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(54) MULTIFUNCTIONAL CONTAINER FRAME FOR ANY KIND OF RECEPTACLE WITH MECHANICAL LIDS AND ANCHORING BASIS

(57) Multipurpose container frame for all packages with mechanical lids and anchor bases; the object of the invention is to create a packaging concept with multiple applications and practical operational solutions by adapting lids for dosing or pouring liquid or solid products to packages which lack these, and preventing thus them from being torn or product transfers. The device is characterised by a structure which forms a frame with vertical rods (1) which connect to other horizontal rods (1i) and (1S); rods (1) are hinged at their central intersections, anchoring bases (8) which hold the package (5) by tabs (6) by means of flaps (7i), these bases are anchored by grooves 89) which are caught in rods (1i) and (1S). Lid (10) is anchored by base (8) with a main frame (11).

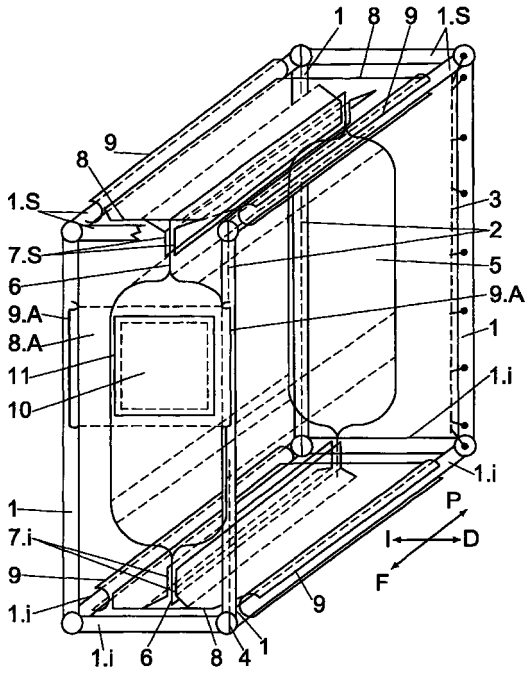

FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention, as described in the title of this descriptive memory, relates to a device consisting of a frame, lids and anchor bases conceived and designed to obtain a number of advantages form their several and particular applications.

[0002] The device is used to adapt lids for packages for food, cleaning products, etc., which due to their structure, content or to lack of means in the market are missing these, since a large majority of these containers are plastic bags with no rigidity, and also serves to hold several containers in a single pack in order to stack or arrange containers of all types in shop or consumer shelves etc., and also to join several bags together in a single pack, whether for containers holding the same product or to combine different products, such as joining two soup bags, or a packet of cereal with a bag of milk, etc., by means of the endless combinations of the frame, lids and anchoring systems.

BACKGROUND OF THE INVENTION

[0003] No device is known by which lids can be placed on containers lacking rigidity, such as bags or packs for sunflower seeds, rice, sugar and an endless list of food products. Also, no device is known by means of which the containers can be systematically stacked or arranged, or which allows to join several containers of the same product or combinations of different products in a single pack, whether for foodstuff, drinks, cleaning products, etc.

DESCRIPTION OF THE INVENTION

[0004] The container frame consists of three main components:

1. A structure which consists of a set of rods or walls forming a frame of a shape which can support and hold the packages.
2. A number of lids held by the frame and attached to the packages so that they are provided with an opening and closing system in order to dose out the different products.
3. A number of bases attached to the frame which hold and support the packages and the lids, and join these lids to the frame and the packages. In addition they provide stiffness and consistency to the structure formed by the frame.

PROBLEM PRESENTED

[0005] Most packages in the market are packs, bags, envelopes, tetra bricks, plastic or glass jars and plastic or cardboard boxes.

[0006] A first example is breakfast cereal. These are normally contained in packs which consist of a cardboard box and a bag inside made of normal plastic, or aluminised or waxed plastic. The first problem encountered by the consumer is opening the package by cardboard flaps at the top of the package. Once opened, the bag containing the cereal inside must be opened manually, and in the case of aluminised plastic this often results in the bag tearing and opening excessively with an amount of cereal falling between the bag and the inside of the cardboard box, so that a small amount of cereal falls to the bottom of the box.

[0007] When the cereal is poured into a vessel for consumption the same occurs, since when the package is inclined and then returned to its vertical position an amount of cereal generally falls out since the tip of the bag containing the cereal almost always overflows; all of this is for an adult, since for a child opening the package is very difficult and a larger amount is lost due to the child's lesser ability. Scissors may be used to open the package, but this is not advisable for children as these are sharp and pointed. In addition, if the package is in the kitchen scissors are generally available, but in a cafeteria the package will generally be opened manually with the resulting problems. The example of a child is given since most consumers of sweetened cereals are children. Afterwards the package must be closed using a clothespin; if the bag has been opened properly it may be folded and then tightly closed using the pin, but if it has torn it cannot be properly closed and air will enter, so that after some days the cereal will be stale because of this inability to properly close the cereal container bag.

[0008] A second example is containers for rice, sugar, lentils, chick peas, pasta, coffee, powdered chocolate, flour, salt, biscuits, all type of nuts: almonds, hazel nuts, pop corn, sunflower seeds, and a large number of packaged foods, as well as chemical cleaning products, such as powdered detergent, bath salts, etc. Practically all these products, both food products and cleaning products, suffer from the same problems as explained above for cereals, but made cardboard box as the cereals. They are more likely to tear and opening them is harder than for the cereals; there are three things consumers can do after opening these.

[0009] One is to transfer the contents to a glass jar or a similar container. Another is to consume the entire contents at once and a third is to use a small amount and leave the rest in the container. The third option is the one used most often by consumers. Once the container is opened it is closed with a clothespin as with the cereal package, but most of these packages are made with a very basic plastic or paper which is likely to tear upon opening as with the cereal bag.

[0010] These as well cannot be closed tightly, and it is troublesome to fold and unfold the package and place or remove the pin every time the contents are used, not to mention the large number of containers which break

after accidentally being dropped both in stores and in the consumer's homes.

[0011] The third example refers to plastic bags containing both liquids and solids. Bags containing liquids, such as fresh milk, are unstable and so the consumer has no option but to place the bag in a plastic or glass jar in the refrigerator to prevent it from spilling. In addition, the milk is not easily poured in to a vessel, since these bags are opened on one corner manually or with a sharp tool.

[0012] If they are opened correctly the contents are then poured, but when incorrectly opened, that is, too much or too little, an amount of milk will spurt out and be spilled, or very small amounts will come out.

[0013] Because of these problems bags containing liquids are used almost only for fresh milk, since due to their lack of stability and the defective pouring of the liquid their use for other liquids has been discarded.

[0014] A fourth example refers to bags used for food products such as potato chips, etc. which as they are bags are unstable and cause storage problems in shops where large shelves must be used to stop them from falling often, due to their large size and instability. Also as in the previous examples, these bags tear easily and the contents cannot be closed, so that either the contents are fully consumed or a certain amount is consumed and the rest is thrown away.

[0015] Fifth example: envelopes. These are often used for dried food which is then cooked by pouring it into boiling water, for soups and several other products. This example is mentioned not because there are any problems for the consumer, but rather for the manufacturer since when they are sold in supermarkets they generally come in packs of 4, 6 o more envelopes, and the only available means for this is to wrap the envelopes with a transparent plastic wrapper, resulting in a poor presentation. These wrappers are generally not recyclable with the ensuing waste of raw materials and ecological damages.

[0016] Sixth example: Tetra brick systems. This is without a doubt the most widespread system worldwide and the one sold the most, since practically all liquids manufacturers use it. Just to cite a few: fresh milks and its varieties, fruit juices, wine, sangria, etc.

[0017] This type of container is practical and shock resistant but does have a few problems. Firstly, it is opened at the corner of one of its folds, which are provided with small orifices which mark the cutting line. This is often poorly torn manually or cut too large with scissors. In both cases liquid is spilled unnecessarily, and the consumer must go to the trouble of cleaning it up. But the main inconvenient of this container is that it cannot be recycled so that as in the previous example raw materials are wasted and pollution is caused. Regarding this two systems must be commented which partially solve the problems by means of small lids, which deal with the spillage and the lack of protection of the contents after opening, with the ensuing entry of dust, bacteria, etc. One of the lids does somewhat achieve this, but the other is rather deficient since it leaves a residue of liquid in its perimeter and with milk this may ferment when in contact with air, and it does not provide proper pouring of the liquids. The other does solve this quite adequately.

[0018] Seventh: glass jars and the like. The main disadvantage of glass is probably its fragility since it will crack with a light impact, but its weight should also be mentioned since manufacturers choose to employ thicker glasses to achieve greater resistance to impacts, and cannot make the walls any thinner, as for example in a jar of marmalade, since they would be too fragile. Its virtues are one hundred per cent recyclability except for a few varieties, cleanliness, hygiene, transparency and adaptability to any container shape. Due to this the glass food container industry is somewhat inactive.

[0019] Eighth example: Plastic jars and cardboard or plastic boxes have a single problem, which is that nearly all of these containers lack a lid suitable for pouring the contents into a plastic jar. For example chocolate milk powder jars have the traditional threaded lid, and once removed a spoon must be used to consume the product.

[0020] Plastic boxes are generally provided with round, square or oblong lids but as in the previous example have no system for dosing or pouring. An example would be a box of chocolates.

[0021] All of the above is necessary in order to understand all the practical solutions which may be offered by the multipurpose frame for all types of containers with lids and anchoring bases.

SOLUTION TO THE EXPOSED PROBLEM

[0022] The solutions are several, and the applications for the different food and cleaning products, etc. are varied.

[0023] In the first example, referring to cereal boxes, the first reliable and practical solution would be attaching to the side of the cardboard box a lid which also joins the bag to the box. This lid is retractable, with a small mechanism which allows the consumer to pull out the dosing or pouring lid or to put it back in.

[0024] The second example referred to packages lacking boxes (Note: these are referred to as packages although they are bags in some cases, to distinguish solids from liquids or one type of product from another.) Some were mentioned before, such as packages for rice, sugar, lentils, chick peas, pasta, coffee, chocolate milk powder, flour, salt, biscuits, all types of nuts, almonds, hazel nuts, popcorn, sunflower seeds, etc. as well as an endless list of food products and chemical cleaning products, etc. The problem arising in these is that the containers are prone to tearing and the products must be transferred from the first package to a second one for a more efficient use of the food. The solution of this problem lies in providing these packages with a

means of preventing the tearing of the packages, and also to provide a lid which allows using the first package, i.e., that of the manufacturer, to pour or dose the product.

[0025] The third example deals with a type of bag which contains milk. When the bag is opened manually, part of the content is often spilled when transferring the contents, and the bag must be placed in a jar or the like due to its lack of stability. The solution to this problem is to provide the bags with a frame which contains them and gives them balance and stability, as well as a lid to dose out the contents.

[0026] The fourth example refers to another type of bag used for potato chips and the like, where the problem is that the bags are unstable and because of their size large shelves are needed in stores to keep them from falling, as well as being prone to tearing when opened. The solution is the same as for the above examples: providing the bags with lids suitable for each type of food product and a frame which keeps them in a vertical position.

[0027] The fifth example dealt with the fact that precooked food envelopes were poorly packaged when they are sold in sets of several envelopes, as a plastic wrapper is generally placed around them. The solution to this problem is to join several of these envelopes together by a structure which makes up a frame and keeps the envelopes aligned and with a pleasant image for its presentation.

[0028] The sixth example is the tetra brick, which besides being the greatest seller worldwide is very efficient in resisting impacts since its structure will deform but not break. But it suffers from one of the greatest problems of mankind which is environmental pollution, since this type of container is not recyclable as the plastic, aluminium and cardboard layers are difficult to separate since they are stuck to each other. In addition its opening system is poor and as in the previous example of the milk bag when it is opened some of the contents are almost always spilled.

[0029] The solution is to provide a new opening system which doses the content and makes the container close tightly.

[0030] The eighth example was plastic jars and plastic and cardboard boxes, which had the disadvantage of having to unscrew a lid in plastic jars and use a spoon to extract the contents, or for boxes, such as a box of chocolates, a square (or any other shape) lid must be opened in order to extract the product.

[0031] The alternative, as in the previous cases, is providing these containers with lids for manual or automatic extraction of the product, without having to open the package each time, whether it is a screw-on lid or any lid under pressure, etc.

ADVANTAGES

[0032] The advantages of this device are valuable due to the large variety of possible applications in all packaging systems which now exist.

[0033] These advantages are the following:

In first place and of great importance, the container frame, lids and support bases are fully recyclable since the material would be a non-polluting injected plastic.

Secondly, and of equal importance, since it is a container frame, it is a structure which can contain packages of any shape inside it, since the structure which gives it its shape can assume any shape for supporting any packaging system, to wit:

Glass. The glass industry has reduced its enormous production of yesteryear due to the appearance of plastics. The container frame may offer the best worldwide alternative for manufacturers of all sorts of glass containers as well as new industries since new containers with thinner walls may be manufactured. Firstly, this would reduce manufacturing costs since present containers have, as mentioned above, very thick walls to provide a certain resistance to impacts, but are nevertheless still likely to crack due to accidental impacts. Secondly, by reducing the thickness the weight is also reduced. Present containers are quite heavy compared with plastics. If their weight is reduced it would result in a great advantage for consumers as they would not need to carry as much weight. In third place the container frame would protect these from impacts since it is specifically designed to prevent direct blows on a container inside it. This is why these new lighter containers could be manufactured and protected from accidental impacts. Fourthly, as the device allows attaching a dosing lid to any system glass containers could be provided with these by suitable openings, with the resulting advantages both for glass manufacturers and the consumers. It opens a world of possibilities for manufacturers to create new types of containers which do not exist yet since glass is limited now, and consumers are provided with a practical solution by this coupling of glass containers to the frame since the containers would not crack, they would be lighter and they would have lids designed to facilitate consumption of the food or any other products.

Packages with an inner bag. These containers had problems discussed for the cereal boxes among other similar packages, a difficult opening system, tearing of the inner bag, spillage of cereal, etc. Here, as the packages are provided with a lid on a side which joins the bag to the

cardboard box the following advantages are obtained:

First, neither the box nor the bag containing the product need to be opened.

Second, a clothespin or similar is not needed as in order to use the product it is only necessary to open a simple mechanical lid and pour out the contents, thus preventing any spillage of cereal or any other contents.

Third, anyone may open this lid easily, particularly children since it has been designed with a six-year old in mind, regardless of their manual dexterity. In addition the use of scissors or any other sharp or pointed tools is not necessary to open the container and so any accidents are prevented related to an incorrect use of these by children.

Fourth, a new line of sales is opened for manufacturers, since this would provide consumers with a practical means of consuming cereals etc. and also prevents them from becoming stale since the covers are sealed and stop air from entering and spoiling the contents, thus making them uneatable, as well as preventing microorganisms from entering with the resulting increase in hygiene.

Packages without an outer box. Regarding this type of package a similar situation is described as for cereal packages, albeit more serious since the packages or bags of certain food products lacked boxes and were therefore more prone to tear and break due to accidental impacts and in opening them. The advantages would be several: one would be preventing tearing of the container in any situation by providing them with the container frame, since none of these packages are protected. Another would be providing them with a retractable lid since now no lid can be placed on them as they are not rigid enough. The advantage is that the frame provides support both for the package and for the lid, and also prevents, as in the previous case, certain foods from spoiling, being accidentally spilled, needing a clothespin to close them and transfer of solid products from a first package to another more stable vessel.

Bags for liquids. When these were discussed it was mentioned that they were used almost exclusively for milk, that they had virtually no stability and that their opening system was poor.

The advantages upon providing the container frame would consist of not having to place them in a jar to keep them vertical, and by providing them with a lid the liquid would be perfectly poured out. Also a clothespin would not be required since the lid would seal perfectly and furthermore thousands of bags could be used to contain several liquid products since together with the container frame they would be very practical.

Potato chip bags and the like. Their characteristics, as for the previous bags, is a lack of stability, tearing and lack of a closing system. The main advantage is providing the package with stability and vertical position so that they do not fall off shelves, so enabling a reduction of shelf size, as well as all commented above for the other packages.

Envelopes. The only use for these would be to hold two or more envelopes in a container frame as well as placing different products together. The main advantage would be a better presentation of the manufacturer's products.

Tetra brick system. The advantage with regarding this system is that the container frame is fully recyclable and the Tetra Brick is not; the container frame would likely be a good alternative as it is equally light, can have the same format and size, is crushproof and hygienic, has an improved closing lid system, has low manufacturing costs, can be made flat and given its final shape later, etc.

Plastic jars, plastic and cardboard boxes. The main advantage would be to provide a dosing lid which would extract the contents or a retractable one to pour the contents.

[0034] In view of the above, we can say that the MULTIPURPOSE CONTAINER FRAME FOR ALL TYPES OF CONTAINERSWITH MECHANICAL LIDS AND SUPPORT BASES betters all other systems due to the following:

A: It can contain both solids and liquids for human or animal consumption, cleaning, etc.
B: It is impact resistant.
C: It can be manufactured flat or disassembled and its shape decided upon packaging the product, with the resulting reduced transport costs.
D: It is lightweight and hygienic.
F: It is fully recyclable since the container inserted

in it can be mechanically separated and the container frame is made from a recyclable plastic.

G: A new field may be created for the glass industry with the resulting advantages.

H: It may provide all present packaging systems with a set of special mechanical lids which forever eliminate the problem of tearing the package when opening it. In addition it will prevent accidental spilling of liquids and so wetting of surfaces or loss of solid product, and having to fold and unfold bags and using a clothespin to close them, also preventing the products form being spoiled early, since all lids are sealed tight. It will also simplify opening cereal packages for children or adults, since it will be enough to pull on a seal and pull out the lid. It will avoid having to transfer the contents from the first container provided by the manufacturer to a second one available at home since the manufacturer's container upon being contained in the Container Frame will enjoy all of its advantages making the container a practical solution for the consumer and a valuable addition to the manufacturer of containers or packaged goods.

I: It can contain and receive all existing packages: bags, packages with bags, packages without bags, envelopes, jars, and boxes made of glass, plastic or cardboard, etc.

J: It can include several identical or different packages in one or more frames.

K: It can include two or more identical or different products in a single frame or in several.

L: The frames can be mechanically joined for a better and more ordered storage.

M: It provides any bag or package with a great stability.

N: It provides any packaged good with a new look since the frames, lids and bases may be made in any colour.

O: It can be placed on a wall by means of a quick attachment system so that a product can be used more easily with one of the dosing lids, such as a salt package for the kitchen.

EXPLANATION OF THE OPERATION AND DRAWINGS

[0035] The multipurpose container frame for all packages with mechanical lids and support devices consists of three main parts:

1.- A frame formed by a multitubular structure which may consist of rods, plates or walls.

2.- Lids which may be retractable, sliding, folding, dosing etc. provided with small mechanisms for carrying out their function, whatever this is, also closing tightly and attached to packages of all types, with or without a container frame.

3.- Bases which can be attached to the frames mechanically or manufactured in the same mold as the frame, which support and join any package and lid.

[0036] The operation and drawings are explained in figure 1, an elevation perspective view.

[0037] The structure which makes up the frame consists of rods 1, 1s and 1i. Rods 1i act as a lower base for the set. Rods 1s form the upper base and rods 1 are vertical and join 1i and 1s at the corners.

[0038] The frame consists of four flat faces shown on the cross on the figure as I, D, P and F. I is the left face, D the right, F the front and P the rear.

[0039] These faces are joined by hinges 2 and can be closed since rods 1 are vertically cut, see figure 2A which shows the four faces unfolded. Note hinge 2, and hemispheres 5 under which are double-ruled rods 1.

[0040] When the set formed by the four faces is folded, see in figure 2A arrows O which show the folds of the faces, its structure is formed, as a container or cage that holds bag 5 of figure 1, which is held by tabs 7i and 7s which hold in place tabs 6 of the fold of bag 5. Tabs 7 are joined to anchoring bases 8, which are joined to rods 1i and 1s by their longer sides, which are I and D as shown by the arrow in figure 1, with the bases being held by their sides by grooves 9 which are held in place when the sides of the frame are closed by rods 1i and 1s, since these rods are left inside the grooves which surround them.

[0041] At the ends of each corner formed by rods 1, 1i and 1s are balls 4 which add stability to the frame as well as providing a means of lateral or top attachment to another frame.

