid 420. The removable cap 450 is closed by an insertion of the removable semi-closed guide tube 470. The temperature probe 480 is inserted into the removable semi-closed guide tube 470 at the open site of the semi-closed guide tube 470. A flexible electrical cable of the temperature probe 480, which serves to transmit the measured temperature probe signals, is visible. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 161, the bag side wall inner site 181, the bag top wall lower site 122 and a formal extension of the bag top wall lower site 122 parallel to the bag bottom wall upper site 111, which thus would formally cover the bag top wall access opening 108, as its borderlines. From the supporting tub 300, the supporting tub side wall 340 with its supporting tub side wall inner site 341 and with its supporting tub side wall outer site 342 is visible. From the supporting tub 300, the supporting tub side wall 320 with its supporting tub side wall inner site 321 and with its supporting tub side wall outer site 322 is also visible. At the top of the supporting tub side wall, i.e. in the direction away from a supporting tub bottom wall 310, a supporting tub overhang 360 with its supporting tub overhang upper site 361 and with its supporting tub overhang lower site 362 is connected and extends parallel to the supporting tub bottom wall to a center of the supporting tub 300 respectively extends perpendicularly to the supporting tub side wall 320 in the direction of the opposite supporting tub side wall inner site 341. A part of the plate 200 lies on the supporting tub overhang 360, i.e., a part of a plate lower site 202 touches the supporting tub overhang upper site 361. A lid outer plateau 440 has the largest height when heights are determined starting from the supporting tub bottom wall lower site 312. Solely the flexible electrical cable of the temperature probe 480, which is thin, extends above the lid outer plateau 440.

[0147] Fig. 13 shows a supporting tub 301, which belongs to a drying system II, and directions of graphical sections D-D and E-E.

[0148] Fig. 13 shows the supporting tub 301 comprising a supporting tub bottom wall 310 and four supporting tub side walls 320, 330, 340 and 350. Due to the perspective of Fig. 13, a supporting tub side wall top rim 323 and a supporting tub side wall outer site 322 of the supporting tub side wall 320 is visible. Similarly, a supporting tub side wall top rim 333 and a supporting tub side wall outer site 332 of the supporting tub side wall 330 is visible. Contrarily, a supporting tub side wall top rim 343 and a supporting tub side wall inner site 341 of the supporting tub side wall 340 is visible. Again contrarily, a supporting tub side wall top rim 353 and a supporting tub side wall inner site 351 of the supporting tub side wall 350 is visible. A supporting tub bottom wall upper site 311, the supporting tub side wall inner sites 341 and 351 and the non-visible supporting tub side wall inner sites of the

supporting tub side walls 320 and 330 define a supporting tub recess 315. At the supporting tub side wall top rim 323, a supporting tub overhang 360 extends perpendicularly to the supporting tub side wall 320 and is arranged above the supporting tub bottom wall inner site 311 when determined from a top view, i.e., viewed from above in a right angle down onto the supporting tub bottom wall inner site 311. Due to the perspective of Fig. 13, the supporting tub overhang upper site 361 is visible. The supporting tub overhang 360 possesses one supporting tub overhang tube stud 376, which stands perpendicularly out from the supporting tub overhang upper site 361 and contains one supporting tub overhang reach-through long hole 371. The supporting tub overhang tube stud 376 is a specific supporting tub overhang stud and a specific supporting tub overhang fastening element. The supporting tub overhang reach-through long hole 371 is a specific supporting tub overhang reach-through hole, a specific supporting tub overhang hole and a specific supporting tub overhang fastening element. An inner thread at the supporting tub overhang reach-through long hole 371 allows to screw in a bolt with an appropriate external thread. The supporting tub overhang 360 possesses further two supporting tub overhang full studs 375, which stands perpendicularly out from the supporting tub overhang upper site 361. The supporting tub overhang full stud 375 is a specific supporting tub overhang tub and a specific supporting tub overhang fastening element. At the two opposite supporting tub side wall top rims 333 and 353, eight supporting tub hooks for the bag top wall tape strip 325 are attached, i.e., four on each of the two rims and each hook from one rim is arranged opposite to a hook from the other rim. At the two opposite supporting tub side wall top rims 333 and 353, eight supporting tub slitted pole hold-downs 380 are attached, i.e. four on each of the two rims and each hold-down from one rim is arranged opposite to a hold-down from the other rim. The four supporting tub slitted pole hold-downs 380 attached at the supporting tub side wall top rim 333 are only partly visible. The supporting tub slitted pole hold-down 380 possesses a supporting tub pole 383, which is arranged with its longitudinal dimension in parallel to the supporting tub bottom wall inner site 311 and is close to the supporting tub bottom wall inner site 311, i.e., a distance between the supporting tub pole 383 and the supporting tub bottom wall inner site 311 is only short. The supporting tub pole 383 of the supporting tub slitted pole hold-down 380 possesses a supporting tub slit 381, which runs with its longitudinal dimension like the supporting tub pole 383 parallel to the supporting tub bottom wall inner site 311. Each of the eight supporting tub slitted pole hold-downs 380 is centered with its mirror symmetrical U-type hanger form at one of the eight supporting tub hooks for the bag top wall tape strip 325. Or in other words, each of the eight supporting tub hooks for the bag top wall tape strip 325 is middled to one of the six supporting tub slitted pole hold-downs 380 with their mirror symmetrical U-type hanger form. The eight supporting tub slitted pole hold-downs 380 allow to redirect a bag bottom wall tape strip (not shown) to a supporting tub side wall top rim. Hence in case of the supporting tub 301, the eight supporting tub hooks for the bag top wall tape strip 325 are at the same time supporting tub hooks for the bag bottom wall tape strip 328.

[0149] Fig. 14 shows a drying bag 701, which belongs to a drying system II, and a direction of the graphical section D-D.

[0150] Fig. 14 shows the drying bag 701, which comprises a bag shell 100, a plate 205, two single fixation bag top wall tape strips 251, three double fixation bag top wall tape strips 250 and four double fixation bag bottom wall tape strips 270. Due to the perspective of Fig. 14, the four double fixation bag bottom wall tape strips 270 are only partly visible. The bag shell 100 is built by a non-visible bag bottom wall, a bag top wall 120, the bag side wall 160, the bag side wall 170 and two other non-visible bag side walls. The plate 205 comprises a plate access opening 215, a plate opening thread 226 and three plate reach-through holes 220. One of them is a centered plate reach-through hole 220, which has a larger diameter than the two off-center plate reach-through holes 220. The plate access opening 215 defines at least partly together with a bag top wall access opening at the bag top wall 120 a bag access opening 400. The bag top wall access opening is not visible in Fig. 14, because it is hidden by the plate upper site 201 of the plate 205. The bag access opening 400 allows an access to a bag interior cavity 125. The bag shell 100 has a bag shell outer site 106. Due to the perspective of Fig. 14, the following parts of the bag shell outer site 106 are visible: a bag top wall upper site 121 of the bag top wall 120, a bag side wall outer site 162 of the bag wall side 160 and a bag side wall outer site 172 of the bag wall side 170. The part of the bag shell outer site 106, which is made of a pliable first plastic foil 130, is a first portion of the bag shell outer site 143. The part of the bag shell outer site 106, which is made of a vapor permeable sheet 131, is a second portion of the bag shell outer site 142. The second portion of the bag shell outer site 142 is completely a part of the bag top wall upper site 121. A bag top wall edge 136 defines the transition from the bag top wall 120 to the bag side wall 160, a bag top wall edge 137 defines the transition from the bag top wall 120 to the bag side wall 170 and bag top wall edges wall edges 138 and 139 define the transitions from the bag top wall 120 to the respective two non-visible bag side walls. All of the four bag top wall edges 136, 137, 138 and 139 are made of the pliable first plastic foil 130 and form a bag top wall frame 144 at the bag top wall upper site 121, which surrounds perimetrically the second portion of the bag shell outer site 142, which is made of the vapor-permeable sheet 131. The access opening 400 is completely arranged at the second portion of the bag shell outer site 142, because the non-visible bag top wall access opening is completely arranged inside of the second portion of the bag shell outer site 142. Each of the two single fixation bag top wall tape strip 251 is connected to the bag top wall

frame 144 at a bag-top-wall-tape-strip-first-plastic-foil connection point 128. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 originates from a plastic welding of the single fixation bag top wall tape strip 251, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the single fixation bag top wall tape strip 251, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. The bag top wall tape strip end 254 possesses a perforation at the bag top wall tape strip 255. The perforation has a contour of a slit. Each of bag top wall tape strip end 254 of the single fixation bag top wall tape strips 251 is free, e.g., none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the three double fixation bag top wall tape strips 250 is connected to the bag top wall frame 144 at two bag-top-wall-tape-strip-first-plastic-foil connection points 128. All of the bag-top-wall-tape-strip-first-plastic-foil connection points 128 originate from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the double fixation bag top wall tape strip 250, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. All of the six bag top wall tape strip ends 254 of the three double fixation bag top wall tape strips 250 possess a perforation at the bag top wall tape strip 255. The perforation has a contour of a slit. Each of the six bag top wall tape strip ends 254 of the double fixation bag top wall tape strips 250 is free, e.g. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the three double fixation bag top wall tape strips 250 is connected to the second portion of the bag shell outer site 142 at a bag-top-wall-tape-strip-sheet connection point 129. The bag-top-wall-tape-strip-sheet connection point 129 originates from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131. The vapor permeable sheet possesses one site, which has an outer layer out of a plastic material, which can be plastic-welded with the pliable first plastic foil 130. The bag-top-wall-tape-strip-sheet connection point 129 has a circular contour and is arranged in the middle of the length of the double fixation bag top wall tape strip 250 and in a midline of the bag top wall 120, which runs along the direction of the graphical section D-D. From the four double fixation bag bottom wall tape strips 270, eight bag bottom wall tape strip ends 274 are visible. Each of the eight bag bottom wall tape strip ends 274 possess a perforation at the bag bottom wall tape strip 275. The perforation has a contour of a slit. All of the eight bag bottom wall tape strip ends 274 are free, e.g. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. The four double fixation bag bottom wall tape strips 270 have a length, which is larger than the sum of the width of the bag bottom wall (not visible), the height of the bag side wall 170 and the height of the bag side wall opposite to the bag side wall 170 (not visible). This allows that each of the eight bag bottom wall tape strip ends 274 is sufficiently long to be guided through a supporting tub slitted pole hold-down and detachably connected to a supporting tub hook for the bag bottom wall tape strip, which is attached at the supporting tub side wall top rim.

[0151] Fig. 15 shows an exploded view of a drying system 801 with a supporting tub 301, one bolt 501 and a closed drying bag 701, which is closed by a lid 420, a cap 450 and a guide tube 470 with an inserted temperature probe 480.

[0152] Fig. 15 shows the orientation of the drying bag 701, when the drying bag 701 is positioned in the supporting tub 301 and a plate is detachably connected by one bolt 501 with a supporting tub overhang. A bag access opening is closed by the removable lid 420, which is itself closed with the removable cap 450. The removable cap 450 is itself closed with the removable guide tub 470. The temperature probe 480 is removably inserted into the removable guide tub 470.

[0153] Fig. 16 shows a part of a graphical section D-D of a drying system 801 with a drying bag 701 positioned in a supporting tub 301 and a superimposed arrangement of a bolt 501.

[0154] Fig. 16 shows a part of the drying system 801. Parts of a bag shell 100 are visible, i.e., a bag top wall 120 including a bag top wall access opening 108 and with its bag top wall upper site 121 and with its bag top wall edge 136, a bag side wall 160 with its bag side inner wall site 161 and its bag side wall outer site 162 and a bag bottom wall 110. The bag top wall edge 136 of the bag top wall 120 defines the transition from the bag top wall 120 to the bag side wall 160. A first-plastic-foil-to-sheet connection point 145 at the bag top wall 120, where a vapor permeable sheet 131 is permanently connected to a pliable first plastic foil 130, is visible. The connection is done by plastic welding. A plate 205 with its plate upper site 201 and with its plate lower site 202, which comprises a plate access opening 215, a plate opening thread 226 and a plate reach-through hole 220, is visible. Two parts of the bag-top-wall-plate connection point 140, where the bag top wall 120 and the plate 205 are permanently connected in proximity to the bag top wall opening 108 and the plate access opening 215, are visible. The connections are done by plastic welding. The plate access opening 215 defines at least partly together with the bag top wall access opening 108 a bag access opening 400, which provides an access to a bag interior cavity 125. A double fixation bag bottom wall tape strip 270 is permanently connected to the bag bottom wall 110 at a bag

bottom wall tape strip connection point 115. The connection is done by plastic welding. The double fixation bag bottom wall tape strip 270 of drying bag 701 has thus one centered bag bottom wall tape strip connection point 115, which has a circular contour (not visible), and two off-center bag bottom wall tape strip connection points (not visible), which have a rectangular contour (not visible) and are close to an outer edge of the bag bottom wall 110. From the supporting tub 301, parts of the supporting tub bottom wall 310, a supporting tub side wall 320 with its supporting tub side wall inner site 321, with its supporting tub side wall outer site 322 and with its supporting tub side wall top rim 323 and a supporting tub overhang 360 are visible. At the supporting tub side wall top rim 323, i.e. at the top of the supporting tub side wall 320, i.e. in the direction away from the supporting tub bottom wall 310, the supporting tub overhang 360 with its supporting tub overhang upper site 361 and with its supporting tub overhang lower site 362 is connected and extends parallel to the supporting tub bottom wall to a center of the supporting tub 301 respectively extends perpendicularly to the supporting tub side wall 320 in the direction of the opposite supporting tub side wall (not shown). The supporting tub overhang 360 comprises a supporting tub overhang tube stud 376, which stands perpendicularly out from the supporting tub overhang upper site 361 and contains one supporting tub overhang reach-through long hole 371 with a supporting tub overhang inner thread 374. The bolt 501 with its bolt chin 506 and with its bolt thread 508 is visible. A part of the plate 205 lies on the supporting tub overhang 360, i.e., a part of the plate lower site 202 touches the supporting tub overhang upper site 361. The plate reach-through hole 220 is involved in a twist-proof and detachable connection of the plate 205 to the supporting tub overhang 360. The plate reach-through hole 220 is placed around the supporting tub overhang tube stud 376 with a perfect fit. The bolt 501 has the bolt thread 508, which fits to the supporting tub overhang inner thread 374. In Fig. 16, the bolt 501 is superimposed at the supporting tub overhang reach-through long hole 371. Once the bolt 501 is screwed into the supporting tub overhang reach-through long hole 371, its bolt chin 506 will touch the plate upper site 201 before the supporting tub overhang tube stud 376. This is due to a height of the supporting tub overhang tube stud 376, which is determined from the supporting tub overhang upper site 361 and which is smaller than a distance between the plate lower site 202 and the plate upper site 201, which is determined at the plate reach-through hole 220. Once the bolt 501 is screwed in, the bolt chin 506 will press the plate 205 onto the supporting tub overhang 360.

[0155] Fig. 17 shows a part of a graphical section E-E of a supporting tub 301 and a superimposed arrangement of a bolt 501.

[0156] Fig. 17 shows a supporting tub overhang 360 of the supporting tub 301. The supporting tub overhang 360 possesses one supporting tub overhang tube stud 376, which stands perpendicularly out from a supporting tub overhang upper site 361 and contains one supporting tub overhang reach-through long hole 371, which has a supporting tub overhang inner thread 374 and reaches from the supporting tub overhang upper site 361 to a supporting tub overhang lower site 362. The supporting tub overhang tube stud 376 allows to be slided into a plate reach-through hole (not shown), which is involved in a twist-proof and detachable connection of a plate (not shown) at the supporting tub 301. The supporting tub overhang inner thread 374 at the supporting tub overhang reach-through long hole 371 fits to and allows to screw in a bolt thread 508 of the bolt 501. The supporting tub overhang 360 possesses further two supporting tub overhang full studs 375, which stands perpendicularly out from the supporting tub overhang upper site 361. The supporting tub overhang full stud 375 allows to be slided into a plate reach-through hole (not shown), which is involved in a twist-proof and detachable connection of a plate (not shown) at the supporting tub 301. The supporting tub overhang tube stud 376 is centered in relation to the graphical section E-E at the supporting tub overhang 360, whereas the two supporting tub overhang full studs 375 are off-centered.

[0157] Fig. 18 shows a bolt 500 and a bolt 502.

[0158] Fig. 18 shows the bolt 500 with its bolt head 504, which has a bolt head knurling 515 at its cylindrical surface parallel to a screw axis. A bolt shaft 510 starts at a bolt chin 506 of the bolt head 504 in the direction of the screw axis of the bolt 500 away from the bolt chin 506. The bolt shaft 510 fits to and allows to guide a suitable plate reach-through hole of a plate (not shown). After the bolt shaft 510, a bolt thread 504 follows in the direction of the screw axis of the bolt 500. The bolt 500 is thus a shafted bolt respectively a shaft screw. The bolt 501 with its bolt head 504, which has a bolt head knurling 515 at its cylindrical surface parallel to a screw axis, is also shown. A bolt thread 508 starts at a bolt chin 506 of the bolt head 504 in the direction of the screw axis of the bolt 501 away from the bolt chin 506. The bolt 501 is thus a non-shafted bolt respectively a non-shafted screw.

[0159] Fig. 19 shows a supporting tub 302, which belongs to a drying system III, and directions of graphical sections AA, D-D and E-E.

[0160] Fig. 19 shows the supporting tub 302 comprising a supporting tub bottom wall 310 and four supporting tub side walls 320, 330, 340 and 350. Due to the perspective of Fig. 1, a supporting tub side wall top rim 323 and a supporting tub side wall outer site 322 of the supporting tub side wall 320 is visible. Similarly, a supporting tub side wall top rim 333 and a supporting tub side wall outer site 332 of the supporting tub side wall 330 is visible. Contrarily, a supporting tub side wall top rim 343 and a supporting tub side wall inner site 341 of the supporting tub side wall 340 is visible. Again contrarily, a supporting tub side wall top rim 353 and a supporting tub side wall inner site 351 of the supporting tub side wall 350 is visible. A supporting tub bottom wall upper site 311,

the supporting tub side wall inner sites 341 and 351 and the non-visible supporting tub side wall inner sites of the supporting tub side walls 320 and 330 define a supporting tub recess 315. At the supporting tub side wall top rim 323, a supporting tub overhang 360 extends perpendicularly to the supporting tub side wall 320 and is arranged above the supporting tub bottom wall inner site 311 when determined from a top view, i.e., viewed from above in a right angle down onto the supporting tub bottom wall inner site 311. Due to the perspective of Fig. 1, the supporting tub overhang upper site 361 is visible. The supporting tub overhang 360 possesses two supporting tub overhang reach-through short holes 370 and one supporting tub overhang tube stud 376, which stands perpendicularly out from a supporting tub overhang upper site 361 and contains one supporting tub overhang reach-through long hole 371. In relation to the direction of graphical sections D-D, the supporting tub overhang tube stud 376 and its supporting tub overhang reach-through long hole 371 are centered, whereas the two supporting tub overhang reach-through short holes 370 are off-centered. At the two opposite supporting tub side wall top rims 333 and 353, six supporting tub rods for the bag top wall tape strip 326 are attached, i.e., three on each of the two rims and each rod from one rim is arranged opposite to a rod from the other rim. The supporting tub rod for the bag top wall tape strip 326 is a specific supporting tub rod for the tensioning belt, a specific supporting tub anchor for the bag top wall tape strip fastening element and a specific supporting tub anchor for the tensioning belt fastening element. At the two opposite supporting tub side wall top rims 333 and 353, six - supporting tub stick hold-downs 385 are attached, i.e., three on each of the two rims and each hold-down from one rim is arranged opposite to a hold-down from the other rim. The three supporting tub slitted pole hold-downs 385 attached at the supporting tub side wall top rim 333 are only partly visible. The supporting tub stick hold-down 385 is a specific supporting tub hold-down. The supporting tub stick hold-down 385 possesses a supporting tub stick 386, which is arranged with its longitudinal dimension in parallel to the supporting tub bottom wall inner site 311 and is close to the supporting tub bottom wall inner site 311, i.e., a distance between the supporting tub stick 386 and the supporting tub bottom wall inner site 311 is only short. Each of the six supporting tub stick hold-downs 385 is centered in relation to its supporting tub stick 386 at one of the six supporting tub rods for the bag top wall tape strip 326. Or in other words, each of the six supporting tub rods for the bag top wall tape strip 326 is middled to one of the six supporting tub sticks 386. Since each of the six supporting tub sticks 386 are part of the supporting tub stick hold-down 385 and the supporting tub stick hold-down 385 has a L-type hanger form, the supporting tub stick hold-down 385 is attached next to one of the two sites of the supporting tub rod for the bag top wall tape strip 326 at the respective supporting tub side wall top rim. The six supporting tub stick hold-downs 385 allow to redirect a bag bottom wall tape strip (not shown) to a supporting tub side wall top rim. Hence in case of the supporting tub 302, the six supporting tub rods for the bag top wall tape strip 326 are at the same time supporting tub rods for the bag bottom wall tape strip 329. The supporting tub rod for the bag bottom wall tape strip 329 is a specific supporting tub rod for the tensioning belt, a specific supporting tub anchor for the bag bottom wall tape strip fastening element and a specific supporting tub anchor for the tensioning belt fastening element. At the supporting tub side wall top rim 343, which is opposite to the supporting tub overhang 360, one further supporting tub rod for the bag bottom wall tape strip 326 is attached. At the supporting tub side wall top rim 343, a supporting tub full pole hold-down 382 is attached. The supporting tub full pole hold-down 382 is a specific supporting tub pole hold-down and a specific supporting tub hold-down. The supporting tub full pole hold-down 382 possesses a supporting tub pole 383, which is arranged with its longitudinal dimension in parallel to the supporting tub bottom wall inner site 311 and is close to the supporting tub bottom wall inner site 311, i.e., a distance between the supporting tub pole 383 and the supporting tub bottom wall inner site 311 is only short. The supporting tub full pole hold-down 382 is centered with its mirror symmetrical U-type hanger form at the supporting tub rod for the bag top wall tape strip 325. Or in other words, the supporting tub rod for the bag top wall tape strip 325 is middled to the supporting tub full pole hold-down 382 with its mirror symmetrical U-type hanger form. The supporting tub full pole hold-down 382 allow to redirect a bag bottom wall tape strip (not shown) to a supporting tub side wall top rim. Hence in case of the supporting tub 302, the supporting tub rod for the bag top wall tape strip 325 at the supporting tub side wall top rim 343 is at the same time the supporting tub rod for the bag bottom wall tape strip 329.