[0042] Front F, as shown by the arrows, is attached to base 8A which snaps into two grooves 9A by rods 1. Rods 1 are inserted in grooves 9A by pressure; that is, as the rods are flexible they are bent outwards slightly to reach grooves 9A. Attachment is performed on front F.

[0043] In its centre is retractable lid 10, which is connected to main frame 11, and this is set in an orifice with a shape suitable for this lid and on the back it is joined to bag 5 by a counterframe inside it and which joins the bag to the base, since this counterframe is inserted in a rear housing of the main frame of the retractable lid. The bag is joined to the base by the counterframe pressing on the rear end of the main frame and catching the bag in between, which ahas an opening which is identical to that of the base itself.

[0044] Since lid 10 is joined to bag 5 and both are firmly attached to frame 1 through base 8A, the bag is provided with a retractable lid (figure 9) which can be pulled out or retracted into the bag, so providing a simple bag with a practical lid which closes tightly both for solids and liquids.

[0045] Likewise, frame 1 makes this bag stable as it is supported by its two upper and lower tabs, leaving it in a vertical position.

[0046] It also grants the possibility of joining several bags by frame 1, whether several in one frame or in several frames.

[0047] See figure 16, which shows two frames with an anchoring and junction device 2, 3A, 3B and 4.

[0048] The above description is based on figure 1 as an example of a frame with a common bag, but all is applicable to any existing package of any shape or material. A more detailed description follows of each part of the multipurpose container for all types of packages with mechanical lids and anchoring bases.

(FIRST PART: FRAME)

STANDARD FRAME

[0049] See figure 2 which shows an elevation perspective view. The frame consists of a set of rods 1, 1i and 1s which form 4 independent faces, see figure 2A, attached to each other by longitudinal hinges 2 on vertical rods 1.

[0050] In order to form the frame structure, the faces must bend or twist inward as shown by arrows O of figure 2A. Closing or anchoring of the structure is achieved by small lugs 3 (see figure 1) showing their alignment which come out of the plane of slit rods 1A (figure 2A) where lugs 3A engage small orifices 3B provided on a slit rod 1B on the other end of the set of planes.

[0051] In principle flat structure will be built with 4 or more sides, depending on the shape desired, as shown in figure 2A, so that more units can be shipped together.

[0052] Also in figure 2 are shown rods 1i and 1s inside which are flaps 4i and 4s, meant to attach and support the package supporting bases (figures 5, 6, 7 and 8). These flaps 4i and 4s could be in the position shown or in any other.

[0053] Sides shown by arrows F, P I and D and the inside of the rectangle formed by rods 1 contain frames 3 which provide the frame unit with extra stability.

[0054] The corners formed by rods 1, 1i and 1s contain balls 6 which stabilise the frame and allow to attach frames to each other at vertical rods 1 by tabs 5 (figure 16) as clamps which engage notches 6 in the same figure.

DOUBLE OR TRIPLE ROD FRAME

[0055] Shown in figure 3 is another alternative embodiment of the container frame with its structure formed by double vertical rods 1 joined to each other by hinge 2. This solution will be used when great rigidity is required to contain certain packages, such as a glass jar, or to contain to or more packages next to each other or one above the other in the same frame.

[0056] As shown in figure 3 rods 1 are round and are not slit as rods 1 of the frame in figure 1, so that this structure provides a stiffer frame.

[0057] Likewise, balls 6 are double and are not slit as those of figures 1 and 2A.

[0058] Inside the square formed by rods 1i and 1s are support flaps 4i and 4s which can be placed on any of the planes of the structure. Orifices 5 are used to attach one of anchoring devices 2 of a base (see figure 7). The frame may lack these depending on the base of the lid to be added to the package, see figures 5 and 6. Inside the square formed by rods 1 and emerging from these are frames 3 which stiffen the planes as in the previous example of figure 1.

[0059] Another possible embodiment of this frame would be with three vertical rods 1 with two hinges 2 as in figure 3, in which case one rod would be in the middle and the other two would bend next to balls 6 and their respective sides F, P I and D, and the central rod would not have a ball on its upper and lower ends.

[0060] The set of planes which make up this double rod frame structure is achieved by a groove 7 (figure 3 and 3B) which comes out of one rod 1 at the end of a plane F, P, I or D. This groove 7 is placed so that the rod on the other end fits in it, thus closing the set.

[0061] In the frame with three rods 1 the corresponding face will have the anchoring intersection for the central rod and one of the rods on the opposite side of the faces.

INDEPENDENT WALLS OR FACES FRAME:

[0062] This is a frame with its faces loose or independent (see figure 3). Each of the faces F, P, I and D are made complete so that each would have two rods 1i and 1s, and another two rods 1. The attachment would be achieved by a groove 7 on each side (see figures 3A and 3B).

[0063] This independent face arrangement is useful for making different frames with the faces or sides of different models, thus reducing manufacturing costs for molds as a full mold is not required. For example, 16 different models could be made from 4 molds.

SINGLE BODY FRAME

[0064] This frame can be made in a single piece (see figure 1), i.e. its sides F, P,I, D are joined to each other since this structure would be made from a single mold. This could be useful in containing several envelopes, etc.

PLANES FRAME

[0065] See figure 4. This frame consists of vertical planes 1 which are plates which form edges or corners and which are connected on their lower end to other similar but horizontal planes 3i and 2i, and on the top to 3s and 2s, with the sides connected through hinges 4 (figures 4 and 4c). Figure 4c shows anchoring 6 which is a curved flap arising from one end of the side. Along

its length are small orifices where small lugs 7 present in the inner wall of the opposite face are inserted (figure 4c). When both ends are inserted the frame is closed firmly joined by 6 and 7. Figure 4 shows orifices 5i and 5s present in 2i and 2s which anchor the base of figure 7 or another similar one.

[0066] Due to its flat side structure the planes frame allows joining plastic films by their vertical sides or any other side, with the set being closed by an upper and a lower base. This configuration would be optimal for sweets or other products.

[0067] A lid may be placed anywhere, although ideally it would be at the top.

WALL OR HALF-WALL FRAME

[0068] This is a frame with walls on its vertical sides (se figure 4). These could be present on all sides except those where the anchoring and support bases must be placed. Otherwise it is identical to the plane frame.

HALF-WALL FRAME

[0069] See figure 4. Vertical sides F, P, I and D could have half-walls of an undefined shape to provide a larger support base for a user's fingers or to form the product or brand names. These half walls can be used in any of the embodiments described.

HALF-FRAME

[0070] This is an frame which is incomplete, either on its upper or lower end (see figure 4) with plates 2s and 2i. This structure allows attaching a half-frame to a package such as a cardboard box. The union could be achieved by eliminating plates 2s and inserting the box through 3s, so that it is trapped inside the half-frame and stuck to it by glue or a similar means. This configuration allows to add to a package a useful device without incurring in great production costs by making alterations in machinery.

[0071] In view of the above alternatives, a description of their common characteristics and their variations follows.

[0072] All frames lids and bases can be made from injected plastics or any other recyclable or biodegradable material, as long as standard measurements are set.

[0073] Lids are common to all, as well as bases whenever the anchoring system for the bases is suited to the frame model.

[0074] All frame models may contain may contain any type of package containing any product except the half-frame since it is designed for cardboard boxes or the like.

[0075] The frames may be made in a single piece, in a plane containing the sides which are connected by hinges, in independent sides, with walls, with plates at angles or with half walls. The rods may consist of one, two or three vertical rods. Likewise the upper and lower rods may be double or triple.

[0076] The rods which make up the structure of the frame may be placed at any position and area.

[0077] The walls which make up the structure may be of a single piece or with shapes providing areas on the frame so that it is easier to hold by a user. They may also have protrusions, lettering, holograms, divisions, etc.

[0078] The shape of the structures which make up the structures from the lower base may be cubic cylindrical, cubic square, pyramidal, spherical, cylindrical, all prisms, square, rectangular, oval, pentagonal, hexagonal, octagonal, or all the above prisms with unequal sides, as well as any other particular shape required.

[0079] The rods may be round, triangular, square, rectangular, oval, double ruled, pentagonal, hexagonal, octagonal, solid or hollow, etc.

[0080] The corner balls may be solid or hollow, cut in half or of any shape which matches the rods, for example square rods with corner balls in the shape of cubes, etc. although spherical balls will be used in principle. Figure 16 shows a special shape of balls 2, 3A, 3B and 4. Balls 2 and 3B are shown in cross section so that the inside is visible, showing two small orifices on the lower side A and B and another two on the right side C and lug D on the left side.

[0081] On the same figure are balls 4 and 3A. Balls 4 have two lugs , G on the left and F at the top. 3A have a hole I on the right and have lugs H on the top which provide the correct orientation of the frames.

[0082] Suppose we wish to link frame A and frame B on their sides. Figure 16 shows at the centre of both frames lines X which show the alignment of both frames for their coupling. Balls 2 and 3A of frame A are opposite balls 3B and 4 of frame B, so that hole 1 of 3A is opposite lug G of ball 4. On the lower side hole C of ball 2 is opposite lug D of sphere3, so that when the two frames are placed opposite each other the lugs enter the corresponding orifices and the frames are anchored by tabs 5 on the right vertical area of a rod 1 of frame A which engages notch 6 in frame B, thus firmly securing the unit.

[0083] The union at the top is achieved by lugs F and H of spheres 4 and 3A of the top of A, with holes A and B of balls 2 and 3B of the bottom of frame B as in the previous case, anchored by tabs 8 of frame A which latch onto lower notches 7 of the bottom of B. It must be explained that each frame has two tabs on the top and two notches on the bottom, as well as four lateral clamps on the right and four notches on the left, since the drawing shows an elevation and the side is not shown. The position of the clamps and the notches can be any, as well as their number.

[0084] All frames may be hung on the wall by a system of long plates with a device using clamps or similar means to attach or anchor the frame. These anchoring

devices can be stuck to the wall by an adhesive strip when applied on tiles, such as in a kitchen for a salt package with a dosing lid. This is a practical example where the package does not have to be taken out of a cupboard and returned to it.

[0085] The anchoring plate may have two or more attachments which can also be longer or shorter, depending on the number of frames to be hung, and it could also be screwed on as it has orifices available.

[0086] All frames may be mass produced by cutting them on the suitable face depending on the shape desired for them, on the fourth side for square frames, fifth for pentagonal frames, and so on for each shape of the structure.

SECOND PART BASES.

BASE ANCHORED BY LOWER GROOVES AND PACKAGE HELD BY CLAMPED TABS

[0087] This type of base may hold any package with tabs.

[0088] See figures 1, 5, 6, 7, and 8.

[0089] Figure 1 shows two bases 8 with tabs 7i and 7s each. Which clamp one end of bag 5. The flanges are firmly held by two tabs 7 of figure 1. Figure 6 shows the flanges 6 of bag 5 held by tabs 7 being bent as these have inclined planes 7B which come out of base 8, and have toothed cogs 7A on their top vertical plane which engage each other.

[0090] When the flange is placed on base 8 the two tabs are pushed outwards, towards split rods 1, making teeth 7A retract, so that the teeth bite the flange and immobilise it.

[0091] Base 8 is held to the container frame by the anchoring of two grooves 9 which are housed in vertical rods 1 when the frame planes are closed (see figure 2A).

[0092] This same anchoring base can be used to hold the lids , except that they will be placed by applying pressure on the plane where the lid is to be placed (see figure 1). As shown in the drawing base 8A is inserted between the two vertical rods 1. To proceed with its anchoring the base must be pushed through front F towards rear P.

BASE ANCHORED BY OUTER GROOVES AND PACKAGE HELD BY DOUBLE CLAMP TABS.

[0093] This type of base is ideally suited for holding any type of package, but particularly those having two flanges in its ends.

[0094] As shown in figure 5 a package 6 has two lower flanges 5 which are clamped by four tabs 3 forming two pairs of clamps. These clamps come out from base 1 and hold flanges 5 by small teeth in the inner side of tabs 3. See teeth 7A in figure 6, identical to those in the two pairs of clamps of figure 5. Package 5 is firmly held since the teeth bite into flanges 5 of the package.

[0095] Anchoring to the frame is achieved by two curved grooves 2 which come out of the longitudinal sides of the flat base 1 so that they engage two vertical rods, although they may be found in other parts of flat base 1, and so anchor onto other rods of the frame. The base will be anchored both on the inside and on the outside.

[0096] It must be mentioned that normally the package will be held by two anchor bases, a top and a lower one, but this system could be used only on one side and another one suited to the package used on the other side.

BASE ANCHORED BY LUGS OR STAPLES AND PACKAGE HELD BY WIDE CLAMPS

[0097] This base can hod all types of cardboard packages or boxes or any other similar packages.

[0098] Figure 7 shows a package or box 7 resting on flat surface of base 1 with its sides held by flexible tabs 5 on the base. As shown in the drawing they are curved, with a vertical upper plane where opposite each other and on the inside are teeth 6 which bite into the sides of the package and hold it firmly by the cardboard surface or any other.

[0099] Base 1 will be held by flaps 3, see 4i, 4s figures 2 and 3, 2s and 2i figure 4 and figures 2A, 3B and 4C. These figures show small orifices 5 which receive lugs 2 (see figure 7) which have small grooves which couple onto the diameter of orifices 5. Figure 7 shows a section of lug 2 in plane 3 which emerges from rods 4. This type of anchoring allows a large diversity of positions, since these small holes can be made in any area of a frame and any base can be combined with the anchoring and the package.

BASE ANCHORED BY GROOVES AND PACKAGE HELD IN A RECESS

[0100] This anchoring base holds glass or plastic jars, metal or cardboard boxes and any other similar packages of any shape.

[0101] Figure 8 shows a package 6 in a vertical base 5 which forms a housing suited to the type of package to be held. Under the base is plane 1 with profiles 2 with a slit midsection, where flaps 3 from rods 4 are inserted.

Base 1 is held when the frame plane is closed or folded (see figures 2A, 3B and 4C which show flaps 4, 4s and 2s).

[0102] In view of the above description of the alternative anchoring bases below is a description of their common characteristics and their variations.

[0103] All bases can be adapted to all frames.

[0104] All bases can be combined with each other, i.e. as shown in figure 5 support tabs 3 could be placed in the base of figure 7 and vice versa.

[0105] The anchorings can have hundreds of shapes as each package may have a means of anchoring which is particularly suited to it. The previous examples are universal alternatives.

[0106] All bases stabilise and stiffen the frames and absorb impacts since some can move longitudinally along the rods. When the frame suffers an impact the anchoring grooves remain fixed but can move slightly, thus preventing the package from breaking since it will not receive the impact directly.

[0107] All bases can be combined with all lids, as well as holding the package from the rear (see figure 1). The counterframe holds any package wall against the rear of the anchoring base and the main frame of the lid would be in front, connected to the counterframe or the model or alternative chosen.

[0108] All bases whether for holding a lid or any other device of the container frame may be placed in any position and its shape and size may vary. Anchoring of the bases to the frames can in principle be both on the left and right sides (see figure 1) but may be different on the front and rear. Likewise, they may be placed in any position desired, that is either horizontally or vertically.

[0109] As for the frames, the bases will be made from a fully recyclable plastic which can be incinerated harmlessly.

[0110] The bases may be manufactured together with the frame. Figures 2A, 3B, 4C and 5, 6, 7, and 8. Figure 2A shows flaps 4 which may be replaced by anchoring base 1 of figure 7 which would be split into two halves and the outer sides would come from rods 1 on the corresponding sides so that the final product is the same as shown in figure 7 where tabs 5 with teeth 6 are facing each other.

[0111] Therefore, the anchoring base of figure 7 would lack lugs 2 and the base of figure 2A would also lack support flaps 4. This way flanges 5 hold package 7 by closing the frame (figure 2A) as when the sides come towards each other the tabs and their teeth will also. Regarding the teeth, it must be commented that other alternatives with analogous purposes will exist to hold or clamp the surface of the packages. All of the above can be applied to all models of all bases, so that the bases can be made directly together with any of the frames, with a division so that the plastic mold can be removed.

[0112] Since the required support may lack when applying these alternatives so that the frame is rigid enough, profiles 2 may be added on the centre and sides (see figure 8) with a groove in the middle so that the two halves of the base may be joined at the middle or by either side to provide the support points with the lugs, grooves or grooved profiles. Any other anchoring device which provides stiffness may be used to join the base by its centre or a side.

PART THREE: LIDS

RETRACTABLE LID WITHOUT A COUNTERFRAME

[0113] This is a lid for dosing or pouring solids or liquids which is retractable, i.e. it can be pulled out from or pushed into the package.

[0114] Figures 9 and 9A describe it. Figure 9 shows a side elevation of the cover where 1 is a flat lid which opens outwards, see arrow L showing the path of the lid, F is the front and T the rear. The upper part of the lid, A, will have a surface inclined towards the front so that the lid can be pulled out or in with the fingers.

[0115] The lower side of lid 1 has a triangular projection 10 (figures 9 and 9A) which surrounds the perimeter of the recess formed by the two vertical sides 2 of figure 9. These sides form a curved recess and have two curved areas, one formed by upper edges 2A and the other by lower bridge 9.

[0116] Lid 1 is held by hinge 11 (figures 9 and 9A) to the frame 3 with its axis below lower curved bridge 9 and coupling edge 4.

[0117] Frame 3 will be glued or held to the front of wall 7 of the package.

[0118] In order to pull out the lid the projection of upper area A of the lid is pulled using the fingers. The lid will come out following a curved path towards F and will be separated from the frame due to hinge 11, which also acts as the rotation axis of the lid. When it reaches the end of its path lid 1 will be stopped by stop frame 6 (figure 9) which will be inserted by pressure inside the recess formed by the sides 2, lower bridge 9 and upper bridge 8, which have small teeth H (figure 9) present on their entire inside of their rear edges and will engage those on the outside of the stop frame. See the enlargement in the same figure.

[0119] The stop frame acts as a stop with joint 5 which is glued to the inside of package wall 7, so that the inside of the package is sealed and nothing can leave through the inner or outer edges of the inlet opening BE which is the inner perimeter of coupling edge 4, shown in figure 9 by line BE for the product in the package reaching the outlet opening BS.

[0120] The lid has teeth D and C which lock lid 1 as it opens and closes. Tooth D is on the lower edge of coupling edge and fills the space of inlet opening BE horizontally, and tooth C is on the sides of opening BE, forming a corner with D and vertical, as shown in figures 9 and 9A.

[0121] When lid 1 is pulled out it will be locked when the above teeth engage other teeth D2 and C2 which are in the rear area T of curve 2A. Teeth D2 are on the upper area of bridge 8 and horizontal. C2 are vertical on the side of sides 2 so that it forms a corned with bridge 8.

[0122] When the lid 1 is pulled back in teeth D1 and C1 on the front F of curve 2A will be engaged, D1 horizontally on the forward part of the lid and C1 on the flat

sides 2 and vertically.

[0123] Locking is achieved because movable teeth D2 and C2 upon opening, and D1 and C1 upon closing press against fixed teeth C and D and engage them, so that lid 1 cannot move while pouring out the contents or remains tightly closed sealing the package.

[0124] The set of lid 1 and main frame 2 will be manufactured as a flat piece so that the mold can be removed Figure 9A shows the full set of parts which make up the retractable lid with it open and flat, and it will assume its operational shape when lid 1 is folded at hinge 11 against main frame 3, so that the recess formed by sides 2, the lower bridge and the upper bridge pass through opening BE and the recess is inserted but free to move forward and backward tightly fitted against the walls of opening BE.

[0125] In order to close the lid it can be pushed back with the fingers through projection A in figure 9 towards T as shown by line L until triangular projection 10 of the lid stops against joint 5A.

[0126] This lid can be considered universal since it is cheap to manufacture and is not expensive to introduce in present packaging systems. As its name states it lacks a counterframe and could be applied to any package of any shape or material. It is primarily designed for cardboard boxes or packages without an inner bag but can be combined with any package, even a glass one, or with any container frame.