[0161] Fig. 20 shows a drying bag 702 and directions of graphical sections A-A and D-D.

[0162] Fig. 20 shows the drying bag 702, which comprises a bag shell 100, a plate 206, one single fixation bag top wall tape strip 251, two double fixation bag top wall tape strips 250 and seven single fixation bag bottom wall tape strips 271. Due to the perspective of Fig. 2, the seven single fixation bag bottom wall tape strips 271 are only partly visible. The single fixation bag bottom wall tape strip 271 is a specific bag bottom wall tape strip, a specific single fixation tensioning belt and a specific tensioning belt. The bag shell 100 is built by a non-visible bag bottom wall, a bag top wall 120, the bag side wall 160, the bag side wall 170 and two other non-visible bag side walls. The plate 206 comprises a plate access opening 215, a plate opening thread 226, a plate reach-through hole 220 and two plate perpendicular studs 225. One of the two plate perpendicular studs 225 is not visible. The plate perpendicular stud 225 is a specific plate stud and a specific plate fastening element. The plate access opening 215 defines at least partly together with a bag top wall

access opening at the bag top wall 120 a bag access opening 400. The bag top wall access opening is not visible in Fig. 20, because it is hidden by a plate upper site 201 of the plate 206. The bag access opening 400 allows an access to a bag interior cavity 125. The bag shell 100 has a bag shell outer site 106. Due to the perspective of Fig. 20, the following parts of the bag shell outer site 106 are visible: a bag top wall upper site 121 of the bag top wall 120, a bag side wall outer site 162 of the bag wall side 160 and a bag side wall outer site 172 of the bag wall side 170. The part of the bag shell outer site 106, which is made of a pliable first plastic foil 130, is a first portion of the bag shell outer site 143. The part of the bag shell outer site 106, which is made of a vapor permeable sheet 131, is a second portion of the bag shell outer site 142. The second portion of the bag shell outer site 142 is completely a part of the bag top wall upper site 121. A bag top wall edge 136 defines the transition from the bag top wall 120 to the bag side wall 160, a bag top wall edge 137 defines the transition from the bag top wall 120 to the bag side wall 170 and bag top wall edges wall edges 138 and 139 define the transitions from the bag top wall 120 to the respective two non-visible bag side walls. All of the four bag top wall edges 136, 137, 138 and 139 are made of the pliable first plastic foil 130 and form a bag top wall frame 144 at the bag top wall upper site 121, which surrounds perimetrically the second portion of the bag shell outer site 142, which is made of the vapor-permeable sheet 131. The access opening 400 is completely arranged at the second portion of the bag shell outer site 142, because the non-visible bag top wall access opening is completely arranged inside of the second portion of the bag shell outer site 142. The single fixation bag top wall tape strip 251 is connected to the bag top wall frame 144 at a bag-top-wall-tape-strip-first-plastic-foil connection point 128. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 originates from a plastic welding of the single fixation bag top wall tape strip 251, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the single fixation bag top wall tape strip 251, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. The bag top wall tape strip end 254 possesses a perforation at the bag top wall tape strip 255. The perforation has a contour of a circular hole. The bag top wall tape strip end 254 of the single fixation bag top wall tape strip 251 is free, e.g., it is not detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the two double fixation bag top wall tape strips 250 is connected to the bag top wall frame 144 at two bag-top-wall-tape-strip-first-plastic-foil connection points 128. Both of the two bag-top-wall-tape-strip-first-plastic-foil connection points 128 originate from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the bag top wall frame 144, which is also made of the pliable first plastic foil 130. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour. The part of the double fixation bag top wall tape strip 250, which starts from the bag-top-wall-tape-strip-first-plastic-foil connection point 128, is a bag top wall tape strip end 254. All of the four bag top wall tape strip ends 254 of the two double fixation bag top wall tape strips 250 possess a perforation at the bag top wall tape strip 255. The perforation has a contour of a circular hole. All of the four bag top wall tape strip ends 254 are free, i.e. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. Each of the two double fixation bag top wall tape strips 250 is connected to the second portion of the bag shell outer site 142 at a bag-top-wall-tape-strip-sheet connection point 129. The bag-top-wall-tape-strip-sheet connection point 129 originates from a plastic welding of the double fixation bag top wall tape strip 250, which is made of the pliable first plastic foil 130, onto the second portion of the bag shell outer site 142, which is made of the vapor permeable sheet 131. The vapor permeable sheet possesses one site, which has an outer layer out of a plastic material, which can be plastic-welded with the pliable first plastic foil 130. The bag-top-wall-tape-strip-sheet connection point 129 has a circular contour and is arranged in the middle of the length of the double fixation bag top wall tape strip 250 and in a midline of the bag top wall 120, which runs along the direction of the graphical section D-D. From each of the seven single fixation bag bottom wall tape strips 271, the bag bottom wall tape strip end 274 is visible. Each of the seven bag bottom wall tape strip ends 274 possesses a perforation at the bag bottom wall tape strip 275. The perforation has a contour of a circular hole. All of the seven bag bottom wall tape strip ends 274 are free, e.g. none of them is detachably connected to a supporting tub anchor for the tensioning belt fastening element. All of the seven bag bottom wall tape strip ends 274 of the seven single fixation bag bottom wall tape strips 271 have a length, which allows that each of seven bag bottom wall tape strip ends 274 is sufficiently long to be guided through a supporting tub hold-down and detachably connected to a supporting tub rod for the bag bottom wall tape strip, which is attached at the supporting tub side wall top rim. The length is thus larger than the height of the bag side wall 170, the height of the bag side wall opposite to the bag side wall 170 (not visible) or the height of the bag side wall opposite to the bag wall site 160 (not visible).

[0163] Fig. 21a shows an upper site 201 a plate 206, when the plate 206 is mentally taken away from a drying bag III.

[0164] Fig. 21a shows a plate reach-through hole 220 of the plate 206, which reaches from the plate upper site 201 to a plate lower site (not visible). One of the two plate perpendicular studs 225 of the plate 206 is partly visible.

[0165] Fig. 21b shows a lower site 202 a plate 206, when the plate 206 is mentally taken away from a drying bag III and flipped.

[0166] Fig. 21b shows the plate 206 with its plate access opening 215, which is circular and surrounded by a bag-top-wall-connecting zone of the plate lower site 230. The bag-top-wall-connecting zone of the plate lower site 230, whose ring-shaped area is indicated by the circular dotted line as one borderline in addition to the plate access opening 215 as the other borderline, is the part of the plate lower site 202 of the plate 206, which is foreseen for a permanent connection to the plate-connecting zone of the bag top wall upper site (not shown). Once connected by plastic-welding, the bag-top-wall-connecting zone of the plate lower site 230 and the plate-connecting zone of the bag top wall upper site (not shown) define a circular disc-shaped bag-top-wall-plate connection point (not shown). One plate reach-through hole 220 of the plate 206, which reaches from a plate upper site (not visible) to the plate lower site 202, is visible. The plate 206 comprises also two plate perpendicular studs 225, which stand perpendicularly out from the plate lower site 202.

[0167] Fig. 22 shows one half of a graphical section A-A of a drying system 802 with a drying bag 702 positioned in a supporting tub 302.

[0168] Fig. 22 shows parts of a bag shell 100 with its bag shell outer site 106 and its bag shell inner site 107. From the bag shell 100, a part of the bag bottom wall 110 with its bag bottom wall upper site 111 and its bag bottom wall lower site 112 are visible. From the bag shell 100, a bag side wall 170 with its bag side wall inner site 171 and with its bag side wall outer site 172 is also visible. From the bag shell 100, a part of the bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122 and with its bag top wall edge 137, which defines the transition from the bag top wall 120 to the bag side wall 170, is also visible. The part of a bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 171 and the bag top wall lower site 122 as its borderlines. The visible parts of the first portion of the bag shell outer site 143, which are made of a pliable first plastic foil 130, are the parts of the bag bottom wall lower site 112, the bag side wall outer site 172 and parts of the bag top wall upper site 121. These parts of the bag top wall upper site 121 reaches from the bag top wall edge 137 in the direction of a formal center of the bag top wall upper site 121 until the point, where a vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120. The visible part of a second portion of the bag shell outer site 142, which is made of a vapor permeable sheet 131, starts from the point, where the vapor permeable sheet 131 is no longer overlayed by the pliable first plastic foil 130 of the bag top wall 120 and extends in the direction of a formal center of the bag top wall upper site 121. The addressed formal center is in the graphical section A-A of Fig. 22 a bag-top-wall-tape-strip-sheet connection point 129. A first-plastic-foil-to-sheet connection point 145 is the area, where the vapor permeable sheet 131 of the bag top wall 120 is permanently connected to the pliable first plastic foil 130 of the bag top wall 120. The connection is done by plastic welding. One half of the double fixation bag top wall tape strip 250 is visible, including one of its two bag top wall tape strip ends 254 with a perforation at the bag top wall tape strip 255. The bag top wall tape strip end 254 is detachably connected to a supporting tub hook for the bag top wall tape strip 325. One half of the bag-top-wall-tape-strip-sheet connection point 129, where the vapor permeable sheet 131 of the bag top wall 120 and the double fixation bag top wall tape strip 250 are permanently connected, and the bag-top-wall-tape-strip-first-plastic-foil connection point 128, where the pliable first plastic foil 130 of the bag top wall 120 and the double fixation bag top wall tape strip 250 are permanently connected, are also visible. Both connections are done by plastic welding. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour (not visible) and the bag-top-wall-tape-strip-sheet connection point 129 has a circular contour (not visible). A single double fixation bag bottom wall tape strip 271 is visible. The single fixation bag bottom wall tape strip 271 is permanently connected to the bag bottom wall 110 at a bag bottom wall tape strip connection point 115. The connection is done by plastic welding. The bag bottom wall tape strip connection point 115 has a rectangular contour (not visible) and is close to an outer edge of the bag bottom wall 110. The bag bottom wall tape strip end 274 starts at the bag bottom wall tape strip connection point 115 and extends in the direction where a perforation at the bag bottom wall tape strip 275 is located. The bag bottom wall tape strip end 274 is guided around the lower part of the supporting tub stick 386 of a supporting tub stick hold-down 385 towards a supporting tub rod for the bag bottom wall tape strip 329. The supporting tub rod for the bag bottom wall tape strip 329 is arranged at a supporting tub side wall top rim 333 and is at the same time the supporting tub rod for the bag top wall tape strip 326. The perforation at the bag bottom wall tape strip 275 serves to detachably connect the bag bottom wall tape strip end 274 at the supporting tub rod for the bag bottom wall tape strip 329. From the supporting tub 302, one half of a supporting tub bottom wall 310 with its supporting tub bottom wall upper site 311 and with its supporting tub bottom wall lower site 312 is visible. From the supporting tub 302, the supporting tub side wall 330 with its supporting tub side wall inner site 331 and with its supporting tub side wall outer site 332 is also visible. A part of a supporting tub recess 315 is also visible, i.e. the part which is limited by the one half of the supporting tub bottom wall upper site 311, the supporting tub side wall inner site 331 and a formal borderline, which runs parallel to the supporting tub bottom wall upper site 311 at the level of the supporting tub side wall top rim 333 less the additional height caused by the supporting tub rod for the bag top wall tape strip 326. The bag bottom wall lower site 112 lies with its main visible part on the supporting tub bottom wall upper site 311 and with its minor visible part on the single fixation bag bottom wall tape strip 271, which itself lies on

the supporting tub bottom wall upper site 311. The bag side wall outer site 172 touches the double fixation bag bottom wall tape strip 270 at the bag bottom wall tape strip end 274, which touches itself in this area the supporting tub side wall inner site 331. The bag side wall outer site 172 touches also at a small area the supporting tub stick 380. The pliable first plastic foil 130 allows a larger touching zone between the bag side wall outer site 172, the bag bottom wall tape strip end 274 and the supporting tub side wall inner site 331 than depicted in Fig. 22 for visibility reasons.

[0169] Fig. 23 shows four interrupted parts of a graphical section D-D of a drying system 802 with a drying bag 702 positioned in a supporting tub 302 and a superimposed arrangement of a bolt 501.

[0170] Fig. 23 shows the drying system 802 with three interruptions to allow a depiction on one page at the chosen size. Parts of a bag shell 100 are visible, i.e. a bag top wall 120 with its bag top wall upper site 121, with its bag top wall lower site 122 and including a bag top wall access opening 108, a bag side wall 160 with its bag side inner wall site 161 and its bag side wall outer site 162, a bag side wall 180 with its bag side inner wall site 181 and its bag side wall outer site 182 and a bag bottom wall 110. The bag top wall 120 extends from its bag top wall edge 136, which defines the transition from the bag top wall 120 to the bag side wall 160, to its bag top wall edge 138, which defines the transition from the bag top wall 120 to the bag side wall 180. A first portion of the bag shell outer site 143, i.e. where a bag shell outer site 106 is made of a pliable first plastic foil 130, starts from a point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying a vapor permeable sheet 131 and which is close to the bag top wall edge 138, runs along the bag side wall outer site 182, then the bag bottom wall lower site 112 and then the bag side wall outer site 162 to a point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136. A second portion of the bag shell outer site 142, i.e. where the bag shell outer site 106 is made of the vapor permeable sheet 131, starts at the point at the bag top wall outer site 121, where the pliable first plastic foil 130 ends overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 136, and runs along the bag top wall outer site 121 to the point at the bag top wall outer site 121, where the pliable first plastic foil 130 starts overlaying the vapor permeable sheet 131 and which is close to the bag top wall edge 138, with an exception of the bag top wall access opening 108. Two first-plastic-foil-to-sheet connection points 145 at the bag top wall 120, where the vapor permeable sheet 131 is permanently connected to the pliable first plastic foil 130, are visible. The connections are done by plastic welding. Two parts of the bag-top-wall-plate connection point 140, where the bag top wall 120 and a plate 206 are permanently connected in proximity to the bag top wall opening 108 and a plate access opening 215, are visible. Two double fixation bag top wall tape strips 250 are permanently connected to the bag top wall 120 at the respective bag-top-wall-tape-strip-sheet connection points 129. The connections are done by plastic welding. The bag-top-wall-tape-strip-sheet connection points 129 have a rectangular contour (not visible). A single fixation bag bottom wall tape strip 271 is permanently connected to the bag bottom wall 110 at a bag bottom wall tape strip connection point 115. The connection is done by plastic welding. The bag bottom wall tape strip connection point 115, which has a rectangular contour (not visible). It is close to an outer edge of the bag bottom wall 110. The plate 206 has the plate access opening 215, which defines at least partly together with the bag top wall access opening 108 a bag access opening 400, which provides an access to a bag interior cavity 125. From the plate 206, a plate opening thread 226 is visible. The part of the bag interior cavity 125, which is visible, is defined by the bag bottom wall upper site 111, the bag side wall inner site 161, the bag side wall inner site 181, the bag top wall lower site 122 and a formal extension of the bag top wall lower site 122 parallel to the bag bottom wall upper site 111, which thus would formally cover the bag top wall access opening 108, as its borderlines. A single fixation bag top wall tape strip 251 is permanently connected to the bag top wall 120 at a bag-top-wall-tape-strip-first-plastic-foil connection point 128, where the bag top wall 120 is made of the pliable first plastic foil 130. The connection is done by plastic welding. The bag-top-wall-tape-strip-first-plastic-foil connection point 128 has a rectangular contour (not visible). The single fixation bag top wall tape strip 251 is detachably connected to the supporting tub 302. A single fixation bag bottom wall tape strip 271 is permanently connected to the bag bottom wall 110 at a bag-bottom-wall-tape-strip-first-plastic-foil connection point 115. The connection is done by plastic welding. The bag-bottom-wall-tape-strip-first-plastic-foil connection point 115 has a rectangular contour (not visible). The single fixation bag bottom wall tape strip 271 is detachably connected to the supporting tub 302. From the supporting tub 302, a supporting tub pole 383 of a supporting tub full pole hold-down 382 is visible. From the supporting tub 302, the supporting tub side wall 340 with its supporting tub side wall inner site 341 and with its supporting tub side wall outer site 342 is also visible. From the supporting tub 302, the supporting tub side wall 320 with its supporting tub side wall inner site 321 and with its supporting tub side wall outer site 322 is also visible. At the top of the supporting tub side wall 320, i.e. in the direction away from a supporting tub bottom wall 310, a supporting tub overhang 360 with its supporting tub overhang upper site 361 and with its supporting tub overhang lower site 362 is connected and extends parallel to the supporting tub bottom wall 310 to a center of the supporting tub 302 respectively extends perpendicularly to the supporting tub side wall 320 in the direction of the opposite supporting tub side wall inner site 341. A part of the plate 206 lies on the supporting tub overhang 360,

i.e., a part of a plate lower site 202 touches the supporting tub overhang upper site 361. A plate reach-through hole 220 is involved in a twist-proof and detachable connection of the plate 206 to the supporting tub overhang 360. The plate reach-through hole 220 is placed around a supporting tub overhang tube stud 376 with a perfect fit. The bolt 501 has the bolt thread 508, which fits to a supporting tub overhang inner thread 374. In Fig. 23, the bolt 501 is superimposed at the supporting tub overhang reach-through long hole 371. Once the bolt 501 is screwed into the supporting tub overhang reach-through long hole 371, its bolt chin 506 will touch the plate upper site 201 before the supporting tub overhang tube stud 376. This is due to a height of the supporting tub overhang tube stud 376, which is determined from the supporting tub overhang upper site 361 and which is smaller than a distance between the plate lower site 202 and a plate upper site 201, which is determined at the plate reach-through hole 220. Once the bolt 501 is screwed in, the bolt chin 506 will press the plate 206 onto the supporting tub overhang 360. The bag bottom wall lower site 112 lies with its main visible part on a supporting tub bottom wall upper site 311 of the supporting tub bottom wall 310 and with its minor visible part on the single fixation bag bottom wall tape strip 271, which itself lies on the supporting tub bottom wall upper site 311. The bag side wall outer site 182 touches the single fixation bag bottom wall tape strip 271, which touches itself in this area the supporting tub side wall inner site 341. The bag side wall outer site 182 touches also at a small area the supporting tub pole 383. The pliable first plastic foil 130 allows a larger touching zone between the bag side wall outer site 182, the single fixation bag bottom wall tape strip 271 and the supporting tub side wall inner site 341 than depicted in Fig. 23 for visibility reasons.

[0171] Fig. 24 shows a part of a graphical section E-E of a supporting tab 302 and a superimposed arrangement of the bolt 501.

[0172] Fig. 24 shows a supporting tub overhang 360 of the supporting tub 302. The supporting tub overhang 360 possesses one supporting tub overhang tube stud 376, which stands perpendicularly out from a supporting tub overhang upper site 361 and contains one supporting tub overhang reach-through long hole 371, which has a supporting tub overhang inner thread 374 and reaches from the supporting tub overhang upper site 361 to a supporting tub overhang lower site 362. The supporting tub overhang tube stud 376 allows to be slided into a plate reach-through hole (not shown), which is involved in a twist-proof and detachable connection of a plate (not shown) at the supporting tub 302. The supporting tub overhang inner thread 374 at the supporting tub overhang reach-through long hole 371 fits to and allows to screw in a bolt thread 508 of the bolt 501. The supporting tub overhang 360 possesses further two supporting tub overhang reach-through short holes 370, which reach from the supporting tub overhang upper site 361 to the supporting tub overhang lower site 362. The supporting tub overhang reach-through short hole 370 allows a plate perpendicular stud (not shown), which is involved in a twist-proof and detachable connection of a plate (not shown) at the supporting tub 302, to slide in. The supporting tub overhang tube stud 376 is centered in relation to the graphical section E-E at the supporting tub overhang 360, whereas the two supporting tub overhang reach-through short holes 370 are off-centered.

[0173] Fig. 25 shows an exploded view of a drying system 802 with a supporting tub 302, one bolt 501 and a closed drying bag 702, which is closed by a lid 420, a cap 450 and a guide tube 470 with an inserted temperature probe 480.

[0174] Fig. 25 shows the orientation of the drying bag 702, when the drying bag 702 is positioned in the supporting tub 302 and a plate is detachably connected by one bolt 501 with a supporting tub overhang. A bag access opening is closed by the removable lid 420, which is itself closed with the removable cap 450. The removable cap 450 is itself closed with the removable guide tub 470. The temperature probe 480 is removably inserted into the removable guide tub 470.

[0175] The following aspects 1 to 65 refer to the embodiments of the invention and some preferences thereof.

1. A drying bag (700, 701, 702) for drying a biological or pharmaceutical material, which comprises

a bag shell (100) having a bag shell outer site (106), a bag shell inner site (107), a bag interior cavity (125) and a bag shell access opening (108), which reaches from the bag shell outer site (106) to the bag shell inner site (107),

a plate (200, 205, 206) having a plate upper site (201), a plate lower site (202) and a closable plate access opening (215), which reaches from the plate upper site (201) to the plate lower site (202),

a bag access opening (400), which is at least partly defined by the closable plate access opening (215) and the bag shell access opening (108), and which provides an access to the bag interior cavity (125),

wherein the bag shell (100) is partly made of a pliable first plastic foil (130) and partly made of a vapor permeable sheet (131),

the plate (200, 205, 206) and the bag shell (100, 120) are connected at the bag access opening (400),

the plate (200, 205, 206) comprises a plate fastening element (220, 225), which is a plate hole (220) or a plate stud (225), and which is involved in a twist-proof and detachable connection of the plate (200, 205, 206) at a supporting tub (300, 301, 302), when the drying bag (700, 701, 702) is positioned for drying in the

supporting tub (300, 301, 302) and the plate (200, 205, 206) is detachably connected at the supporting tub (300, 301, 302).

2. The drying bag (700, 701, 702) according to aspect 1, wherein a tensioning belt (250, 251, 270, 271), which possesses a free tensioning belt end (254, 274), is connected to the bag shell outer site (106, 112, 121) at a tensioning-belt-bag-shell connection point (115, 128, 129), and the free tensioning belt end (254, 274) possesses a tensioning belt fastening element (255, 275), which allows a detachable connection of the free tensioning belt end (254, 274) at a supporting tub anchor for the tensioning belt fastening element (325, 326, 328, 329), which is attached at the supporting tub (300, 301, 302).

3. The drying bag (700, 701) according to aspect 2, wherein the tensioning belt fastening element (255, 275) is a perforation at the tensioning belt (255, 275) and the supporting tub anchor for the tensioning belt fastening element (325, 328) is a supporting tub hook for the tensioning belt (325, 328).

4. The drying bag (700, 701, 702) according to aspects 3 or 4, wherein the tensioning belt (250, 270) is a double fixation tensioning belt (250, 270), which possesses two free tensioning belt ends (254, 274), or a single fixation tensioning belt (251, 271), which possesses one free tensioning belt end (254, 274).

5. The drying bag (700, 701, 702) according to anyone of aspects 2 to 4, wherein a first portion of the bag shell outer site (143) is made of the pliable first plastic foil (130), a second portion of the bag shell outer site (142) is made of the vapor permeable sheet (131) and the tensioning-belt-bag-shell connection point (115, 128) of the tensioning belt (250, 251, 270, 271), where the free tensioning belt end (254, 274) starts, is a tensioning-belt-bag-shell-first-plastic-foil connection point (115, 128) at the first portion of the bag shell outer site (143).

6. The drying bag (700, 701, 702) according to anyone of aspects 2 to 5, wherein a first portion of the bag shell outer site (143) is made of the pliable first plastic foil (130), a second portion of the bag shell outer site (142) is made of the vapor permeable sheet (131) and the tensioning-belt-bag-shell connection point (129) of the tensioning belt (270, 271) is connected at a tensioning-belt-bag-shell-sheet connection point (129), which is at the second portion of the bag shell outer site (142).

7. The drying bag (700, 701, 702) according to any preceding aspect, wherein the bag shell (100) is formed by

one bag top wall (120) having a bag top wall upper site (121), a bag top wall lower site (122) and a bag top wall access opening (108), which reaches from the bag top wall upper site (121) to the bag top wall lower site (122),
one bag bottom wall (110) having a bag bottom wall upper site (111) and a bag bottom wall lower site (112),
at least one bag side wall (160, 170, 180, 190) having a bag side wall inner site (161, 171, 181, 191) and a bag side wall outer site (162, 172, 182, 192),
the bag top wall lower site (122), the bag bottom wall upper site (111) and all of the at least one bag side wall inner sites (161, 171, 181, 191) define the bag interior cavity (125),

the bag shell access opening (108) is the bag top wall access opening (108),
the bag bottom wall (110) and each of the at least one bag side wall (160, 170, 180, 190) are made of the pliable first plastic foil (130),
the bag top wall (120) is partly made of the pliable first plastic foil (130) and partly made of the vapor permeable sheet (131).

8. The drying bag (700, 701, 702) according to aspect 7, wherein the bag top wall (120) connects to a bag side wall (160, 170, 180, 190) at a bag top wall edge (136, 137, 138, 139) and each bag top wall edge (136, 137, 138, 139) is made of the pliable first plastic foil (130).

9. The drying bag (700, 701, 702) according to aspect 2, wherein the tensioning belt (250, 251) is a bag top wall tape strip (250, 251), the tensioning belt end (254) is a bag top wall tape strip end (254), the tensioning-belt-bag-sheet connection point (128, 129) is a bag-top-wall-tape-strip connection point (128, 129), the bag shell outer site (121) is the upper bag top wall site (121), the tensioning belt fastening element (255) is a bag top wall tape strip fastening element (255) and the supporting tub anchor for the tensioning belt fastening element (325, 326) is a supporting tub anchor for the bag top wall tape strip fastening element (325, 326).

10. The drying bag (700, 701) according to aspect 9, wherein the bag top wall tape strip fastening element (255) is a perforation at the bag top wall tape strip (255) and the supporting tub anchor for the bag top wall tape strip fastening element (325) is a supporting tub hook for the bag top wall tape strip (325).

11. The drying bag (700, 701, 702) according to a combination of aspect 4 with aspects 9 or 10, wherein the double fixation tensioning belt (250) is a double fixation bag top wall tape strip (250), which pos-

sesses two free bag top wall tape strip ends (254).

12. The drying bag (700, 701, 702) according to aspect 11, wherein the two free bag top wall tape strip ends (254) are directed in opposite directions.

13. The drying bag (700, 701, 702) according to aspect 2, wherein the tensioning belt (270, 271) is a bag bottom wall tape strip (270, 271), the tensioning belt end (274) is a bag bottom wall tape strip end (274), the tensioning-belt-bag-shell connection point (115) is a bag bottom wall tape strip connection point (115), the outer bag shell site (112) is the lower bag bottom wall site (112), the tensioning belt fastening element (275) is a bag bottom wall tape strip fastening element (275) and the supporting tub anchor for the tensioning belt fastening element (328, 329) is a supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329).

14. The drying bag (700, 701) according to aspect 13, wherein the bag bottom wall tape strip fastening element (275) is a perforation at the bag bottom wall tape strip (275) and the supporting tub anchor for the bag bottom wall tape strip fastening element (328) is a supporting tub hook for the bag bottom wall tape strip (328).

15. The drying bag (700, 701) according to a combination of aspect 4 with aspects 13 or 14, wherein double fixation tensioning belt is a double fixation bag bottom wall tape strip (270), which possesses two free bag bottom wall tape strip ends (274).

16. The drying bag (700, 701) according to aspect 15, wherein the double fixation bag bottom wall tape strip (270) has an overall length, and the overall length is larger than the sum of the width of the bag bottom wall and two times the height of the at least one bag side wall (170, 190).

17. The drying bag (700, 701, 702) according to any preceding aspect, wherein a first portion of the bag shell outer site (143) is made of the pliable first plastic foil (130), a second portion of the bag shell outer site (142) is made of the vapor permeable sheet (131), a bag-shell-connecting zone of the plate lower site (230), which surrounds the closable plate access opening (215), and a plate-connecting zone of the bag shell outer site (141), which surrounds the bag shell access opening (108), are opposite to each other and define the bag-shell-plate connection point (140), which surrounds the closable plate access opening (215) and the bag shell access opening (108) and at which the plate (200, 205, 206) and the bag shell (100, 120) are connected, and the plate-connecting zone of the bag shell outer site (141) is at the second portion of the bag shell outer site (142).

18. The drying bag (700, 701, 702) according to a combination of aspect 7 and aspect 17, wherein the plate-connecting zone of the bag shell outer site (141) is a plate-connecting zone of the bag top wall upper site (141), the bag shell access opening (108) is the bag top wall access opening (108), the bag-shell-plate connection point (140) is a bag-top-wall-plate connection point (140), and the second portion of the bag shell outer site (142) is at the bag top wall upper site (121).

19. The drying bag (700, 701, 702) according to aspect 8, wherein a first portion of the bag shell outer site (143) is made of the pliable first plastic foil (130), a second portion of the bag shell outer site (142) is made of the vapor permeable sheet (131), and all of the bag top wall edges (136, 137, 138, 139) form a perimetrical bag top wall frame (144) at the bag top wall upper site (121), which surrounds the second portion of the bag shell outer site (142) at the bag top wall upper site (121).

20. The drying bag (700, 701, 702) according to aspect 7, wherein a first portion of the bag shell outer site (143) is made of the pliable first plastic foil (130), a second portion of the bag shell outer site (142) is made of the vapor permeable sheet (131), the bag top wall upper site (121) has a total areal size determined by a vertical top view, and the second portion of the bag shell outer site covers between 35 to 90 percent of the total areal size as determined by a vertical top view and is solely made of the vapor permeable sheet (131).

21. The drying bag (700, 701, 702) according to any preceding aspect, wherein the bag access opening (400) has a diameter between 6 centimeter and 30 centimeter.

22. The drying bag (700, 701, 702) according to any preceding aspect, wherein the pliable first plastic foil (130) and the vapor permeable sheet (131) are connected at a first-plastic-foil-to-sheet connection point (145) and the pliable first plastic foil (130) and the vapor permeable sheet (131) are connected by plastic welding.

23. The drying bag (700, 701, 702) according to anyone of aspects 7 to 22, wherein the bag shell (100) has four bag side walls (160, 170, 180, 190) and is in the form of an approximated cuboid, when the drying bag (700, 701, 702) is positioned for drying in the supporting tub (300, 301, 302) and the plate (200, 205, 206) is detachably connected at the supporting tub (300, 301, 302).

24. The drying bag (700, 701, 702) according to any preceding aspect, wherein the plate hole (220) is a plate reach-through hole (220), which reaches from the plate upper site (201) to the plate lower site (202), and the plate stud (225) is a plate perpendicular stud (225), which is fixed at the plate upper site (201) or the plate lower site (202) and stands perpendicularly out.

25. The drying bag (700, 701, 702) according to any preceding aspect, wherein the closable plate access opening (215) has a plate opening thread (226).

26. The drying bag (700, 701, 702) according to any preceding aspect, wherein the closable plate access opening (215) is closed with a removable lid (420).

27. The drying bag (700, 701, 702) according to aspects 25 and 26, wherein the removable lid (420) comprises a lid counter thread (431), which fits to the plate opening thread (226).

28. The drying bag (700, 701, 702) according to aspects 26 or 27, wherein the removable lid (420) having an upper lid site (421) and a lid lower site (422) comprises further a closable lid opening (432), which reaches from the lid upper site (421) to the lid lower site (422), and a lid opening thread (433).

29. The drying bag (700, 701, 702) according to aspect 28, wherein the lid upper site (421) comprises a lid outer plateau (440), a lid inner plateau (441), a lid inner base (444) and a lid flank (446), the lid inner plateau (441) surrounds the closable lid opening (432) and is limited at one site by the closable lid opening (432) and at one site by the lid opening thread (433), the lid inner base (444) is limited at one site by the lid opening thread (433) and at one site by the lid flank (446), the lid flank (446) is limited at one site by the lid inner base (444) and at one site by the lid outer plateau (440), and when the removable lid (420) is placed on its lower lid site (422), the lid outer plateau (440) is higher than the lid inner plateau (441).

30. The drying bag (700, 701, 702) according to aspects 28 or 29, wherein the closable lid opening (432) is closed with a removable cap (450), which has a cap counter thread (461), and the cap counter thread (461) fits to the lid opening thread (433).

31. The drying bag (700, 701, 702) according to aspect 30, wherein the removable cap (450) has a closable cap opening (462).

32. The drying bag (700, 701, 702) according to aspect 31, wherein the closable cap opening (462) is closed with a removable semi-closed guide tube (470) suitable for removably inserting a temperature probe (480) into the semi-closed guide tube (470).

33. The drying bag (700, 701, 702) according to aspect 32, wherein the temperature probe (480) is removably inserted into the semi-closed guide tube (470).

34. The drying bag (700, 701, 702) according to any preceding aspect, wherein the plate (200, 205, 206) is made of a second plastic.

35. The drying bag (700, 701, 702) according to any preceding aspect, wherein the biological or pharmaceutical material is a starting mixture Mix-start-1 comprising a substance Sub-1, which is a biological or pharmaceutical substance, and a solvent Sol-1 and the substance Sub-1 is dissolved in the solvent Sol-1.

36. The drying bag (700, 701, 702) according to aspect 35, wherein the pliable first plastic foil (130) is essentially tight for the starting mixture Mix-start-1, the substance Sub-1 and the solvent Sol-1, and the vapor permeable sheet (131) is permeable for the solvent Sol-1 in gaseous form and essentially tight for the solvent Sol-1 in liquid form or in solid form, essentially tight for the substance Sub-1 in gaseous, liquid or solid form and essentially tight for the starting mixture Mix-start-1 in liquid or solid form.

37. A drying system (800, 801, 802), which comprises

a drying bag (700, 701, 702) according to anyone of aspects 1 to 36, and
a supporting tub (300, 301, 302), which comprises

one supporting tub bottom wall (310) having a supporting tub bottom wall upper site (311) and a supporting tub bottom wall lower site (312),
at least one supporting tub side wall (320, 330, 340, 350) having each a supporting tub side wall inner site (321, 331, 341, 351), a supporting tub side wall outer site (322, 332, 342, 352) and a supporting tub side wall top rim (323, 333, 343, 353),

the number of supporting tub side walls (320, 330, 340, 350) is an integer and equal to or higher than the sum of all bag side walls (160, 170, 180, 190),
the supporting tub side walls (320, 330, 340, 350) extend from the supporting tub bottom wall (310),
the supporting tub bottom wall upper site (311)

and the supporting tub side wall inner sites (321, 331, 341, 351) define a supporting tub recess (315),
the supporting tub recess (315) is sized and shaped to position the drying bag (700, 701, 702) therein,

wherein the drying bag (700, 701, 702) is positioned in the supporting tub (300, 301, 302) and the plate (200, 205, 206) is twist-proofly and detachably connected at the supporting tub (300, 301, 302) under involvement of the plate fastening element (220, 225).

38. The drying system (800, 801, 802) according to aspect 37, wherein the plate (200, 205, 206) is detachably connected at a supporting tub overhang (360) of the supporting tub (300, 301, 302).

39. The drying system (800, 801, 802) according to aspect 38, wherein the supporting tub overhang (360) is provided at a supporting tub side wall top rim (323, 333, 343, 353).

40. The drying system (800, 801, 802) according to aspects 38 or 39, wherein the supporting tub overhang (360) is planar and parallel to the supporting tub bottom wall upper site (311) and has a supporting tub overhang upper site (361) and a supporting tub overhang lower site (362).

41. The drying system (800, 801, 802) according to anyone of aspects 38 to 40, wherein the supporting tub overhang (360) comprises a supporting tub overhang fastening element (370, 371, 375, 376), which is a supporting tub overhang hole (370, 371) or a supporting tub overhang stud (375, 376) and which is involved together with the plate fastening element (220, 225) in the twist-proof and detachable connection of the plate (200, 205, 206).

42. The drying system (801, 802) according to aspect 41, wherein the supporting tub overhang hole (370, 371) is a supporting tub overhang reach-through hole (370, 371), which reaches from the supporting tub overhang upper site (361) to the supporting tub overhang lower site (362), and the supporting tub overhang stud (376) is a supporting tub overhang tube stud (376), which is fixed at the supporting tub overhang upper site (361) or the supporting tub overhang lower site (362) and stands perpendicularly out.

43. The drying system (800, 801) according to aspect 42, wherein the supporting tub overhang reach-through hole (370, 371) is a supporting tub overhang reach-through short hole (370) or a supporting tub overhang reach-through long hole (371).

44. The drying system (800, 801, 802) according to anyone of aspects 41 to 43, wherein the plate fastening element (220) is the plate reach-through hole (220) and the supporting tub overhang fastening element (370, 371) is the supporting tub overhang hole (370, 371) and both are detachably connected by a bolt (500, 501).

45. The drying system (800, 801, 802) according to anyone of aspects 41 to 44, wherein the supporting tub overhang fastening element (370, 371, 375, 376) is completely arranged above the supporting tub bottom wall lower site (312) when determined by a vertical top view.

46. The drying system (800, 801, 802) according to anyone of aspects 38 to 45, wherein the supporting tub overhang (360) is completely arranged above the supporting tub bottom wall lower site (312) when determined by a vertical top view.

47. The drying system (800, 801, 802) according to anyone of aspects 37 to 46, wherein the plate (200, 205, 206) is completely arranged above the supporting tub bottom wall lower site (312) when determined by a vertical top view.

48. The drying system (800, 801, 802) according to anyone of aspects 37 to 47, wherein the drying bag (700, 701, 702) is as defined in aspect 26 or a combination of aspect 26 with anyone of aspects 27 to 36 and the removable lid (420) is completely arranged above the supporting tub bottom wall lower site (312) when determined by a vertical top view.

49. The drying system (800, 801, 802) according to anyone of aspects 37 to 48, wherein the supporting tub (300, 301, 302) comprises further an anchor for the tensioning belt fastening element (325, 326, 328, 329).

50. The drying system (800, 801) according to aspect 49, wherein the anchor for the tensioning belt fastening element (325, 328) is a supporting tub hook for the tensioning belt (325, 328).

51. The drying system (800, 801, 802) according to aspects 49 or 50, wherein the drying bag (700, 701, 702) is defined as in aspect 2 or a combination of aspect 2 with anyone of aspects 3 to 36, the tensioning belt end (254, 274) is detachably connected to the supporting tub anchor for the tensioning belt fastening element (325, 326, 328, 329) with the tensioning belt fastening element (255).

52. The drying system (800, 801, 802) according to anyone of aspects 49 to 51, wherein the tensioning belt fastening element (325, 326, 328, 329) is at-

tached at one of the supporting tub side wall top rims (323, 333, 343, 353).

53. The drying system (800, 801, 802) according to aspect 52, wherein the tensioning belt (270, 271) is the bag bottom wall tape strip (270, 271), the tensioning belt end (274) is the bag bottom wall tape strip end (274), the supporting tub anchor for the tensioning belt fastening element (328, 329) is the supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329), the tensioning belt fastening element (275) is the bag bottom wall tape strip fastening element (275), and the supporting tub (300, 301, 302) comprises also a supporting tub hold-down (380, 382, 385), which is located at one of the supporting tub side wall inner sites (321, 331, 341, 351) close to the supporting tub bottom wall upper site (311), the bag bottom wall tape strip end (274) is guided around the supporting tub hold-down (380, 382, 385) and detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329) with the bag bottom wall tape strip fastening element (275).

54. The drying system (800, 801, 802) according to aspect 53, wherein the supporting tub hold-down (380, 382) is a supporting tub slitted pole hold-down (380), which possesses a supporting tub pole (383) with a supporting tub slit (381), which guides the bag bottom wall tape strip end (274), or is a supporting tub full pole hold-down (382), which possesses a supporting tub pole (383) without a supporting tub slit (381), which guides the bag bottom wall tape strip end (274).

55. The drying system (802) according to aspect 53, wherein the supporting tub hold-down (385) is a supporting tub stick hold-down (385), which possesses a supporting tub stick (386), which guides the bag bottom wall tape strip end (274).

56. The drying system (800, 801, 802) according to anyone of aspects 53 to 55, wherein the supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329) is attached at one of the supporting tub side wall top rims (323, 333, 343, 353) and is at the same time also the supporting tub anchor for the bag top wall tape strip fastening element (325, 326).

57. The drying system (800, 801, 802) according to anyone of claims 37 to 43 or 45 to 56, wherein a bolt (500, 501) is also involved in a detachable connection of the plate (200, 205, 206) at the supporting tub (500, 501).

58. The drying system (800, 801, 802) according to anyone of aspects 37 to 57, wherein the drying bag (700, 701, 702) is as defined as in aspect 23 or a combination of aspect 23 with anyone of aspects 24 to 36, wherein the number of supporting tub side walls (320, 330, 340, 350) is four and the supporting tub bottom wall (310) has a rectangular form.