RETRACTABLE LID WITH COUNTERFRAME

[0127] See figure 10. This lid is identical to that of figure 9 except for a few differences. Figure 10 shows upper bridge 8 and curved bridge 9 protracted towards part T (see figure 9). This elongation allows a larger separation between the stop frame 6 and the flat rear area of frame 3 (see arrow X1 which indicates this extra separation and arrow X of figure 9 where the shorter separation is seen). This extra length of figure 10 is needed to anchor this lid to a frame with a base, and to anchor the package at the rear (see figure 10, an elevation). Frame 3 is seen first, with the base of a frame or the cardboard wall of a package with an inner bag placed behind it. Behind the base would be a wall of bag 7 and after this bag closing and firmly holding together the set would be counterframe 13. This counterframe would fit in coupling edge 4 of figure 10, which has teeth around its perimeter on which the counterframe is inserted, since it has similar teeth on the inside. The wall of bag 7, the base or cardboard box 12 and the frame 3 in front are completely pinned to each other, forming a sandwich, since counterframe 13 has teeth along its plane which is opposite bag 7 as can be seen in the drawing, for which reason the bag will be firmly held next to the others so that the coupling perimeter is tightly sealed.

[0128] Otherwise the lid of figure 10 is identical to that of figure 9.

SIMPLE RETRACTABLE LID

[0129] See figure 11. This is a variation of the retractable lids of figures 9 and 10, without the lower bridge 9 and so it does not cause the recess to move forward as the other two did, since as shown in figure 11 the lid 1 has a plane 9 joined to it by hinge 6 coplanar to it, so that when it is closed the lid and hinge 6 and plane 9 will be left opposite the plane of the main frame 3. The difference when opening it is that lid 1 has hinge 6 and the turning axis placed exactly at the outer edge of opening BE, as shown in the enlargement in the drawing where plane 9 is left next to the forward part of main frame 3 and above these is hinge 6 with its axis next to coupling edge 10. When the lid is pulled out forward along with the sides 2 and bridge 8 it will stop against the small tab 4 which is connected to the upper part of bridge 8, and against the coupling edge 10 at its rear end T.

[0130] Frame 3 will be connected to the wall 5 of any package by gluing or other means.

[0131] Otherwise it shares the characteristics of the lids of figures 9 and 10. This lid has been designed as an cheaper alternative as it does not have bridge 9, stop frame 6, counterframe 13, teeth coupling to the opening BE to engage the counterframe, see figure 11.

[0132] Regarding its manufacture, lid 1 and sides 2, the upper bridge 8, hinge 6 and its plane 9 are made in a single piece, whereas main frame 3 and coupling edge 10 will be a different piece and plane 9 of the lid will be joined to the main frame by welding or glue.

[0133] This lid is ideally suited for cleaning or similar products although it can be used for any product which does not require a sophisticated lid.

RETRACTABLE LID WITH PROTRACTABLE SIDES

[0134] See figure 12, 12A and 12B. This is a lid 1 with zigzag folds in its sides 2 which extend when the lid is pulled out and fold in when it is closed. This lid unit has curved bridge 10 in its lower end between sides 2, so that when lid 1 is pulled out it is locked at the end of its path due to a toothed area 8 at the end of bridge 10 which engages teeth on the upper part of coupling edge 4, so that it is located beneath 8. When the lid is fully opened it stops against a small tab 9 which bears on the rear of the coupling edge 4 as the tab is vertically positioned.

[0135] Main frame 3 will be connected to the wall of package 6 by glue or a counterframe.

[0136] When lid 1 is retracted by pulling on projection 11, this will stop against its flat upper face 1 on wide joint 5 as shown in figure 12B, thus tightly closing opening BS since the zigzag folds 2 seal the ends of joint 5 by touching its ends and the lid will be locked in place by two tabs 7 which come out of main frame 3 which are inserted in the upper end of flat edge 1 and on the sides of projection 11 as in figure 12B.

[0137] In order to pull out the lid it is sufficient to pull on projection 11 until the resistance of tabs 7 is overcome, and these will disengage themselves from lid 1.

[0138] Sides 2 have a U-shaped outline and their inner folds will be housed inside the rear area of the plane of lid 1 and a lower fold with a vertical edge 12, which forms a slot E. See figure 12A, where there is an arrow in the lower part showing the width of slot E and the folds of sides 2 housed in it. It can be seen how the final zigzag fold is above edge 12 of lid 1. Figure 12B shows the rear ends of folds A2 joined to the main frame by the front, and folds A1 are next to the rear flat end of the lid 1, and housed on their lower part so that when lid 1 is pulled out the lower end of the zigzag folds act as a hinge, since one end is inserted in slot E (figure 12A) and only the upper part can be pulled out since the folds are left free to be unfolded as an accordion.

[0139] This lid is an alternative to the above and may be suitable for cleaning liquids because of its closing system, since it is particularly well sealed by sides 2 which form a U-shape are fully sealed in its entire perimeter. It may be used for any other product as well and can be applied to any package, container or frame since a counterframe can be provided. It only has the union or anchoring devices to the package in common to with the others.

FOLDING LID WITH A POSITIONING MECHANISM

[0140] This retractable lid is ideally suited for packages which contain a long product such as spaghetti, but can be used for any other product - see figures 13 and 13A, which show lid 1 open and vertical joined by hinge 6 to a small edge 5 in a vertical position which emerges from the main frame 2. Joint 4 is glued above the horizontal plane of this frame 2 and under it is coupling edge 10.

[0141] On the opposite end to hinge 6 of lid 1 is projection 11 used to open or close lid 1.

[0142] The lid has a small toothed mechanism for positioning it open or closed which consists of a curved part 7 emerging from the inner end of coupling edge 10 and with teeth facing outward, which engage those of curved piece 7 in its lower side. Both when opening or closing the lid these parts will engage and position the lid.

[0143] When lid 1 is closed its lower flat surface will touch joint 4 by projection 3, thus sealing opening BS since tab 3 is inserted on the surface of joint 4.

[0144] Lid 1 will be locked when closed by tabs 9 which come out of the upper flat surface of the main frame and out of its front F. These tabs 9 are hook shaped and thus latch onto the sides of lid 1. In order to open it it will suffice to pull on 11 and overcome the resistance of tabs 9 until curved part 7 stops against pin 8, thus stopping lid 1 which will remain vertical as seen in figure 13.

[0145] This lid may be applied to any package or frame. It may be anchored by glue or a counterframe and manufactured in a single plane: lid 1 and main frame 2 will be joined by hinge 6 and will be in an operation a1 position when the lid is folded by hinge 6 towards main frame 2 until the teeth and the stops engage.

SIMPLE FOLDING LID

[0146] See figures 14 and 14A. This lid is similar to the previous one but with the following differences which make it simpler:

[0147] Figure 14 shows lid 1 without the teeth 7 and 8 of figure 13. Instead the lid has a groove 6 in its rear section, which directly fits in horizontal or vertical rod 7 of any container frame. Lid 1 will be locked in any position by groove 6 since it acts as the hinge and is tightly fitted around rod 7; since it is so tight it allows lid 1 to open or close but brakes it in any position.

[0148] It must be mentioned that lid 1 and main frame 4 are two separate parts, as opposed to the folding lid with a positioning mechanism.

[0149] Otherwise it is completely identical and can be applied as the lid of figure 13. It is designed mainly to reduce costs in molds since it is made from two separate pieces simpler than in a single mold as in the previous case. In addition it allows a wider application since it has greater positioning possibilities on any frame.

SLIDING LID WITH DIRECT ANCHORING

[0150] See figure 15. Flat lid 1 is directly anchored on lateral rods 7 of the frame by two grooves 3 on two longitudinal edges and in which are inserted rods 7 in a horizontal position so that they are firmly inserted but free to slide. Lid 1 will be free to slide by pushing it manually through projection 5 at its front upper end. Arrow B shows the path followed by the lid as it is pushed towards C indicating a closed opening position X, while when it is pushed in the other direction A it has an open position X since as lid 1 moves towards A outlet opening BS is opened.

[0151] Under lid 1 is joint 4, which will be glued to the top of main frame 2 along the perimeter of opening BS.

[0152] Lid 1 shall have a beveled recess 9 like a ramp on its lower area placed along the edge next to projection 5 and in front of it. This recess 9 allows lid 1 to slide over joint 4 without tripping on its surface.

[0153] Main frame 2 will be anchored to flaps 4s of a frame by a set of small lugs 2 as in figure 7.

[0154] Under main frame 2 is coupling edge 6 so that main frame 2 may be attached to the package. It must be mentioned that main frame 2 is an altered base, i.e. on one side it is anchored to the frame by lugs 2 of figure 7 and on the other it acts as a main frame 2 joining lid 1 of figures 15 and 15A to any frame.

[0155] The package may be joined to the main

frame 2 either by glue r a counterframe 13 as in figure 10.

[0156] The package is held by horizontal rods 1 of the frame in figure 2 and the base beneath it as in figures 5, 6, 7,and 8.

[0157] This sliding lid can be applied to any container frame and for any product, particularly for potato chip type bags.

SLIDING DOSING LID

[0158] See figures 17 and 17A. This is a lid which can extract a given dose of the product inside a container.

[0159] The dosing lid can be applied to any container frame on the underside, see figure 4, by a support base as in figures 5, 6, 7 and 8 or any modification of these. The frame of figure 4 will be anchored to a base by its lower end 2i. The package will be attached to this base by its lower end provided with an inlet opening, i.e. it will have an opening in its lower area of any given shape so that it matches another which exists in the support base, and beneath it the dosing lid will be attached with its coupling edge 1 (figure 17) inserting between the lower wall of the base and the package by a counterframe 13 (figure 10) latched against edge 1 of the dosing lid through the inside of the package.

[0160] The lid will be able to slide due to a main frame 3 provided with guides 3A and 3B as shown in the figures. Between these guides is a flat sliding base 2 which is free to slide.

[0161] In order to extract lid 5 it is sufficient to pull projection 6 by its front part forward and projection 6 will bend from a vertical to a horizontal position since it is provided with a hinge 8. When lid 5 begins to slide tab 10 provided with an oblique slit will overcome a wedge-shaped lip in front of it.

[0162] Since the lid is below the package, supposing the package contains powdered chocolate, as lid 5 is closed its concave shape is directly beneath coupling edge 1 which in turn is beneath the package. As the package is full of powdered chocolate this will pass through the coupling edge 1 and main frame 3 and end up housed inside lid 5, which as mentioned before has a concave-convex spoon-like shape.

[0163] Returning to the point where tab 10 overcame lip 11, spoon 5 will slide with the chocolate powder flat on it, reaching only the flat part, which is level 2A, since a flat guide 2 has a ramp-like oblique slit in its front part F behind tab 10, so that both sharp tabs 9A can be housed, bending from level 2B to 2A so that they have their edges tightly pressed against flat guide 2. As spoon 5 advances, tabs 9A will cut or drag away excess powder. At the end of its path it will be locked or stopped by a step 4 in its rear end which will act as a stop against upper guide 3A.

[0164] The user can thus consume the product by simply taking a spoon with the product in lid or spoon 5 and placing it in a glass or vessel where it is to be consumed. By closing the lid pushing on projection 6 towards the rear end T spoon 5 will return to its original position and be automatically reloaded with the product as it will be placed directly beneath the opening of main frame 3, so that the product will fall under gravity. As it slides backwards flat guide 2 will scrape against tabs 9B on the rear part of upper guide 3A and under it, carrying with it the powder which remains in opening of frame 3 and in spoon 5. This dosing lid is particularly designed for all products which are generally consumed using a spoon, such as coffee, chocolate powder, dry nuts, sunflower seeds, fried corn, etc.

[0165] It may however be used with semisolids with slight modifications, inserting a joint between flat guide 2A and tabs 9A and 9B. This semisolid product could for example be marmalade.

[0166] The common characteristics and variations follow below.

[0167] All lids may be provided with a seal with certain special properties. It is biodegradable, see figure 18, as it consists of a cotton or similar material string glued to the inside of a waxed paper surface 3, a wooden ring 1 tied to an end of string 2 with a section of string extending beyond the surface of seal 3, and a small wooden circle 4 tied to the string on the other end and glued to the inside of the waxed paper 3.

[0168] It is also easy to apply. Since it may assume any of the shapes of the lids, it will be glued to its outside as in figure 18, in any main frame of a lid or wherever it is more easily applied.

[0169] Thirdly, it is practical and easily removed. Figure 18 shows ring 1 which is used to pull string 2 so that when a user pulls on it, section 2A of the paper 3 will be torn until the string pulls on circle 4 glued to the inside of surface 3, causing the seal to split in two. One part, 3, will be left glued to the outside of the main frame of the lid, or anywhere else desired, an the other half of the seal will remain connected to the string by circle 4.

[0170] All lids may be made from the same plastic as the bases and frames.

[0171] Lids 9, 10, 11 and 12 may be made double, triple and quadruple by joining them by their lids and/or frames. Likewise, the shape of flat lids 1 as well as the main frames and all parts involved in coupling these may be square and rectangular horizontally and vertically, or any other shape which allows a proper operation of these retractable lids.

[0172] Lids 9, 10 and 12 can be used for both solids and liquids.

[0173] Lids 11, 13 14 and 15 are meant for solids.

[0174] Lid 17 can be used with solids and semisolids.

[0175] It must be mentioned that the above lids are designed for the described applications but they may be used for any other with slight alterations.

[0176] Lids 10, 11 and 12 may be anchored to both the base of a container frame or to any solid wall of a

package, whether cardboard, glass, etc.

[0177] Lids 13, 14 and 15 can have several shapes for their openings A of their main frames, as well as the openings of their anchoring bases and the walls of the packages which are coupled to these and their support and closing counterframes.

[0178] Lid 17 may assume several shapes for its lid or spoon 5, for its coupling edge 1, its base anchoring it to the package wall and the counterframe which supports and closes the unit.

[0179] Flat parts 1 of lids 9, 10, 11 and 12 may curve outwards or inwards, both vertically and horizontally. Therefore, main frames 3 also assume the shape suited to lid 1 on the outside of openings BE to couple to these. Main frames 3 will only adapt to these shapes on their front side since their rear will be flat in order to be set on the walls of the support bases or the packages.

[0180] Lids 9, 10 and 11 may have curved vertical surfaces for sides 2, which are in principle flat. Then the vertical side walls of opening BE will assume this new shape of the sides, which before was square, so that the recess formed by these will not be straight in a vertical direction.

[0181] Mechanisms formed by teeth D, D1, D2, C, C1, C2, 7 and 8 of lids 9, 10, 11, 12 and 13 may be located in any position and have many different shapes.

[0182] Lids 9,10, 11 and 12 will have seals on their front sides and glued to the package base or wall outside of the main frames 3, so that inner outline 3A of seal 18 covers the outline of the flat lids 1.

[0183] Lids 13, 14 and 15 will have their seals on the plane of the outlet openings BS, so that they are glued to the outside of the main frames 4 of lids 13 and 14 and on 2 of lid 15.

[0184] Lid 17 will have a seal glued onto the coupling edge 1, with the seal string passing under spoon 5 and reaching the outside between tabs 10 and 11. The string will pass a small shaft 12 housed in notches in the middle of spoon 5 so that it may slide around the outline of the seal and so tear its surface. This shaft will be manually removed after breaking the seal.

[0185] Lids 9, 10, 11, 12 13 ,14 and 15 can assume any orientation, direction, position and side, both vertically and horizontally on any frame and/or package for the corresponding lid.

[0186] Lid 17 can be anchored to the underside of a frame or package in any direction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0187]

Figure 1 shows a side perspective elevation of the container frame with a base anchored to it and a lid held by an anchoring base.

Figure 2, rod frame 3, double rod frame 4, plane frame. Show a perspective elevation view of the frames already in their operational positions.

Figures 2A, 3B, 4C show a plan view of frames 2, 3 and 4 where these are shown unfolded not in their operational positions.

Figures 5, 6, 7, and 8 show a sectional elevation view of the support bases anchored to the frames.

Figure 9, retractable lid without counterframe 10, retractable lid with counterframe 11, simple retractable lid 12, retractable lid with protracted sides, show a side elevation view of the lids.

Figure 9A shows a plan view of retractable lids 9 and 10 unfolded and not in their operational positions.

Figure 12 shows a side elevation of the retractable lid with protracting sides.

Figure 12A shows a perspective elevation view of the lid in figure 12 showing the folds fitted in slot E.

Figure 12B shows a plan view of lid 12 closed.

Figure 13 shows a lateral elevation view of the folding lid with positioning mechanism in its open position.

Figure 13A shows a plan view of lid 13 unfolded and not in its operational position.

Figure 14 shows a lateral elevation view of the simple folding lid in its closed position.

Figure 14A shows a plan view of lid 14 in its closed position.

Figure 15 shows a front elevation view of the sliding lid with direct anchoring without being anchored to the frame.

Figure 15A shows a plan view f the lid 15 closed and anchored to the frame.

Figure 16 shows an elevation view of two rod frames in their lateral coupled position without being coupled.

Figure 17 shows a side elevation view of the sliding dosing lid in its closed position.

Figure 17A shows a plan view of lid 17 in its closed position.

Figure 18 shows an front elevation view of the lid seal when removed.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0188] The multipurpose container frame for all packages with mechanical lids and anchoring bases consists of three parts:

First: a container frame.
Second: retractable, sliding, folding and dosing lids.
Third: anchoring bases.

[0189] The embodiments of the more universal parts of the device are described below with the following options:

A standard frame.
An anchoring base with inner grooves and package held by single clamping tabs.
Retractable lid with or without a counterframe.

These options are described since they will probably be the first to be built.

The frame shall be made of injected plastic, shredded wood agglomerated with natural resins or aluminum or similar materials which allow it to be fully recyclable or biodegradable, in order to protect the environment.

The frame structure shall come out of the mold as a flat piece, see figures 1 and 2. This structure shall have rods 1, 1i and 1S. Rods 1 are vertical, 1S form the lower base and 1i form the upper base. These last two are horizontal. Rods 1 are longitudinally slit in a double rule, and when the shape required is a rectangular prism they will have two short sides and two longer sides, so that the short sides are opposite each other, as are the longer sides, but in different directions.

The sides shall have 8 half rods which shall become round rods as each half is connected joined by the hinges. Since the flat sides are folded inwards, the structure of the frame takes shape and closes with lugs 3 which emerge from one of the half rods, engaging half rod 1 on the opposite side of each plane, in small holes which are present along their entire length, and even in hemispheres 4 on the rods.

[0190] When the sides of the container frame are closed base 8 will be anchored to it. This base is made of the same material as the frame, and can be a single piece or several depending on the difficulty entailed in removing the mold. See figures 1 and 8 which show a base with two grooves 9 inserted in the round horizontal rods 1S and 1i on its inner face as shown in the drawings.

[0191] As the base is anchored in the position described it will provide firmness to the frame since rods 1i and 1S will be united to the structure of the frame so that if it receives an impact anywhere the rod can slide in the groove to keep the package from breaking.

[0192] The base anchored by inner grooves shall have a flat base 8, figures 1 and 6, joining these two grooves 9 described above, since they come out of the side edges of the flat base and could be two grooves as seen in the figures, four or even more as they can be used on all edges of a base.

[0193] In the center of said base are tabs 7 which are on inclined planes 7B. Tabs 7 are provided with teeth 7A which face each other and are meant to clamp tabs 6 of any package firmly by bending the inclined planes, since in order to place the tabs of the package (figure 1) tabs 7 must be opened by bending them backwards. This base can also be used to hold any lid, with the difference that it will be placed by applying pressure to the flat side of the frame where the lid is to be placed. As seen in figure 1, base 8A is fitted in the two vertical rods 1. In order to place the base it must be pressed against the front of the frame until overcoming rods 1 which are flexible and will give so that the grooves rest on round rods 1, and similarly for placing it on the rear of this plane.

[0194] This base for anchoring the lid can be used for the retractable lid with or without a counterframe (see figures 9, 9A and 10). The lid shall be made of the same material as the container frame or the anchoring bases both for anchoring the package or the lids. The lid can be used for pouring or dosing solids or liquids. Figure 9 and 9A show an elevation view of the retractable lid without a counterframe, where part 1 is a flat square lid, although it could have any other shape. The top has a protrusion A so that it can be pulled towards the front F.

[0195] At the rear is a triangular lip, although its shape can be any other, which surrounds the rear perimeter of lid 1 on the outside of the recess formed by the vertical sides 2; these shall have two curves, one on upper edges 2A which join at the rear by bridge 3, since it is joined to sides 2 and the other curve is on the bottom and joins sides 2, which is curved bridge 9.