59. The drying system (800, 801. 802) according to anyone of aspects 37 to 58, wherein the bag interior cavity (125) has a bag interior cavity volume $V_{int\text{-}bag}$, the supporting tub recess (315) has a supporting tub recess volume $V_{sup\text{-}recess}$, and the bag interior cavity volume $V_{int\text{-}bag}$ is smaller than the supporting tub recess volume $V_{sup\text{-}recess}$.

60. The drying system (800, 801, 802) according to anyone of aspects 37 to 59, wherein the supporting tub (300, 301, 302) is made of stainless steel.

61. A method for drying of a material to be dried, which comprises the steps

(a) introducing the material to be dried into an interior bag cavity (125) of a drying bag (700, 701, 702) of a drying system (800, 801, 802) as defined in anyone of aspects 37 to 60 to obtain a drying system with a filled drying bag,
(b) unless the filled drying bag is already closed, closing the filled drying bag to obtain a closed filled drying bag,
(c) exposing the drying system with the closed filled drying bag to conditions suitable to effect drying of the material to be dried to obtain a dried material.

62. The method according to aspect 61, wherein the drying of the material to be dried is freeze-drying of the material.

63. The method according to aspects 61 or 62, wherein the material to be dried is a mixture Mix-start-1 comprising a substance Sub-1, which is a biological or pharmaceutical substance, and a solvent Sol-1.

64. Use of a drying system as defined in anyone of aspects 37 to 60 for the drying of a material to be dried.

65. The use according to aspect 64, wherein the drying is freeze-drying.

Reference key

[0176]

100 - bag shell

106 - bag shell outer site

107 - bag shell inner site

108 - bag top wall access opening (bag shell access opening)

110 - bag bottom wall

111 - bag bottom wall upper site

112 - bag bottom wall lower site

115 - bag bottom wall tape strip connection point (tensioning-belt-bag-shell connection point, tensioning-belt-bag-shell-first-plastic-foil connection point)

120 - bag top wall

121 - bag top wall upper site

122 - bag top wall lower site

125 - bag interior cavity

128 - bag-top-wall-tape-strip-first-plastic-foil connection point (tensioning-belt-bag-shell connection point, tensioning-belt-bag-shell-first-plastic-foil connection point, bag-top-wall-tape-strip connection point)

129 - bag-top-wall-tape-strip-sheet connection point (tensioning-belt-bag-sheet connection point, tensioning belt-bag-shell-sheet connection point, bag-top-wall-tape-strip connection point)

130 - pliable first plastic foil

131 - vapor permeable sheet

136 - bag top wall edge

137 - bag top wall edge

138 - bag top wall edge

139 - bag top wall edge

140 - bag-top-wall-plate connection point (bag-shell-plate connection point)

141 - plate-connecting zone of the bag top wall upper site (plate-connecting zone of the bag shell outer site)

142 - second portion of the bag shell outer site

143 - first portion of the bag shell outer site

144 - bag top wall frame

145 - first-plastic-foil-to-sheet connection point

160 - bag side wall

161 - bag side wall inner site

162 - bag side wall outer site

170 - bag side wall

171 - bag side wall inner site

172 - bag side wall outer site

180 - bag side wall

181 - bag side wall inner site

182 - bag side wall outer site

190 - bag side wall

191 - bag side wall inner site

192 - bag side wall outer site

200 - plate

201 - plate upper site

202 - plate lower site

205 - plate

206 - plate

215 - plate access opening

220 - plate reach-through hole (plate fastening element, plate hole)

225 - plate perpendicular stud (plate fastening element, plate stud)

226 - plate opening thread

230 - bag-top-wall-connecting zone of the plate lower site (bag-shell-connecting zone of the plate lower site)

250 - double fixation bag top wall tape strip (tensioning belt, bag top wall tape strip, double fixation tensioning belt)

251 - single fixation bag top wall tape strip (tensioning belt, bag top wall tape strip, single fixation

tensioning belt)

254 - bag top wall tape strip end (tensioning belt end)

255 - perforation at the bag top wall tape strip (tensioning belt fastening element, bag top wall tape strip fastening element, perforation at the tensioning belt)

270 - double fixation bag bottom wall tape strip (tensioning belt, bag bottom wall tape strip, double fixation tensioning belt)

271 - single fixation bag bottom wall tape strip (tensioning belt, bag bottom wall tape strip, single fixation tensioning belt)

274 - bag bottom wall tape strip end (tensioning belt end)

275 - perforation at the bag bottom wall tape strip (tensioning belt fastening element, bag bottom wall tape strip fastening element, perforation at the tensioning belt)

300 - supporting tub

301 - supporting tub

310 - supporting tub bottom wall

311 - supporting tub bottom wall upper site

312 - supporting tub bottom wall lower site

315 - supporting tub recess

320 - supporting tub side wall

321 - supporting tub side wall inner site

322 - supporting tub side wall outer site

323 - supporting tub side wall top rim

325 - supporting tub hook for the bag top wall tape strip (supporting tub anchor for the tensioning belt fastening element, supporting tub anchor for the bag top wall tape strip fastening element, supporting tub hook for the tensioning belt)

326 - supporting tub rod for the bag top wall tape strip (supporting tub anchor for the tensioning belt fastening element, supporting tub anchor for the bag top wall tape strip fastening element, supporting tub rod for the tensioning belt)

328 - supporting tub hook for the bag bottom wall tape strip (supporting tub anchor for the tensioning belt fastening element, supporting tub anchor for the bag bottom wall tape strip fastening element, supporting tub hook for the tensioning belt)

329 - supporting tub rod for the bag bottom wall tape strip (supporting tub anchor for the tensioning belt fastening element, supporting tub anchor for the bag bottom wall tape strip fastening element, supporting tub rod for the tensioning belt)

330 - supporting tub side wall

331 - supporting tub side wall inner site

332 - supporting tub side wall outer site

333 - supporting tub side wall top rim

340 - supporting tub side wall

341 - supporting tub side wall inner site

342 - supporting tub side wall outer site

343 - supporting tub side wall top rim

350 - supporting tub side wall

351 - supporting tub side wall inner site

352 - supporting tub side wall outer site

353 - supporting tub side wall top rim

360 - supporting tub overhang

361 - supporting tub overhang upper site

362 - supporting tub overhang lower site

370 - supporting tub overhang reach-through short hole (supporting tub overhang fastening element, supporting tub overhang hole, supporting tub overhang reach-through hole)

371 - supporting tub overhang reach-through long hole (supporting tub overhang fastening element, supporting tub overhang fastening element, supporting tub overhang reach-through hole)

374 - supporting tub overhang inner thread

375 - supporting tub overhang full stud (supporting tub overhang fastening element, supporting tub overhang stud)

376 - supporting tub overhang tube stud (supporting tub overhang fastening element, supporting tub overhang stud)

380 - supporting tub slitted pole hold-down (supporting tub hold-down, supporting tub pole hold-down)

381 - supporting tub slit

382 - supporting tub full pole hold-down (supporting tub hold-down, supporting tub pole hold-down)

383 - supporting tub pole

385 - supporting tub stick hold-down (supporting tub hold-down)

386 - supporting tub stick

400 - bag access opening

420 - lid

421 - lid upper site

422 - lid lower site

431 - lid counter thread

432 - lid opening

433 - lid opening thread

440 - lid outer plateau

441 - lid inner plateau

444 - lid inner base

446 - lid flank

450 - cap

461 - cap counter thread

462 - cap opening

470 - guide tube

480 - temperature probe

500 - bolt

501 - bolt

504 - bolt head

506 - bolt chin

508 - bolt thread

510 - bolt shaft

515 - bolt head knurling

700 - drying bag

701 - drying bag

702 - drying bag

800 - drying system

801 - drying system

802 - drying system

Claims

1. A drying bag (700, 701, 702) for drying a biological or pharmaceutical material, which comprises

a bag shell (100) having a bag shell outer site (106), a bag shell inner site (107), a bag interior cavity (125) and a bag shell access opening (108), which reaches from the bag shell outer site (106) to the bag shell inner site (107),
a plate (200, 205, 206) having a plate upper site (201), a plate lower site (202) and a closable plate access opening (215), which reaches from the plate upper site (201) to the plate lower site (202),
a bag access opening (400), which is at least partly defined by the closable plate access opening (215) and the bag shell access opening (108), and which provides an access to the bag interior cavity (125),
wherein the bag shell (100) is partly made of a pliable first plastic foil (130) and partly made of a vapor permeable sheet (131),
the plate (200, 205, 206) and the bag shell (100, 120) are connected at the bag access opening (400),
the plate (200, 205, 206) comprises a plate fastening element (220, 225), which is a plate hole (220) or a plate stud (225), and which is involved in a twist-proof and detachable connection of the plate (200, 205, 206) at a supporting tub (300, 301, 302), when the drying bag (700, 701, 702) is positioned for drying in the supporting tub (300, 301, 302) and the plate (200, 205, 206) is detachably connected at the supporting tub (300, 301, 302).

2. The drying bag (700, 701, 702) according to claim 1,

wherein a tensioning belt (250, 251, 270, 271), which possesses a free tensioning belt end (254, 274), is connected to the bag shell outer site (106, 112, 121) at a tensioning-belt-bag-shell connection point (115, 128, 129), and the free tensioning belt end (254, 274) possesses a tensioning belt fastening element (255, 275), which allows a detachable connection of the free tensioning belt end (254, 274) at a supporting tub anchor for the tensioning belt fastening element (325, 326, 328, 329), which is attached at the supporting tub (300, 301, 302).

3. The drying bag (700, 701, 702) according to claims 1 or 2, wherein the bag shell (100) is formed by

one bag top wall (120) having a bag top wall upper site (121), a bag top wall lower site (122) and a bag top wall access opening (108), which reaches from the bag top wall upper site (121) to the bag top wall lower site (122),
one bag bottom wall (110) having a bag bottom wall upper site (111) and a bag bottom wall lower site (112),
at least one bag side wall (160, 170, 180, 190) having a bag side wall inner site (161, 171, 181, 191) and a bag side wall outer site (162, 172, 182, 192),
the bag top wall lower site (122), the bag bottom wall upper site (111) and all of the at least one bag side wall inner sites (161, 171, 181, 191) define the bag interior cavity (125),
the bag shell access opening (108) is the bag top wall access opening (108),
the bag bottom wall (110) and each of the at least one bag side wall (160, 170, 180, 190) are made of the pliable first plastic foil (130),
the bag top wall (120) is partly made of the pliable first plastic foil (130) and partly made of the vapor permeable sheet (131).

4. The drying bag (700, 701, 702) according to claim 3, wherein the bag top wall (120) connects to a bag side wall (160, 170, 180, 190) at a bag top wall edge (136, 137, 138, 139) and each bag top wall edge (136, 137, 138, 139) is made of the pliable first plastic foil (130).

5. The drying bag (700, 701, 702) according to a combination of claim 2 with claims 3 or 4, wherein the tensioning belt (270, 271) is a bag bottom wall tape strip (270, 271), the tensioning belt end (274) is a bag bottom wall tape strip end (274), the tensioning-belt-bag-shell connection point (115) is a bag bottom wall tape strip connection point (115), the outer bag shell site (112) is the lower bag bottom wall site (112), the tensioning belt fastening element (275) is a bag bottom wall tape strip fastening element (275) and the supporting tub anchor for the tensioning belt fastening element (328, 329) is a supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329).

6. The drying bag (700, 701, 702) according to anyone of claims 3 to 5, wherein the bag shell (100) has four bag side walls (160, 170, 180, 190) and is in the form of an approximated cuboid, when the drying bag (700, 701, 702) is positioned for drying in the supporting tub (300, 301, 302) and the plate (200, 205, 206) is detachably connected at the supporting tub (300, 301, 302).

7. The drying bag (700, 701, 702) according to any preceding claim, wherein the closable plate access opening (215) is closed with a removable lid (420).

8. The drying bag (700, 701, 702) according to claim 7, wherein the removable lid (420) having an upper lid site (421) and a lid lower site (422) comprises further a closable lid opening (432), which reaches from the lid upper site (421) to the lid lower site (422), and a lid opening thread (433), the lid upper site (421) comprises a lid outer plateau (440), a lid inner plateau (441), a lid inner base (444) and a lid flank (446), the lid inner plateau (441) surrounds the closable lid opening (432) and is limited at one site by the closable lid opening (432) and at one site by the lid opening thread (433), the lid inner base (444) is limited at one site by the lid opening thread (433) and at one site by the lid flank (446), the lid flank (446) is limited at one site by the lid inner base (444) and at one site by the lid outer plateau (440), and when the removable lid (420) is placed on its lower lid site (422), the lid outer plateau (440) is higher than the lid inner plateau (441).

9. A drying system (800, 801, 802), which comprises

a drying bag (700, 701, 702) according to anyone of claims 1 to 8, and
a supporting tub (300, 301, 302), which comprises

one supporting tub bottom wall (310) having a supporting tub bottom wall upper site (311) and a supporting tub bottom wall lower site (312),
at least one supporting tub side wall (320, 330, 340, 350) having each a supporting tub side wall inner site (321, 331, 341, 351), a supporting tub side wall outer site (322, 332, 342, 352) and a supporting tub side wall top rim (323, 333, 343, 353),

the number of supporting tub side walls (320, 330, 340, 350) is an integer and equal to or higher than the sum of all bag side walls (160, 170, 180, 190),

the supporting tub side walls (320, 330, 340, 350) extend from the supporting tub bottom wall (310),
the supporting tub bottom wall upper site (311) and the supporting tub side wall inner sites (321, 331, 341, 351) define a supporting tub recess (315),
the supporting tub recess (315) is sized and shaped to position the drying bag (700, 701, 702) therein,

wherein the drying bag (700, 701, 702) is positioned in the supporting tub (300, 301, 302) and the plate (200, 205, 206) is twist-proofly and detachably connected at the supporting tub (300, 301, 302) under involvement of the plate fastening element (220, 225).

10. The drying system (800, 801, 802) according to claim 9, wherein the plate (200, 205, 206) is detachably connected at a supporting tub overhang (360) of the supporting tub (300, 301, 302).

11. The drying system (800, 801, 802) according to claims 9 or 10, wherein the supporting tub (300, 301, 302) comprises further an anchor for the tensioning belt fastening element (325, 326, 328, 329).

12. The drying system (800, 801, 802) according to anyone of claims 9 to 11, wherein the drying bag (700, 701, 702) is defined as in claim 2, the tensioning belt (270, 271) is the bag bottom wall tape strip (270, 271), the tensioning belt end (274) is the bag bottom wall tape strip end (274), the tensioning belt fastening element (275) is the bag bottom wall tape strip fastening element (275), the supporting tub (300, 301, 302) comprises further a supporting tub hold-down (380, 382, 385), which is located at one of the supporting tub side wall inner sites (321, 331, 341, 351) and reaches close to the supporting tub bottom wall upper site (311), the anchor for the tensioning belt fastening element (328, 329) is the supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329), and the bag bottom wall tape strip end (274) is guided around the supporting tub hold-down (380, 382, 385) and detachably connected to the supporting tub anchor for the bag bottom wall tape strip fastening element (328, 329), which is attached at the supporting tub side wall top rim (323, 333, 343, 353) of the respective supporting tub side wall (320, 330, 340, 350), with the bag bottom wall tape strip fastening element (275).

13. The drying system (800, 801, 802) according to anyone of claims 9 to 12, wherein the drying bag (700, 701, 702) is as defined as in claim 6 or a combination of claim 6 with claims 7 or 8, wherein the number of supporting tub side walls (320, 330, 340, 350) is four and the supporting tub bottom wall (310) has a rectangular form.

14. A method for drying of a material to be dried, which comprises the steps

(a) introducing the material to be dried into an interior bag cavity (125) of a drying bag (700, 701, 702) of a drying system (800, 801, 802) as defined in anyone of claims 9 to 13 to obtain a drying system with a filled drying bag,
(b) unless the filled drying bag is already closed, closing the filled drying bag to obtain a closed filled drying bag,
(c) exposing the drying system with the closed filled drying bag to conditions suitable to effect drying, preferably freeze-drying, of the material to be dried to obtain a dried material.

15. Use of a drying system as defined in anyone of claims 9 to 13 for a drying, preferably freeze-drying, of a material to be dried.

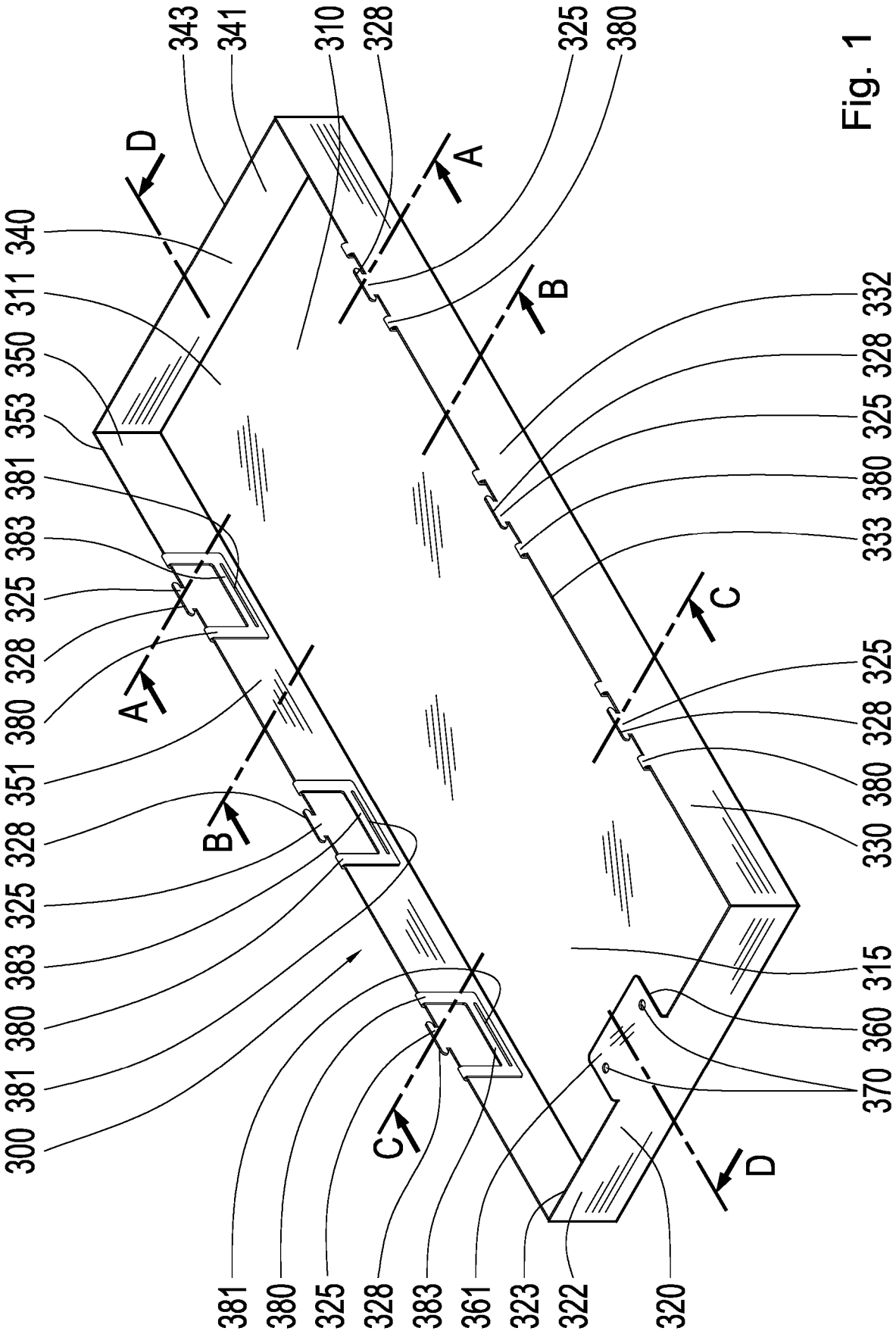
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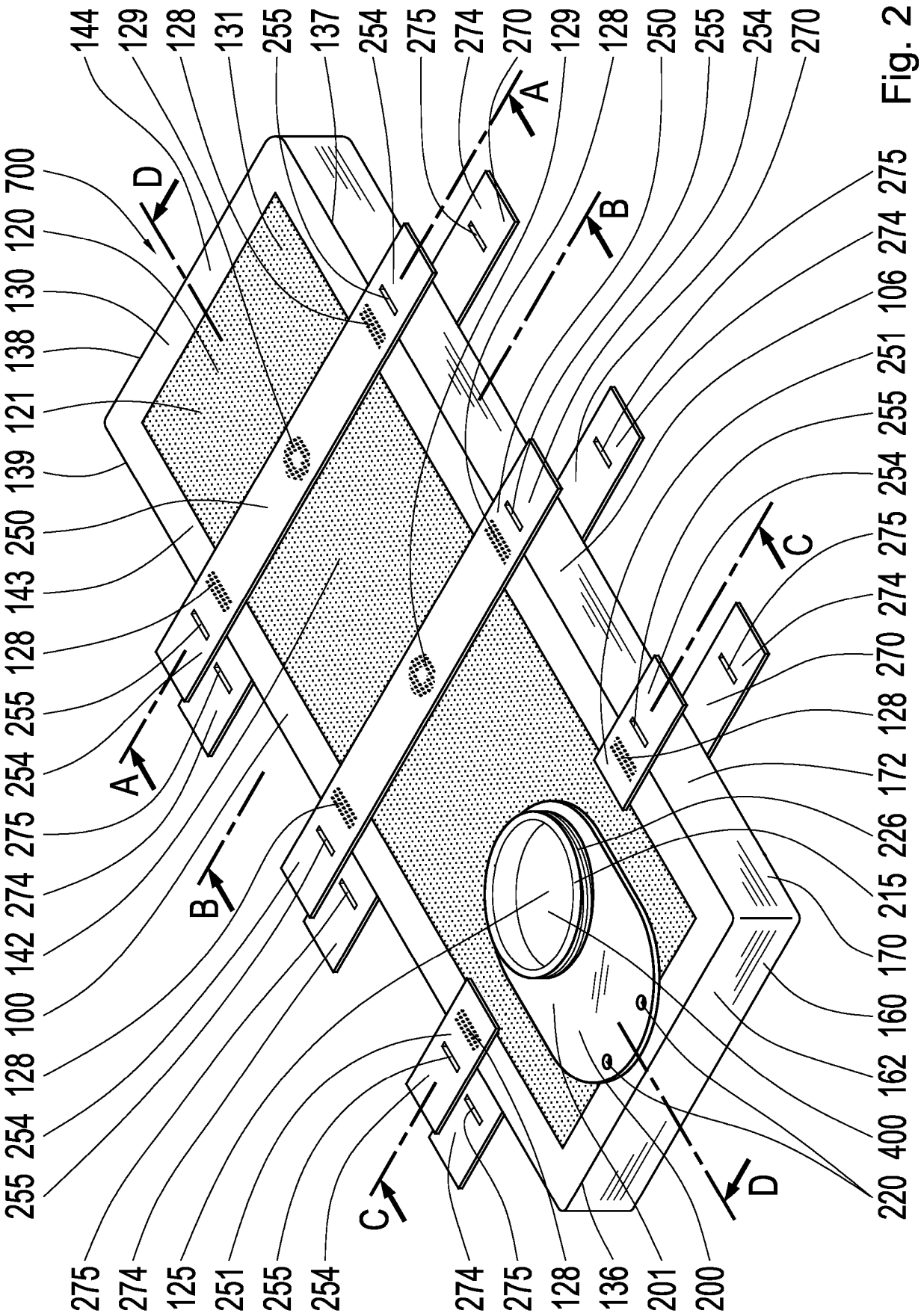
Fig. 1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220 400 162 160 170 215 226 172 128 270 274 275 254 255 251 106 274 275
A
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C
D

Fig. 2

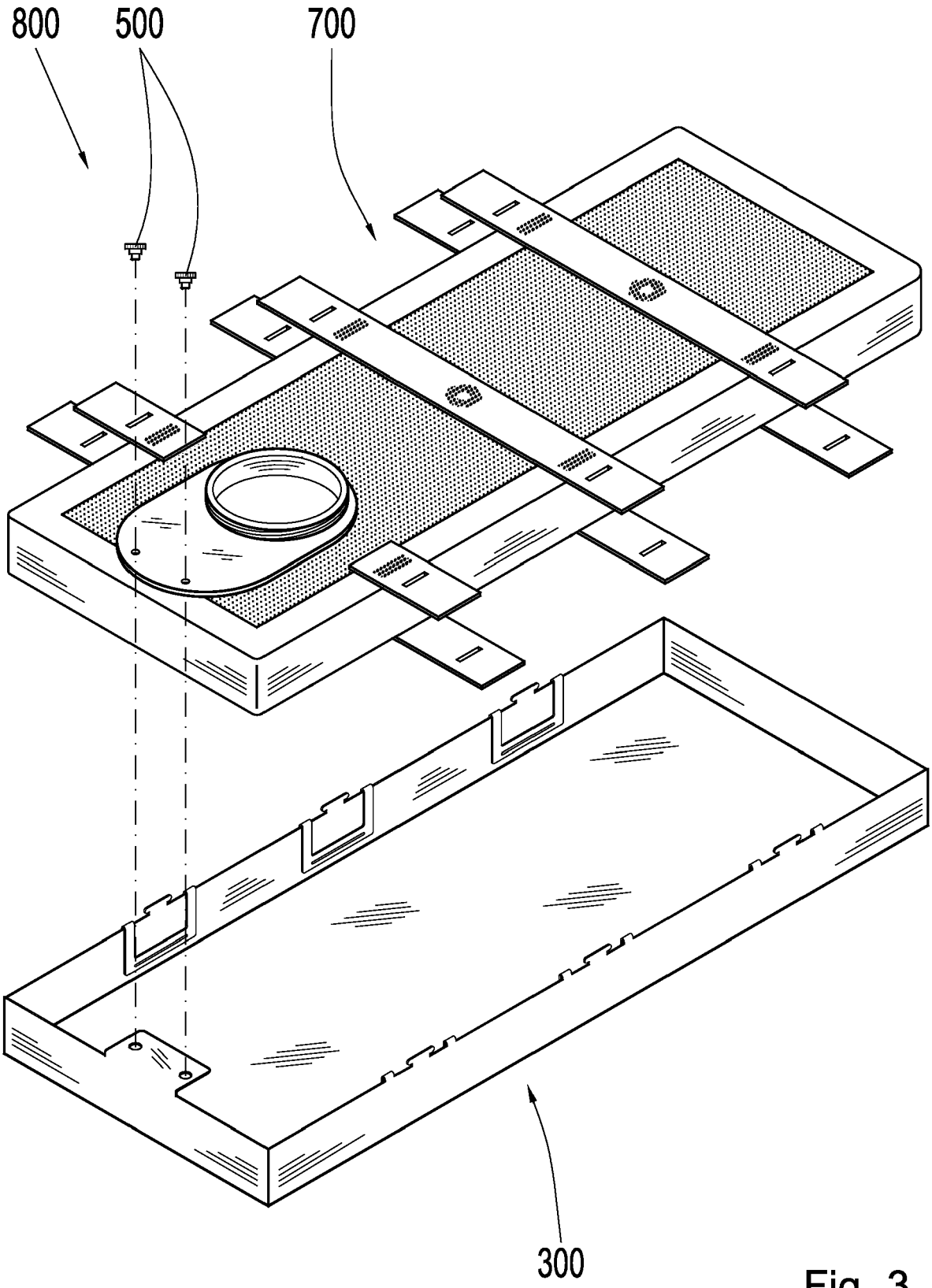

Fig. 3

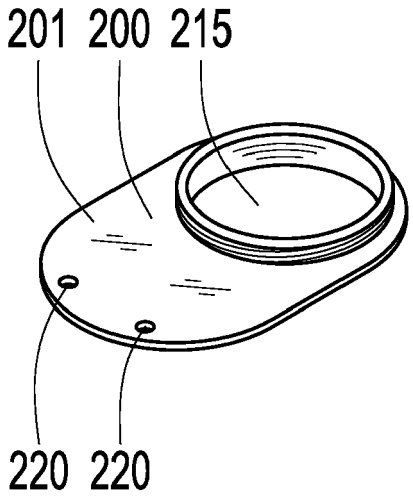

Fig. 4a

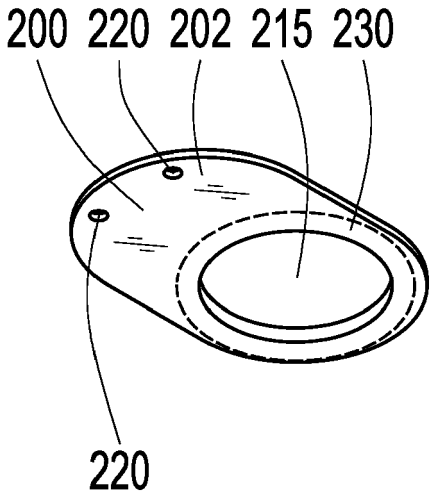

Fig. 4b

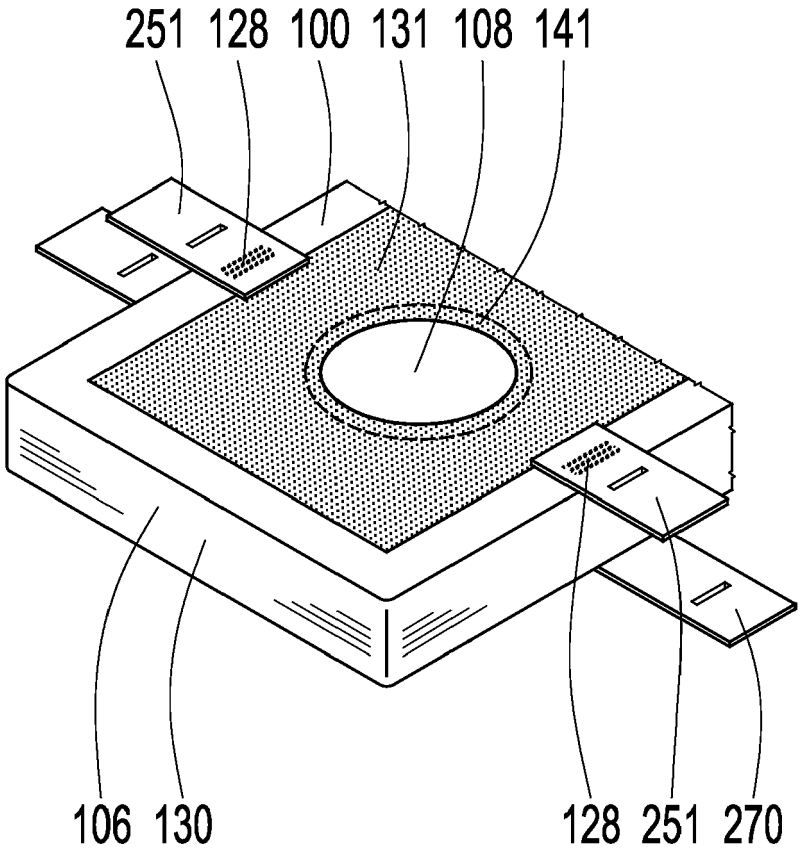

Fig. 4

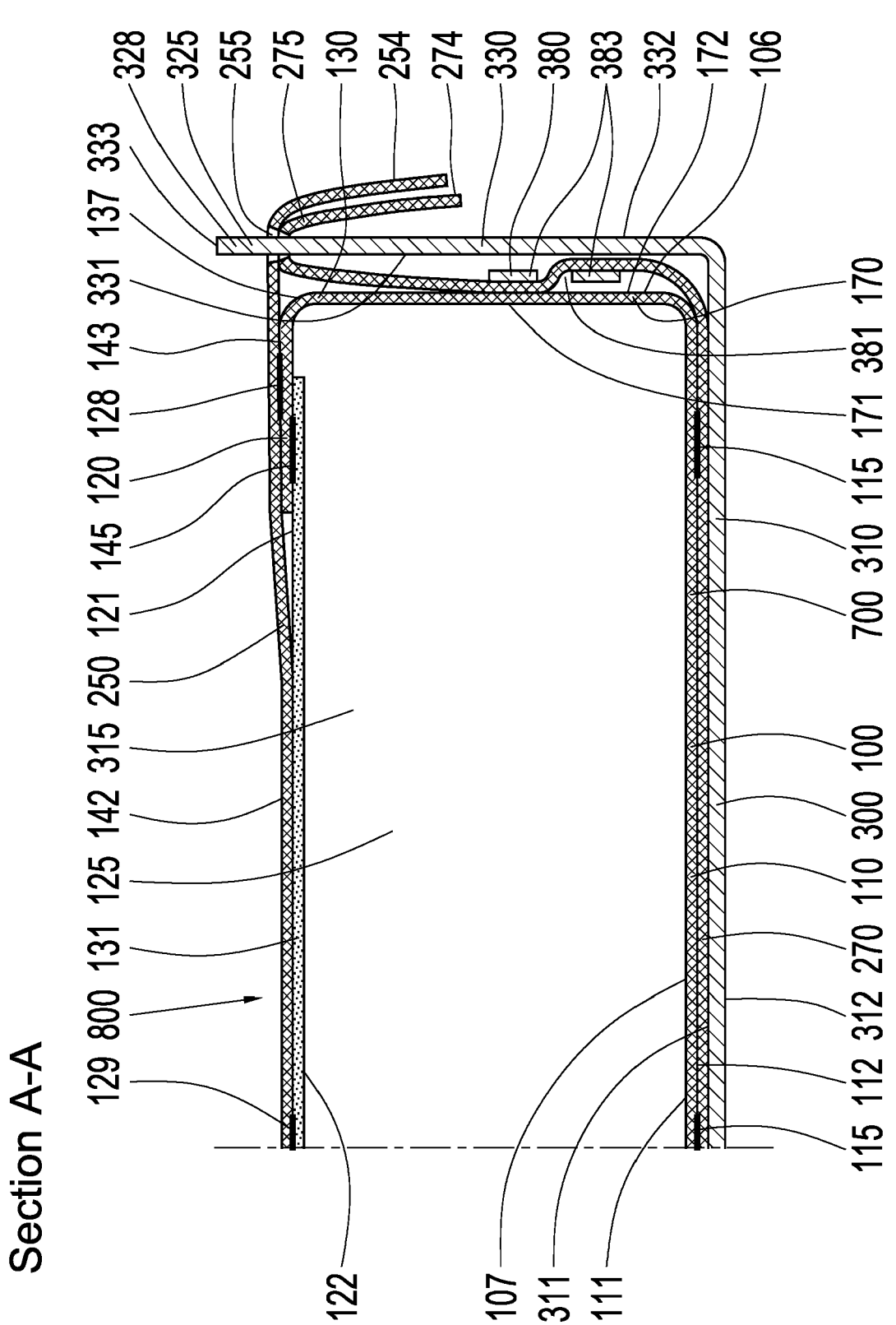
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Fig. 5

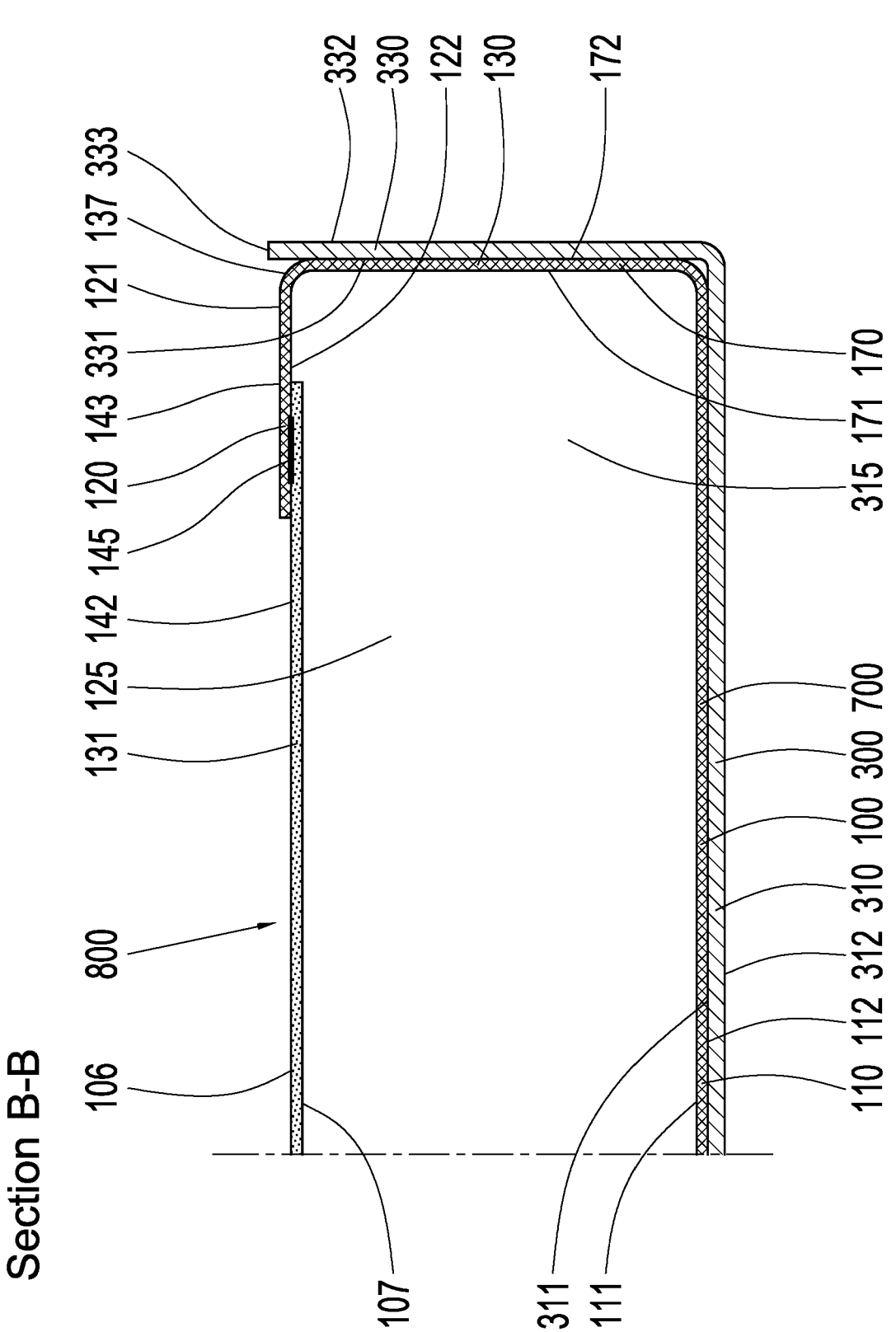
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Fig. 6a