[0196] Lid 1 is held by hinge 11 to the main frame 3. This hinge is a fold present between the lid and the frame. It axis of rotation is beneath bridge 9 and under coupling edge 4.

[0197] Frame 3 will be added by gluing to the front of any package wall. The lid may fold towards the front following a curved path forwards and separating from the main frame by the hinge, which will act as a shaft. When the rotation limit is reached lid 1 will be stopped by stop frame 8 of figure 9, which will be fitted under pressure inside the recess formed by sides 2, lower bridge 9 and upper bridge 8, which are provided with small teeth H on the entire inner perimeter of the rear edges and which are firmly engaged with those which the stop frame has on its outer part (see enlargement in the drawing).

[0198] The stop frame shall rest with its flat face against joint 5, which in turn is glued to the outer perimeter of the coupling edge 4 and to the rear of wall 7 of the package, so that the inside of the package is sealed closed by the pressure on joint 5.

[0199] Opening BE is the inner perimeter of cou-

pling edge 4. The product contained in the package enters through this opening and continues towards outlet opening BS.

[0200] The lid is provided with teeth D and C which block lid 1 when it is open and closed. Teeth D are in the inside of the coupling edge 4 and occupies the entire width of opening BE horizontally, and C are on the sides of opening BE forming an angle with D and in a vertical position, as shown in figures 9 and 9A.

[0201] As lid 1 is pulled out it is blocked when the above teeth engage teeth D2 and C2 on the rear T of curve 2A. D2 are placed on the top of bridge 8 and horizontal, while C2 are on sides 2 in a vertical position forming a corner with bridge 8.

[0202] As lid 1 is retracted teeth D1 and C1 located on front F of curve 2A are engaged, D1 on the front of lid 1 next to lip A and projecting vertically out from the upper edge of sides 2. Blocking is achieved when teeth C2 and D2 when opening and D1 and C1 when closing press against D and C and engage these so that lid 1 is still when the contents of the package are poured or dosed, or so that the lid remains closed and effectively seals the package.

[0203] The set of lid 1 and main frame 2 is made in a single piece so that the mold outlet may be made, see figure 9A where the full set of parts which make up the lid is shown. It is shown flat and unfolded and will adopt its operational position by folding lid 1 by its hinge 11 against main frame 3, so that the recess formed by sides 2, lower bridge 9 and upper bridge 8 passes through opening BE. The recess will be free to move forward and backwards, although tightly fitted against the walls of inlet opening BE.

[0204] The lid is closed by pushing on A towards the rear T as shown by line L, until the triangular lip 10 on the plane of lid 1 stops against joint 9A.

[0205] The retractable lid with a counterframe will be identical to that with one except in that upper bridge 8 and curved bridge 9 in figure 10 are protracted towards the rear as in figure 9. This protraction allows a greater separation between stop frame 6 and the rear flat part of main frame 3, see line X1 which indicates the extra separation, and arrow X of figure 9 showing the shorter separation. The extra length of figure 10 is needed in order to anchor the lid to a frame by a base and to anchor the package from behind. Figure 10 shows an elevation view of the lid. In first place is main frame 3, behind it would be the base of a frame or the wall of a package with an inner bag 12. Behind the base would be the wall of bag 7 and behind the bag, closing and firmly holding the set would be counterframe 13, which would fit in coupling edge 4 of figure 10, which as can be seen is provided with a toothing around its outer perimeter in which is firmly inserted counterframe 13 which has a similar toothing in its inner perimeter. The wall of bag 7, that of the base or cardboard box etc. 12 and in front of these main frame 3 are tightly held against each other forming a sandwich since counterframe 13 has small teeth on the plane opposite the wall of bag 7 as shown in the figure, so that the bag is firmly held to the rest and the perimeter of the coupling edge is tightly closed.

Claims

1. Multipurpose container frame for all packages with mechanical lids and anchor bases.
The device consists of three main parts, of which the first is characterised by: a package container frame, consisting of a flat structure or similar with rods, etc., which forms a number of shapes adaptable to any package.
The second consists of lids having mechanical devices for opening and closing.
And a third characterised by bases having devices for anchoring the lids to the packages.
Having the following alternative embodiments for the container frame:

First: Container frame for packages (standard).
Second: Container frame for packages with double or triple rods.
Third: Container frame for packages with independent planes or walls.
Fourth: Container frame for packages in a single body.
Fifth: Container frame for packages with planes.
Sixth: Container frame for packages with walls.
Seventh: Container frame for packages with half walls. Eighth: Container frame for packages with a half frame.

2. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, characterised by anchor bases which are coupled to the frames to which are anchored and held all lids and packages with the following alternative embodiments:

First: Anchor base with inner grooves and package support with clamping tabs.
Second: Anchor base with outer grooves and package support with double clamping tabs.
Third: Anchor base with lugs or staples and package support with wide clamps.
Fourth: Anchor base with grooves and package support with recesses.

3. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, characterised by mechanical lids provided with certain devices for opening and closing which couple to a package directly or through a container frame by base-like anchoring devices with the following alternative embodiments:

First: Retractable mechanical lid without a counterframe.

Second: Retractable mechanical lid with a counterframe.

Third: Simple retractable mechanical lid.

Fourth: Retractable mechanical lid with protracting sides.

Fifth: Folding mechanical lid with positioning system.

Sixth: Simple folding mechanical lid.

Seventh: Sliding mechanical lid with direct anchoring.

Eighth: Sliding dosing mechanical lid.

4. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, first alternative, standard container frame for packages (figure 1), essentially characterised by a structure formed by rods (1), (1i) and (1S) where (1i) are horizontal rods which form the lower base of the structure, (1S) form the upper base and are horizontal and (1) are vertical rods which join (1i) and (1S) by their top corners. The frame structure consists of four or more flat sides depending on the configuration needed for the structure where (F), (P) (I) and (D) are these sides. They are joined to each other by vertical rods (1) as they are slit along their entire length which splits them in two halves joined to each other by a hinge (2) placed in the central intersection of the two halves along the entire vertical length. The structure of the frame can be formed by the sides with hinges (2) bending the position of the planes of the two half rods, so that they form a 90° angle at the horizontal corners of rods (1s) and (1i) which act as upper or lower bases for a rectangular prism shape or similar. This angle and position may be different depending on the shape desired for this structure and it will be closed by the rods present in the open ends of each side or plane, one of which has along the plane of its vertical length small lugs or staples (3A) and on the half rod of the opposite side are small orifices (3B) on the flat side, so that along the entire vertical length staples (3A) are inserted in orifices (3B) as the planes meet when closing the structure.

The upper and lower ends of the rods are provided with hemispherical balls which join rods (1i) and (1S) by their upper corners which meet when the sides are closed as they are coplanar to the longitudinal slit of rods (1).

5. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, first alternative, anchor base with inner grooves and package support with single clamping tabs (figure 6) characterised by a flat base (8) with grooves (9) in the form of longitudinally split tubes which are joined to the two longitudinal edges of flat base (8) having more than two grooves depending on the shape of flat base (8). These grooves fit between two rods (1) of the central part of the base plane. Along its entire central length two planes (7B) arise inclined towards the centre, from which another two planes (7) arise vertically facing each other by their inner faces where teeth (7A) engage each other along the length of the clamp formed by the two tabs (7), (7B) which are somewhat flexible laterally allowing a certain distance between teeth (7A) to house flange (6) so that it is firmly held by a single clamp due to the lateral pressure of tabs (7).

6. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, first alternative, retractable mechanical lid without a counterframe (figure 9, 9A), characterised by a lid (1) with a flap (A) in its upper edge inclined towards the front (F) which allows extraction or folding of the lid. Through the rear of the lid (1) a triangular projection (10) rises, which can be different; it surrounds the outer face of a recess which consists of two sides (2) which rise from the rear end of lid (1) vertically, and with two curved areas. The first of these is on upper edges (2A) of sides (2) which are joined by their rear end to the upper bridge (8) which has the same curved shape as edges (2A), and the other is formed by the lower bridge (9) which rises horizontally from the rear curving towards the rear joining sides (2) on their lower ends.

Lid (1) is joined by its lower edge to a main frame (3) by a hinge (11) in the lower intersection of the parts, which creates a rotation axis for lid (1) which is stopped when it is extracted by a stop frame (6) which is embedded in the rear of the recess formed by the two sides (2), the lower bridge (9) and the upper bridge (8).

The rear edges which form the recess shall have small toothings (H) perpendicular to those present in the entire internal periphery which engage similar toothings in the outer area of the stop frame (6) in the section of the angle which fits inside the recess. The rest of this angle acts as a stop resting against a joint (5) which is housed within the contour of the coupling edge (4) and is next to an inner wall of a package, stop frame (6) pressing against joint (5) when lid (1) is open.

Lid (1) has toothings (D) and (C) which lock lid (1) in its open or closed position. Toothing (D) is in the lower part of the coupling edge (4), occupying the width of opening (BE) in a horizontal position and toothing (C) is in the vertical sides of opening (BE) in the upper corners forming an angle with (D).

Toothings (D) and (C) while the lid is open engage other toothings (D2) and (C2) in the rear area (T) of curve (2A) with (D2) in the upper part of bridge (8) occupying its entire width perpendicular to its

length, and sides (2) have toothings (C2), vertical and forming an angle with the upper bridge (8).
When the lid is closed toothings (D) and (C) engage (D1) and (C1) located on the front (F) of curve (2A), (D1) on the front of lid (1) next to projection (A), rising from the upper edge of sides (2) horizontally, and the other two toothings (C1) rise from the outer flat area of sides (2) vertically making an angle with (D1).
Joint (5A) is on the front of main frame (3) opposite the triangular projection (10).
The recess formed by the two sides (2), upper bridge (8) and lower bridge (9) is tightly fitted inside opening (BE) but is free to move forward and backward.

7. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, second alternative, container frame for packages with double or triple rods (figure 3) characterised by a structure where (1) are double vertical rods joined at their central intersection by hinges (2). These rods (1) are round and joined by their upper and lower ends to other horizontal rods (1i) and (1S) forming with these four sides (F), (P), (I) and (D), of a rectangular prism shape or similar, but which could be different depending on the shape desired. There could also be three vertical rods (1) so that one would be central and the other two joined to the central one by their longitudinal sides by two hinges which are along the entire length of the rods (1). This double or triple vertical rod characteristic gives the structure extra stiffness by providing great lateral resistance to deformation.
In its upper and lower ends vertical rods (1) are provided with balls (6) which arise from the upper and lower corners formed by rods (1) with (1S) and (1i), which will also be double for a structure with double or triple rods. These balls are the lower support base of the frame and provide it with stability. The double rod structure will be closed by the sides on its ends, from one of which appears a groove (7) along its entire vertical length so that it catches the round rod on the other end, so that round rod (1) is inserted under pressure in the groove. For a triple rod structure one of the vertical round rods will be on an end of one side on its own and on the other side there will be two, one forming the side or face and the other joined to this one by a hinge, and joined to this one along the entire length is a groove (7) so that it catches rod (1) on the opposite end, so that the angle formed by the vertical rods is in exactly the same position as the other three corners formed by the vertical sides of rods (1) joined by hinges (2), since groove (7) catches rod (1) but is free to turn and change its angular position until it makes the correct angle for the shape of the structure, i.e. 90° for a rectangular prism but which may differ depending on the shape of the structure. Otherwise this double or triple rod frame is identical to the standard frame and shares its characteristics.

8. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, third alternative, independent wall or plane frame (figure 3), characterised by flat sides with two vertical rods (1) and two horizontal rods (1i) and (1S) which may also have other rods in other positions. Each side will have a groove (7) along the length of a vertical rod (1). The sides are independent and form the structure of the frame as grooves (7) catch rods (1) on the side corresponding to another plane, so that all sides are linked as in a chain as they all have a side with a groove which catches another side with only one round or similar rod which is caught.
In order to form a rectangular prism there will be four independent sides, which could be more depending on the shape to be formed.

9. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, fourth alternative, single body container frame for packages (figure 1) characterised by a structure in a single piece without folds, hinges, etc., with sides (F), (P), (D), (I) forming four sides joined to make a rectangular or similar prism, although there could be more sides depending on the structure to be formed.

10. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, fifth alternative, container frame for packages with planes (figures 4, 4c) characterised by vertical planes (1) as plates which form edges or corners joined to other similar horizontal ones, where (3i) and (2i) are the plates joined by their lower edges and (3s) and (2s) the plates joined by their upper edges. Sides (F), (P), (I) and (D) are connected to each other by plates or vertical angles (1) through hinges (4) placed in the central intersection of the corners and along the length of plates (1). The structure is formed by folding the sides until slits in (2s) and (2i) act as stops, slits which are set at a 45° angle for a four sided rectangular prism shape or similar, but with a different angle depending on the shape of the structure. Closing is obtained by a curved flap (6) along the length of one of the sides. Along its length are small orifices so that they engage small lugs or staples (7) as clamps which rise from the inner face of wall opposite the one opened. Curved flap (6) will be coupled to and caught in said wall thus closing the frame structure. Horizontal plates (2S) and (2i) have small orifices (5i) and (5S) which catch lugs (2) of any base.

11. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, sixth alternative, container frame for packages with walls (figure 4), characterised by walls in the form of plates on the vertical or any other sides of a frame, so that they are in the inside of a square formed by rods (1) or similar of any frame. These walls provide the structure with stiffness, so that lateral bending of rods (1) or similar is prevented.

12. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, seventh alternative, container frame for packages with half walls (figure 4), characterised by half walls of undefined shapes which can be placed on any frame in any position. These walls provide a flat support surface for the frame and can be used to create any shape such as letters or figures.

13. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, eighth alternative, container frame for packages with a half frame (figure 4) characterised by a frame structure which is incomplete either in its upper or lower area. By eliminating plates (2S) or (2i) any package can be inserted in the frame through its upper or lower end, which will be glued and held by pressure inside walls (3S) corresponding to the upper area or by (3i) of the lower area.

14. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three, four, five and eight, characterised in that every alternative for the frame can form the following structures: cylindrical cube, square cube, pyramid, sphere, cylinder, prisms: rectangular, square, oval, pentagonal, hexagonal, octagonal, as well as all these prisms with unequal sides or any other special shape required for the structure.

15. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three and four, characterised in that the rods which form the structures of these alternatives may have the following shapes: round, triangular, square, rectangular, oval, half-ruled, pentagonal, hexagonal, octagonal or any special shape required, and can be hollow or solid.

16. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three, four and five (figure 16), characterised in that every alternative mentioned can have devices for joining them at the top or bottom which consist of balls placed on the upper and lower ends of rods (1), (1i) and (1S), which will have the shape which is best suited for their integration with the outline of the rods, with that of a common sphere being a round rod, but which can be combined with other rod outlines. These balls can be hollow or solid or have a concave-convex shape, this last shape used for an eight ball system for a rectangular prism or similar shape, with more or fewer depending on the shape to be formed.

Four of these will be on one side of the frame and the other four on the opposite side, so that they can face opposite other similar balls by their sides or upper and lower ends. Lateral balls (2) and (3A) have spherical sides with orifices (C) and (I) which receive lugs (D) and (G) from balls (3B) and (4). Balls (2) and (3A) will be housed inside the concave-convex form of the other two balls (3B) and (4) and small lugs (D) and (G) will insert in small orifices (C) and (I). Two frames are joined by pressing together tabs (5) on one side of the vertical rods against the other vertical rods of the other frame where these tabs are caught by notches (6). Likewise, they could be joined on their upper end by balls (4) and (3A) which have a concave-convex form on top with lugs (F) and (H) on them inserting in orifices (A) and (B) in balls (2) and (3B) on the bottom of the frame. Balls (A) and (B) will be housed in the upper concave-convex balls, so that the two frames are joined by tabs (8) on the horizontal rods on the top of the frame which engage notches (7) on the bottom horizontal rods of another frame.

17. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three and four (figures 2, 2A, 3, 3B) characterised by flaps (4i) and (4S) on the inner perimeter of horizontal rods (1i) and (1S) which come from sides (F), (P), (I) and (D) on their inner sides and in the centre of the diameter of rods (1i) and (1S), which form a flat base as they have angled slits near their ends next to the intersection with hinges (5), which are in principle at 45° for a rectangular prism or similar shape, although this angle can be different depending on the structure to be made. These flaps (4i) and (4S) have orifices (5) on their faces which catch small cylindrical lugs (2).

The inner perimeter of rods (1), (1S) and (1i) has frames (3) which make a flat outline around the rectangular or similar shape formed by the rods which rise from the central diameter of these rods, which form sides (F), (P), (I) and (D), achieving a lateral resistance which provides the structure with stiffness.

18. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1,

and common to alternatives one, two and five (figures 1, 2, 2A, 3, 3B, 4, 4C) characterised in that all these alternatives can be manufactured as long strips which are guillotined at the required intersection, which for a rectangular prism or similar shape are cut by the fourth side, the fifth side for a pentagonal prism, sixth for a hexagonal prism, eighth for an octagonal prism, etc. for any shape desired.

19. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three, four, five and eight, characterised by plates of several lengths with hook-like clamps which support the frames on a wall by strips which have the same length as the plates and are glued on the back, so that anchoring is by gluing or by orifices present on the flat part, in which case it is achieved by screws which pass through these.

20. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three, four and five (figures 1, 2, 2A, 3, 3A, 4, 4A), characterised in that on a horizontal rod (1i) or (1s) a plane will rise from one of the lower or upper rods as an anchoring base towards the inside of the inner perimeter of the rods (1i) (S). Such plane will engage one, two or three horizontal rods in the same plane as the perimeter by grooves for a prism or similar shape, but which could engage more grooves depending on the shape of the structure. The plane will be rectangular for a rectangular prism shape but any shape can be assumed for the structure.

21. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 1, and common to alternatives one, two, three, four and five characterised in that all these alternatives can have more rods or planes in order to obtain a given shape, which can be vertical, horizontal or in any position or side.

22. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, second alternative, anchor base with outer grooves and package support with double clamping tabs (figure 5) characterised by a flat base (1) with two or more curves (2) on its longitudinal edges or on other edges, with a groove or double ruled shape along their entire length, These grooves will be caught between two rods (4) of any frame. Two pairs of tabs (3) emerge from the top of plane (1) with small toothings on their inner faces which engage each other as tabs (3) are opposite each other. Tabs (3) can bend sideways slightly so that they can clamp on flanges (5) of any package, where this clamping is double since there are two sets of tabs (3). Any type of anchoring may be applied depending on the type of package, with the frame anchored in any position, and anchoring (3) can rise from the upper or lower part of plane (1).

23. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, third alternative, anchor base with lugs or staples and package support with wide clamping (figure 7) characterised by a flat base (1) of a shape suited to the frame, with lugs or cylindrical stables in it which are inserted into small orifices (5) through grooves in the central area of the cylinders, which allow to temporarily close the diameter of these cylinders in order to be coupled to the orifices which are made in the plane of flaps (3) on horizontal rods (4) of any package, although other vertical rods may also exist.

At the top of base (1) are vertical flexible tabs (5) which describe a curve with inner toothings which are left opposite each other, so that tabs (5) cause a separation (5) when flexed allowing to insert a package between the tabs so that it is anchored and held by the clamping action of the tabs.

24. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, fourth alternative, anchor base with grooves and package support with recesses (figure 8) characterized by a base (1) with profiles (2) along the entire length of its side edges, although they may be present on other edges, with grooved slits in their central area which are inserted in flaps (3) which emerge from rods (4) of any frame.

Out of the top of the base arise vertical walls (5) which form a housing in the form of a recess in which any package can be held under pressure.

25. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, common to the first, second, third and fourth alternatives, characterised in that all the bases can be combined with each other both for anchoring to the frame, anchoring of any package or the mechanical lids, whatever their shape.

26. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, common to the first, second, third and fourth alternatives, characterised in that the bases may be placed on any side of the frame and can assume several different shapes to anchor to the frame.

27. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, common to the first, second, third and fourth alternatives, characterised in that the bases can have

the following shapes: rectangular, square, triangular, pentagonal, hexagonal, octagonal, all of the above with unequal sides, round, oval or any special shape required to adapt them to a package.
All devices for anchoring to the frame shall have the shape and number of sides suited to the anchoring required.

28. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 2, common to the first, second, third and fourth alternatives, characterised in that the alternatives listed can have a central division so that each half forms a single body with a horizontal side of any frame rod, in the internal perimeter of the structure's upper or lower base. These halves of the base shall have on their opposing edges a device on each half so that these halves are linked along the central longitudinal line when the frame is closed or folded.

29. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, second alternative, retractable mechanical lid with a counterframe (figure 10) characterised by a protraction (X1) of an upper bridge (8), a lower curved bridge (9) and two sides (2) towards the rear (T), creating a separation between a stop frame (6) and the flat rear area of the main frame (3). This creates a space in the rear of the coupling edge (4) in which two walls (12) and (7) are inserted.
A counterframe (13) is fitted in the coupling edge (4) held by the small teeth in its internal perimeter which are coupled to those on the outside of the coupling edge (4). Counterframe (13) is provided with teeth opposite walls (12) and (7) so that these are firmly held by the teeth. Otherwise this lid is identical to that of the first alternative.

30. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, third alternative, simple retractable mechanical lid (figure 11) characterised by a lid (1) joined to a plane (9) by a hinge (6), forming a vertical plane when lid (1) is closed, with the rear of the plane formed by (1) and (9) being opposite a joint (5A) glued to the front of the main frame (3). Hinge (6) provides the lid (1) with a rotation axis on the coupling edge (4) which allows
retracting sides (2) which arise from the rear of the lid (1) vertically and which have curved upper areas. These sides are joined by an upper bridge (8) which connects them at the rear (T) which is horizontal.
From the rear of main frame (3) rises a coupling edge (10) on which is inserted a wall (5). Otherwise it is identical to the first and second alternatives.

31. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, fourth alternative, retractable mechanical lid with protracting sides (figures 12, 12A, 12B), characterised by a lid (1) with sides (2) on its rear consisting of zigzag folds which are joined at their front (A1) to the rear of lid (1) and at their rear (A2) to the front of main frame (3) with sides (2) extended when the lid is open or contracted when the lid is closed. Sides (2) have a U-shaped outline with the lower part of the U inserted in a groove (E) on the bottom of lid (1), with the final bottom fold (A2) left over a vertical edge (12) which is part of groove (E) and anchored to the front of the main frame (3) so creating a rotation axis for lid (1) which curves forwards as it is folded.
At the bottom of lid (1) is a curved bridge (10) which appears at the rear and to the back, placed between two sides (2). It is provided with teeth (8) in its lower rear end which engage other teeth in the top of the coupling edge (4), so that lid (1) is set in place when these teeth are engaged. In the rear of teeth (8) is a small vertical tab (9) which acts as a stop against the coupling edge (4) stopping lid (1) from opening. On the top of lid (1) is a projection (11) with a slight horizontal curvature although any other format may be used.
The rear of lid (1) rests against a wide horizontal joint (5) which is stuck to the front of the main frame (3) and between the two sides (2) creating a seal as the inside of the zigzag folds touch the ends of joint (5) when the lid is closed.
On the top of main frame (3) rising forward and horizontally from its upper edge are two tabs (7) approximately placed at the ends of joint (5) which engage lid (1) at its upper edge so that it is locked in a closed position.

32. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, fifth alternative, folding retractable mechanical lid with a positioning device (figures 13, 13A) characterised by a lid (1) joined at its lower end by a hinge (6) to a small vertical ridge (5) which rises from main frame (2). A joint (4) is glued to the horizontal upper edge of main frame (2) around its entire perimeter. Under it is a coupling edge (10).
A vertical projection (11) rises from the top of lid (1) on the opposite side to the hinge.
Under the lid (1) and above hinge (6) is rises a curved part (7) on the central area of the lid and which curves towards a key or half-moon shaped part which rises vertically from the inside of coupling edge (10) with teeth facing outwards which engage those of the curved part (7) with the lid ranging from a horizontal to a vertical position.
In a closed position the bottom of lid (1) touches joint (4) and presses on it by a tab, forming a sealed perimeter around the outlet opening (BS).

On the front and top of main frame (2) are two vertical tabs (9) with hook ends which anchor lid (1) by the edges of its sides thus locking it in its closed position.

33. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, sixth alternative, simple folding mechanical lid (figures 14, 14A) characterised by a flat lid (1) with a groove (6) in its rear in a position so that it is anchored to a horizontal rod (7) on the top of any frame structure, which may be anchored in different positions. The lid's mobility is obtained by groove (6) turning around rod (7) so that this acts as a rotation axis as a hinge since it is engaged but free to move, and locked in any open position.
Lid (1) and main frame (4) are independent since lid (1) is anchored to one of the rods and the frame is anchored to flaps (4S).
Otherwise its characteristics are identical to those of the fifth alternative.

34. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, seventh alternative, sliding mechanical lid with direct anchoring (figure 15, 15A) characterised by a rectangular or similarly shaped lid (1) with a vertical tab (5) on its top at the front. Two of its edges have grooves (3) arranged so that they can be anchored to two rods (7) of a frame in any position, so that they are caught under pressure but free to move. Under this is a main frame (2) anchored to flaps (4S) provided on the inner perimeter of rods (7) by cylindrical lugs or staples which are inserted in small orifices made in flaps (4S). On the front of main frame (2) is outlet opening (BS) and on this around its flat perimeter is a joint (4) on which lid (1) seals since as it moves it can rest on top of it by means of a beveled projection (9) made in its front edge.
Under the main frame is a coupling edge (6) which is inserted in the wall of any package.

35. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, eighth alternative, sliding dosing mechanical lid (figures 17, 17A) characterised by an oval or otherwise shaped coupling edge (1) which is inserted in the inner wall of a package. Such edge (1) is on main frame (3) which has two longitudinal guides (3A) and (3B) on its side edges, which have inner central grooves with a flat base (2) inserted in them and free to move, with a lid (5) on the front half which moves into it with a concave-convex shape in the form of an oval spoon. The oval shape of lid (5) is opposite the coupling edge which is on top of it with flat base (2) in a closed position. Front (F) of flat base (2) has a projection (6) which fills the entire width and is joined to flat base (2) by a hinge which allows projection (6) to move from a vertical to a horizontal position towards (F). Behind the intersection of hinge (8) is a vertical tab (10) with an oblique slit directed towards (F), which overcomes a wedge shaped lip (11) which is under part (F) of the main frame (3) descending vertically and in form of tab (10). At the bottom of lid (5) are two cylindrical recesses (12) which temporarily house a round shaft which will be inserted between these transversally to the oval shape of the lid (5) and which can be removed.
Base (2) has a first level (2B) and another similar one above it (2A) with a ramp like oblique slit in part (F). This slit allows the rise of tabs (9A) placed under the coupling edge on the lower side of the main frame (3) inclined towards (T) which occupy the width of the main frame (3) in front of its opening, which are left in contact with level (2A) when lid (5) is open. In the same position but on the side opposite the opening of main frame (3) and directed towards (F) are another two tabs (9B) which are in contact with level (2A).
On the rear of flat base (2) and filling its width is a step (4) which rises from the upper area of the plane of base (2).

36. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, (special seal figure 18) common to the first, second, third, fourth, fifth, sixth seventh and eighth alternatives, characterised by a seal which may be applied to all the alternatives of the lid mentioned with a suitable shape in each case, consisting of a seal (3) of an undefined shape with a string (2) on its rear side glued to it and which covers its perimeter (2A), but separated from its contour. String (2) extends out from this seal through a small orifice made in the corner or any other place. At the end of string (2) is tied a ring (4) which is glued flat onto a corner or any other place. The seal is covered in glue or any other means of adhesion to the lids, which is applied to the outer contour (2A) of the string which is glued to the film but which can be applied in other areas. The inner perimeter of the string (2) will have a shape suitable for opening the lids.

37. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third, fourth, fifth, sixth seventh and eighth alternatives, characterised in that all alternatives may be combined with all container frames.

38. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third and fourth alternatives, characterised in that the listed alternatives

of the lids may be made double, triple or quadruple, so that they are connected by the lateral edges of the lids and/or by the main frames.

39. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third and fourth alternatives, characterised in that the alternatives listed shall have for flat lids (1) as well as on the main frames and all parts which couple these two a square or rectangular shape both vertically and horizontally, or any other shape desired which does not hinder its operation and does not alter its retractable essence.

40. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third and fourth and fifth alternatives, characterised in that the listed alternatives can be coupled both to a package and to a container frame.

41. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the fifth, sixth and seventh alternatives, characterised in that inlet and outlet openings (BE) and (BS) of the lids shall have multiple shapes in the main frames, and therefore also all openings of the parts which are connected to these, the bases, counterframes and walls of the packages inserted in these, without this hindering its operation nor altering the essence of its main characteristics.

42. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the eighth alternative, characterised in that lid (5) may have multiple shapes for its concave-convex surface, and also its coupling edge, anchoring base to the wall of the package inserted and its counterframe, without this hindering its operation nor altering the essence of its main characteristics.

43. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third and fourth alternatives, characterised in that the flat parts of lids (1) in the listed alternatives may be curved outwards or inwards, both vertically or horizontally and therefore the frames shall assume a shape suited to lids (1) on the outline of openings (BE) to couple to these, with these shapes assumed by the front parts (F) since the rear end must in principle be flat so that it is coupled to the anchor bases or any package, without this hindering its operation nor altering the essence of its main characteristics.

44. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second and third alternatives, characterised in that the sides (2) of the alternatives listed may be curved vertically and therefore the sides of openings (BE) will assume a shape suited for coupling to these sides (2), without this hindering its operation nor altering the essence of its main characteristics.

45. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third, fourth and fifth alternatives, characterised in that toothings (D), (D1), (D2), (C), (C1), (C2),(7) and (8) of the alternative lids listed may have different shapes and be placed anywhere on the lids without this hindering its operation nor altering the essence of its main characteristics.

46. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third, fourth, fifth, sixth and seventh alternatives, characterised in that the alternatives listed may be coupled in any position, direction or side whether horizontally or vertically on any frame or container.

47. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the eighth alternative, characterised in that the cover is anchored by the lower side of a frame and/or package which can be oriented in any direction.

48. Multipurpose container frame for all packages with mechanical lids and anchor bases as in claim 3, common to the first, second, third, fourth, fifth, sixth, seventh and eighth alternatives, characterised in that the alternatives listed may have main frames on both vertical and horizontal edges with widenings in their planes, which on the required edges shall have anchoring means for any base, so that these main frames will still be such but as they have a widening and anchoring means on the widening they will also be an anchoring base for lids so that it is made as a single part.

As long as the essence of the multipurpose container frame for all packages with mechanical lids and anchor bases is not altered, changed or modified everything is subject to variation to the effects of this invention patent.