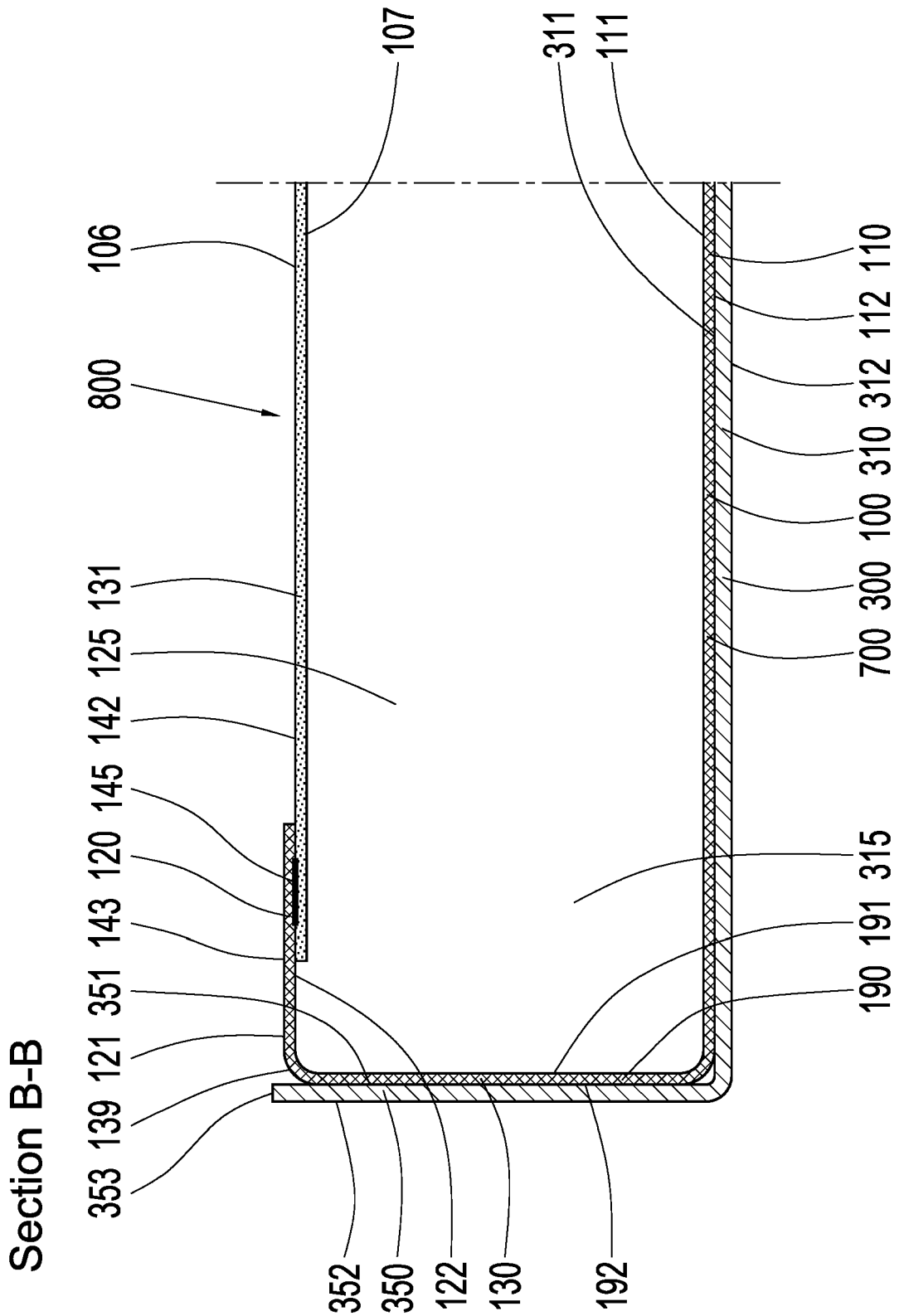
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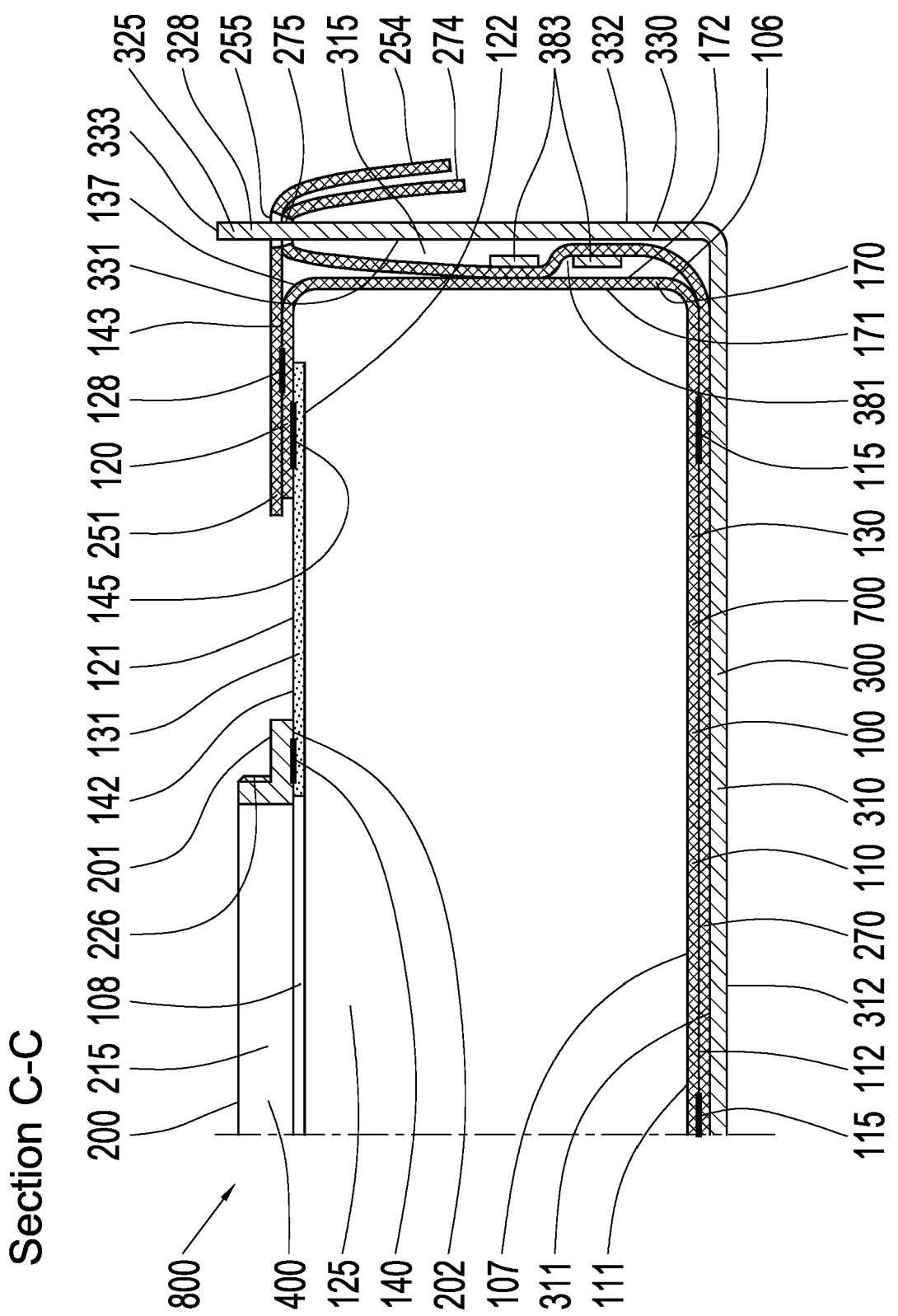
Fig. 6b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111

Fig. 7

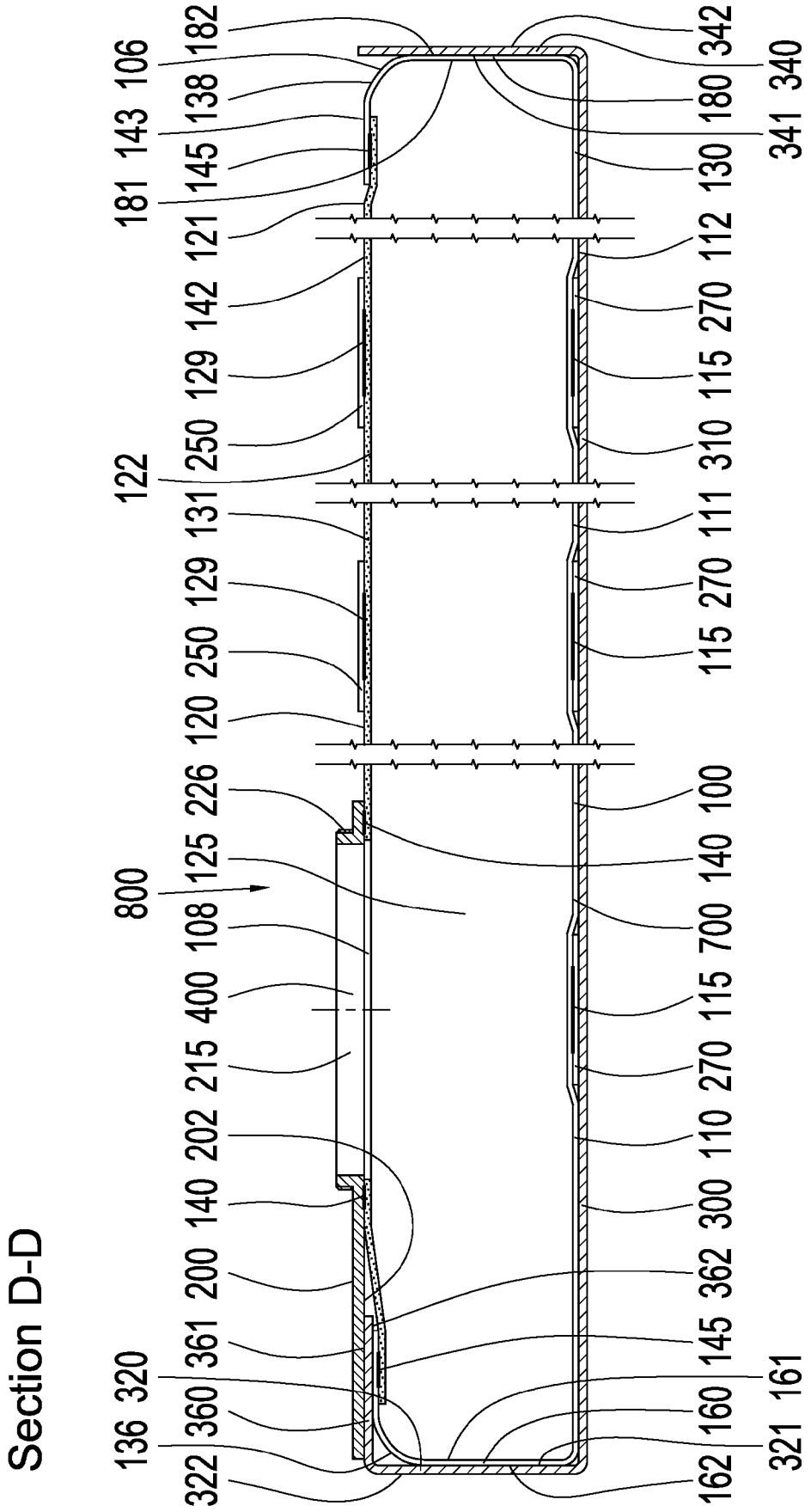
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Fig. 8

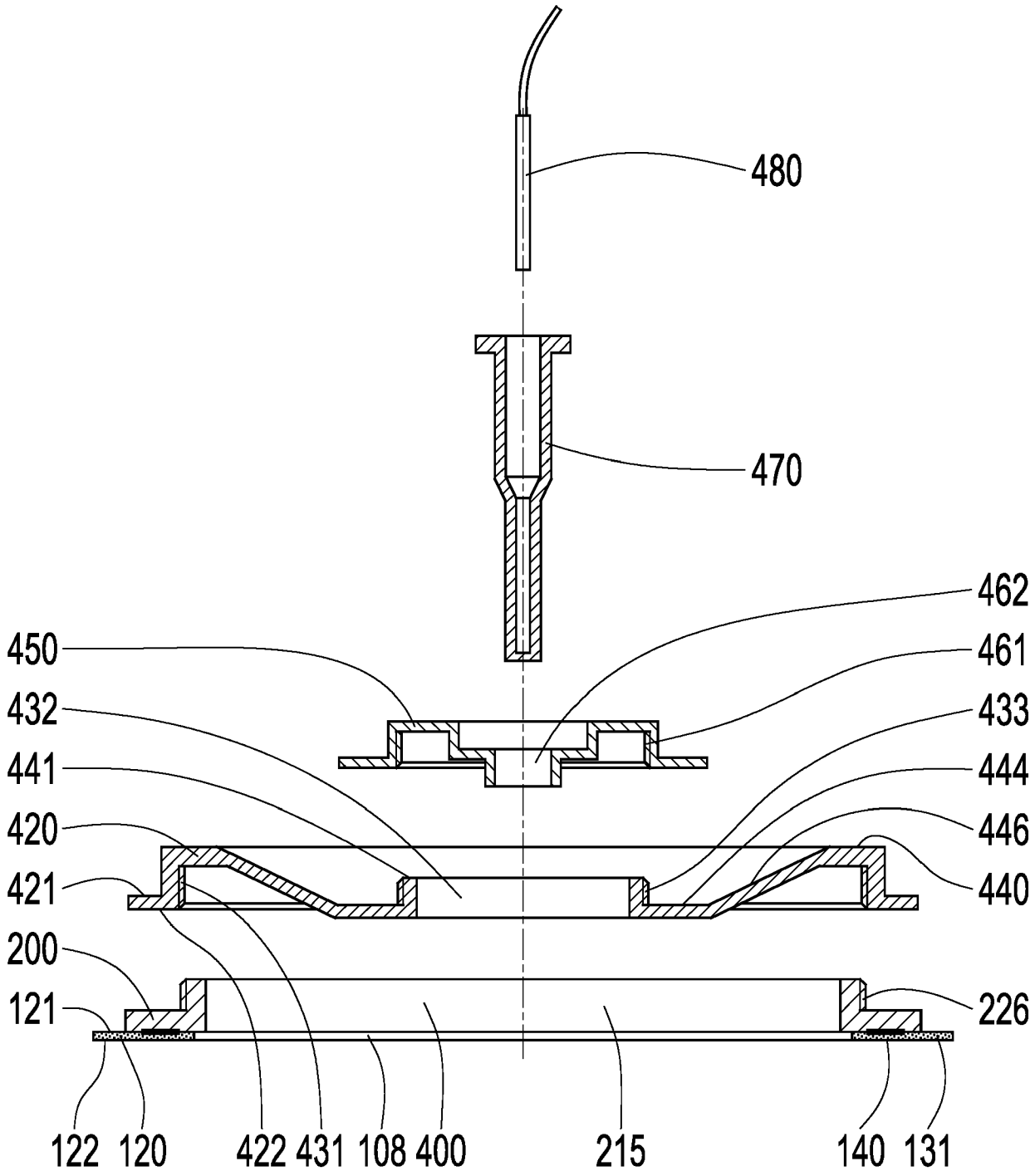
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Fig. 9

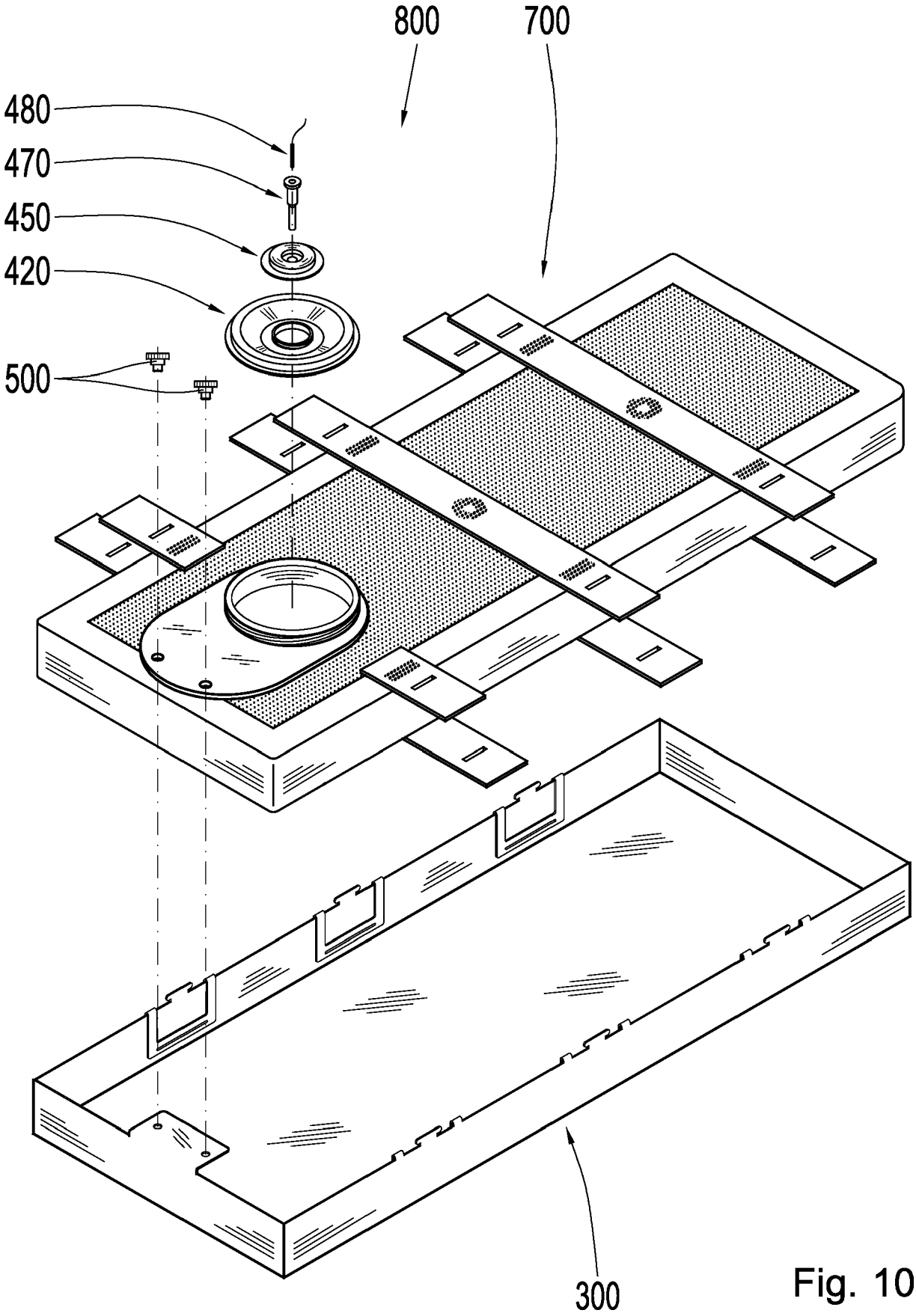
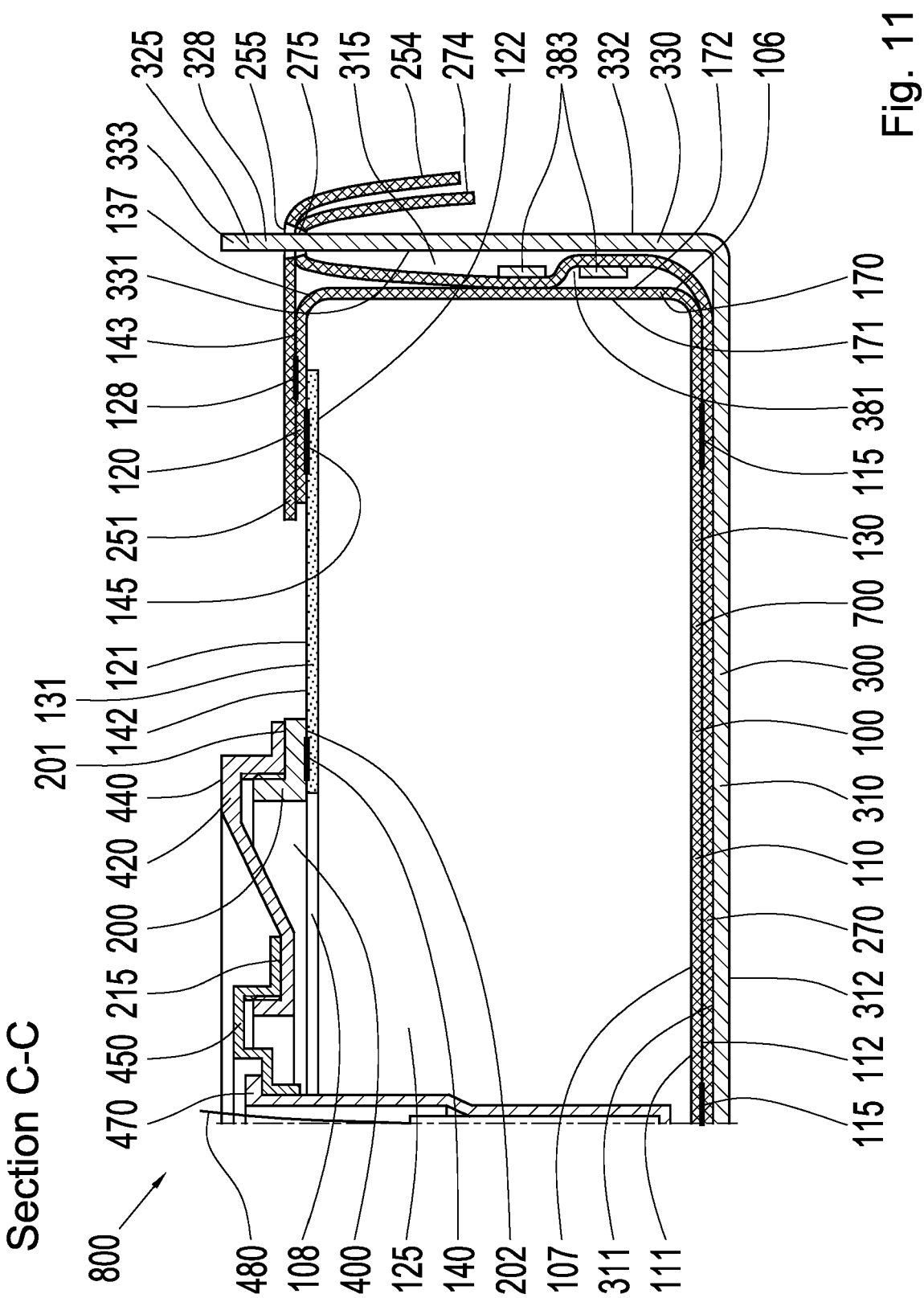


Fig. 10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480 108 400 125 140 202 107 311 111