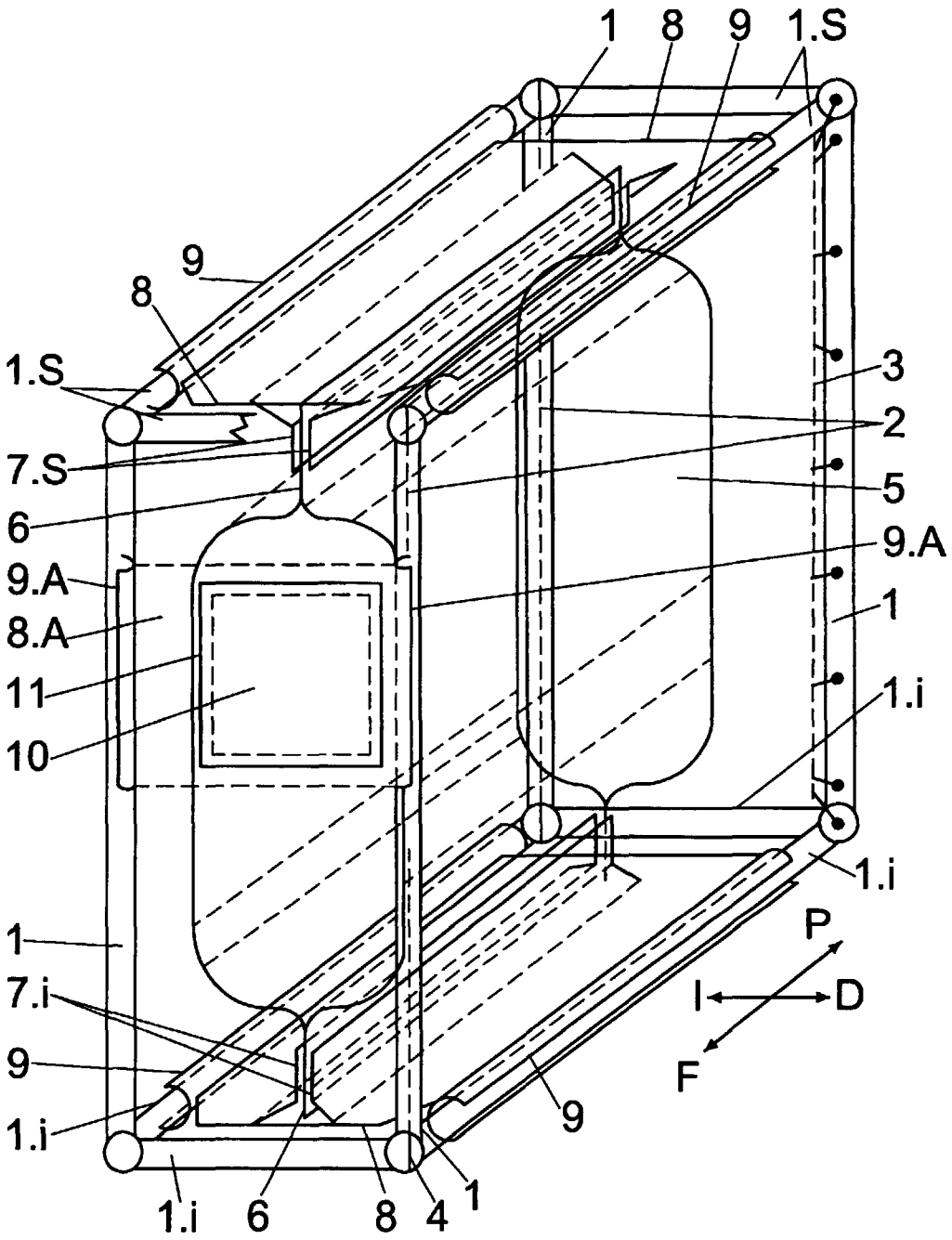

FIG. 1

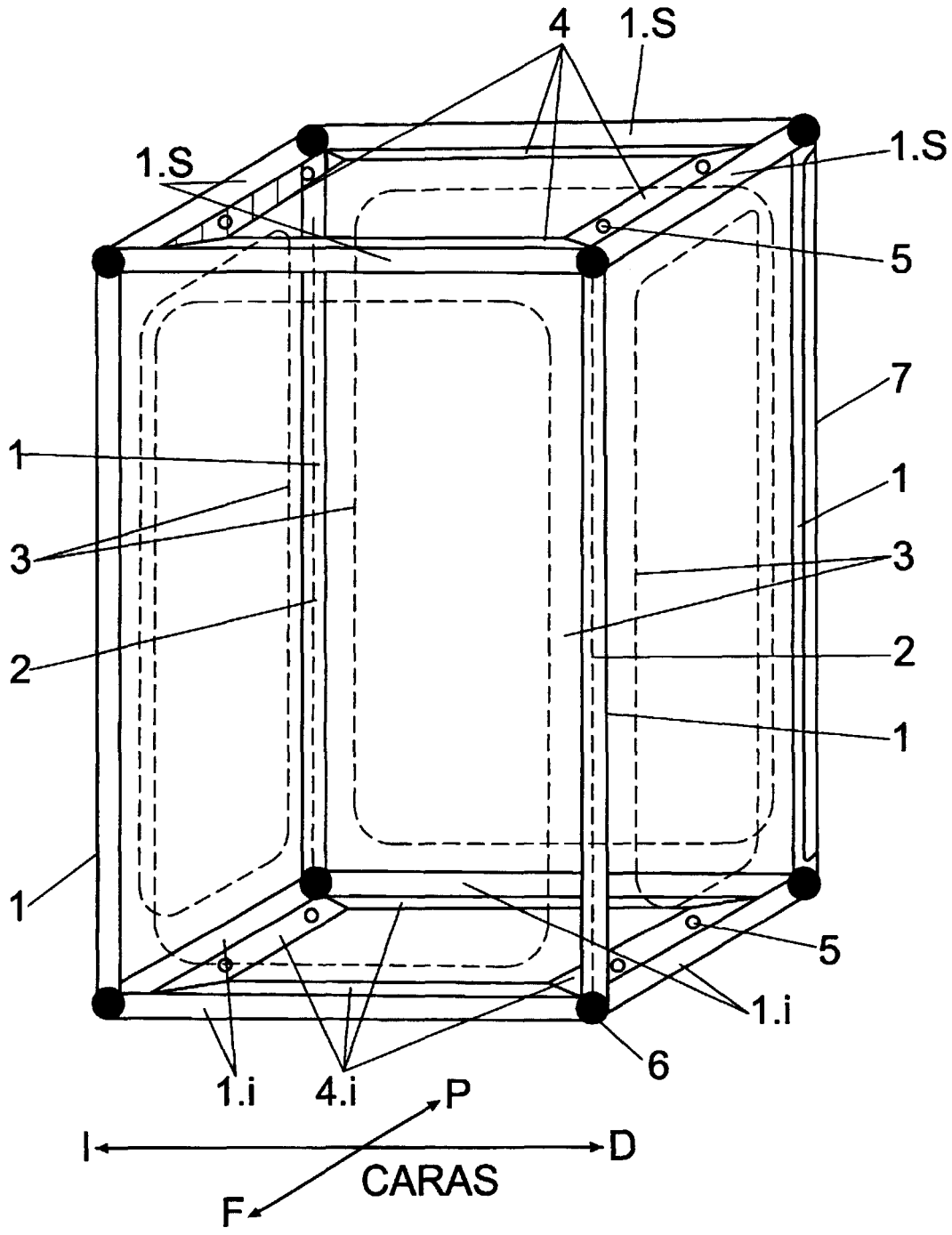

FIG. 2

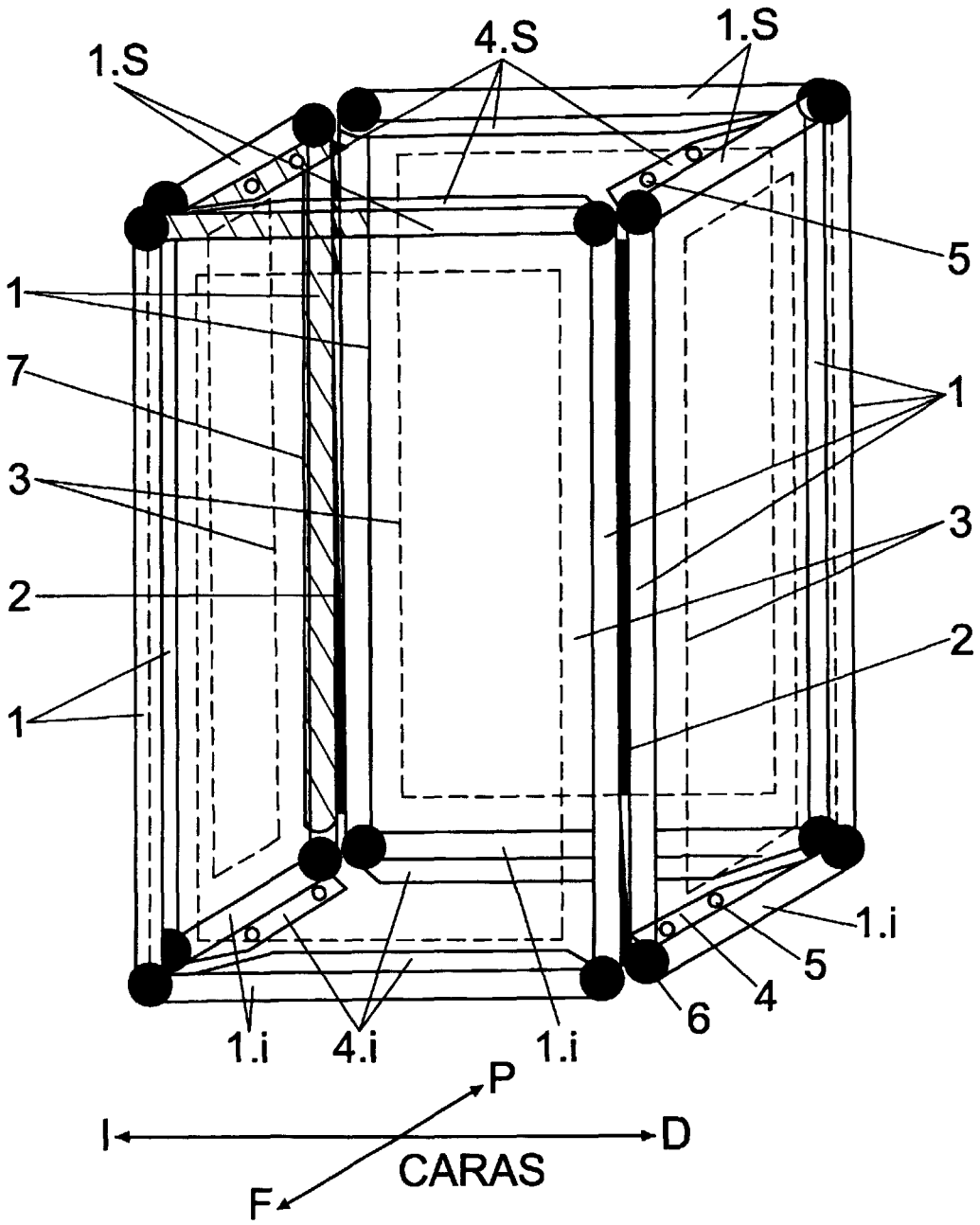

FIG. 3

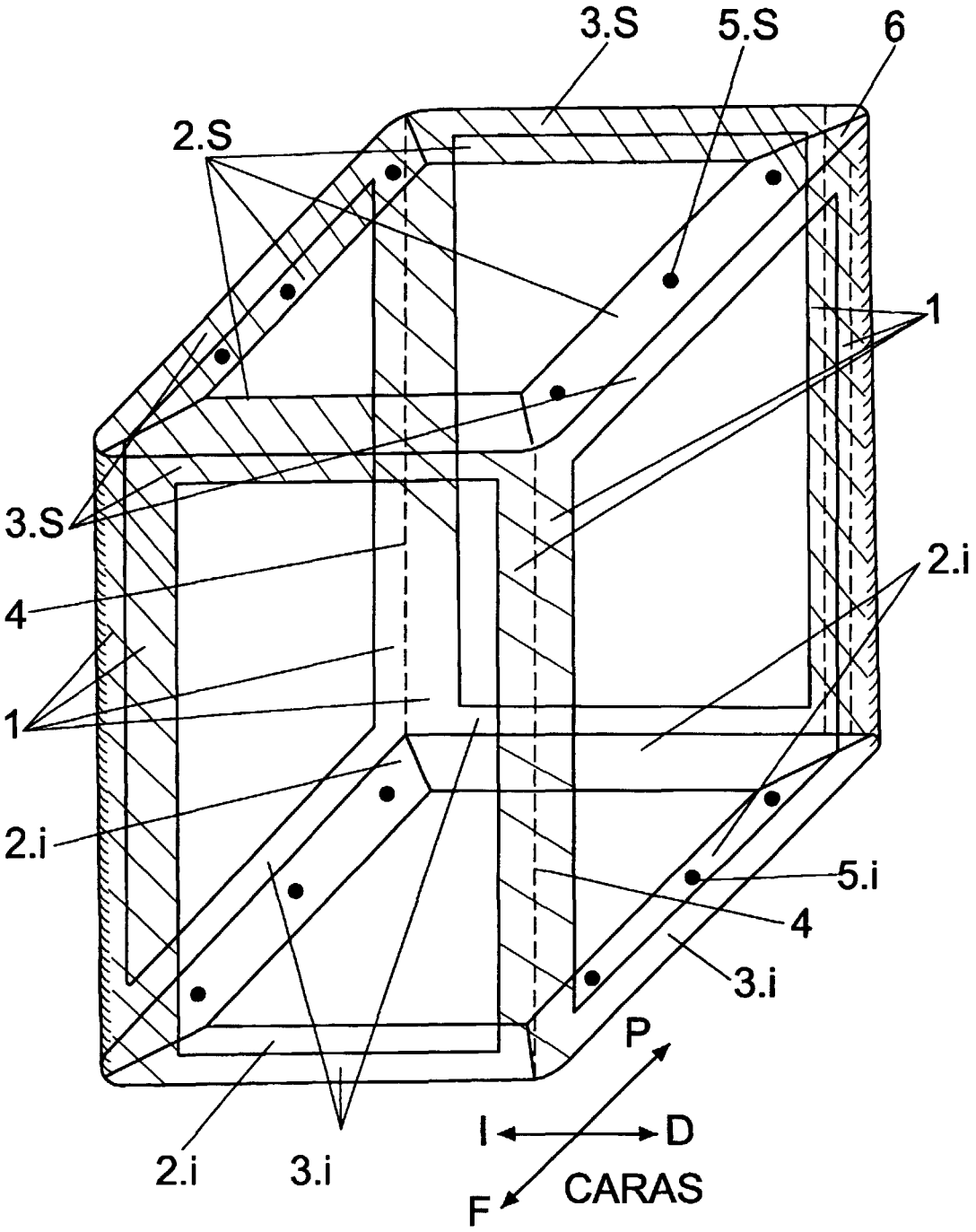

FIG. 4

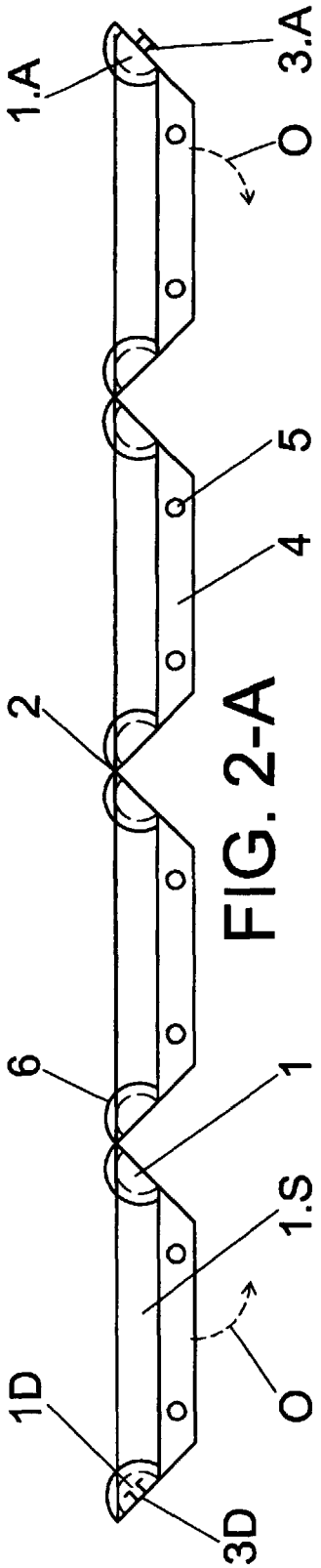

FIG. 2-A

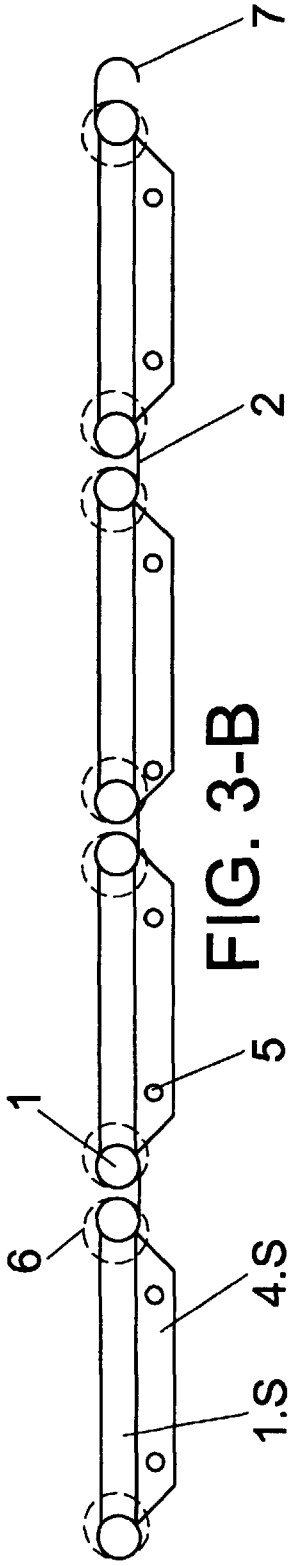

FIG. 3-B

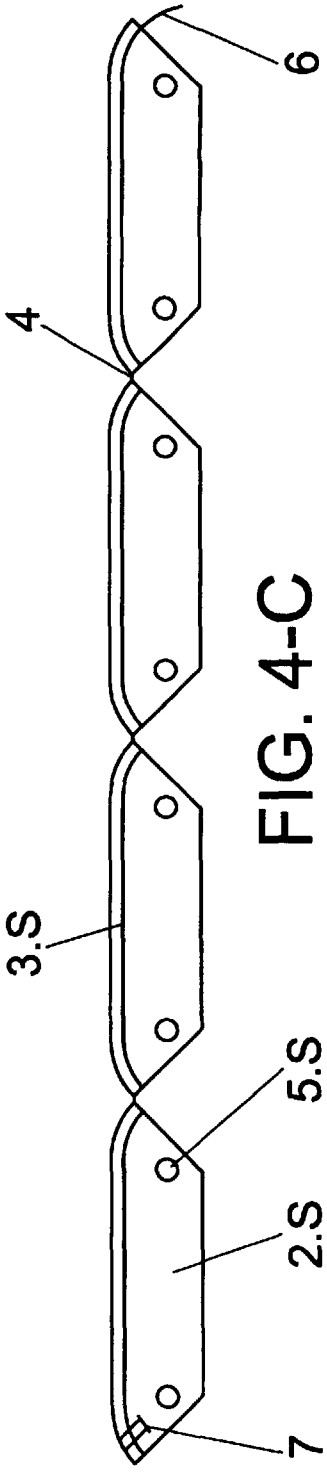

FIG. 4-C

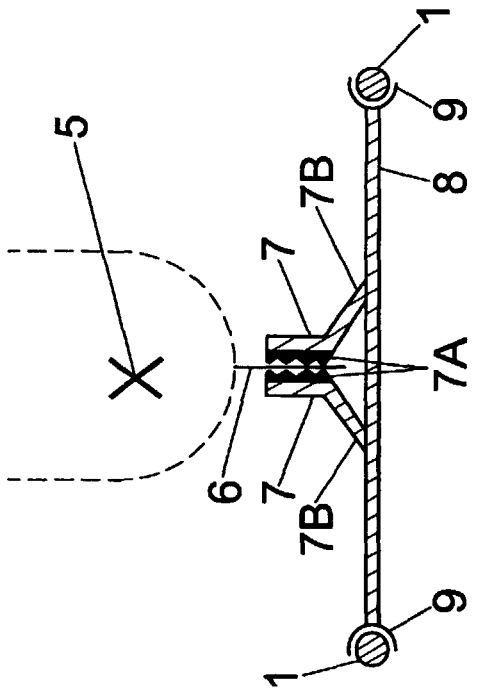

FIG. 6

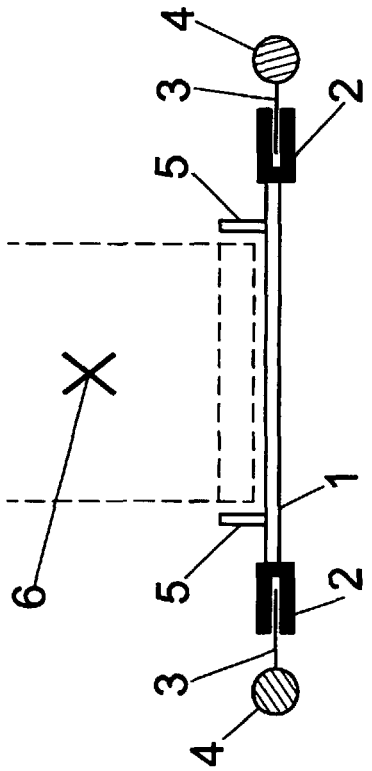

FIG. 8

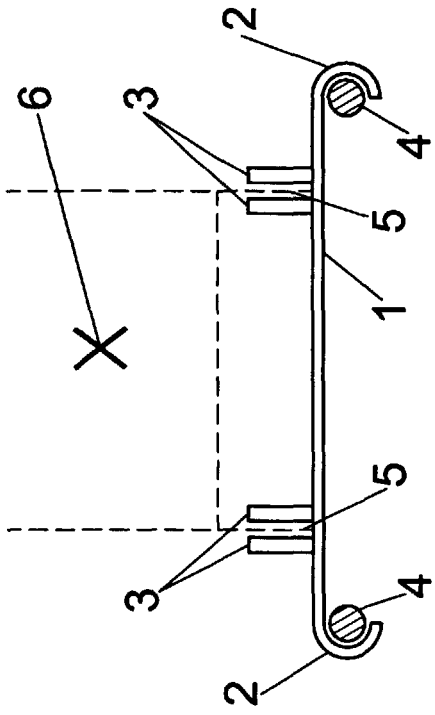

FIG. 5

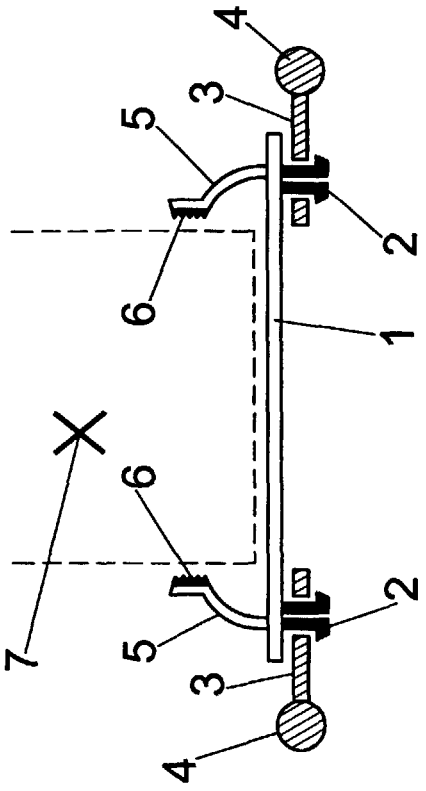

FIG. 7

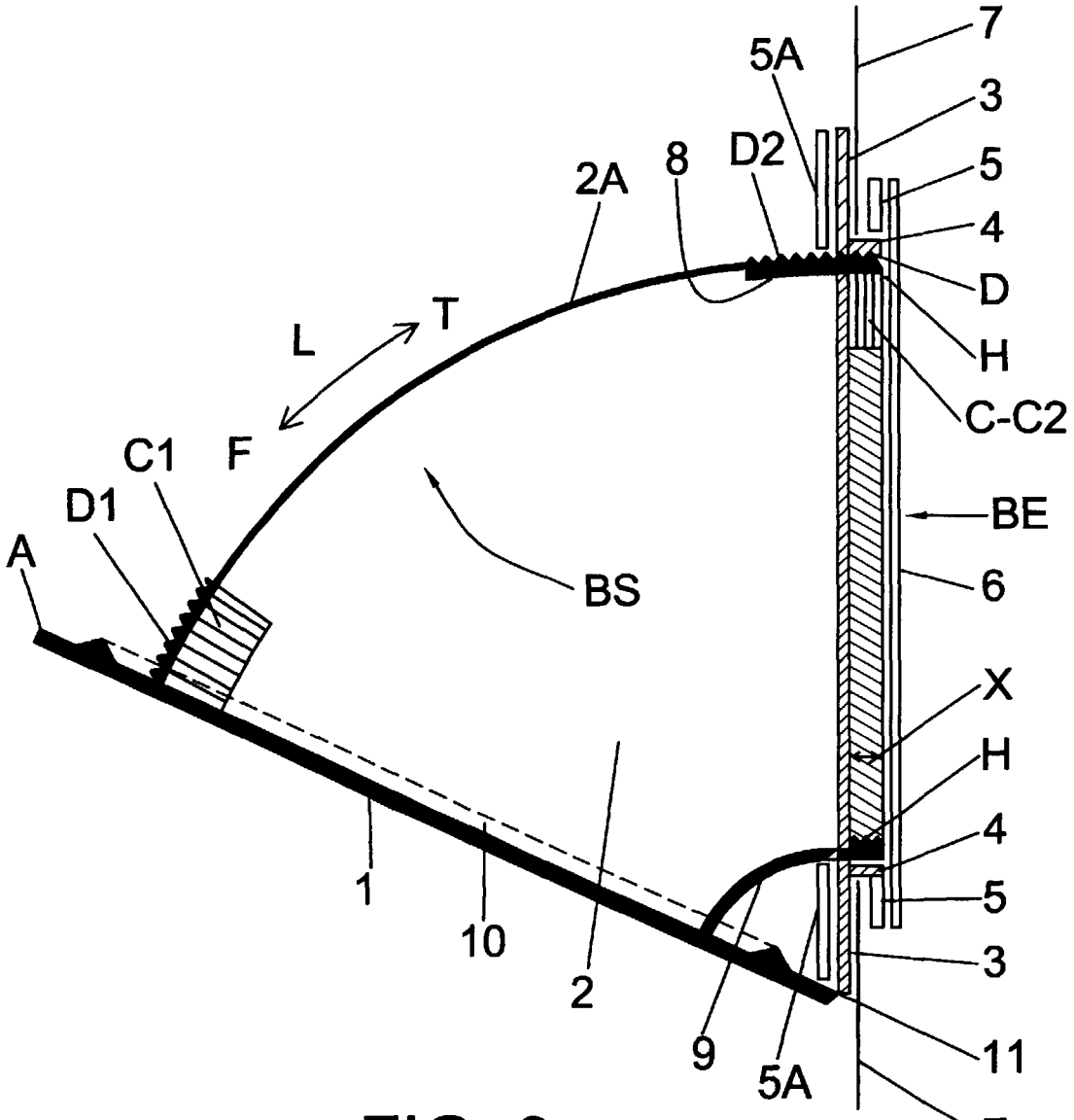

FIG. 9

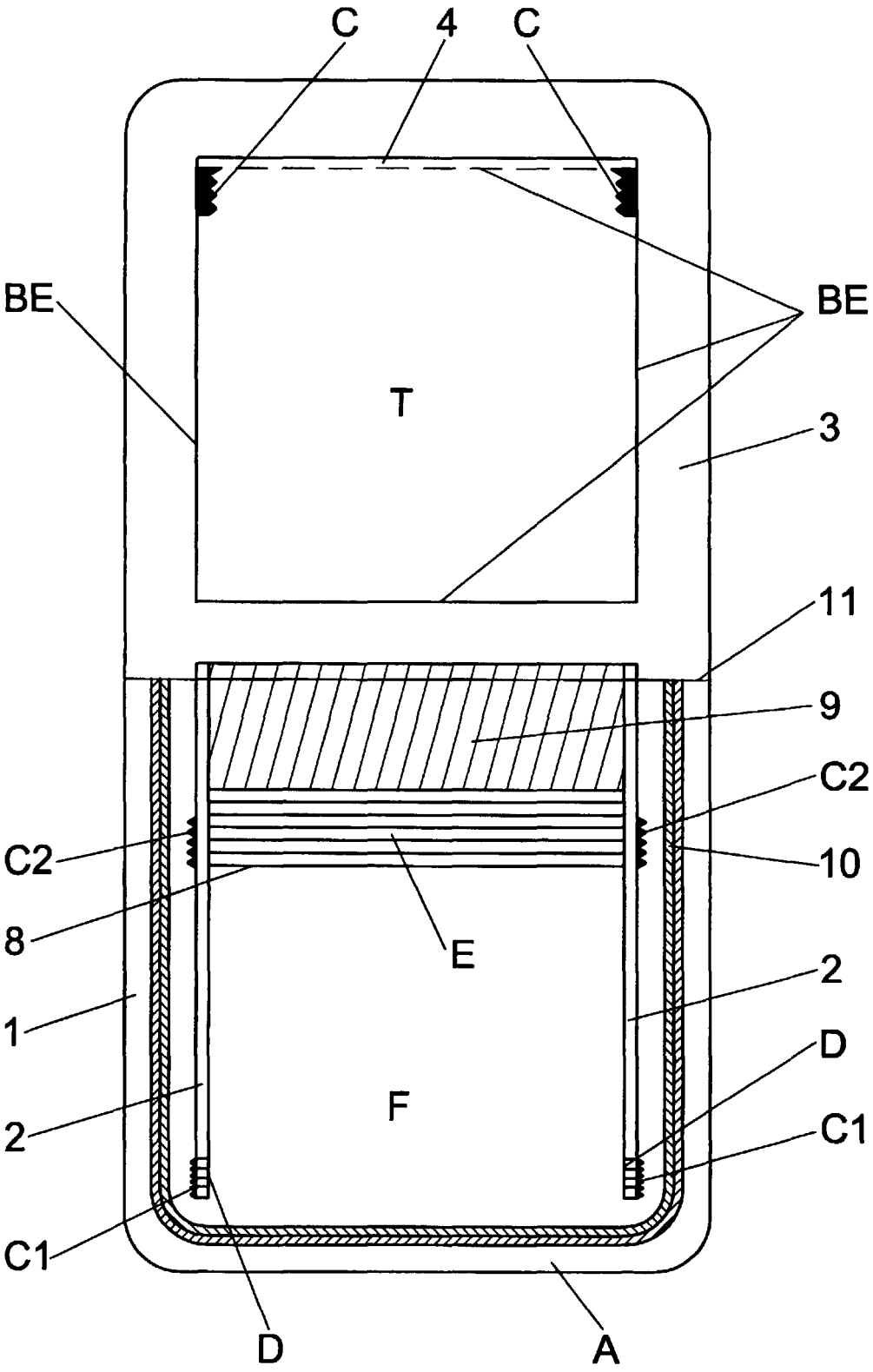

FIG. 9-A

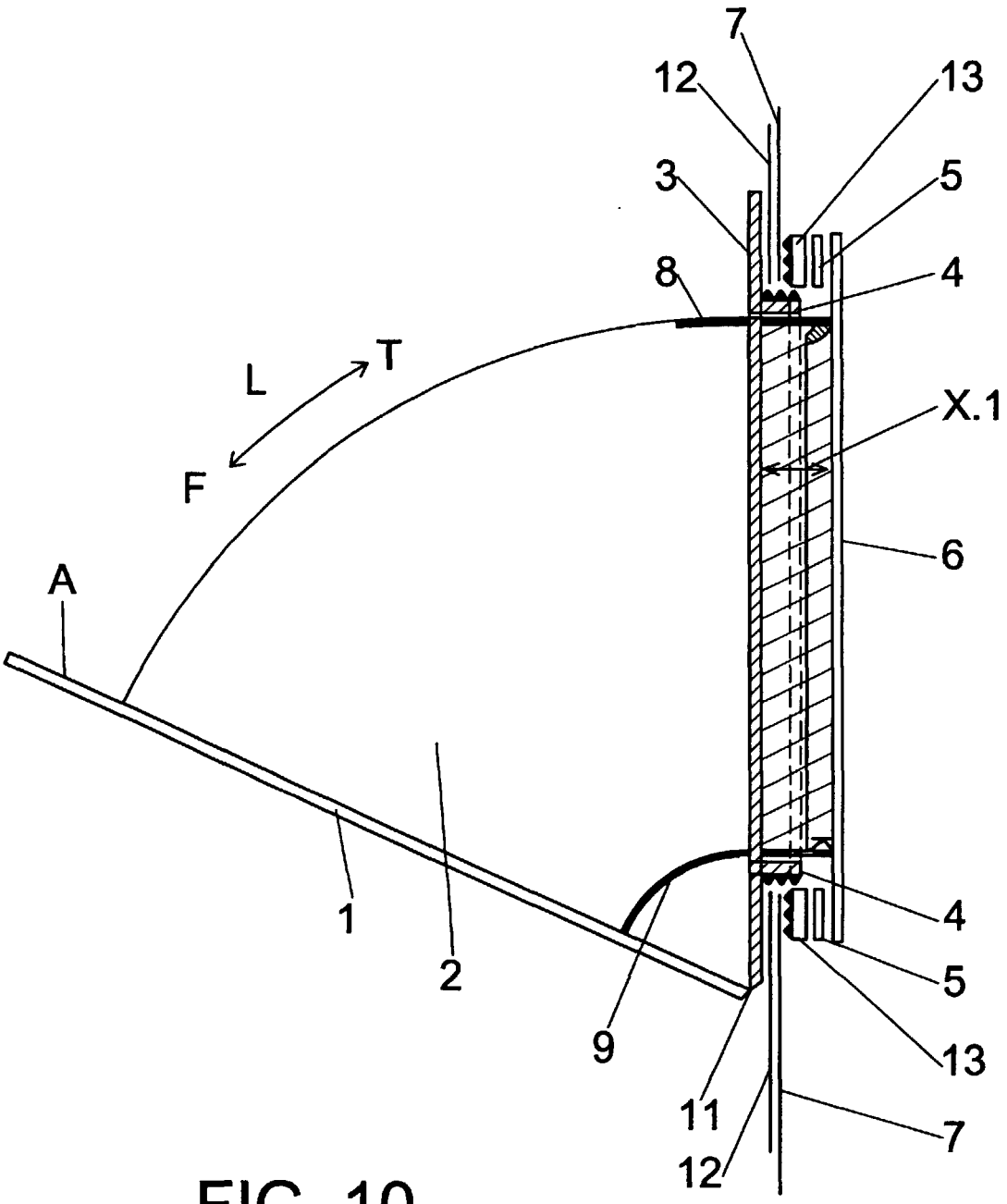

FIG. 10

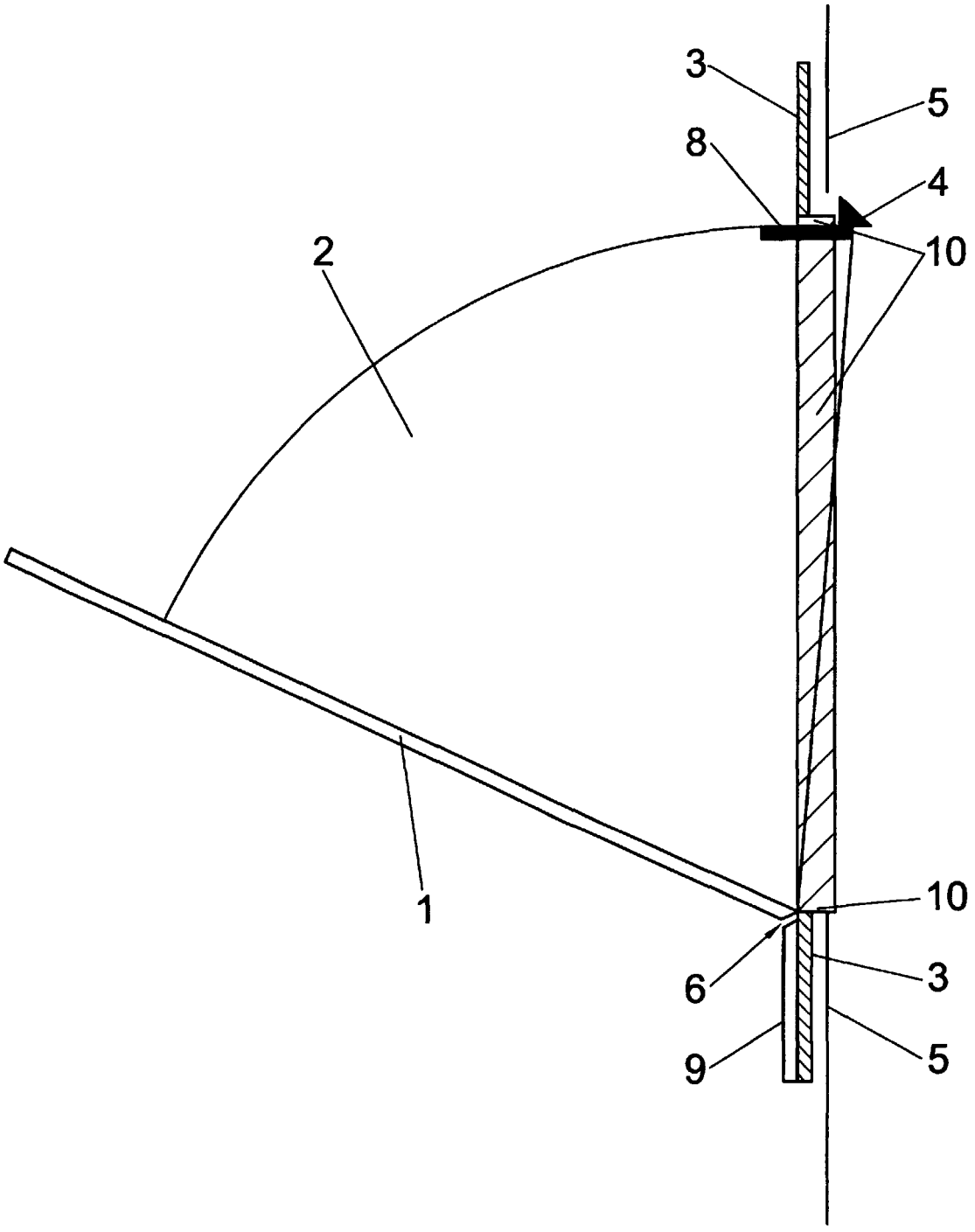

FIG. 11

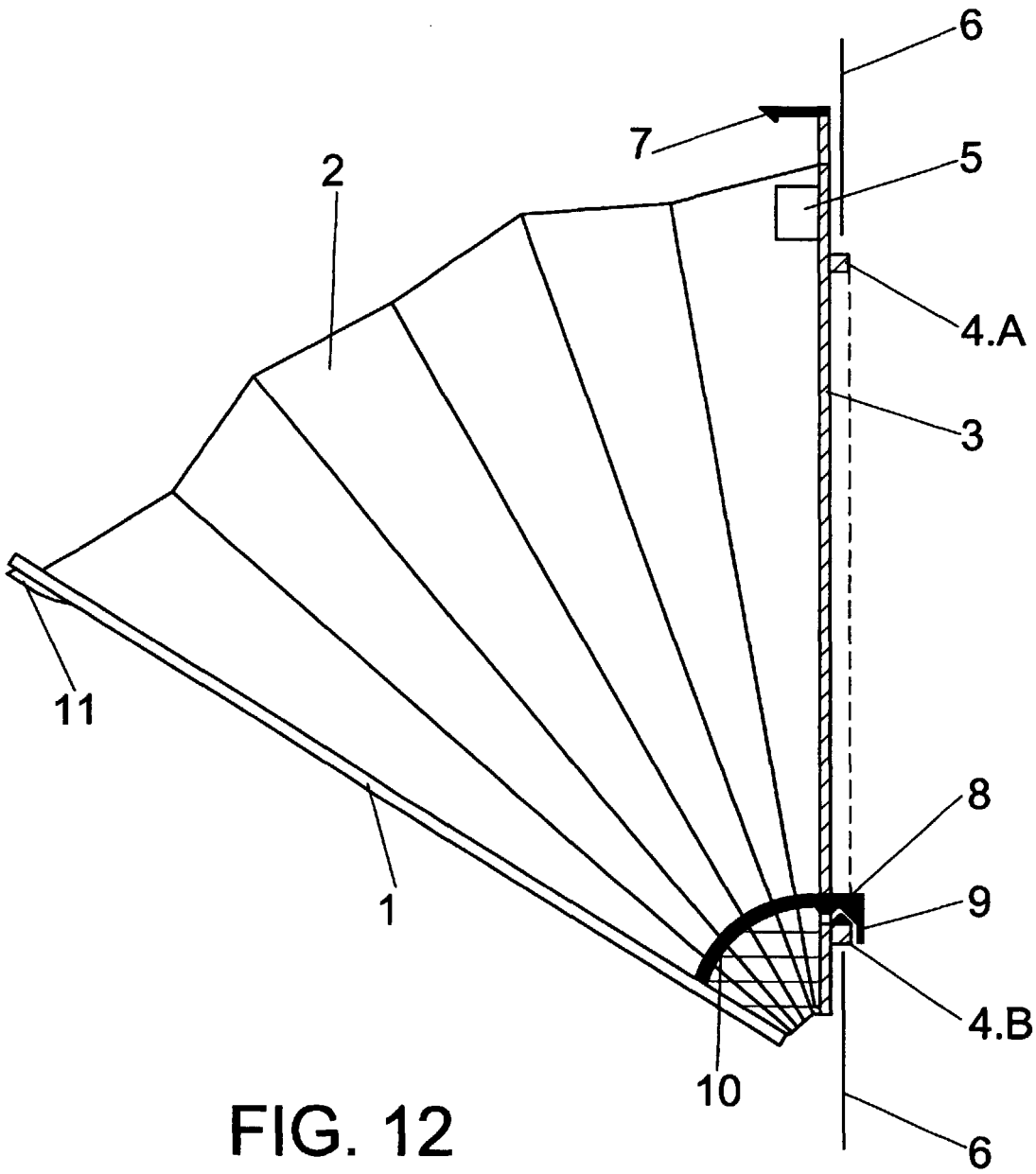

FIG. 12

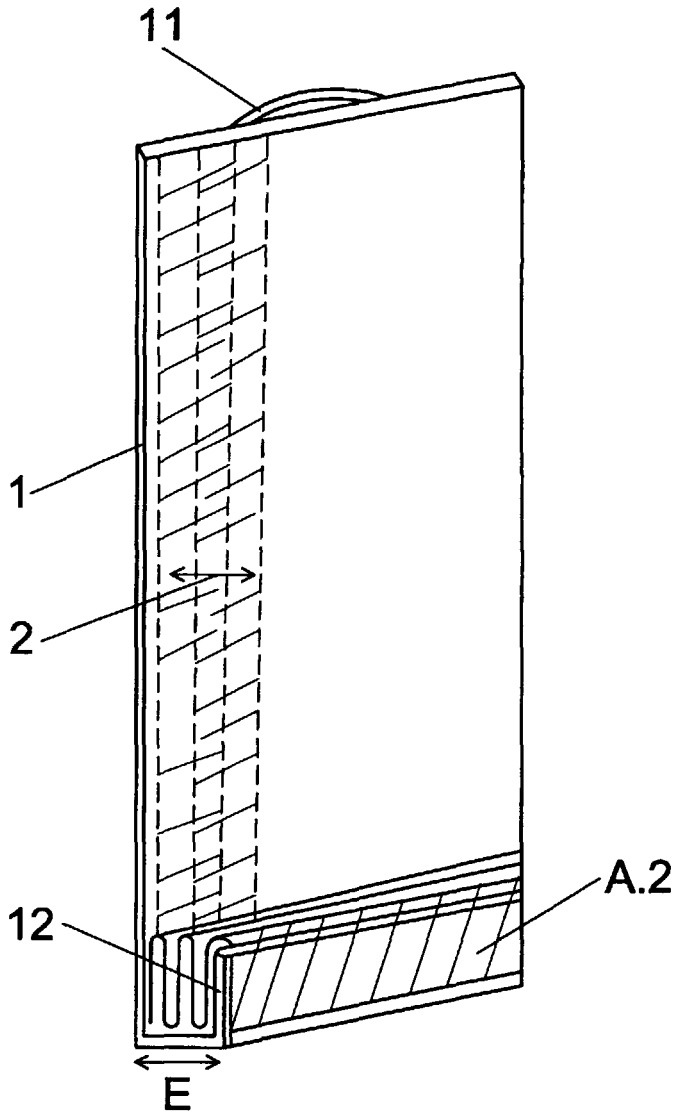

FIG. 12A

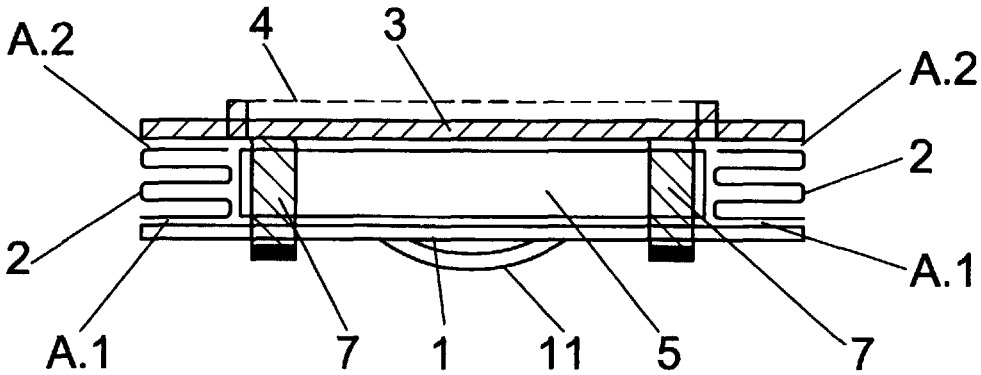

FIG. 12B

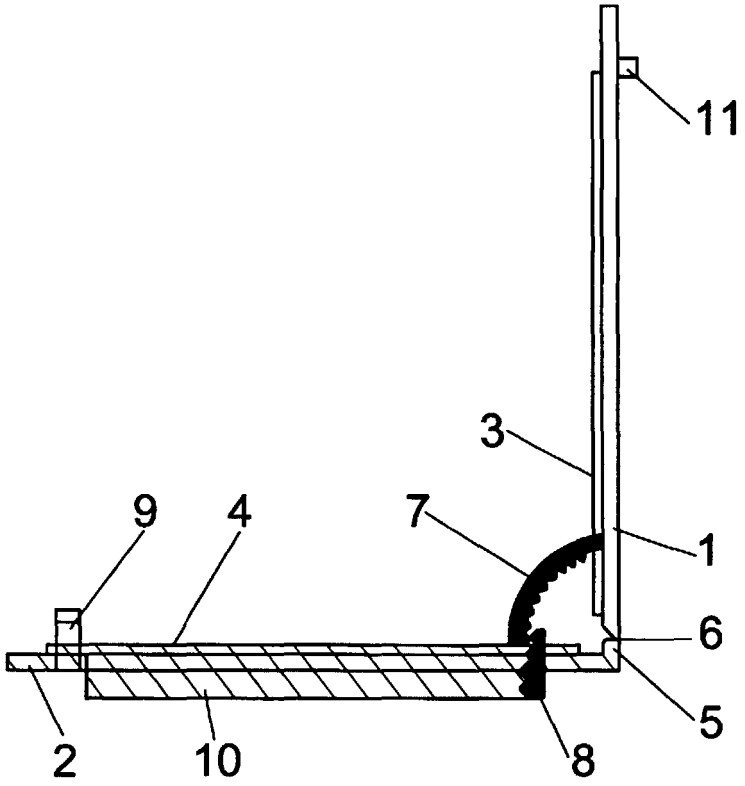

FIG. 13

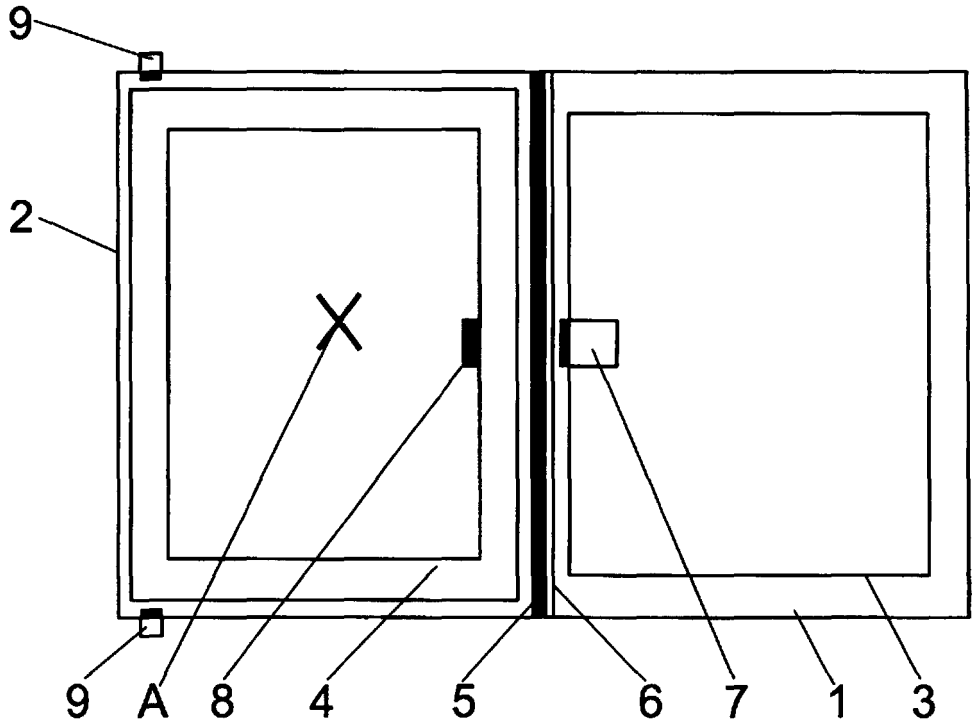

FIG. 13A

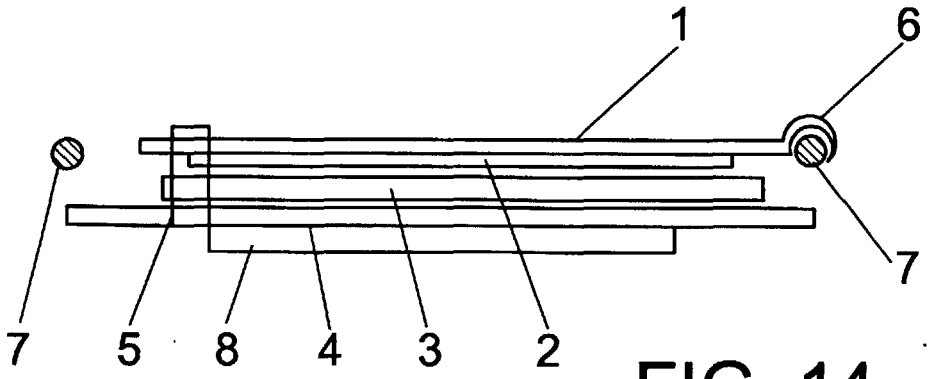

FIG. 14

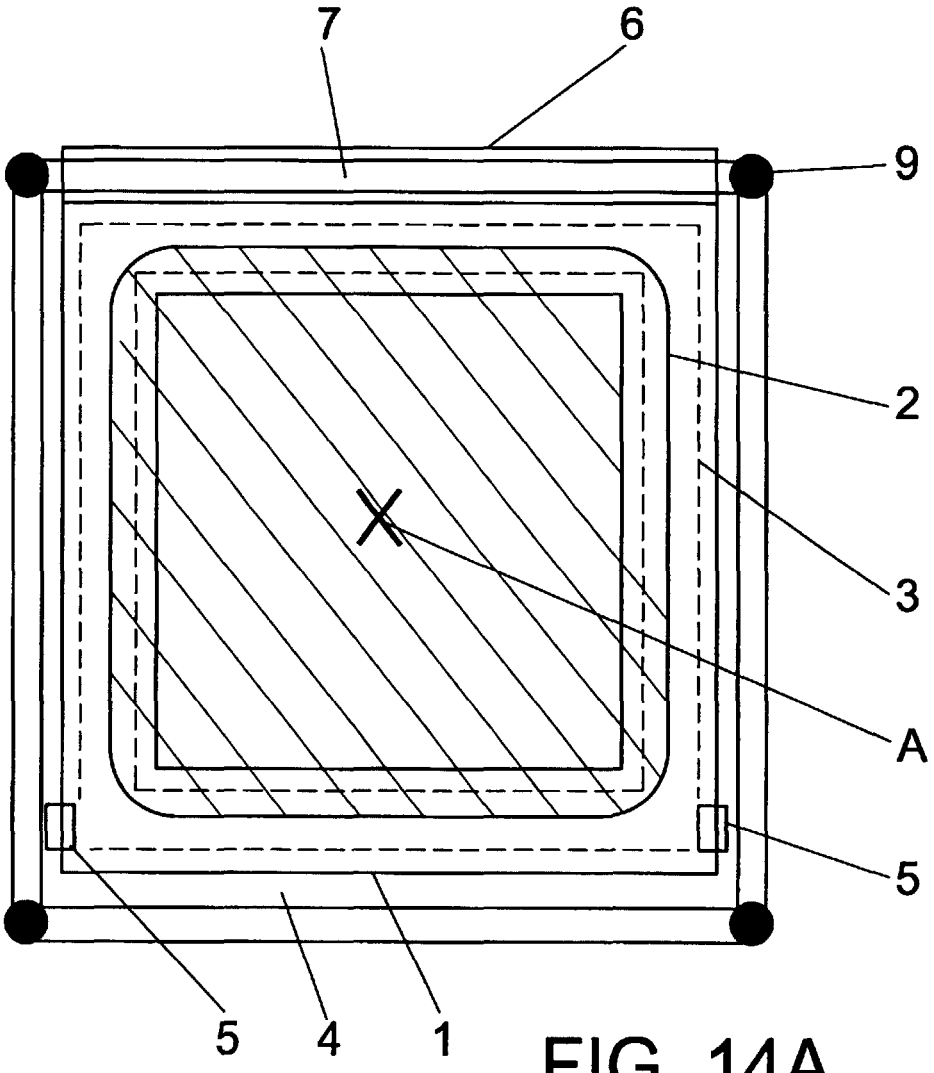

FIG. 14A

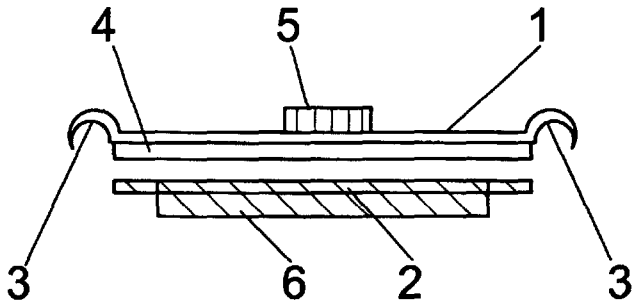

FIG. 15

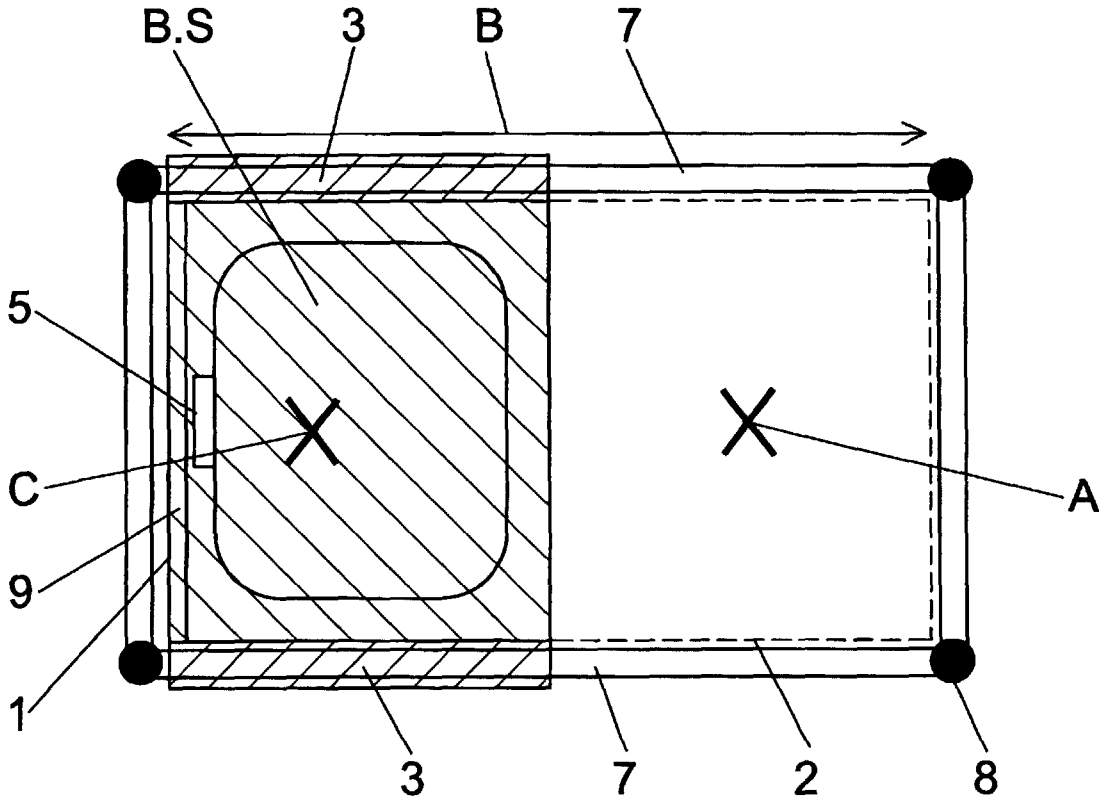

FIG. 15A

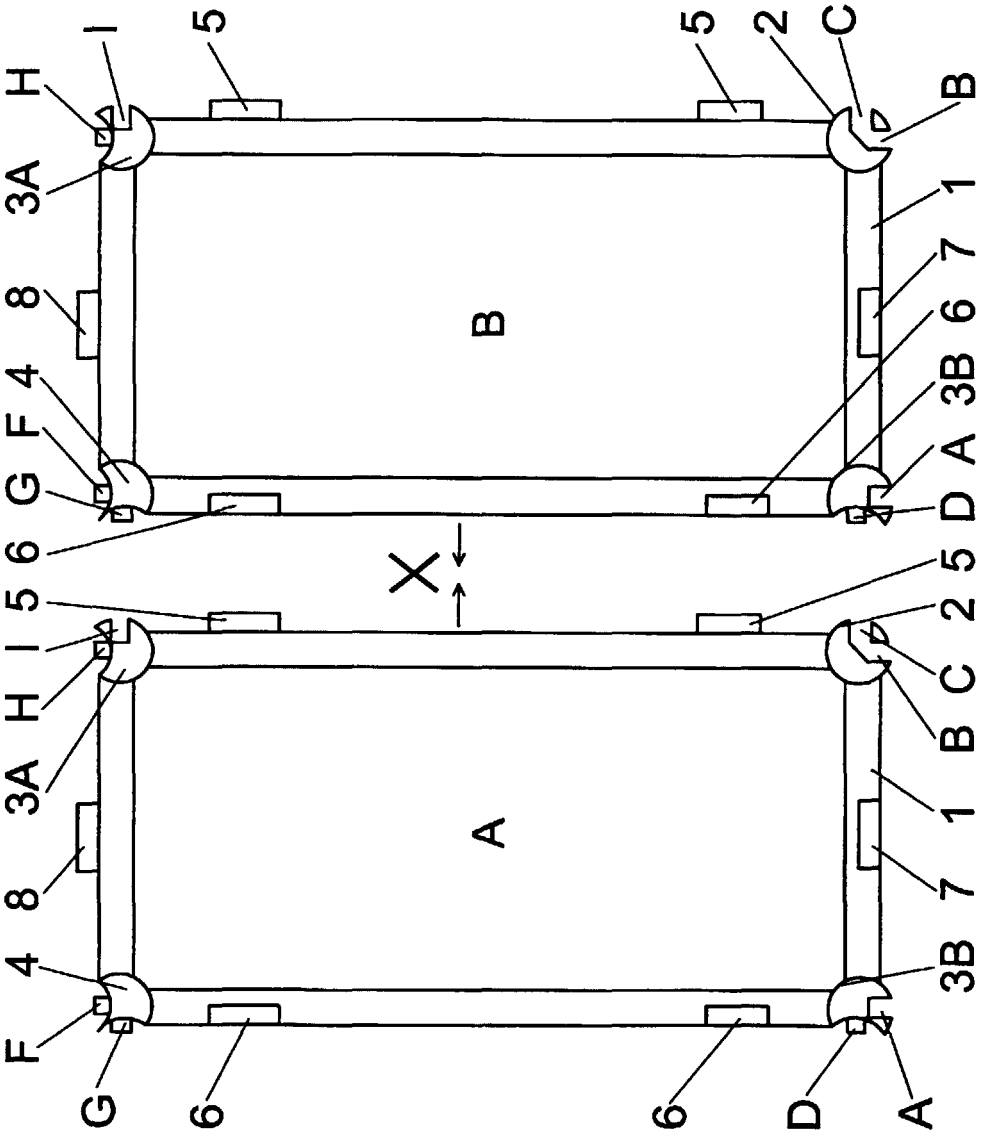

FIG. 16

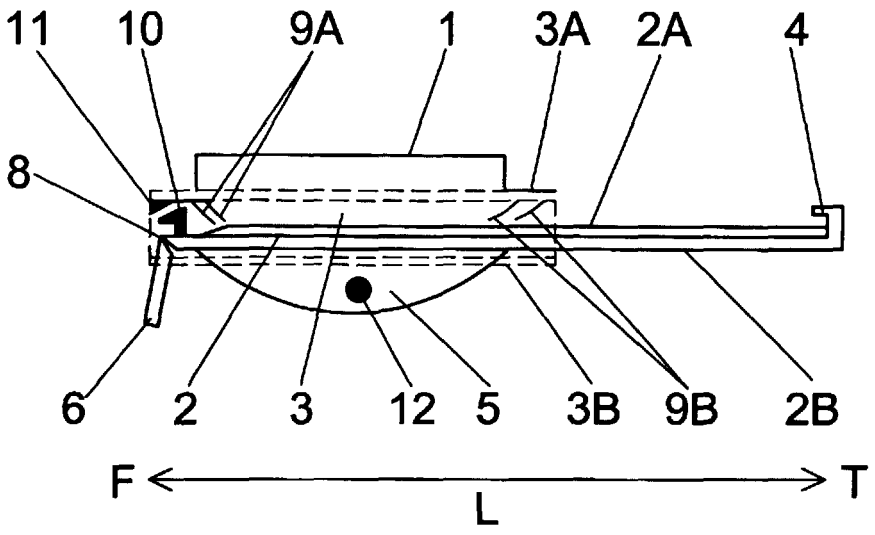

FIG. 17

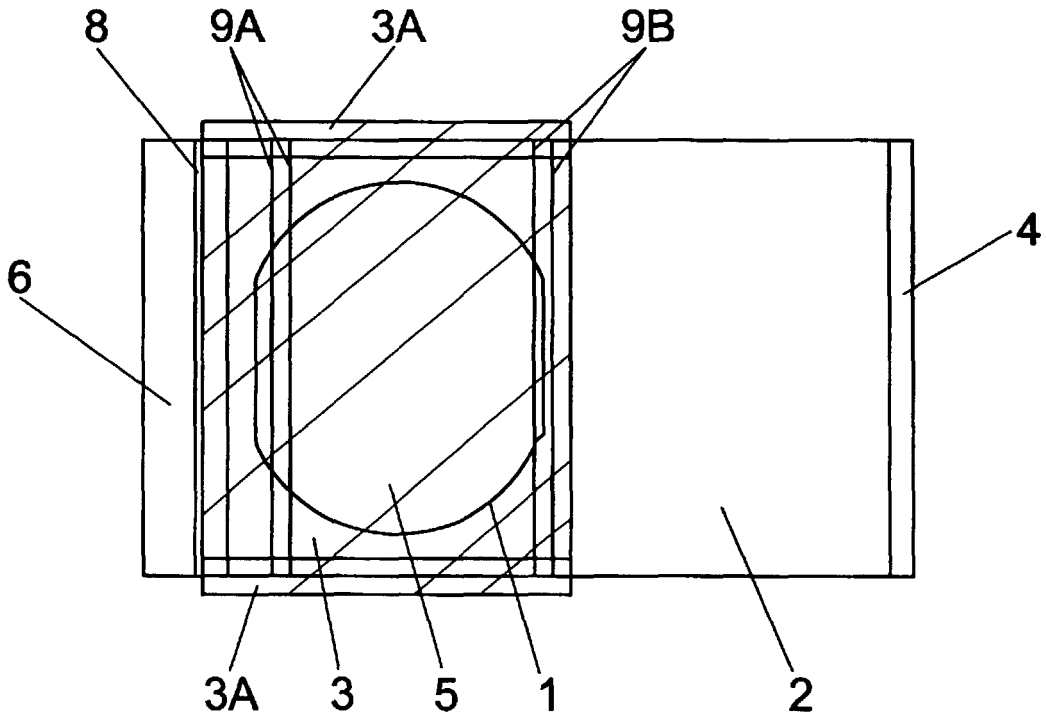

FIG. 17A

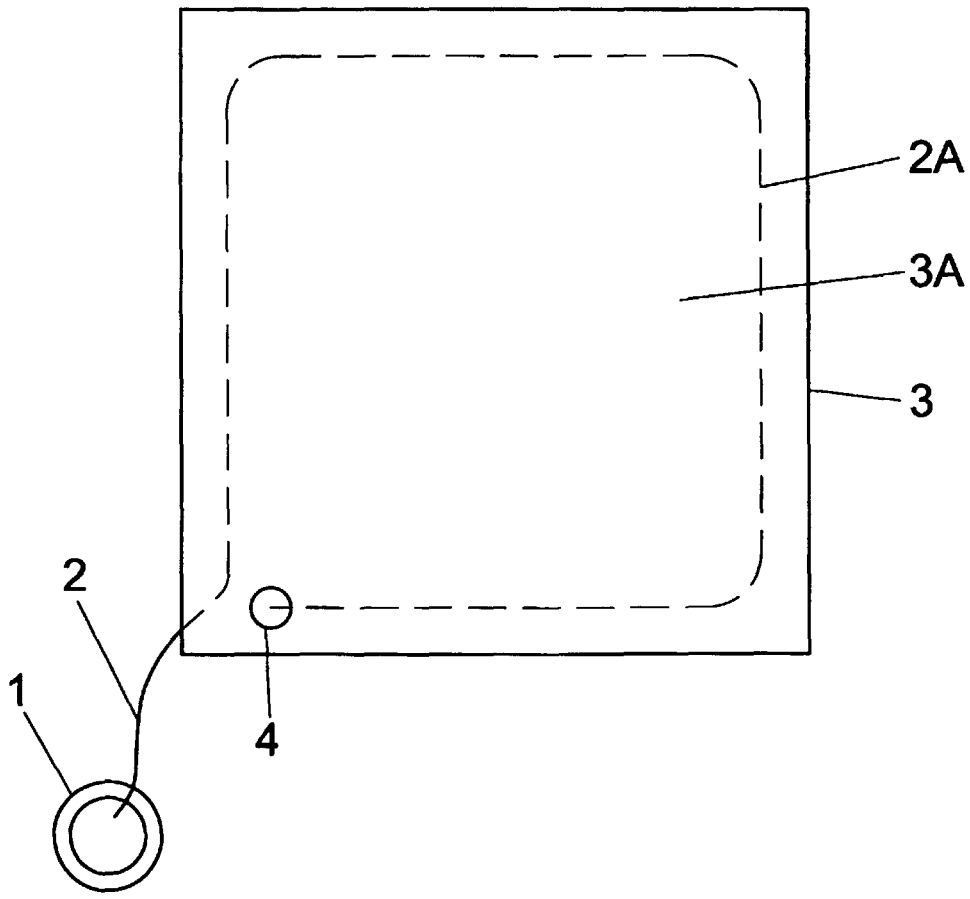

FIG. 18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 99/ 00021

A. CLASSIFICATION OF SUBJECT MATTER [6]:
IPC6 B65D6/28, B65D77/06, B65D43/12, B65D43/16

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC6 B65D7, B65D9, B65D11, B65D15, B65D25, B65D77

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPODOC, PAJ, WPI, CIBEPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP-0590902-A1 (HYDRAIR) 06 April 1994 (06.04.94) *column 3, line 43- column 7, line 39; figures 1-3, 7-11*	1,3,7,13,15
A	EP-0571775-A1 (GOGLIO) 01 December 1993 (01.12.93) *The whole document*	1,3,6,9,14,30,31,32,33,42
A	US-5746343-A (WALTKE et al.) 05 May 1998 (05.05.98) *The whole document*	1,2,3,4,7,13,14,15
A	DE-19735049-C1 (MAIER) 24 September 1998 (24.09.98) *The whole document*	3,34,40,41,42
A	US-3964636-A (REHRIG) 22 June 1976 (22.06.76)*column 3, line 25- column 8, line 57; figures 1-20*	1,3,6,10,30,31,32,33

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

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

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

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 June 1999 (28.06.99)	05 July 1999 (05.07.99)
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Information on patent family members

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