Fig. 11

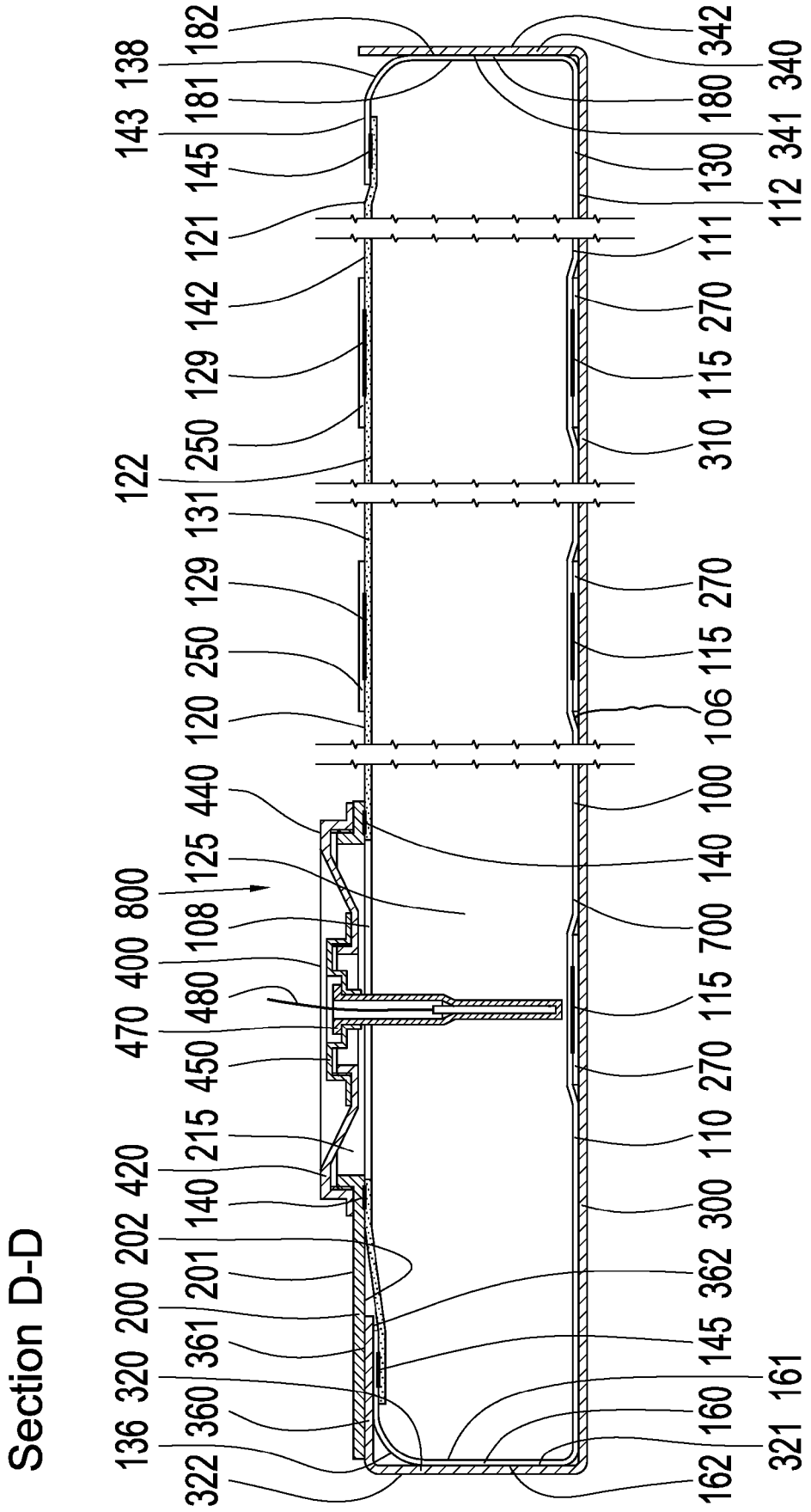
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Fig. 12

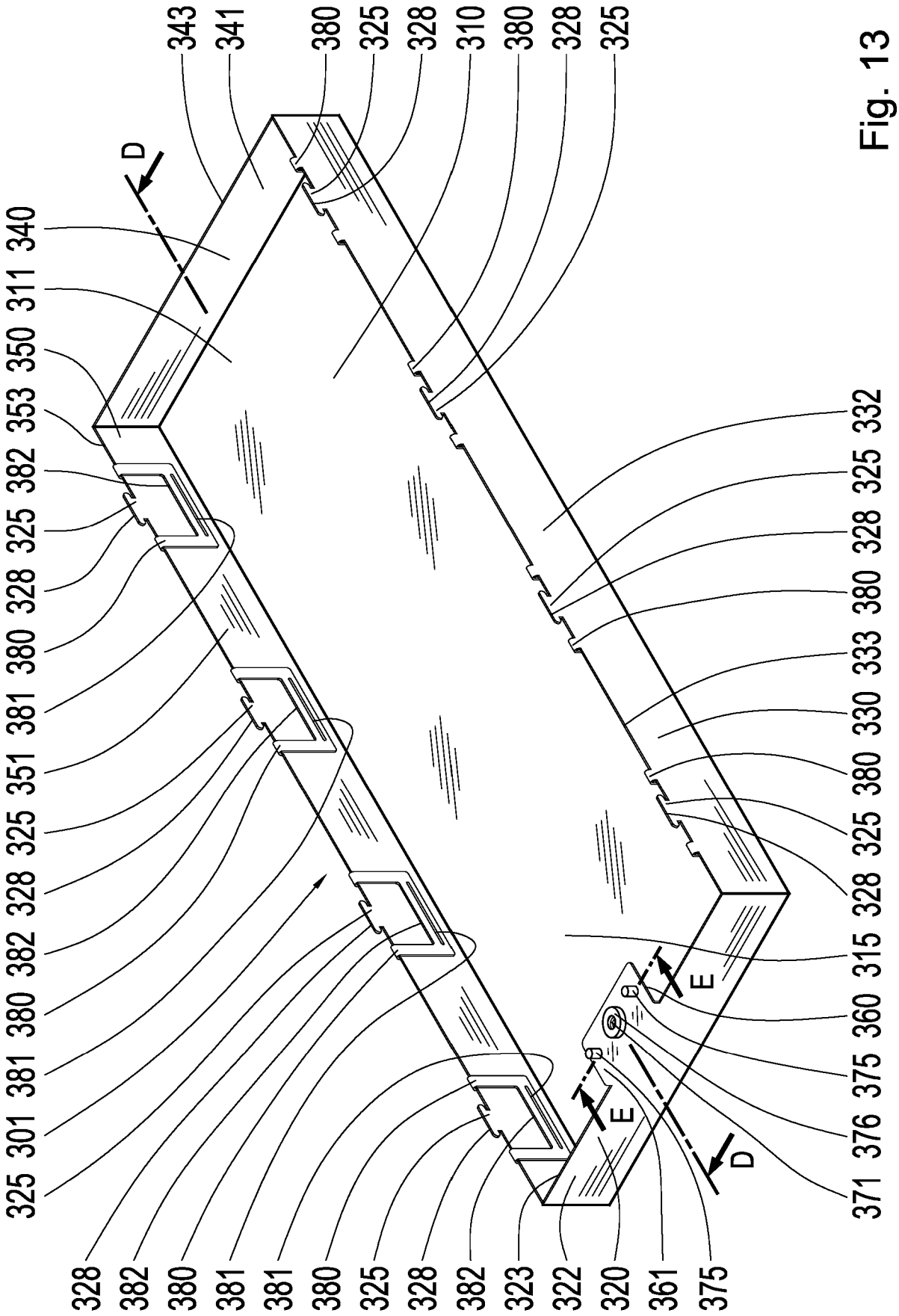
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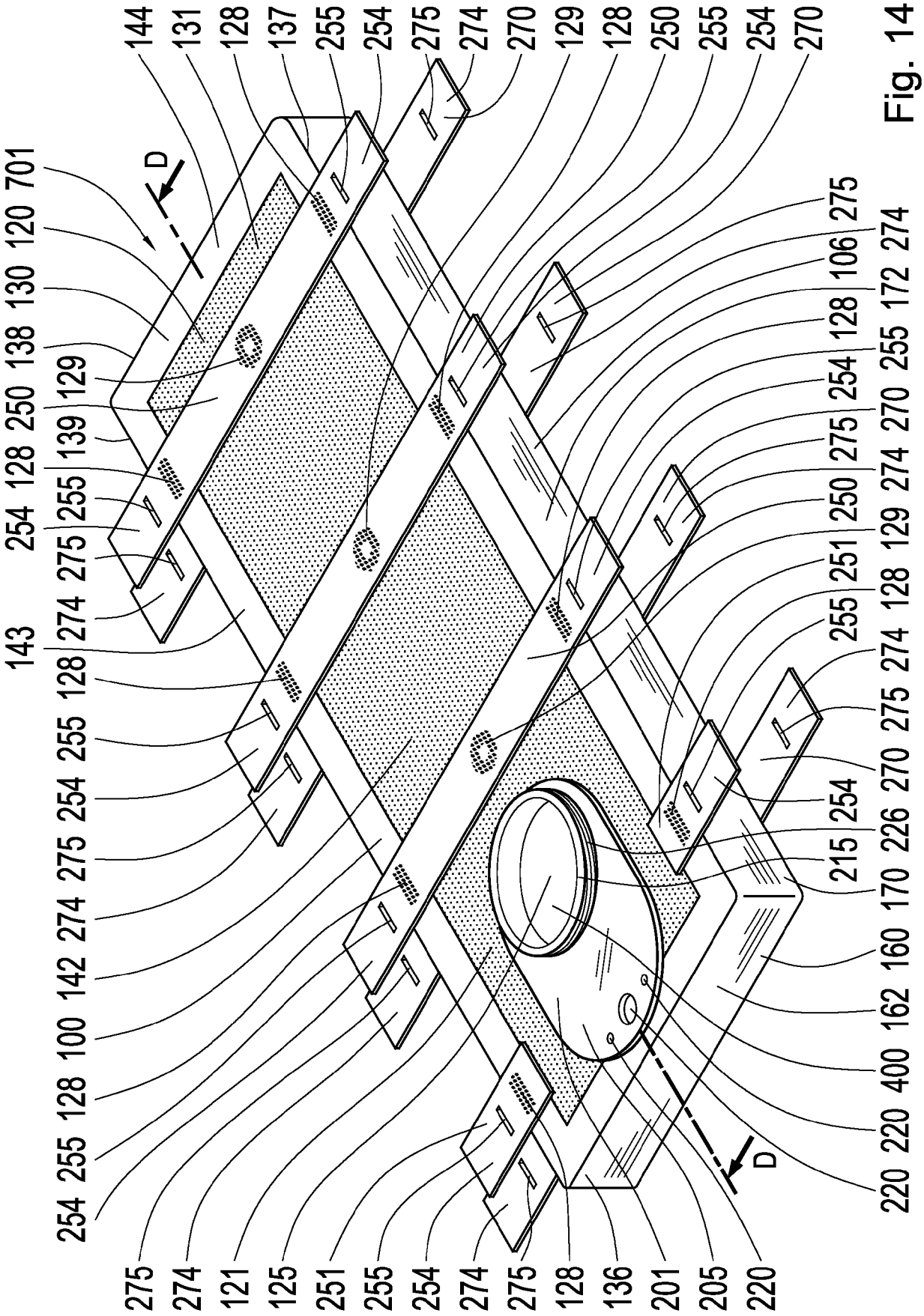
Fig. 13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D
D

Fig. 14

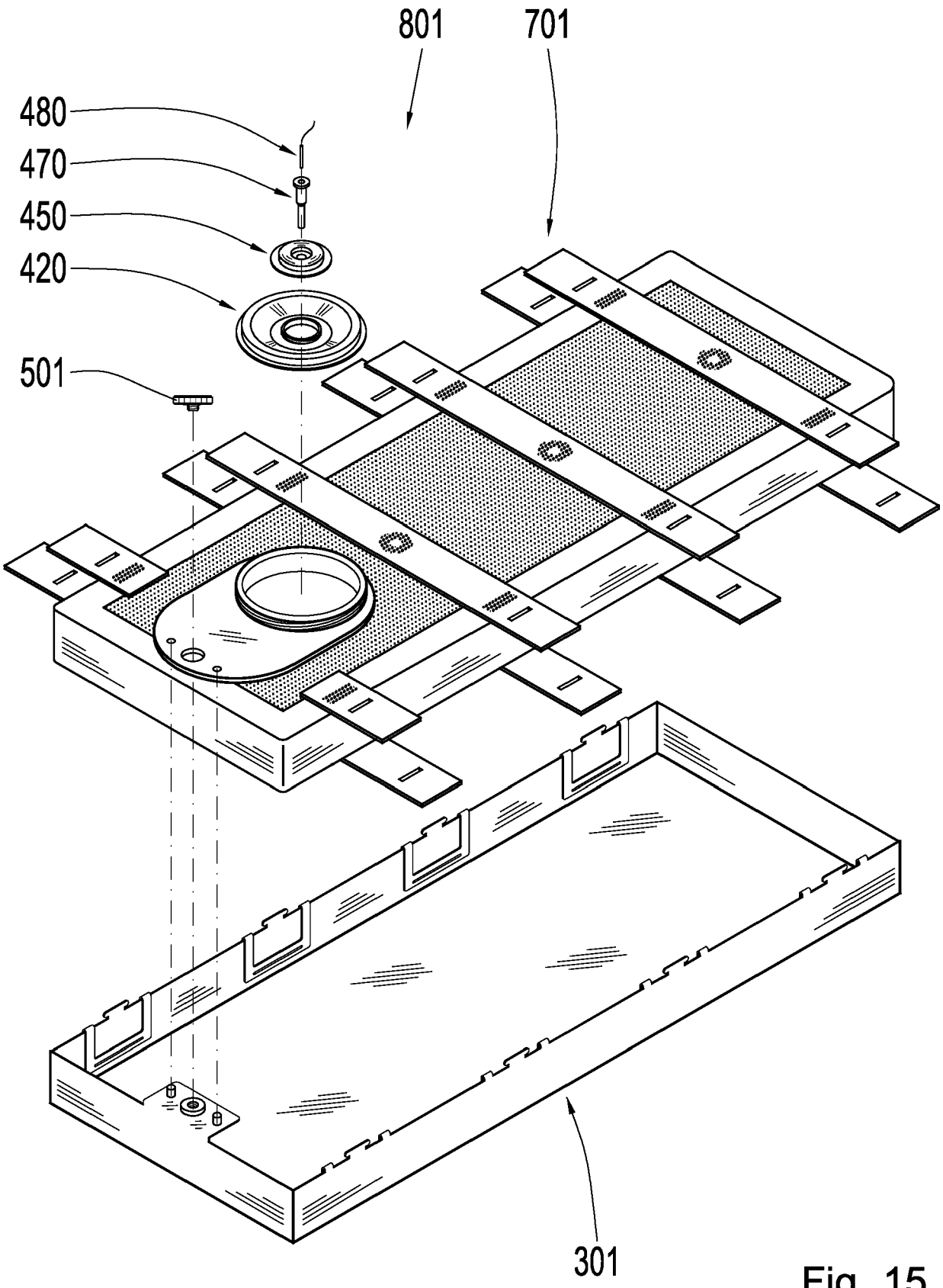
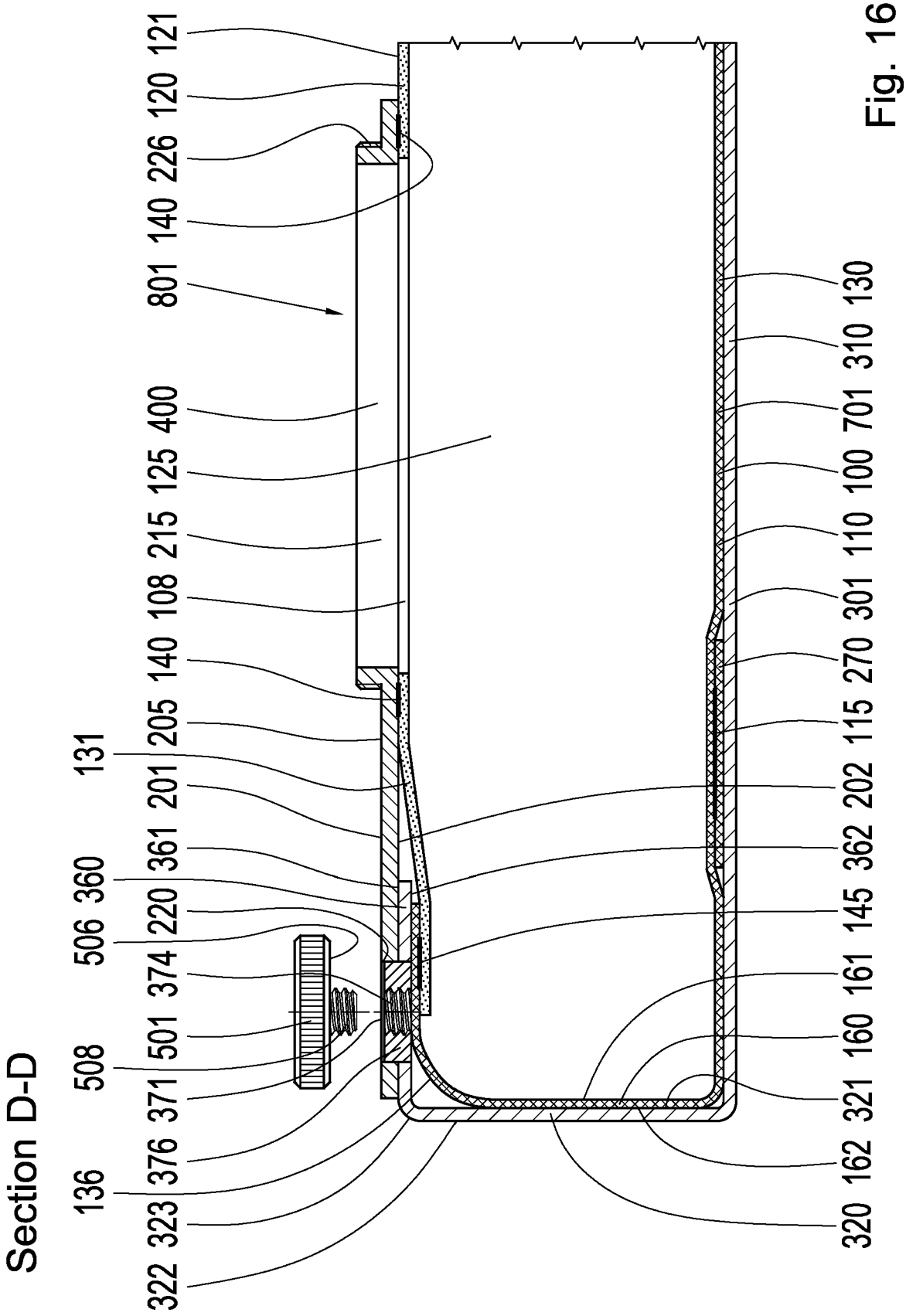


Fig. 15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320

Fig. 16

Section E-E

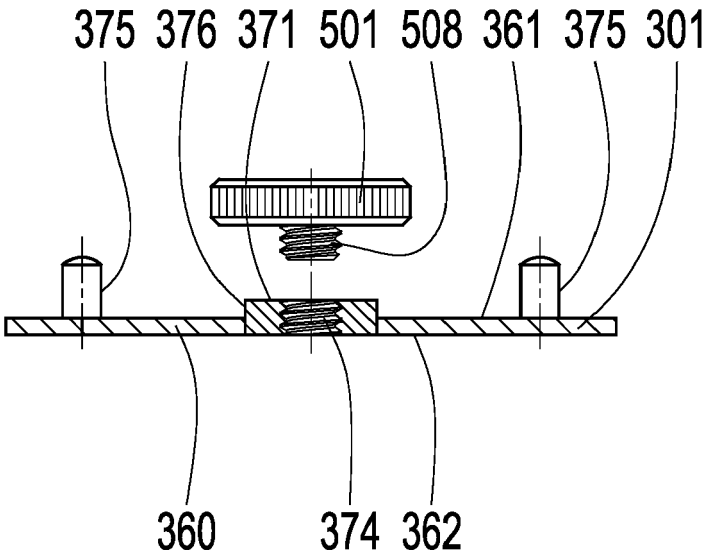

Fig. 17

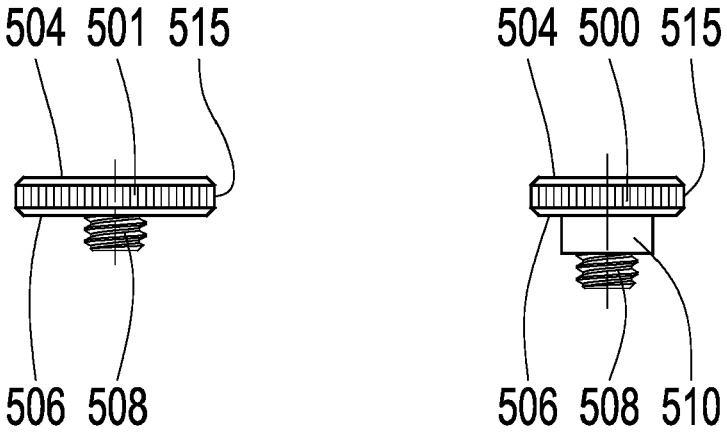

Fig. 18

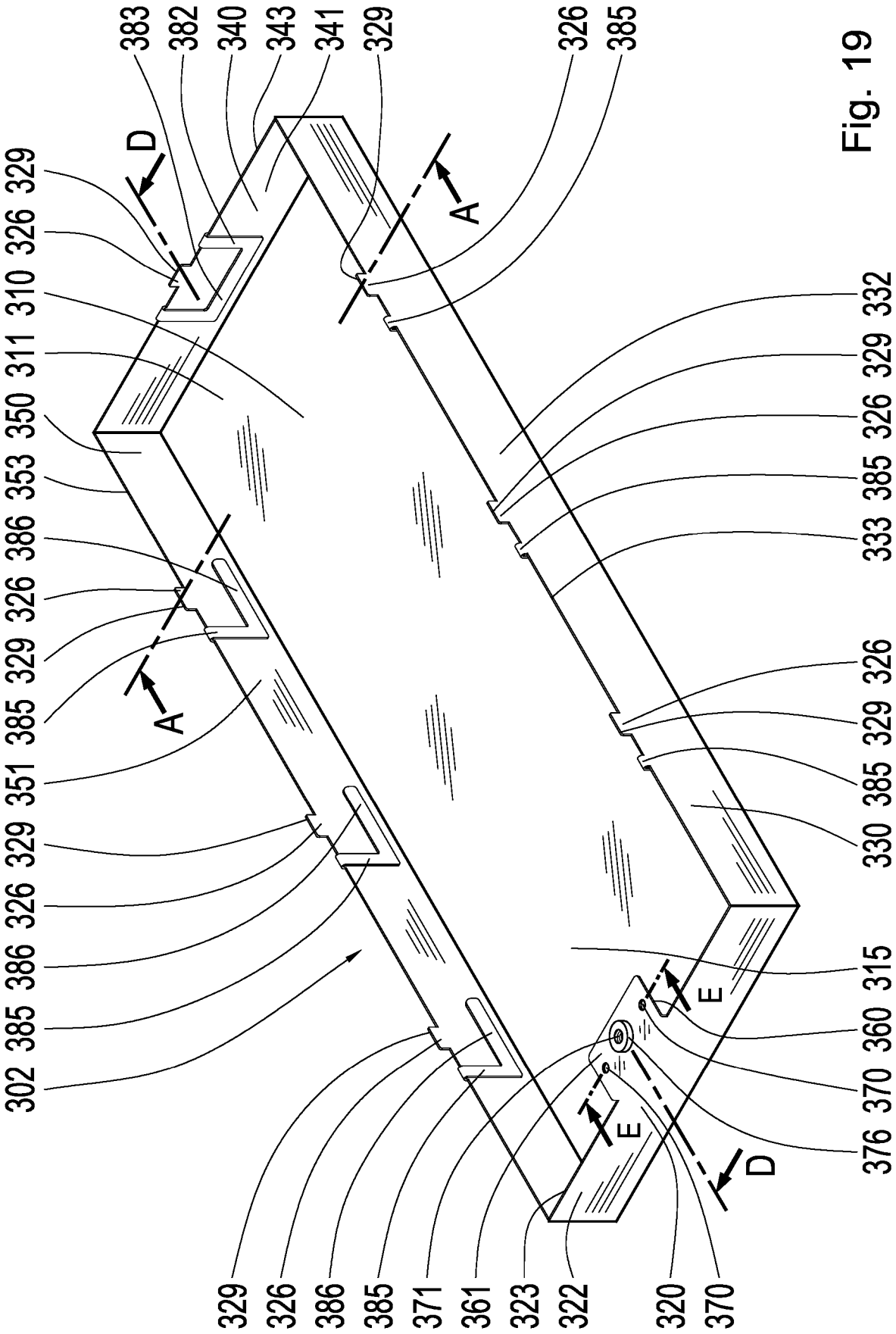
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Fig. 19

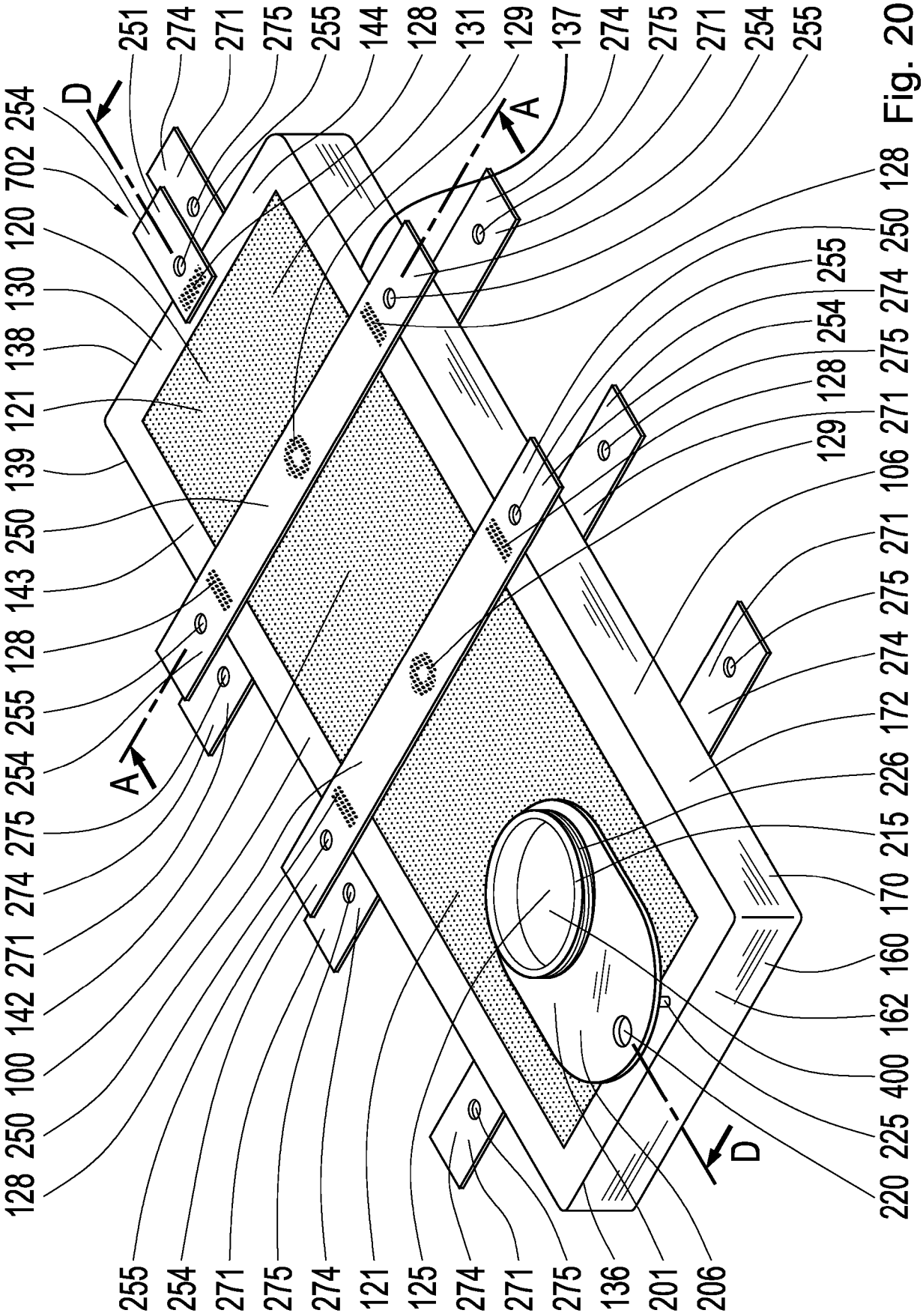
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Fig. 20

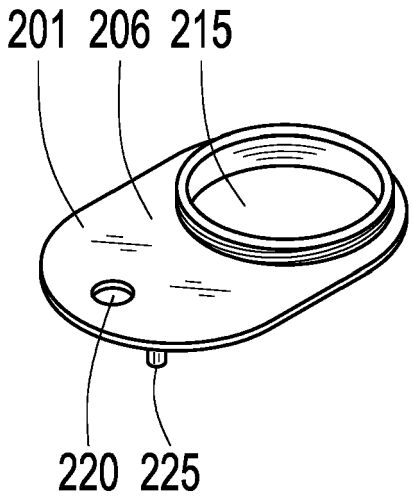

Fig. 21a

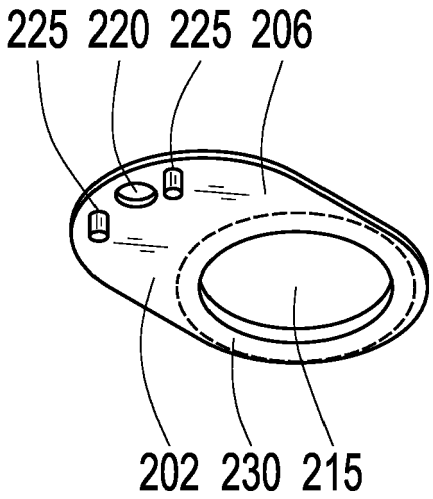

Fig. 21b

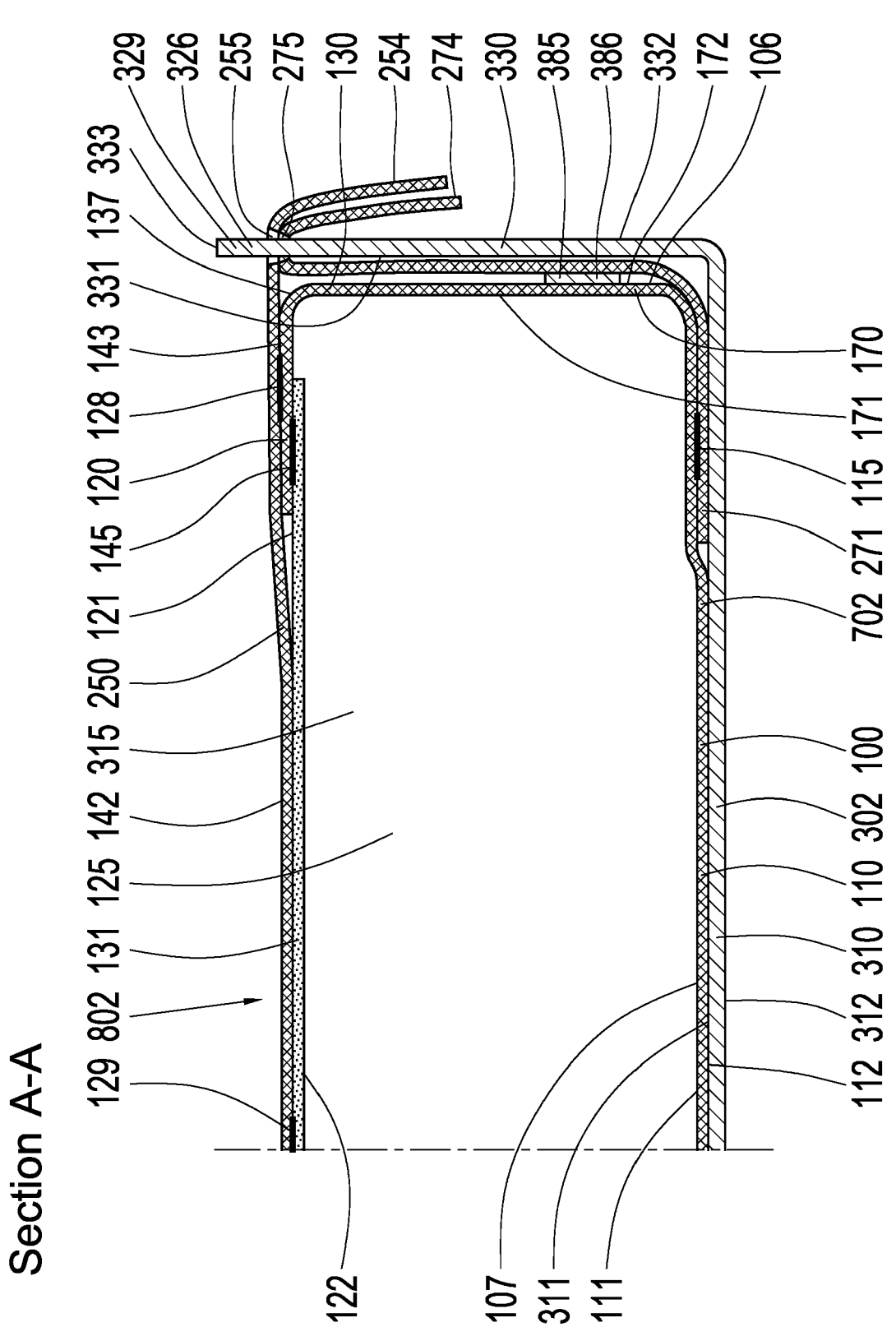
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Fig. 22

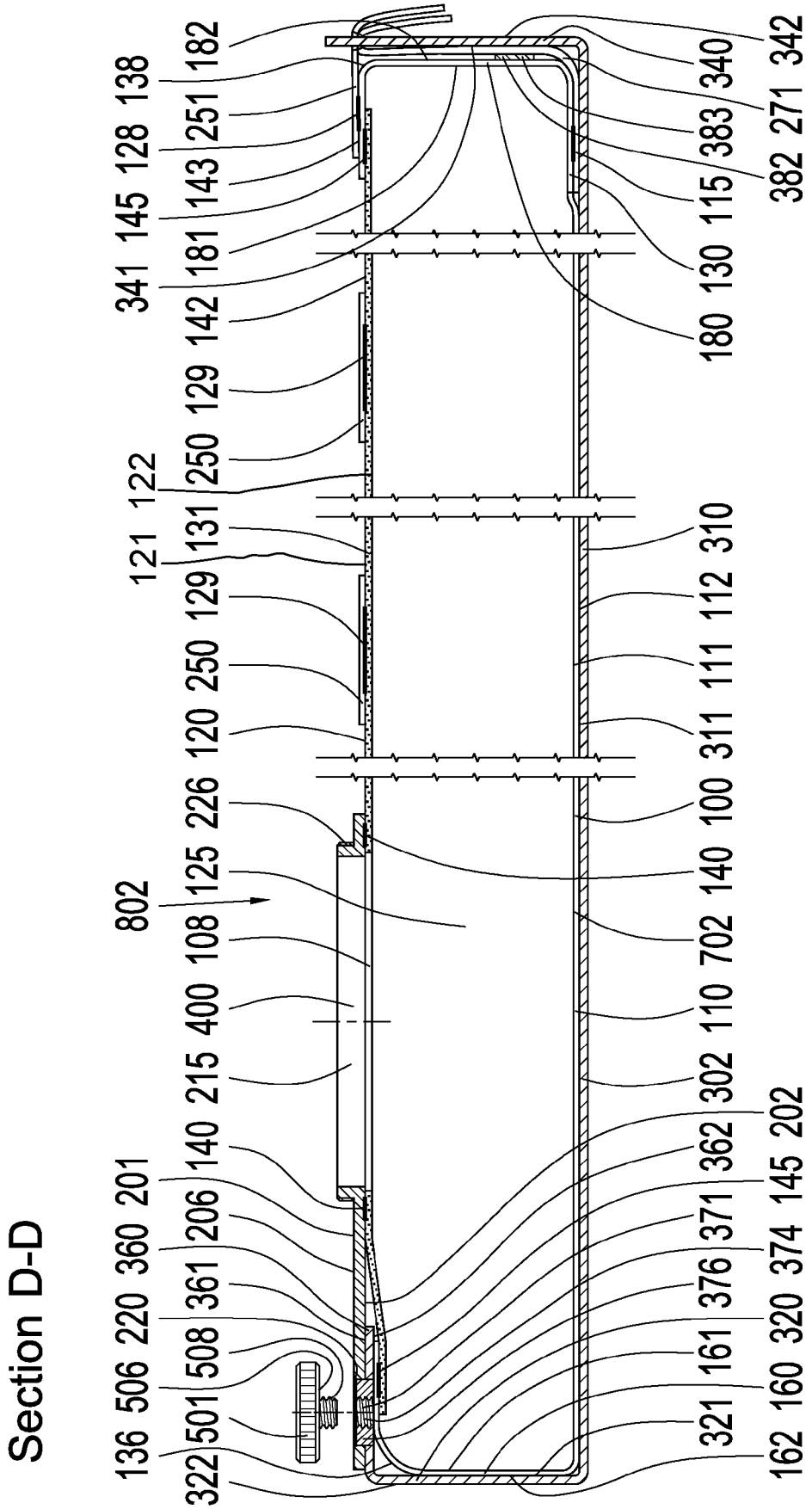
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Fig. 23

Section E-E

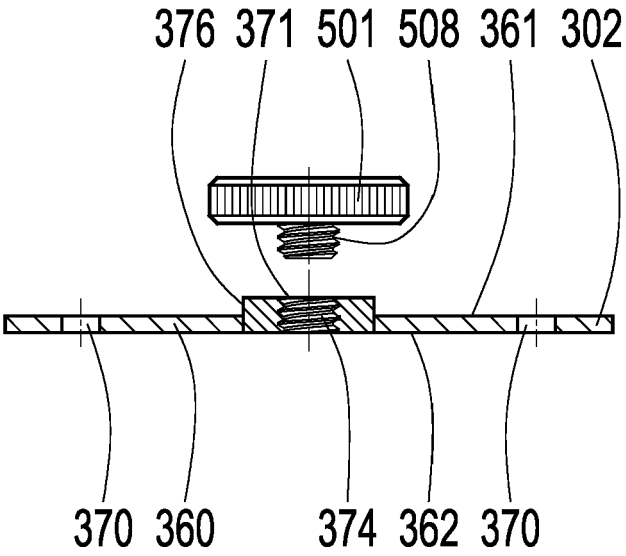

Fig. 24

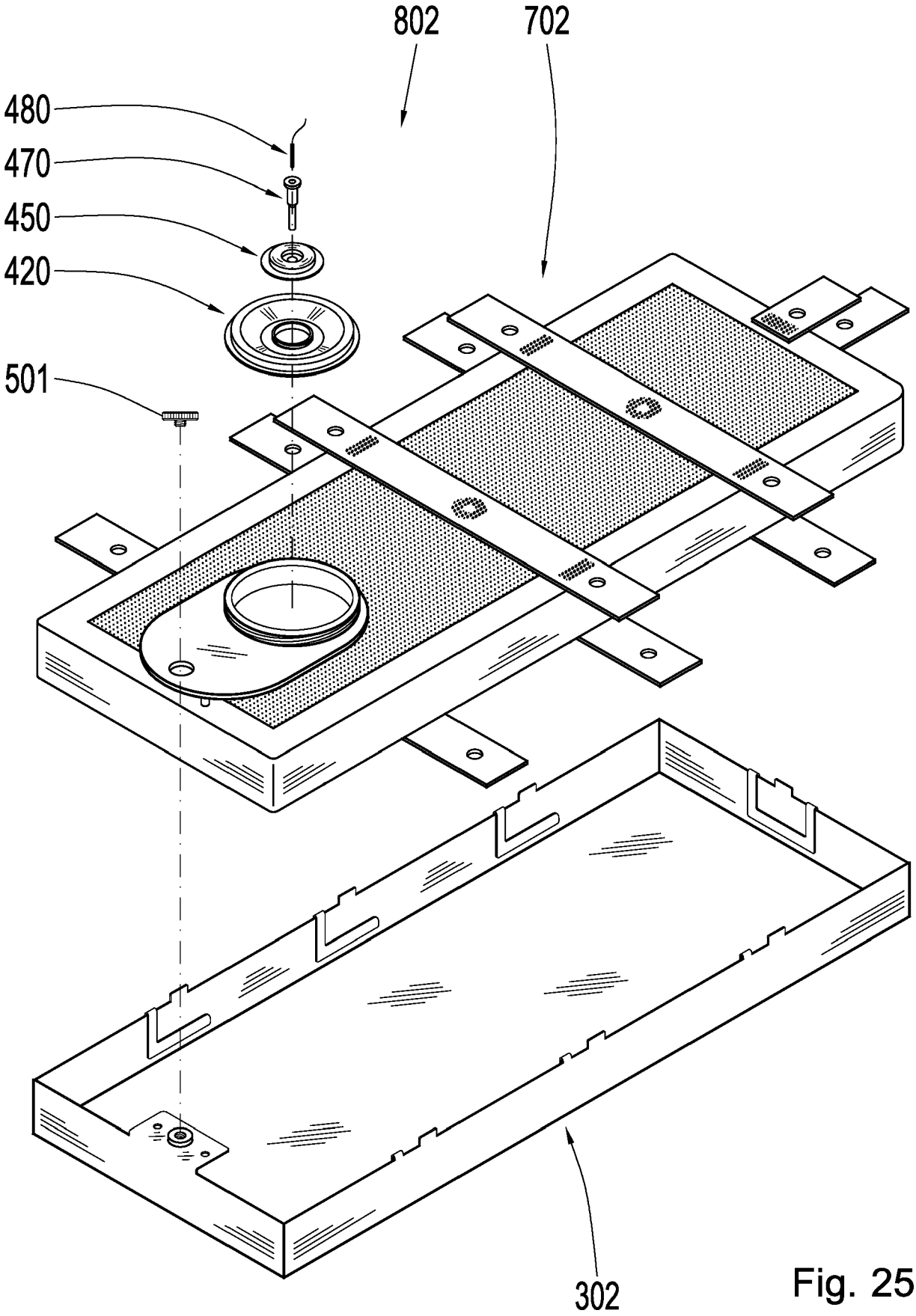

Fig. 25

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EUROPEAN SEARCH REPORT

Application Number
EP 23 20 8618

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	CN 217 357 823 U (SHANGHAI JINYU BIOTECHNOLOGY CO LTD) 2 September 2022 (2022-09-02) * paragraph [n0023] * * paragraph [n0024] * * paragraph [n0030] * * paragraph [n0032] * * paragraph [n0033] * * paragraph [n0034] * * figures *	1-15	INV. F26B5/06 F26B25/06
A,D	WO 2017/137637 A2 (BACHEM HOLDING AG [CH]) 17 August 2017 (2017-08-17) * page 3, line 28 - page 8, line 20 * * page 14, line 1 - page 19, line 9; figures *	1-15	
A	WO 2019/093397 A1 (ABLE CORP [JP]) 16 May 2019 (2019-05-16) * paragraph [0008]; figures *	1-15	
A,D	US 6 517 526 B1 (TAMARI YEHUDA [US]) 11 February 2003 (2003-02-11) * page 6, line 26 - page 8, line 15 * * column 12, line 51 - column 17, line 16; figures *	1-15	TECHNICAL FIELDS SEARCHED (IPC) F26B A61J A61K
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 April 2024	Oliveira, Casimiro

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